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Calibration of the ZNZ model

Calibration on tidal water levels using WAQAD

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ABSTRACT:

Recently, the National Institute for Coastal and Marine Management (RIKZ) has implemented a set of computational grids for a new suite of high resolution hydrodynamic models. The domains covered by the computational grids vary from the European Continental Shelf, the Southern North Sea, the Dutch coastal area, the Zeedelta area and the Western Scheldt. Each of these grids is nested within the grid on the next larger domain.

The main objective of the present study was to calibrate the new 2Dh hydrodynamic ZNZ model of the Southern North Sea in terms of tidal water levels (astronomic conditions) using the WAQAD calibration tool. As part of the calibration, the results of the calibration experiment were validated for a period with different tidal characteristics, using a set of different stations and by evaluating the performance of the ZNZ model in terms of harmonic analysis.

The depth and bottom friction are defined as calibration parameters. As the result of the calibration, the standard deviation was reduced substantially, especially in the Dutch coastal, whereas the adjustments of the depth and the Chezy was well within a physically realistic margin. For almost all stations in the Dutch coastal area the standard deviation over a one month period is within 0.10 [m]. For the stations along the English coast the reduction of the standard deviation was limited due to the fact that the Northern boundary forcing was excluded from calibration to maintain a direct nesting of the ZNZ model within the DCSM98 model for the whole Northwestern European Shelf.

Evaluation of the calibration results in terms of the vector difference of the 1-, 2-, 4- and 6-daily tidal constituents has shown that in the current set-up of the calibration process, defined as the minimization of a cost-function based on residual water level time series, only the semi-diurnal constituents are adjusted. This conclusion has illustrated the need to extent WAQAD with an option to define a cost-function in terms of amplitude and phase errors to calibrate tidal models as an alternative for the cost-function defined in the time domain.

REFERENCES:

REV.	ORIGINATOR		DATE	REMARKS	REVIEW		APPROVED BY	
02	ten Brummelhuis	[signature]	Dec 15, 1998		vd Boogaard	[signature]	Schilperoort	[signature]
	Gerritsen	[signature]						

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Summary

Recently, the National Institute for Coastal and Marine Management (RIKZ) has implemented a set of computational grids for a new suite of high resolution hydrodynamic models. The domains covered by the computational grids vary from the European Continental Shelf, the Southern North Sea, the Dutch coastal area, the Zeedelta area and the Western Scheldt. Each of these grids is nested within the grid on the next larger domain.

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1 Introduction

1.1 Background

Recently, the National Institute for Coastal and Marine Management (RIKZ) has implemented a set of computational grids for a new suite of high resolution hydrodynamic models. The domains covered by the computational grids vary from the European Continental Shelf, the Southern North Sea, the Dutch coastal area, the Zeedelta area and the Western Scheldt. Each of these grids is nested within the grid on the next larger domain (van Dijk *et al.*, 1998).

By its letter of July 16, 1998, ref. RIKZ/OS-986243, RIKZ requested WL|delft hydraulics to quote for a project to calibrate the 2Dh hydrodynamic model of the Southern North Sea on the new computational grid, see Appendix A. WL submitted its project proposal on August 17, 1998 (ref. MCM6666/ Z2544.95/ls). The contract, ref. RKZ-576, was signed on September 3, 1998.

1.2 Scope and objective

The main objective of the study was to calibrate the new 2Dh hydrodynamic model of the Southern North Sea in terms of tidal water levels (astronomic conditions). In this report, this model will be indicated as ZNZ-model. As part of the calibration, the results of the calibration experiment were validated for a period with different tidal characteristics and by evaluating the performance of the ZNZ model in terms of harmonic analysis. Although the calibration and validation for tidal water levels are the first step to assess the performance of the ZNZ model, a comprehensive analysis of the performance and quality of the ZNZ model is beyond the scope of this study. However, the results of the calibration and validation experiments are made available to RIKZ to facilitate further analysis and evaluation.

The experiments are performed by using WAQAD, RIKZ's system for the calibration of WAQUA and TRIWAQ models. This system is already operational at WL|delft hydraulics. Furthermore, a number of MATLAB-routines were made available by RIKZ for postprocessing of the results.

The products of the study are

- a report in which the set up and results of the calibration and validation experiments are discussed and substantiated in detail,
- the calibrated depth and bottom friction field in digital format,
- Excel sheets with the results of all harmonic analyses.

1.3 Contents of this report

This report describes the set-up and results of the various calibration and validation experiments. Based on extensive experience, the choices made with respect to the specification of a calibration process are known to be a crucial factor. Therefore, this aspect has given thorough attention. In Chapter 2 these choices and the arguments used are explicitly mentioned to enable a clear and objective interpretation of the results. The calibration of the ZNZ model is discussed in Chapter 3, the validation in Chapter 4 and the evaluation in terms of harmonic analysis in Chapter 5. Based on the results of all these experiments, the 'final' result of the calibration will be deduced, i.e. the depth and Chezy field that, in combination with the existing ZNZ model definition give an optimal performance. Finally, the conclusions of this study are summarized in Chapter 7 where also some recommendations for future research and applications on model calibration are given.

The calibration and validation experiment have generated a large number of data. In the main text of this report, only those figures are included that are representative and supportive to the items discussed in the main text. This is done with the intention to make the main text a readily accessible and , more or less, self-contained report. The remaining results can be found in the Appendices of this report and the Excel sheets.

1.4 Project team

The presently reported study has been carried out by dr. Herman Gerritsen (project leader), dr.ir. Paul G.J. ten Brummelhuis and Dick Verploegh. Dr. Henk F.P. van den Boogaard was in charge of reviewing this report.

2 Data selection and parameter definition

2.1 Introduction

In this chapter the specification of the calibration of the ZNZ model is described. In order to facilitate direct nesting of the ZNZ model in DCSM98, the calibration has to be set up in such a way that the smoothness of the spatial fields in model definition (depth, bottom friction) and, by consequence, the smoothness of the model state in the vicinity of the open boundaries is satisfied. This implies that

- the boundary forcing of the ZNZ model that is extracted from the DCSM98 computation will not be calibrated,
- the adjustment of the depth and the bottom friction near the open boundaries should be small.

In mathematical terminology, the specification of the calibration boils down to the definition of the cost function that is to be minimized and the variables this cost function is assumed to depend upon. When using WAQAD, this includes the specification of the following items:

- *the model target:* the selection of the measurement stations, the time interval and the standard deviation of the measurement error per station,
- *the calibration parameters:* the parameterization of the uncertainties with respect to the (initial) depth and the bottom friction,
- *the constraints:* the definition of a penalty function.

In practice, model calibration starts with the formulation of the intended use of the model, *i.e.* the definition of the modelling objective. In this study, the objective of the ZNZ model is an optimal representation of the astronomical tide (*i.e.* water levels) within the entire model domain. The ZNZ model will be considered as a 'stand alone' model, i.e. possible requirements of nesting more detailed models in the ZNZ model are not taken into account. An important example of such a nested model is the existing Kuststrook model. Therefore, in the evaluation of the calibration results, some comments will be made with respect to the nesting of the Kuststrook within the ZNZ model.

2.2 Data selection

Observations of the astronomic tide are available in 40 stations distributed over the model domain. This set has to be split into a calibration set and a validation set. The arguments to compile the calibration set and the validation set are summarized below.

- Some of the 40 stations are beyond discussion to be included in the calibration set because they form the *pin-points* of the tidal model. These stations are: North Shields, Lowestoft, Vlissingen, Hoek van Holland, K13a, den Helder, Ekofisk and Helgoland.
- The stations Westhinder and Euro0 (in combination with Vlissingen) will be used to calibrate the tidal forcing in the Dutch coastal area. Oostende and OSXI will be used for validation.
- The stations further North along the Dutch coast will alternately be part of the calibration set (that is IJmuiden, den Helder, Harlingen, Delfzijl) and the validation set (Scheveningen, Petten, Texel Noordzee, West Terschelling, Schiermonnikoog). Both the calibration and the validation consist of stations at open sea and coastal stations.
- Considering its location Helgoland is included in the calibration set with Cuxhaven as its supporting coastal station. By consequence, Bremerhaven is used for validation.
- Although Esbjerg is in general not easily reproduced by common tidal models this station is used for calibration because of the limited availability of alternative stations: Hanstholm cannot be used given its location close to the open Northern boundary.
- For the selection of the stations in the central part of the southern North Sea CD09 and CD08 are used for calibration and CD12 and CD14 for validation. The arguments are that CD09 is preferred for calibration because of the clear presence of the interaction of multiple tidal components which is substantially smaller in CD14. CD08 was selected based on its more southern location.
- Auk Alpha or Ekofisk has to be used for calibration, the other for validation. Given the rather similar differences between the observations and the computed water levels according to the initial model set-up, which one to chose for calibration is not very relevant.
- Finally, the adjustment of (especially) the depth and the bottom friction near the open boundaries must be small to guarantee the smoothness in the model definitions between the DCSM98 and the ZNZ model. This implies that the stations closest to these boundaries (Aberdeen and Hanstholm in the North, Portsmouth and Cherbourg in the West) need to be included in the validation set. This, in its turn, makes that Newhaven and Dieppe are used for calibration.

The measurement stations in the calibration set and the validation set are indicated in Fig. 2.1 and Fig. 2.2, respectively.

The calibration set has a substantial overlap with the calibration set used in DATUM-2 (RIKZ *et al.*, 1998). This is not intentional, the arguments listed above have led to this specification.

For the specification of the standard deviation of the measurement error in the stations in the calibration set, a value for the standard deviation of the measurement error σ^{obs} of 0.15 [m] has been the starting point. This average value for σ^{obs} is adjusted for those stations where the standard deviation in the initial model set-up, σ^{ini}, or the tidal amplitude substantiallly deviates from the standard deviation and tidal amplitude, averaged over all stations. In addition, in order to limit the impact of the residuals in the North-eastern part of the model domain where the model is known to be less accurate because of the less fortunate location of the open boundary, σ^{obs} is also increased somewhat. A possible bias is not used as an argument to adjust the standard deviation of the measurement error. By means of the WAQAD-option OBSMEAN the cost-function is based on the residual time series after the bias has been removed. In other words, in this case the cost-function is based on the standard deviation, not on the root mean square error.

Calibration set	(m,n)-co-ordinates	σ^{ini} [m]	σ^{obs} [m]	Validation set	(m,n)-co-ordinates	σ^{ini} [m]
				Aberdeen	(267, 5)	0.096
North Shields	(278, 33)	0.118	0.15	**Leith**	(295, 18)	0.211
Lowestoft	(314, 66)	0.097	0.10	**Innerdowsing**	(279, 54)	0.143
Sheerness	(374, 67)	0.152	0.20			
Newhaven	(405, 78)	0.200	0.25	**Bassurelle**	(391, 96)	0.218
				Portsmouth	(422, 76)	0.258
				Cherbourg	(432, 107)	0.174
Dieppe	(397,114)	0.289	0.30			
Calais	(368, 97)	0.197	0.25	**Dover**	(375, 83)	0.195
Westhinder	(349, 91)	0.242	0.25	**Oostende**	(342, 97)	0.175
Vlissingen	(327,109)	0.144	0.15			
Euro0	(302, 87)	0.074	0.10	**OSXI**	(318, 98)	0.114
HoekvanHolland	(283, 98)	0.112	0.15	**Scheveningen**	(275,100)	0.113
IJmuiden	(264,100)	0.121	0.15	**Petten**	(255,100)	0.124
Den Helder	(241,103)	0.099	0.15	**Texel Noordzee**	(229, 98)	0.120
K13A	(244, 78)	0.059	0.10			
Harlingen	(201,128)	0.149	0.15	**WestTerschelling**	(196,104)	0.162
Delfzijl	(123,138)	0.174	0.20	**Schiermonnikoog**	(148,111)	0.194
Cuxhaven	(46, 95)	0.121	0.15	**Bremerhaven**	(59, 146)	0.267
Helgoland	(82, 84)	0.227	0.25			
Esbjerg	(59, 52)	0.426	0.25			
CD08	(202, 83)	0.066	0.10	**CD12**	(161, 78)	0.146
CD09	(193, 51)	0.063	0.10	**CD14**	(213, 61)	0.060
Ekofisk	(188, 20)	0.049	0.10	**Auk Alpha**	(204, 21)	0.034
				Hanstholm	(66, 6)	0.095

Table 2.1 The measurement stations used for calibration and validation. Also denoted are *(i)* the (m,n) co-ordinates of these stations, *(ii)* the standard deviation according to the initial model set-up and, for the stations in the calibration set, *(iii)* the standard deviation of the expected measurement error.

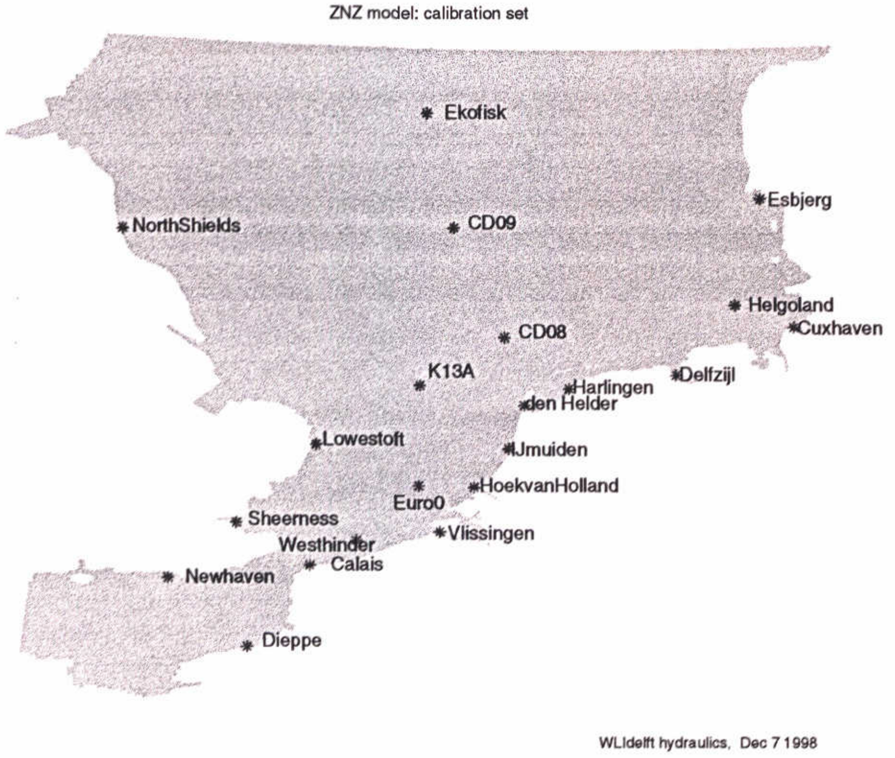


Fig. 2.1 The measurement stations in the calibration set.

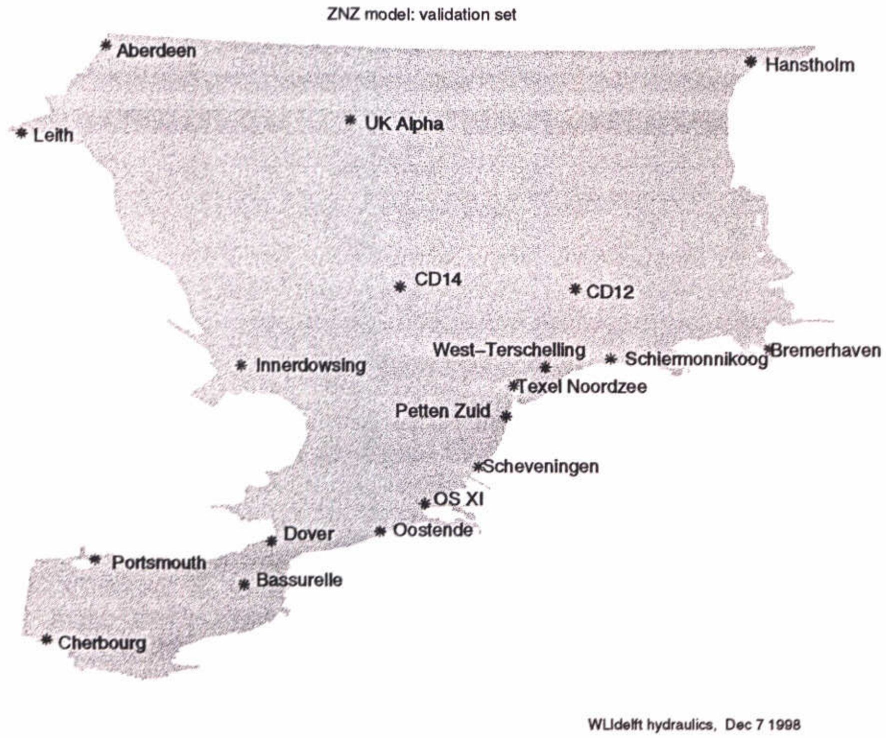


Fig. 2.2 The measurement stations in the validation set.

2.3 The initial depth

2.3.1 Introduction

In recent years, a number of models of the Southern part of the North Sea have been set up. For example DCSM96, DCSM98, the curvilinear Promise model and the Kuststrook model. DCSM98 (RIKZ *et al.*, 1998) and the Promise model (ten Brummelhuis, 1998) are calibrated using the WAQAD system. This implies that the present calibration of the ZNZ model must be seen in line with these activities. In this section, the comparison of the initial depth of the ZNZ model and the calibrated depth of DCSM98 and the Promise model is briefly discussed. Comparison with the depth of the Kuststrook model is not at issue since this depth is included in the gridded depth of ZNZ.

2.3.2 Characterization of the initial ZNZ depth

The initial depth of the ZNZ model is derived from the calibrated DCSM98 depth, the calibrated Kuststrook model and the recently updated bottom topography available at the Directorate North Sea (DNZ) of Rijkswaterstaat (van Dijk *et al.* (1998), Alkyon (1998)). In order to assess the quality and the differences with the existing gridded depth of the southern North Sea the initial ZNZ bathymetry is compared with the above mentioned gridded depths.

Comparison with the DCSM98 bathymetry

A comparison of the initial ZNZ bathymetry and the calibrated DCSM98 bathymetry brings up the following differences.

- In the ZNZ bathymetry, the deepest parts in the North-western part of the model are less local. This is illustrated by *(i)* the maximum depth near Aberdeen, *(ii)* between Leith and North Shields and *(iii)* in Devil's Hole and Inner and Outer Silver Pit. All the maximum depths are less pronounced compared to the DCSM98 bathymetry.
- The off-shore gradient of the depth is less gradual in the ZNZ model, especially in the Danish coastal area. This cannot be explained solely by the increased resolution of the ZNZ model grid but is expected also to be the result of inclusion of recent measurements,
- Finally, some minor features show up:
    - in the approach to Dover Strait from the Southwest, the maximum of the depth near the boundary is smaller and less pronounced than in DCSM98,
    - in the ZNZ bathymetry a gully is observed South of the Dogger Bank,
    - Northeast of the East Anglian coast, the bathymetry shows a regularly varying depth. This is in agreement with the known presence of banks in that area.

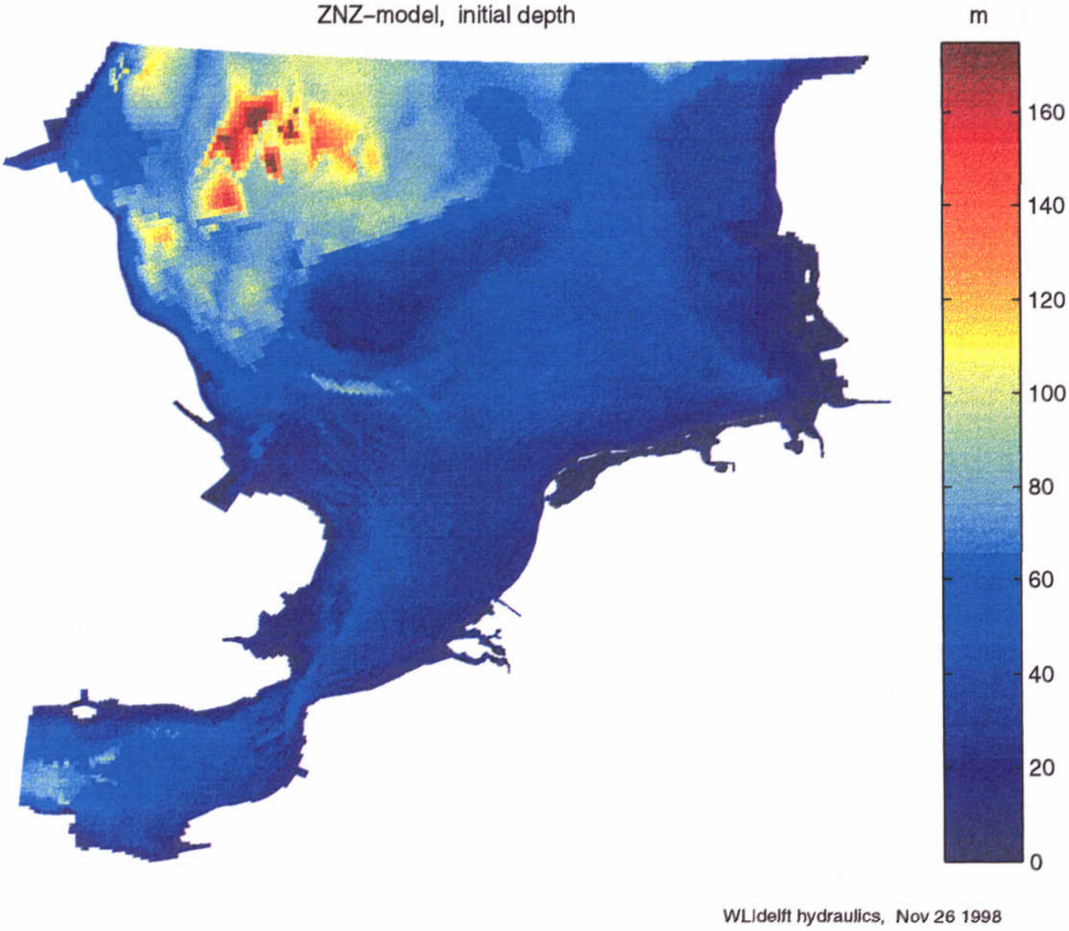


Fig. 2.3 The depth according to the initial set up of the ZNZ model

Comparison with the PROMISE bathymetry

The Promise model is defined on a curvilinear grid that has been set up to account for an accurate description of the transport of suspended particulate matter (SPM) through Dover Strait and in the coastal areas of the European continent and East Anglia. It is based on the gridded depth of DCSM96 and the bathymetry made available by Ifremer for use in the Promise project. The resolution of the PROMISE grid is approximately 1/3 of the resolution of the ZNZ grid.

A comparison with the calibrated Promise bathymetry shows:

- the depth gradient in the coastal zones is greater in the initial ZNZ depth, especially in the Wadden Sea and the Danish coastal area;
- in the North-western part of the model domain, the depth in the initial ZNZ bathymetry is greater;
- the initial ZNZ bathymetry shows a larger locally deeper area around the Dogger Bank.

2.4 The initial bottom friction field

The initial bottom friction is assumed to be constant over the entire model domain except for the three rectangular boxes in the computational domain where a different but still constant value is prescribed. The spatial variability of the Chezy field is represented in Fig. 2.4.

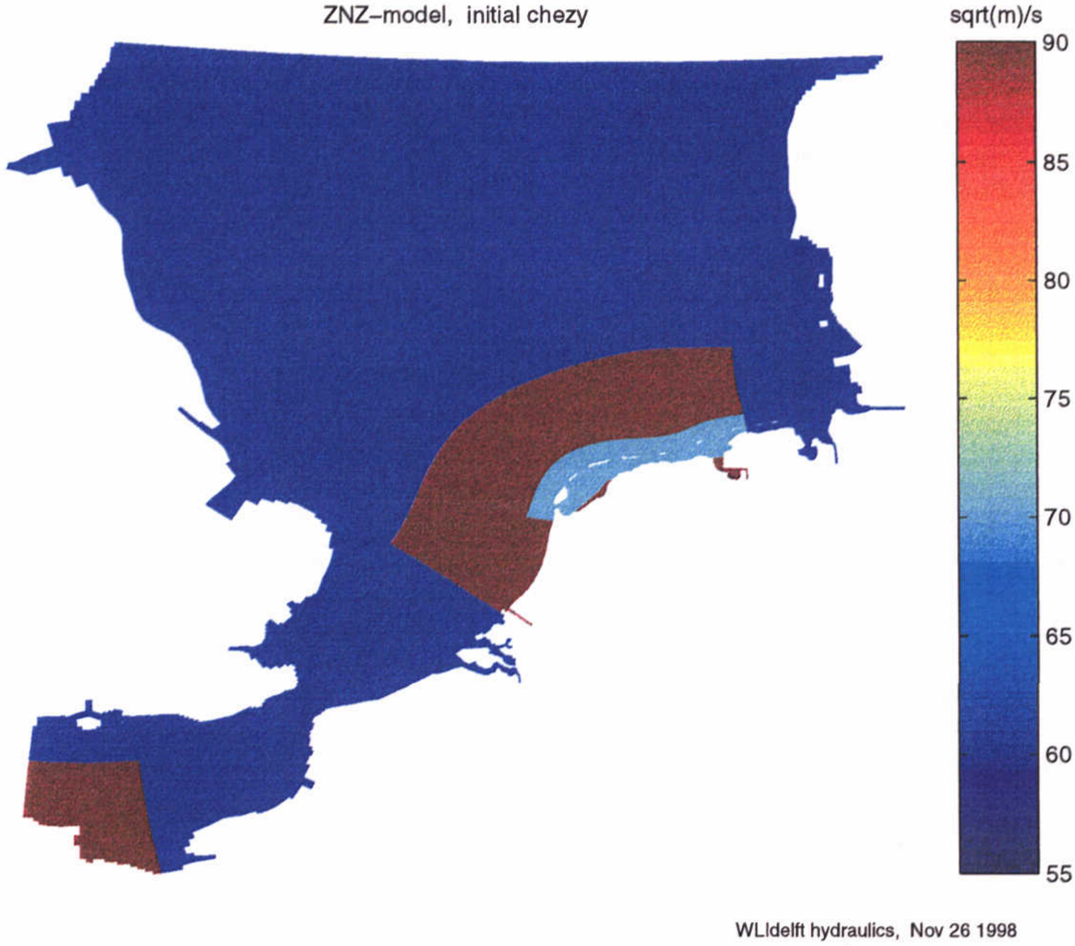


Fig. 2.4 The Chezy field according to the initial set up of the ZNZ model.

2.5 The initial gradient

2.5.1 The initial depth gradient

With the specification described in section 2.2, a WAQAD run is made to determine the initial depth and bottom friction gradients.

The initial depth gradient, see Fig. 2.5, illustrates the sensitivity of the model performance for variations in the local depth. Especially in the Dutch coastal area and South of Dover Strait the magnitude of the depth gradient is at maximum. On average, the gradient is positive, indicating that the depth is too small.

In Fig. 2.5 a contour with local maxima of the depth gradient is found amidst the Kuststrook domain parallel to the Northern boundary of the Kuststrook domain. This is caused by the local maxima of the Chezy field in cross-shore direction, see Fig. 2.4. The discontinuity of the Chezy field in long-shore direction near Rotterdam is reflected by the oscillating behaviour of the local depth gradient. Although there are no reasons to expect that this may give rise to instabilities in the adjoint computation (no sudden changes in the prescribed depth, Courant numbers all below 15 (see van Dijk *et al* (1998)), this behaviour of the gradient per grid point should be noted and monitored to avoid unnecessary problems in the calibration phase itself. The support points of the triangulation will be chosen in such a way that the area in which the discontinuity is noted is enclosed in one triangle. Smoothing of the initial Chezy field is not considered to be necessary.

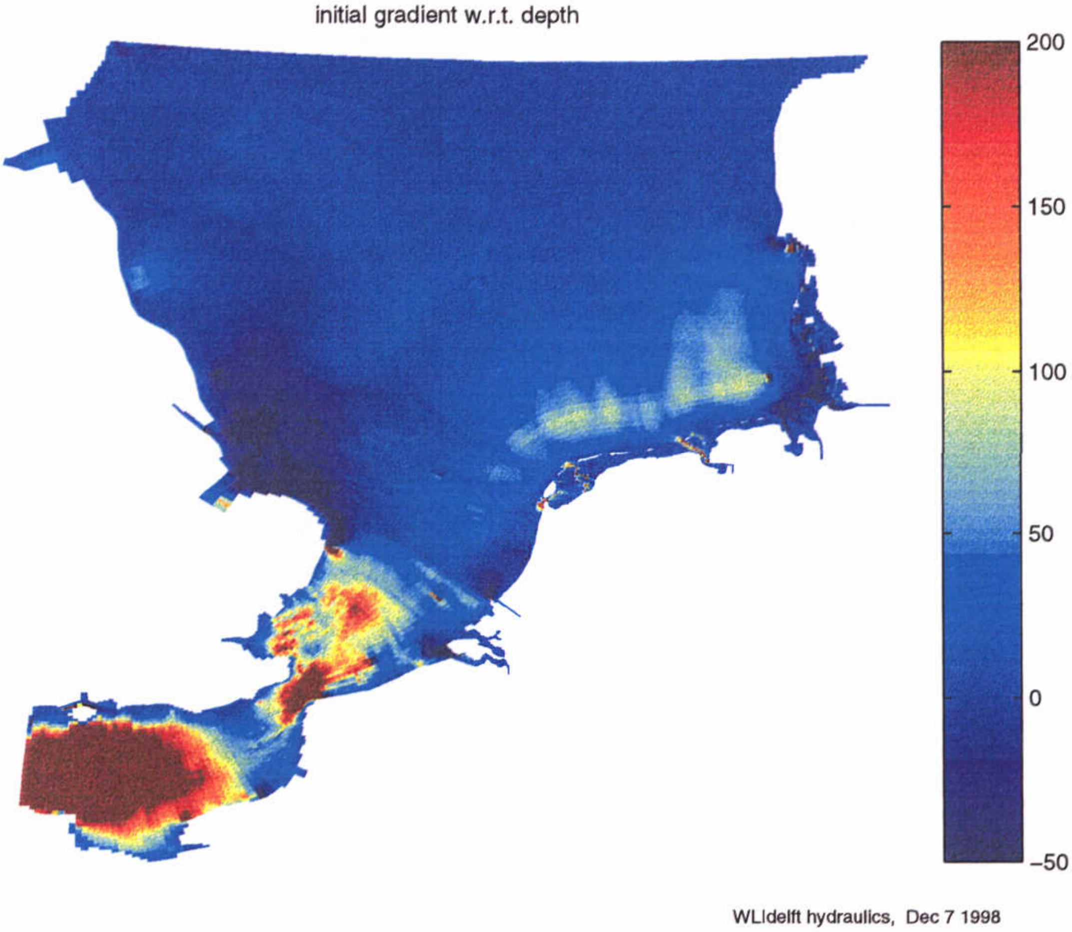


Fig. 2.5 The initial depth gradient

Finally, the large depth gradient in the vicinity of the Western boundary condition is noted, both for the depth and the bottom friction. This might point at some consistency problem when nesting the ZNZ model in DCSM98. It might also give rise to local parameter adjustments in this area. Given the objective of the calibration, this should be avoided by using the penalty option.

2.5.2 The initial bottom friction gradient

The spatial variation of the initial bottom friction gradient is, roughly, the same as for the initial depth gradient although the impact of bottom friction variations is substantially smaller than depth variations, especially in the North-western part of the model domain. The discontinuities in the Chezy field are still clearly recognizable in the initial bottom friction gradient, Fig. 2.6, but less pronounced compared to the initial depth gradient, Fig. 2.5. All the items that have been addressed in section 2.5.1 are, mutatis mutandis, also valid for the bottom friction gradient.

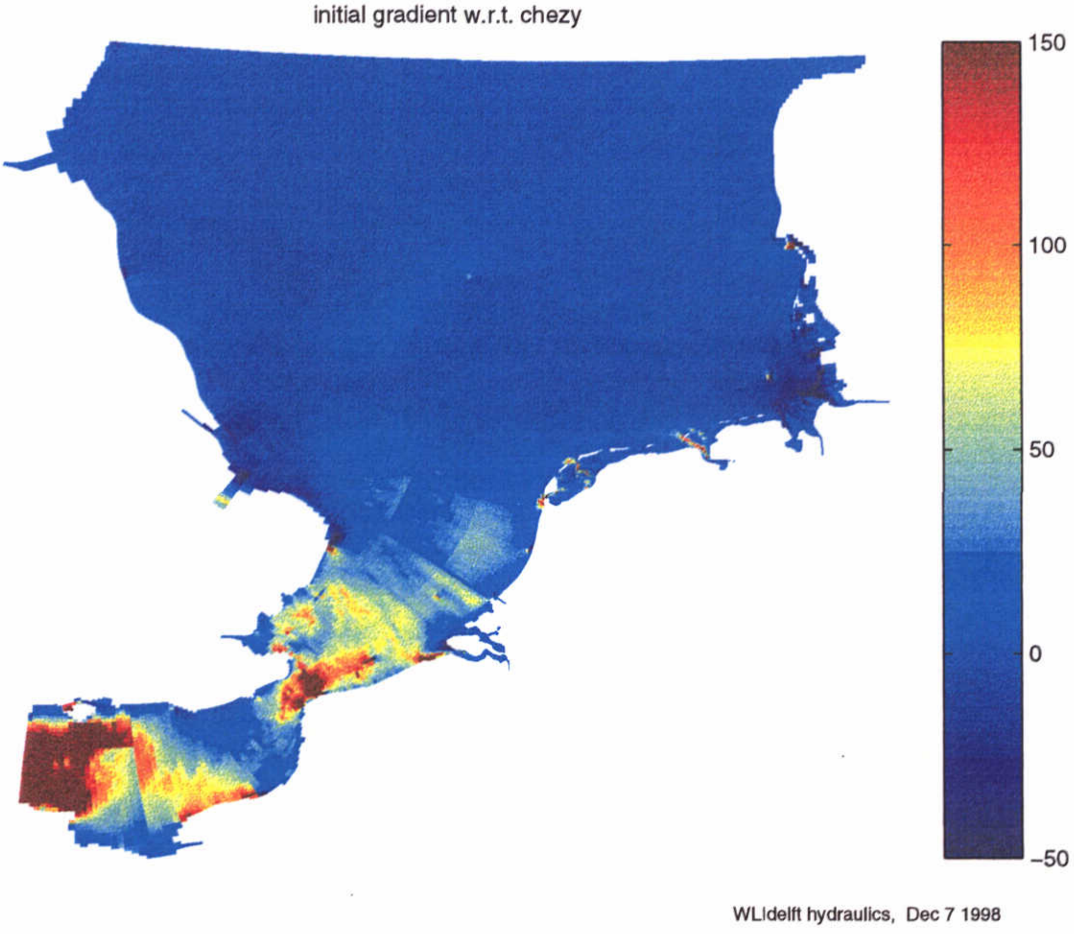


Fig. 2.6 The initial bottom friction gradient

2.6 Parameterization of the uncertainty in the depth

The definition of the set of support points of the triangulation to parameterize the uncertainty in the depth is based on the following considerations:

- A number of support points is located along the seaward boundary of the Kuststrook domain, that is at $n=77$ to be able to discriminate between the correction within and outside the domain of the Kuststrook model. The triangulation ensures the continuity of the adjustments across the seaward boundary of the Kuststrook domain.
- Because the initial gradient is rather symmetric with respect to a line amidst Dover Strait, the line of supporting points along the open boundary of the Kuststrook model is extended to the South. This leads to a more or less symmetric triangulation of the Southern part of the model domain.
- In the Belgian and Dutch coastal area 7 triangles are defined, each covering a segment of the Kuststrook model domain. The reason not to discriminate between the near-shore and the off-shore area is that the bathymetry of the Kuststrook model has already been optimized for the measurement stations within the Kuststrook domain.
- In the physical domain, the triangulation in the English coastal area is less detailed compared to the triangulation in the Dutch coastal area. This is due to the fact that the number of measurement stations in the Dutch coastal area is much larger.
- Calibration of the North-eastern part of the model domain is not the main goal of the calibration. Introducing some degrees of freedom to adjust the depth (and the bottom friction) is done only to facilitate a smooth adjustment over the entire model domain.
- The depth parameters in the support points at the Northern and Western open boundary will not be adjusted to guarantee a smooth connection with the gridded depth of DCSM98 in which the ZNZ model is nested. This can be accomplished by using WAQAD's NOPAR option.
- The initial depth gradient in the Wadden Sea has opposite signs: in the near shore area the gradient is negative whereas it is positive along the Northern boundary of the Kuststrook domain. A positive and negative adjustment of the depth is accounted for by the support points on the continent. However, due to the fact that the interpolation over the triangles is done in the computational domain and the computational grid has a high density and stretching, the parameter values in the support points on the continent may become physically unrealistic.
- The remaining support points outside the computational domain are required to be able to adjust the depth in the coastal zones. Given the large stretching of the curvilinear grid, the co-ordinates of these support points may sometimes be far outside the model domain.

The total number of parameters to calibrate the depth is 25. The triangulation in the physical domain is shown in Fig. 2.7 and in the computational domain in Fig. 2.8.

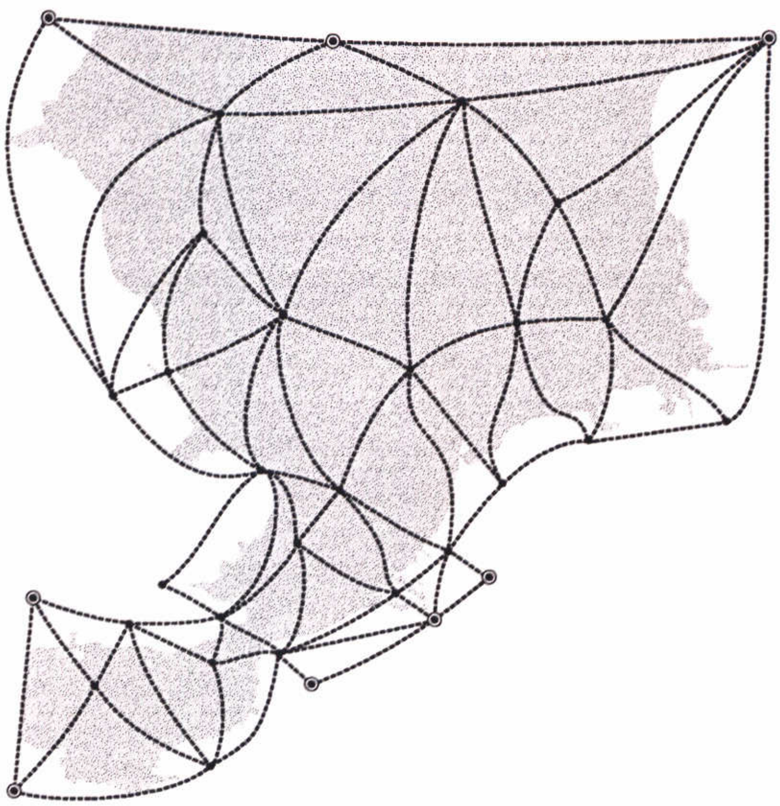


Fig. 2.7 The triangulation of the depth. The location of the support points and the triangles on land are only indicative. In the support points indicated by ◉ the NOPAR option is used.

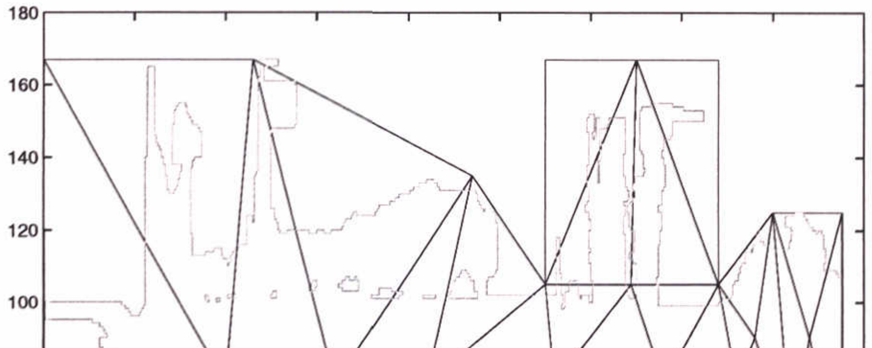


Fig. 2.8 The triangulation for the depth in the computational domain.

2.7 Parameterization of the uncertainties in the bottom friction

The initial bottom friction gradient in the area North of the Wadden Sea is rather uniform, at least it shows less variation compared to the initial depth gradient. Hence, the parameterization of the uncertainties in the bottom friction may be based on a less detailed triangulation, although in practice, both triangulations are taken the same. A positive side effect is the reduction of the number of calibration parameters. The triangulation shown in Fig. 2.9 illustrates that in the upper part of the model domain some of the triangles are combined whereas the triangulation in the lower part of the model domain the triangulation is the same as for the depth.

Since the variation of the initial bottom friction gradient in the off-shore direction is smaller than that of the initial depth gradient, the NOPAR-option can be used for some of the calibration parameters situated in support points on the mainland. In total this gives rise to 17 parameters to calibrate the bottom friction.

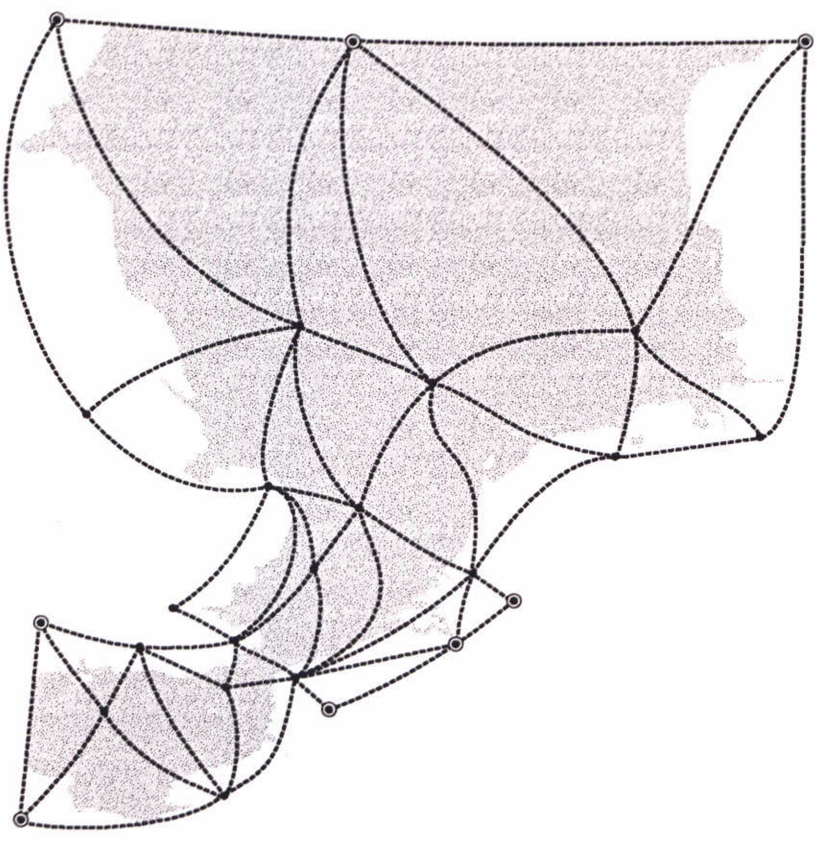


Fig. 2.9 The triangulation of the bottom friction. The location of the support points and the triangles on land are only indicative. In the support points indicated by ◉ the NOPAR option is used.

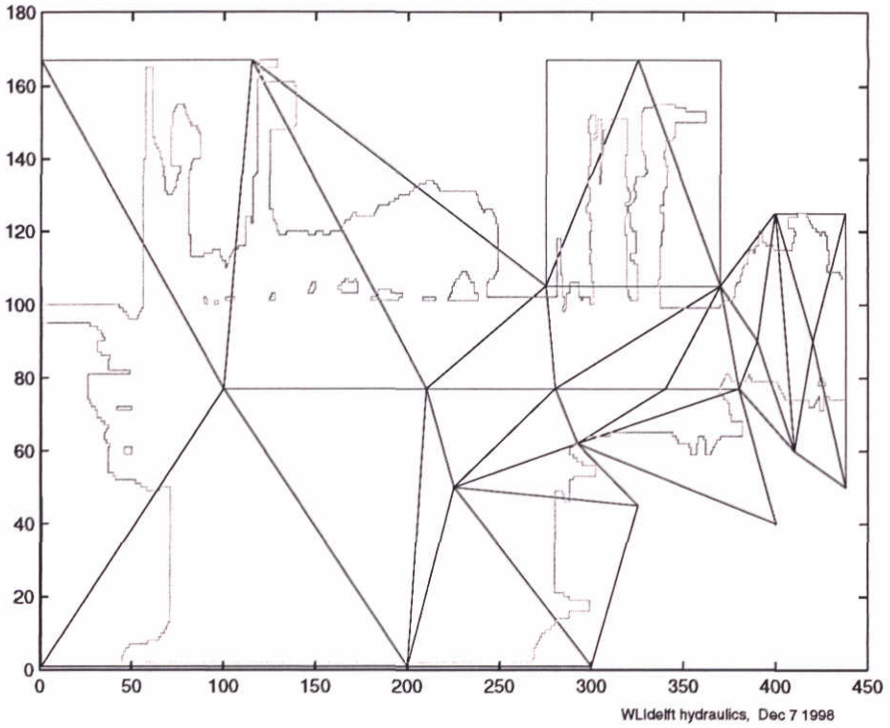


Fig. 2.10 The triangulation for the bottom friction in the computational domain.

With the definition of *(i)* the measurement stations in the calibration set, *(ii)* the standard deviation of the measurement errors and *(iii)* the N_{par} parameters by which the uncertainties in the depth and to bottom friction are parameterized, the calibration of the ZNZ model is now formulated in terms of the minimization of the cost-function $J(p)$ defined as the sum of the weighted square of the water level residuals in the measurement stations, see Eq. (2.1)

$$J(p) = \sum_{m,n,k} \frac{\left[\hat{h}^k_{m,n} - h^k_{m,n}(p)\right]^2}{\sigma^2_{m,n}} \qquad (2.1)$$

with

$\hat{h}^k_{m,n}$	water level measurement at location *(m,n)* at time *k*,
$h^k_{m,n}(p)$	model equivalent of $\hat{h}^k_{m,n}$,
p	N_{par} -dimensional vector of calibration parameters,
$\sigma_{m,n}$	standard deviation of the measurement error at location *(m,n)*.

2.8 The penalty option

In practice it is often noted that, in the final stage of the iteration process, a small reduction of the general standard deviation is found at the cost of a large, unrealistic, adjustment of one or two calibration parameters. The penalty option is introduced to prevent large, unrealistic parameter adjustments given the assumed accuracy of the initial depth and/or bottom friction field. This is achieved by adding a term to the cost function defined in Eq. (2.1) to penalize large parameter adjustments. The augmented cost-function now reads

$$J(p) = \sum_{m,n,k} \frac{\left[\hat{h}^k_{m,n} - h^k_{m,n}(p)\right]^2}{\sigma^2_{m,n}} + \sum_{i=1}^{N_{par}} \frac{\left[p_i - p_i^{ini}\right]^2}{(\sigma^i_{par})^2} \tag{2.2}$$

with

p_i — i-th component of the N_{par} - dimensional vector of calibration parameters p,

p_i^{ini} — the initial guess for p_i,

σ^i_{par} — standard deviation of p_i.

Although the introduction of a penalty is conceptually straightforward, in practice the definition of a penalty function is less trivial. In the present study, in which especially the initial depth is assumed to be rather accurate, the use of a penalty function is appropriate. In this section an attempt is made to derive suitable values for σ^i_{par}, *i.e.*, the standard deviation of the calibration parameters with respect to the depth and the bottom friction. The penalty function should counterbalance a small reduction of the general standard deviation that can only be obtained at the cost of unrealistically large adjustments of the calibration parameters. This requires that ranges for

- the adjustments of the depth and bottom friction which may be considered to be acceptable from a physical point of view given the a priori knowledge of the initial depth and bottom friction,
- the reduction of the general standard deviation in the final stage of the calibration that is assumed to be caused by physically unrealistic adjustments of the calibration parameters

are specified. Suitable values for these ranges are introduced in the next paragraph.

From the initial computation it is found that the general standard deviation of the residuals is 0.17 [m] which corresponds to a cost-function value of approximately 65500. In order to determine appropriate values for the standard deviation of the calibration parameters it is assumed that:

- The general standard deviation is expected to be reduced from 0.17 to 0.12 [m] with parameter adjustments all within physically realistic bounds. After calibrating the model, the cost-function is reduced by approximately a factor of 2 to 32750.
- A further reduction of the general standard deviation from 0.12 to 0.11 [m] is considered to be achieved only for less realistic parameter adjustments. This reduction of 0.01 [m] corresponds to a reduction of the cost-function of approximately 5200,
- Using the multiplicative option of WAQAD, a physically realistic average adjustment of the calibration parameters for the depth is set at 3%, for the bottom friction at 6%.
- Given the fact that the accuracy of the initial depth is greater than the accuracy of the initial bottom friction, the contribution of the penalty function for the depth is set at twice the contribution of the penalty function for the bottom friction.

Besides a simple penalty option based on the definition of a penalty term for individual calibration parameters, WAQAD is equipped with an option to account for the spatial correlation of calibration parameters. In the present application, however, given the fact that

- the initial depth of the ZNZ model is compiled from different sources,
- the results of previous calibration experiments are already included,

the spatial correlation scale for the adjustments of the depth is reduced. Moreover, if the standard deviation of the individual parameter adjustments is chosen in the way described above, the necessity to use the advanced penalty option is rather limited. By consequence, it is proposed to impose a penalty on individual parameter adjustments thereby ignoring their spatial correlation. The strong penalty on large depth adjustments certainly avoids unrealistic results whereas it allows for depth adjustment on a local scale, equivalent to the distance between the support points.

In essence, these arguments also hold for the bottom friction adjustments.

2.9 Summary

In this chapter the specification of the calibration of the ZNZ model has been discussed. This specification is based on the following considerations:

- the objective of the calibration is to improve the performance of ZNZ as a 'stand-alone' model with the constraint that the depth and bottom friction are not adjusted in the vicinity of the open boundaries to facilitate a direct nesting of the ZNZ model in DCSM98,
- the spatial distribution of the calibration parameters must reflect the spatial variation of the initial depth and bottom friction gradient,
- the number of calibration parameters and the number of measurement stations must be balanced,
- the coefficients in the penalty function are defined in such a way that the effect of this penalty function corresponds to a reduction of the general standard deviation of 0.01 [m] in the final stage of the iteration.

This has led to a set of 25 parameters to calibrate the depth and 17 parameters to calibrate the bottom friction. In order to be able to interpret the above mentioned definition of the penalty function in a straightforward way, a uniform value for the standard deviations σ_{depth}, $\sigma_{friction}$ has been used. A penalty is imposed for each calibration parameter separately; it is not accounted for the spatial correlation of the calibration parameters.

3 Calibration

3.1 Introduction

In this chapter the results are discussed of the basic calibration run, according to the specification described in detail in the previous chapter. The results are split in two parts: first, the calibration is judged with respect to the improvement of the model performance in terms of the reduction of the standard deviation. Second, the adjustments of the depth and the bottom friction is discussed. The effect of the penalty option is discussed in a separate section.

The main focus with respect to the interpretation of the results of the basic calibration is to characterize the *calibration process* - and the qualitative behaviour of the model - in an objective way that allows a straightforward comparison with the results from the validation experiment using measurements from a different period (Chapter 4) and the evaluation of the calibration results in the spectral domain (Chapter 5). In line with this, the final calibration result will not be given here but in Chapter 6 instead.

The measurements from a period of 30 days (June 11 - July 10, 1995) in each of the 21 stations in the calibration set are used in this experiment.

3.2 Model performance

For operational use of the ZNZ-model, establishing the well-posedness of the calibration is a prerequisite in order to substantiate the claim that the calibration leads to a 'better' model. This requires that the specification of the set-up of the calibration is evaluated based on

- the modelling objective,
- physically acceptable adjustment of the initial depth and bottom friction.

Before discussing these aspects in detail, the effect of the calibration is described first.

3.2.1 General standard deviation and cost function

The calibration procedure in WAQAD is based on the minimization of a pre-defined cost function that reflects the objective of the model. This cost-function is defined as

$$J(p) = \sum_{m,n,k} \frac{\left[\hat{h}^k_{m,n} - h^k_{m,n}(p)\right]^2}{\sigma^2_{m,n}} + \sum_{i=1}^{N_{par}} \frac{\left[p_i - p_i^{ini}\right]^2}{(\sigma^i_{par})^2} \tag{3.1}$$

with

$\hat{h}^k_{m,n}$ water level measurement at location (m,n) at time k,

$h^k_{m,n}(p)$	model equivalent of $\hat{h}^k_{m,n}$,
N_{par}	number of calibration parameters,
p	N_{par}-dimensional vector of calibration parameters,
p_i	i-th component of p,
$\sigma_{m,n}$	standard deviation of the measurements at location (m,n).
σ^i_{par}	standard deviation of the calibration parameter p_i.

According to Eq. (3.1), $J(p)$ consists of two components:

- the sum of the weighted square of the residuals in the measurement stations,
- a penalty function to penalize large deviations of the initial value of the calibration parameters.

From the former part of the cost function, a general (or: average) standard deviation can be determined. This general standard deviation, defined as

$$\sigma_g = \sqrt{\frac{1}{N_{m,n}N_k} \sum_{m,n,k} \left[\hat{h}^k_{m,n} - h^k_{m,n}(p)\right]^2} \tag{3.2}$$

with $N_{m,n}$ and N_k the number of locations and the number of times measurements are available, respectively.

σ_g can be used to quantify the model performance and, by considering σ_g as a function of the iteration index, to monitor the effectiveness of the iterative calibration procedure. Still, it should be noted that σ_g is not derived directly from the value of the cost-function which implies that some inconsistency between the behaviour of the cost-function and σ_g may occur. The evolution of σ_g as a function of the iteration index is shown in Fig. 3.1.

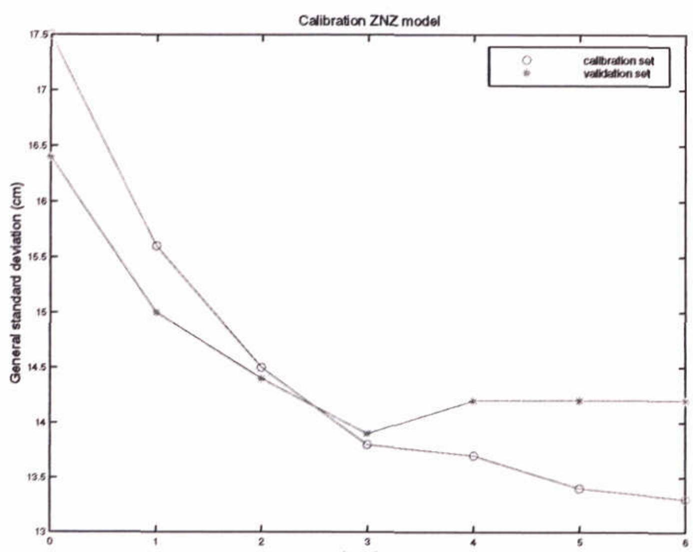


Fig. 3.1 σ_g as a function of the iteration index for the calibration set and the validation set.

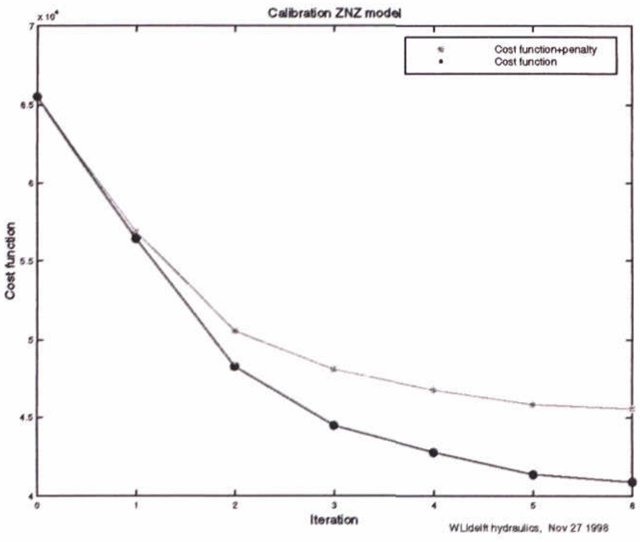
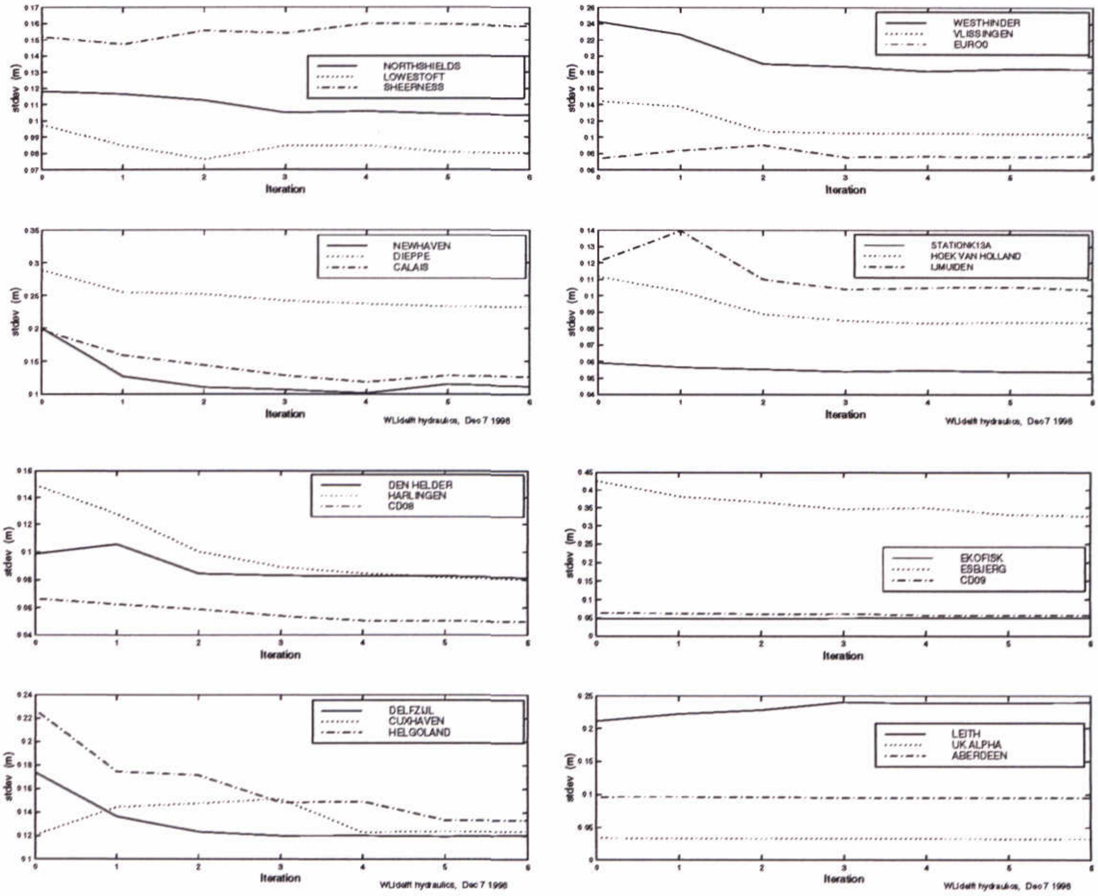
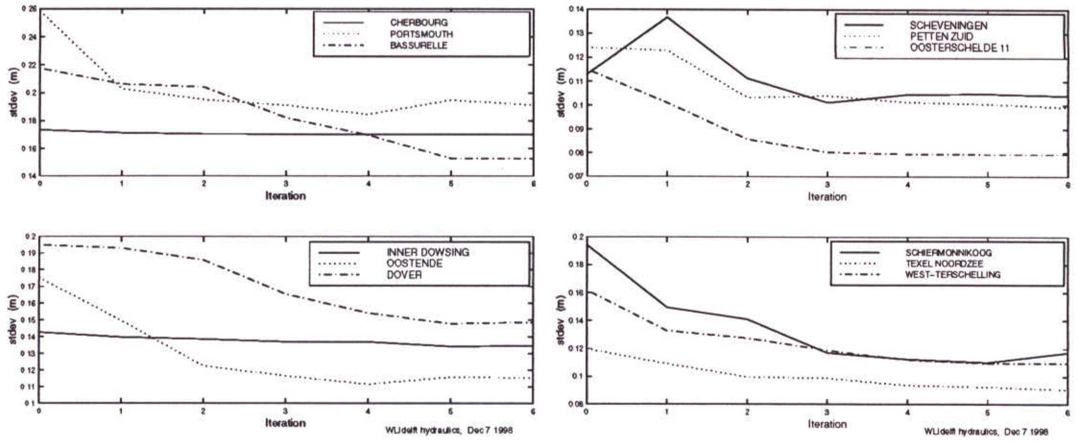


Fig. 3.2 The cost function and the penalty function in the calibration experiment.

3.2.2 Standard deviation per station

The evolution of the standard deviation per station as a function of the iteration index is shown below, both for the stations that are used for calibration and for the stations in the validation set.





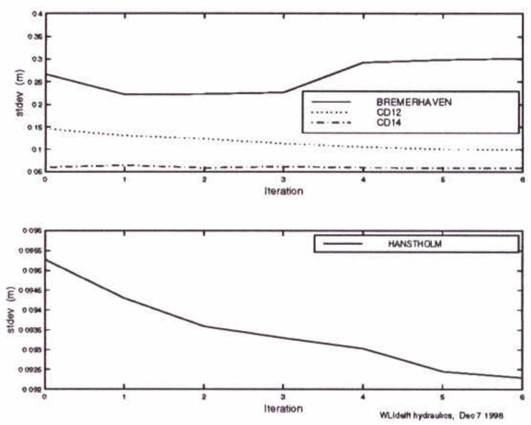


Fig. 3.3
The variation of the standard deviation for the measurement stations in the calibration and the validation set as a function of the iteration index. The stations in the 4 frames on the previous page, except for the lower right frame, are included in the calibration.

From Fig. 3.3 it is noted that:

- the standard deviation in the stations in the English coastal area North of Dover Strait are hardly affected in the first 3 iterations of the calibration,
- in the Southern approach to Dover Strait a substantial reduction of the standard deviation in Dover and Portsmouth is noted, despite the fact these stations are not included in the calibration set,
- the reduction of the standard deviation in Dieppe (in the calibration set) and Bassurelle (in the validation set) is more or less the same (0.035-0.040 [m]),
- for the calibrated ZNZ model, the standard deviation in the Flemish coastal area and the Southwestern part of the Dutch coastal area are all below 0.10 [m] irrespective of the fact whether these stations are included in the calibration or not,
- the standard deviation in Westhinder is still substantial, although it is reduced from 0.24 to 0.19 [m],
- after 3 iterations, the standard deviation in the stations in the Northern part of the Dutch coastal area are all below 0.11 [m] except for Delfzijl, West-Terschelling and Texel-Noord where standard deviations of 0.12 [m] are found,
- the standard deviation in Cuxhaven and Bremerhaven is not reduced, in Cuxhaven (in the calibration set) it is even increased,
- the effect of the calibration in the stations CD08, CD09, CD12, CD14 and AUK Alpha is minor,
- a large reduction of the standard deviation in Helgoland is found, from 0.23 to 0.15 [m],

- since Aberdeen, Ekofisk and Hanstholm (in the North) and Cherbourg (in the West) are located close to the open boundaries that are not calibrated, the standard deviation is more or less unchanged. This demonstrates that, with the present specification, the effect near the open boundaries is indeed almost absent. This implies that the calibration does not affect the direct nesting of ZNZ in DCSM98.

Based on the observations listed above, the main features of the calibration process are:
- in the English coastal area North of Dover Strait, the calibration does not further reduce the standard deviation,
- in the area South of Dover Strait the model performance is substantially improved,
- the standard deviation in the Flemish coastal area and the Dutch coastal area are all below 0.12 [m], most of them even below 0.10 [m],
- the calibration results do not seem to be very sensitive for variations in the configuration of the measurement stations in the sense that the conclusions with respect to the standard deviation of the stations in the calibration set also hold for the stations in the validation set.

3.3 Depth adjustment

In the figures below the depth adjustment is displayed as a function of the iteration index.

From the adjustment of the depth, Figs. 3.4 - 3.5, three important conclusions can be derived:
- the adjustment of the depth is rather smooth and does not show local influences,
- the adjustment of the depth is less than 5 [m] over the entire model domain,
- the depth is, on average, reduced[1].

The first conclusion is consistent with the observation made in the section 3.2 that the calibration is not very sensitive for variations in the configuration of measurement stations. The limited adjustment of the depth illustrates the quality of the specified depth in the initial model set-up.

[1]According to the definition of the calibration parameters in WAQAD, a positive value of a calibration parameter corresponds to a reduction of the depth or Chezy coefficient compared to their inital value.

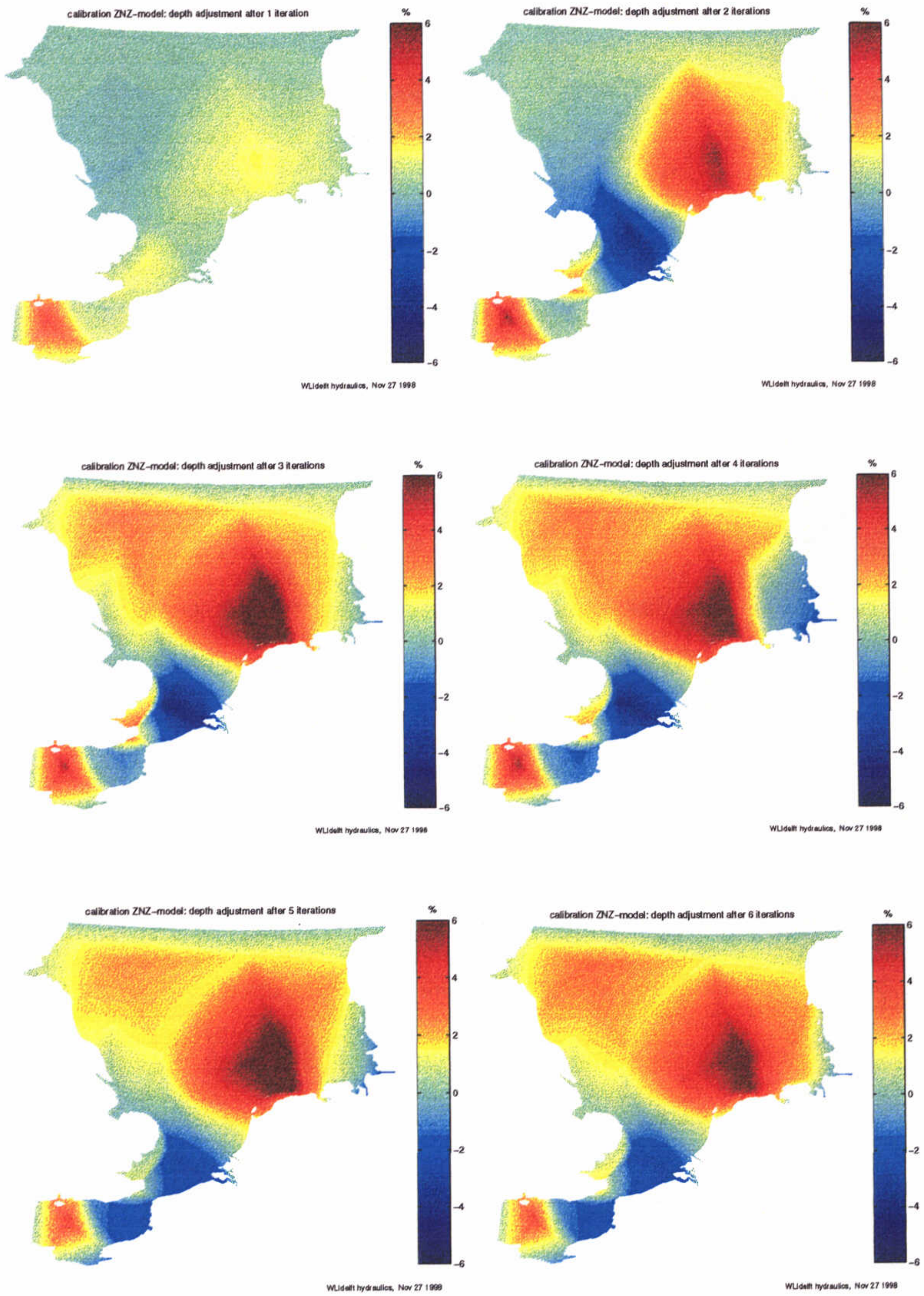


Fig. 3.4 Percentual adjustment of the depth as a function of the iteration index. A positive percentage corresponds to a reduction of the depth.

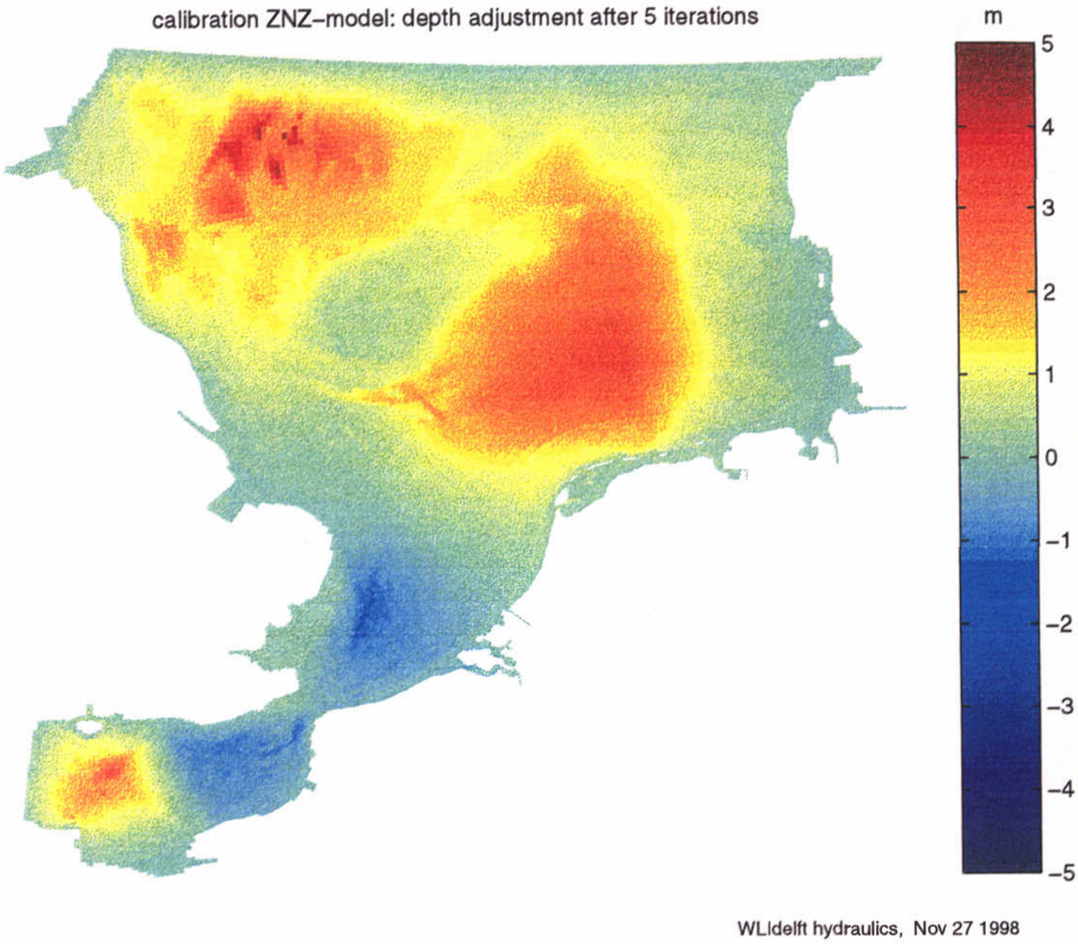


Fig. 3.5 The absolute adjustment of the depth in meters (initial depth - calibrated depth) after 5 iterations. A positive adjustment corresponds to a reduction of the depth.

On average, the depth is reduced over the entire model domain except for the Southwestern part of the Dutch coastal area. This area coincides with the southern part of the domain of the Kuststrook model. Compared to the Kuststrook model, the tidal flow in the ZNZ model is no longer prescribed at the Kuststrook boundaries but is allowed to exchange information both ways. As a result, the depth is (slightly) increased and the bottom friction is (slightly) reduced to enable a proper propagation of the tidal wave onto the Kuststrook domain. A second argument is that the depth in the initial set-up of the ZNZ model was derived by regridding the depth of the Kuststrook model. Given the coarser resolution of the ZNZ grid, the numerical dissipation in the ZNZ model is larger compared to the Kuststrook model which is compensated by an increase of the local depth.

3.4 Bottom friction adjustment

In Figs. 3.5 - 3.6 the adjustment of the bottom friction is displayed as a function of the iteration index. The Chezy value is reduced in a large part of the ZNZ domain which leads to an increased bottom friction. An exception is the German Bight where the Chezy value is increased in combination with a reduced depth.

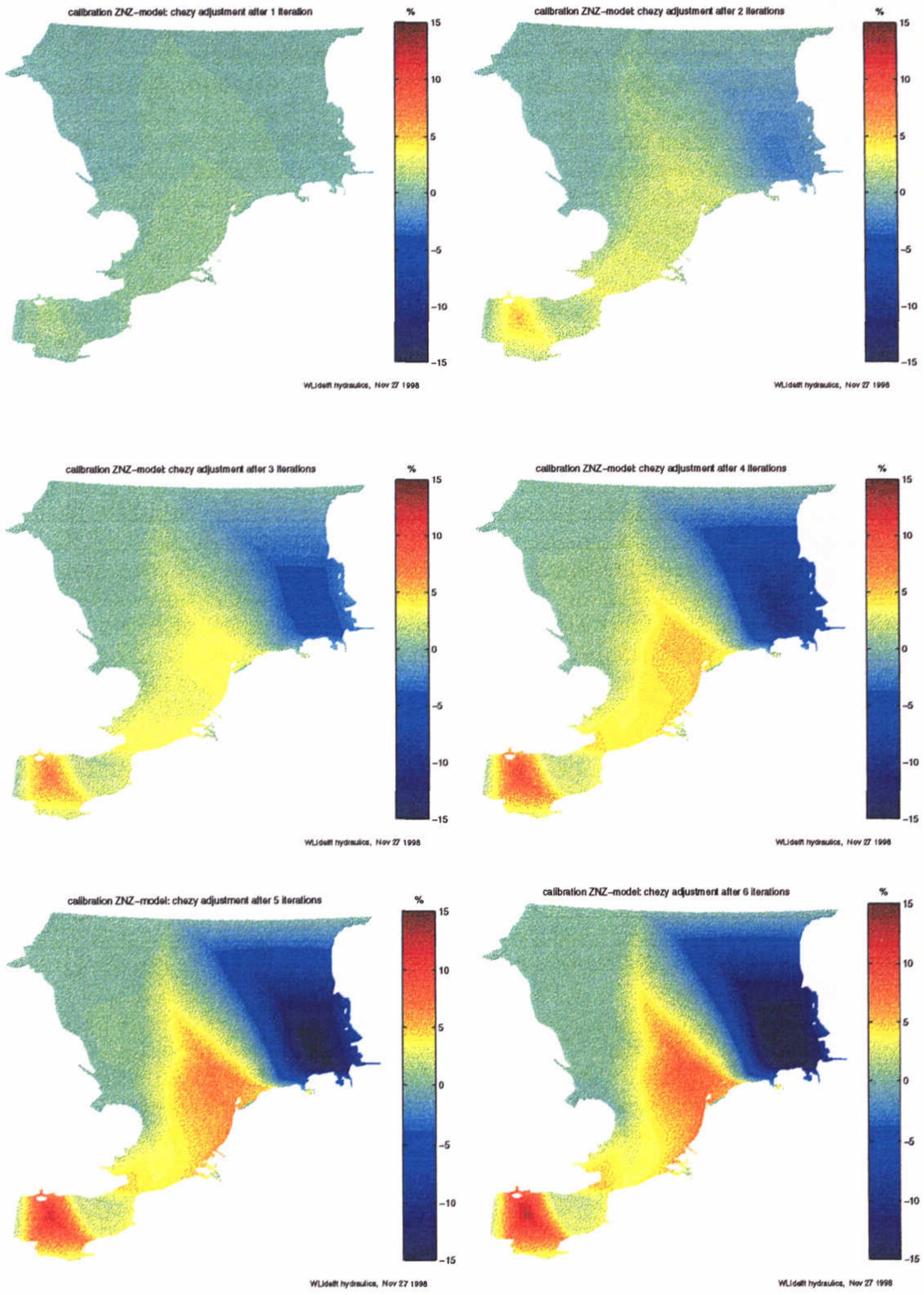


Fig. 3.5 Percentual adjustment of the Chezy values as a function of the iteration index. A positive percentage corresponds to a reduction of the Chezy value.

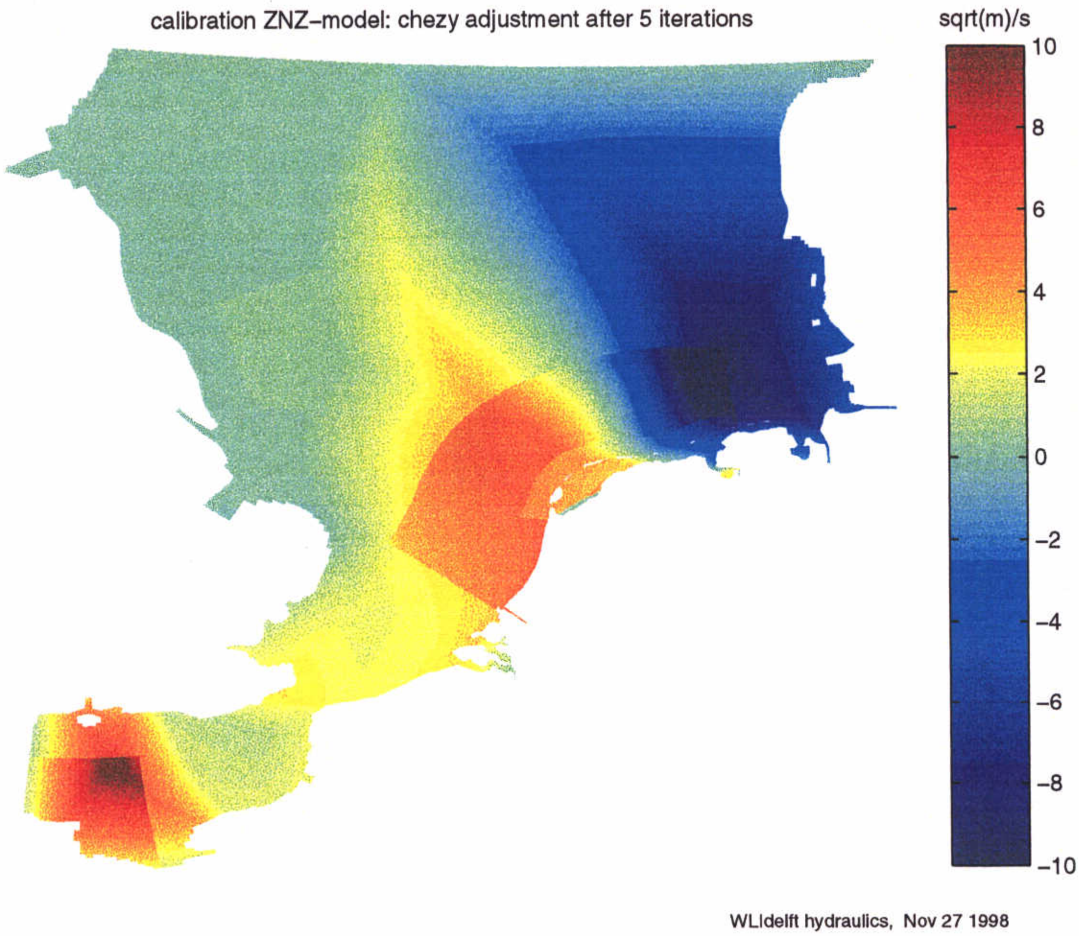


Fig. 3.6 The absolute adjustment of the Chezy coefficients (initial Chezy - calibrated Chezy) after 5 iterations. A positive adjustment denotes an increase of the Chezy coefficients.

The adjustment of both the depth (Figs. 3.3 - 3.4) and the bottom friction (Figs. 3.5 - 3.6) illustrates that the effective number of degrees of freedom is approximately 10, considering the number of local minima and maxima in the adjustment of the depth and the bottom friction plus some support points located on the mainland. In other words, the same calibration result could have been realized by introducing fewer calibration parameters (here: 25 for the depth and 17 for the bottom friction). However, one has to account for the fact that only afterwards the location of the calibration parameters can be assessed in an optimal way. The calibration shows that WAQAD is capable to deal with this large number of calibration parameters in an appropriate way, *i.e.* it does not lead to strong local effects. This is due to *(i)* the specification of the penalty function and *(ii)* the spatial correlation induced by the fact that some of the support points of the triangulation appear in many (5-6) triangles which induces a strong spatial correlation.

3.5 Characterizaton of the iteration process

Norm of the gradient and search direction

The norm of the gradient and the norm of the search direction are two indicators to assess the impact of the adjustment of the depth parameters compared to the adjustment of the Chezy parameters. Fig. 3.8 (lower panel) shows that in the first 3 iterations, the adjustment of the depth dominates the adjustment of the bottom friction. In the 4-th iteration the relative impact of the depth and bottom friction adjustment is interchanged. This is also nicely represented in Fig. 3.9 indicating that the adjustment of the depth becomes less after 4 iterations. This implies that the adjustment of the depth in the first part of the iteration process shows some overshoot. Compared to the depth parameters, the Chezy parameters needs some 'spin-up' in the iteration process. This behaviour is not only due to the larger sensitivity of the model for variations of the depth, but also to the fact that adjusting the bottom friction has to some extent a similar effect on the computed water levels. Especially in the second part of the iteration process the difference becomes apparent.

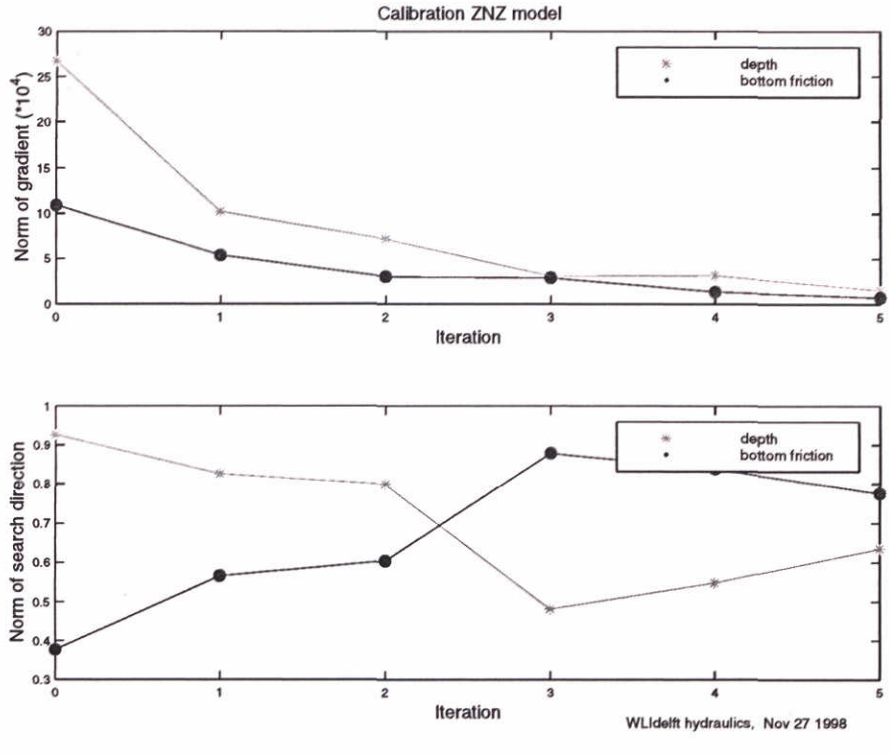


Fig. 3.8 Norm of the gradient and search direction for the depth and bottom friction as a function of the iteration index. Note that the norm of the search direction that is indicated for iteration index i is used in the $(i+1)$-th iteration (for example, the initial norm of the search direction is used in the first iteration).

Penalty option

The penalty function was specified such that it avoids a large adjustment of the calibration parameters that only have a limited effect on the reduction of the general standard deviation. The errors in the initial depth and bottom friction were set at $\sigma_{depth} = 0.0026$ and $\sigma_{friction} = 0.0058$. Although the symbols indicate that these values are standard deviations, they must be interpreted as weight factors. According to the derivation in Chapter 2, the values for these weight factors are chosen such that a further deviation of the calibration parameters from their initial guesses with 1% is accepted if the reduction of the general standard deviation is at least 0.006 $[m]^2$. This reduction of the general standard deviation is required in *(i)* the line search procedure as well as in *(ii)* the final stage of the iteration process.

The penalty for the adjustment of the depth is larger than the penalty for the adjustment of the bottom friction. Still, the adjustment of the bottom friction that is determined by WAQAD is smaller than the adjustment for the depth. The conclusion is that the model performance, expressed by the cost-function that is minimized, is more sensitive for variations of the depth than for variations of the bottom friction, especially in the first part of the iteration.

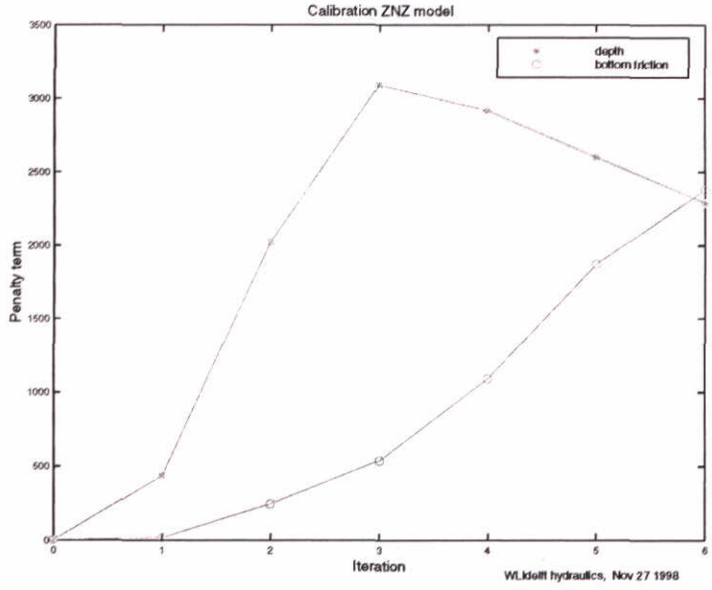


Fig. 3.9 Contribution of the depth and bottom friction parameters to the penalty term.

[2] *These numbers are found by assuming a spatially uniform distribution of the standard deviation of the measurement error.*

3.6 Conclusions

Based on the analysis of the calibration results the main conclusions are:

- Especially in the Dutch coastal area, the standard deviation is substantially reduced. A similar improvement is not observed in the English coastal area where the effects are limited. This is largely due to the decision to exclude the forcing at the open boundaries from being calibrated.
- Given the similar behaviour of the general standard deviation for the calibration and the validation set, the calibration result is not very sensitive for variations in the configuration of measurement stations,
- The adjustments of both the depth and the bottom friction are relatively small. For the depth the adjustment is smaller than 4 [m] over the entire ZNZ domain except for the deep area near Scotland where an adjustment of 5 [m] is found. The adjustment of the Chezy coefficients is somewhat larger, up to 10 [$m^{1/2}s^{-1}$], but this is still within a physically acceptable range.

4 Validation

4.1 Introduction

Since the objective of model calibration is to improve the model performance for a range of applications the results of a calibration experiment need to be validated to avoid that the set of calibration parameters is affected by specific, *i.e.* non-generic, features introduced by the measurement series that are used for calibration. In other words, the generic nature of the calibration results needs to be established. This can be done either by monitoring the model performance in measurement stations that are not used for calibration or by using measurements in the same stations taken from a period with different characteristics. In this project both aspects are included in the validation experiment discussed in this chapter.

The calibration experiment was set up in such a way that the standard deviation of the stations in the validation set could be assessed by including these stations in the calibration set with a standard deviation of the measurement error of 10^8 which implies that the water level residuals in these station are, de facto, ignored in the cost function.

Besides checking the model performance in the validation stations over the calibration period, the calibration result is also tested by considering the standard deviation in all 40 stations over the validation period, July 25 - August 24 1996. Again, the simulation over the validation period is preceded by a spin-up of the model over 3 days.

4.2 Set up of the validation experiment

The depth and bottom friction after each of the first 6 iterations as well as the initial depth and bottom friction are tested on their effect on

- the general standard deviation σ_g of the calibration set and the validation set, and
- the standard deviation per station.

The validation experiment is carried out using the WAQAD system because the general standard deviation σ_g and the standard deviation per station can easily be assessed by means of the post-processing tool ADRSAV.

4.3 Results

4.3.1 General standard deviation

Fig. 4.1 shows the general standard deviation σ_g as a function of the iteration index for the calibration and the validation set. The similarity with Fig. 3.1, where σ_g is displayed as a function of the iteration index according to the calibration experiment is striking, for both the calibration and the validation set. Still, it is noted that the standard deviation over the validation period are approximately 0.004 [m] greater than in the calibration period. Although both the calibration period and the validation period cover a period of 30 days and represent the astronomic tide, small differences in the spring tide - neap tide cycle over this period show up. This difference of 0.004 [m] can therefore be interpreted as a measure for specific temporal differences between the measurement series in the calibration set and the validation set. Domain specific effects can not be quantified in an equally simple way due to the fact that for the validation set the number of coastal stations is larger compared to the calibration set. This also explains that the initial general standard deviation of the validation set is smaller than the general standard deviation of the calibration set.

The increase of the general standard deviation σ_g for the validation set at the fourth iteration is mainly due to the increase of the standard deviation in Bremerhaven. This is illustrated by the dotted line in Fig. 4.1 representing σ_g in case Bremerhaven is removed from the validation set. Therefore, the seemingly worse performance of the ZNZ model for the stations in the validation set when the calibrated depth and bottom friction derived after 4 iterations is used has a rather local origin. A second argument to substantiate the limited region of impact is that the same deviating behaviour is not found for Helgoland. Hence, it is questionable whether the increase of σ_g after 4 iterations is a valid argument to determine the final calibration result. This issue will be discussed in detail in Chapter 6.

4.3.2 Standard deviation per station

A detailed inspection of the standard deviation per station brings forward the following differences between the stations in the calibration set and those in the validation set:

- in more than 50% of the stations the differences in standard deviation between the calibration and the validation experiment is less than 0.005 [m],
- in 8 out of 40 the difference in standard deviation is between 0.005 - 0.010 [m],
- in 10 out of 40 this difference is between 0.010 - 0.020 [m],
- the largest difference in the standard deviation of 0.0025 [m] is noted in Leith,
- the difference in standard deviation for the stations in the validation set tends to be somewhat larger than for the stations in the calibration set.

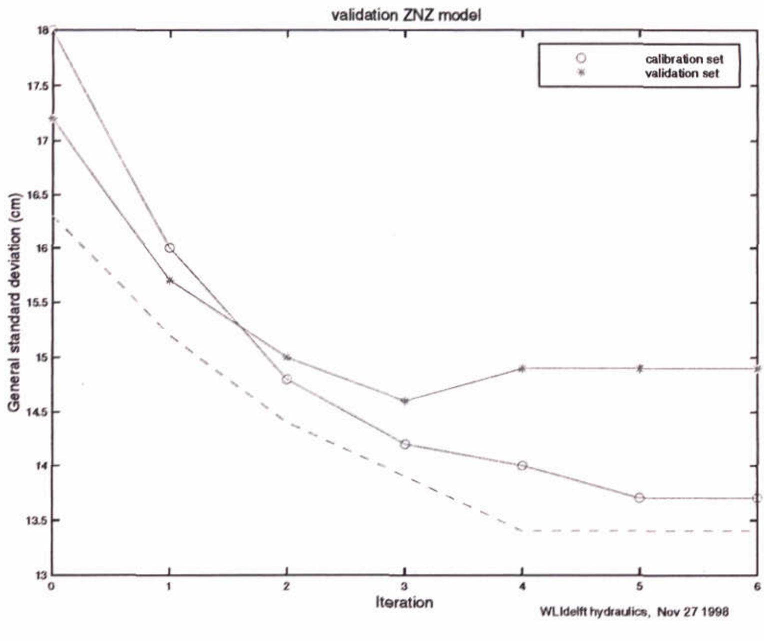
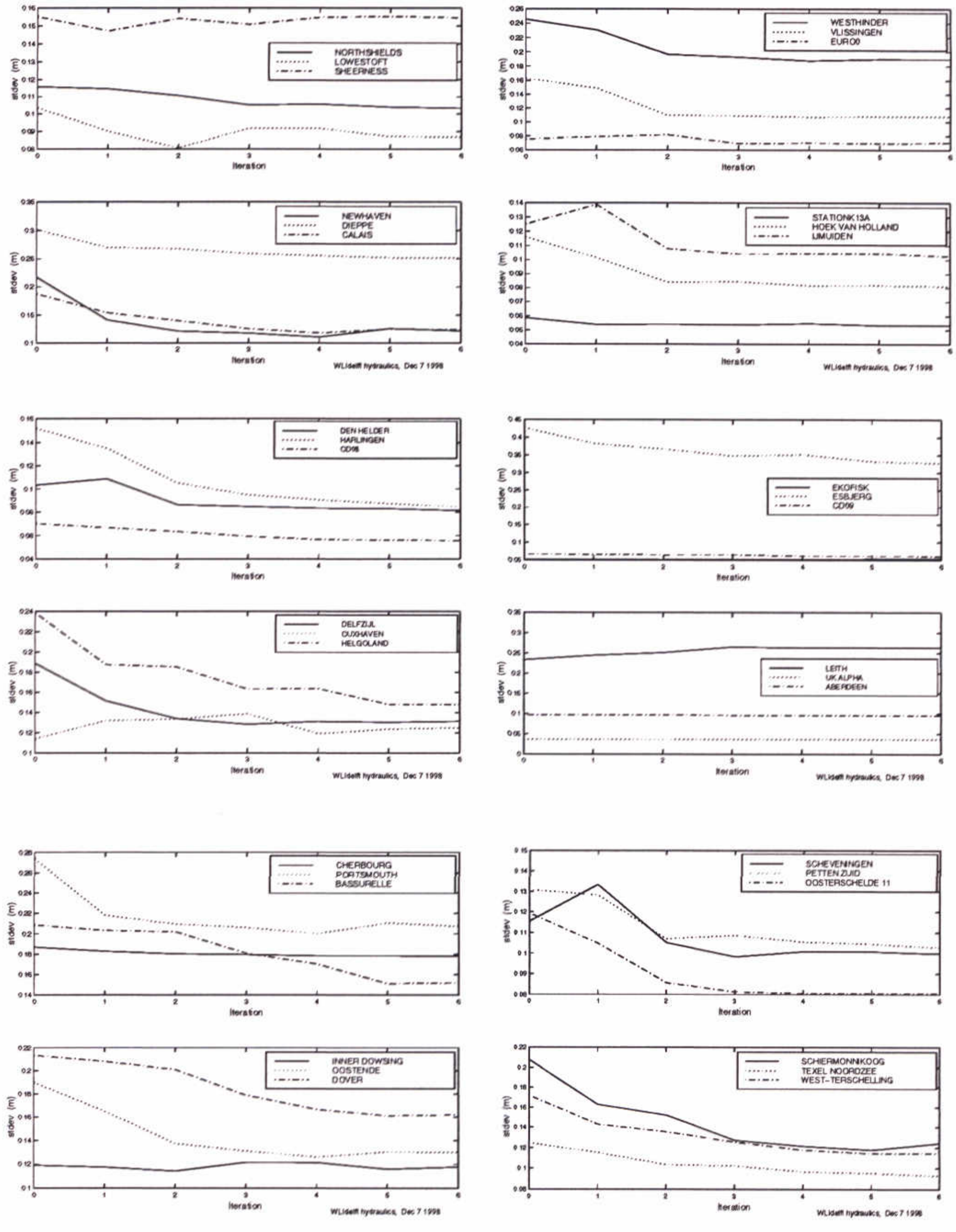


Fig. 4.1 The general standard deviation for the calibration and the validation set as a function of the iteration index of to the validation experiment. The dotted line denotes the general standard deviation of the validation set when the standard deviation in Bremerhaven is not taken into account.

4.3.3 The penalty function

The starting point for the specification of the coefficients $\sigma_{depth}, \sigma_{friction}$ in the penalty function was that the penalty function should counterbalance a reduction of σ_g of 0.01 [m] in the final stage of the calibration. The differences in the cost function values of the calibration and those of the validation experiment are approximately 1800. This corresponds to a difference in σ_g of approximately 0.004 [m]. Therefore, in order to counterbalance a reduction of the general standard deviation of 0.01 [m], the penalty function should approximately be 4500. According to Figs. 3.1 and 3.8, the realization of the penalty term adds up to 4800 in the final stage of the iteration process. Hence, the assumptions with respect to the specification and functioning of the penalty function appear to be correct.

The penalty function also avoids situations in which parameters are calibrated such that the model is forced to represent specific, *i.e.* non-generic, features in the measurement time series that require large adjustment of the calibration parameters for a minor reduction of σ_g. From the difference in σ_g of 0.004 [m] between the calibration and the validation experiment it can be concluded that, at least in this case, the impact of specific features in the measurement time series on the calibration results is small.



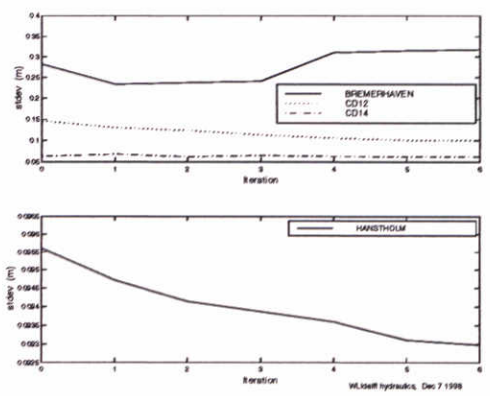


Fig. 4.2
The standard deviation of the measurement stations in the validation set (the upper 4 frames in the left column and the upper 3 frames in the right column) and the calibration set (validation experiment).

4.4 Conclusions

The main conclusions with respect to the validation experiment are:

- The evolution of the general standard deviation for the calibration set as well as for the validation set is similar in the calibration and the validation experiment. On average, the general standard deviation is 0.005 [m] larger in the validation experiment which can be explained by small differences in character in the calibration period period versus the validation period. This observation implies that the influence of features induced by the selected time period is small.
- The increase of the standard deviation in Bremerhaven causes the general standard deviation for the validation to increase after the third iteration. In order to determine the final result of the calibration (to be discussed in Chapter 6), the relevance of the performance of the model in this particular station should explicitly be taken into account.
- The expected contribution of the penalty function (see Chapter 2) is confirmed by the results of the validation experiment.

5 Harmonic analysis

5.1 Introduction

The objective of the calibration by means of WAQAD is the minimization of a cost function which represents a measure for the model performance. The cost function used in WAQAD is defined as the weighted sum of the squares of the residual water level time series. In this chapter, the calibration results of all iteration indices are evaluated in terms of the amplitude and phase errors (*i.e.,* evaluated in the spectral domain) as a function of the iteration index.

The objective of the validation in the spectral domain is to establish if, or to what extent, the evolution of the amplitude and phase errors, considered as a function of the iteration index, are consistent with the reduction of the general standard deviation that is seen in Chapter 3. In the first 2 - 3 iterations, the model performance will undoubtedly improve in a monotonic way, irrespective of the fact how the model performance is measured: in the time domain (as is done in WAQAD) or in the spectral domain. The main question is whether the same behavior also holds for the second part of the iteration process and, in particular, if the optimal model performance (or: minimal cost function value cq. amplitude and phase errors) occurs for the same iteration index. If this is the case, establishing the 'final' calibration result will be very simple because all approaches lead to the same answer, *i.e.,* to the same iteration index that provides the optimal values for the calibration parameters. However, if this is not the case, for example if the values for the calibration parameters found in the second part of the iteration make the amplitude and/or phase errors to increase, the 'final' calibration result needs to be established by careful analysis. Determining the 'final' calibration result might require some subjective judgement of the user that is not explicitly included in the specification of the calibration experiment.

In this experiment, the model performance in the spectral domain will be expressed in terms of the vector difference for the most important tidal constituents. The arguments used to select these constituents will be discussed in section 5.3.

5.2 Specification of the harmonic analysis

The experiment to validate the calibration by monitoring its effect in terms of the amplitude ratio and phase lag of the observed and computed constituents is set up in much the same way as the validation described in Chapter 4. The result of WAQAD obtained after the first 6 iterations as well as the initial depth and bottom friction are used in the specification of a WAQUA simulation over the calibration period, June 11 - July 10, 1995.

On the sea boundaries of the ZNZ model a boundary forcing consisting of 49 constituents is prescribed. In order to weigh all constituents equally, the period over which the harmonic analysis is carried out is set at 29.5 days. However, a period of 29.5 days is not long enough to separate all 49 tidal constituents. According to the Rayleigh criterion the difference in frequency must satisfy: $\Delta\omega \geq 0.508$ *[deg]*. In practice, given the least squares approach, a 90% satisfaction criterion is generally used. This practical use of the Rayleigh criterion is not met for all pairs of tidal constituents that have to be taken into account. For the pairs of primary constituents that can not be neglected, the violation of the Rayleigh criterion can be solved by astronomical splitting.

In the harmonic analysis that is recently included in WAQUA, splitting rules can be defined for 4 pairs of constituents that differ less than 0.1 [deg/hr] in frequency. These pairs are: (P1,K1), (N2,$\nu 2$), (S2,K2) and ($\lambda 2$,2MN2). The splitting coefficients, *i.e.* the amplitude ratio and the phase lag can be defined by the user. In principle, the splitting coefficients can be made spatially dependent. However, for the harmonic analysis of the results of the ZNZ-simulation, the splitting coefficients are assumed to be constant over the model domain. The values of the splitting coefficients are determined as the amplitude ratio and phase lag of the tidal constituents of each of the pairs derived from long term observation series in Hoek van Holland which is considered as the reference station. The splitting coefficients are listed in Table 5.1

constituents	**amplitude ratio A1/A2**	**phase lag $\varphi_1 - \varphi_2$ [deg]**
(P1,K1)	0.3844	-13.24
($\nu 2$,N2)	0.4136	-6.58
(K2,S2)	0.2953	0.07
($\lambda 2$,2MN2)	0.4173	180.53

Table 5.1 The splitting coefficients used in the harmonic analysis.

It is noted that, from a theoretical point of view, $\lambda 2$ is coupled to L2 and not to 2MN2 although L2 and 2MN2 are at the same frequency. The large phase lag shows this already. The coupling ($\lambda 2$,2MN2) is unstable from year to year.

The considerations mentioned above require that only a limited number of constituents that are present in the definition of the boundary forcing need to be excluded from the harmonic analysis to guarantee its well-posedness. The constituents that are excluded are SA, 3MKS2, NLK2, T2, MK4, 2MK6 and 3MK8.

5.3 Results

Performing a harmonic analysis over 42 tidal constituents for 40 stations and 7 simulations leads to a large amount of data. In order to be able to extract the main characteristics of the calibration process when interpreted in the spectral domain, the evolution of the errors, expressed in spectral form, as function of the iteration. Therefore, the vector difference is used as the error measure in the spectral domain. The vector difference, see Eq. (5.1), will not be considered for each of the constituents separately but, instead, for 4 series of constituents:

- the diurnal constituents O1 and K1,
- the semi-diurnal constituents M2, N2 and S2,
- the quarterly diurnal constituents M4, MS4, MN4
- the constituents M6, 2MS6 with a period of approximately 4 [hrs].

These constituents are selected as leading constituents for each of the four distinguished series, based on their amplitude. The argument behind this is that the largest amplitude signals will be corrected first. By using vector differences for these components in the 1-, 2-, 4-, and 6-daily tidal bands it will be possible to establish whether components in these bands are adjusted at all, and if so, their net impact.

The model performance is expressed in terms of the vector difference $VD_{m,n}$ (see Le Provost, 1995), defined as

$$VD_{m,n} = \left\{ \sum_{i=1}^{N_c} \left[(a_i)_{m,n} \cos(\varphi_i)_{m,n} - (\hat{a}_i)_{m,n} \cos(\hat{\varphi}_i)_{m,n} \right]^2 + \left[(a_i)_{m,n} \sin(\varphi_i)_{m,n} - (\hat{a}_i)_{m,n} \sin(\hat{\varphi}_i)_{m,n} \right]^2 \right\}^{1/2} \quad (5.1)$$

with N_c the number of selected constituents, *(m,n)* the location of the stations and the hat denoting the observed amplitude cq. phase. The evolution of the vector difference for the four distinguished series is represented in Figs. 5.1a-h for 8 representative stations. The interested reader is referred to Appendix D for the evolution of the vector differences for all 40 stations.

The result of the harmonic analyses can be summarized by the following statements:

- The calibration primarily affects the contribution of the semi-diurnal constituents N2, M2 and S2 to the difference between the observed and computed water levels, expressed in terms of the vector difference. Compared to the reduction of the vector difference with increasing iteration index for the semi-diurnal constituents, the reduction cq. variation for the other three groups is small.
- The dominant contribution of the semi-diurnal constituents to the vector difference is reflected in a substantial correlation of the reduction of the vector difference for the semi-diurnal constituents and the reduction of the general standard deviation, see Fig. 3.1.
- In the first part of the iteration process, the focus is on reducing the leading (first-order) errors. This implies that, irrespective of the fact whether 'error' is defined in the time domain or in the spectral domain, the reduction of this first order error will be comparable in both cases.
- The monotonous reduction of the standard deviation as function of the iteration index as seen in Fig. 3.2 is not equally well observed for the vector difference. Especially in the second part of the iteration, the vector difference tends to oscillate. This is due to the fact that in the second part of the iteration the non-dominant errors become more important which show up in a different way for different criteria, *i.e.* the difference between the cost function that is *explicitly* used in the calibration of the ZNZ-model and the vector difference that is now used to evaluate the calibration process.
- The harmonic analysis shows a systematic error with respect to M4 which is induced by the Northern open boundary. After the calibration the amplitude ratio is still above 1.1 for all stations North of Dover Strait. The contribution to the standard deviation in these

stations is approximately 0.02 [m] which is quite substantial considering the overall reduction of the general standard deviation that could be achieved by the calibration.

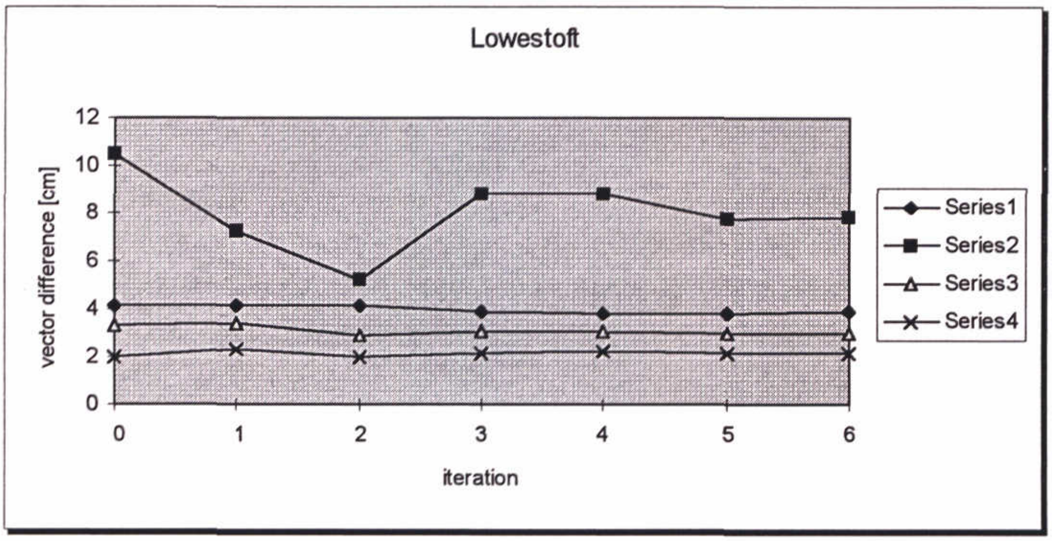


Fig. 5.1a

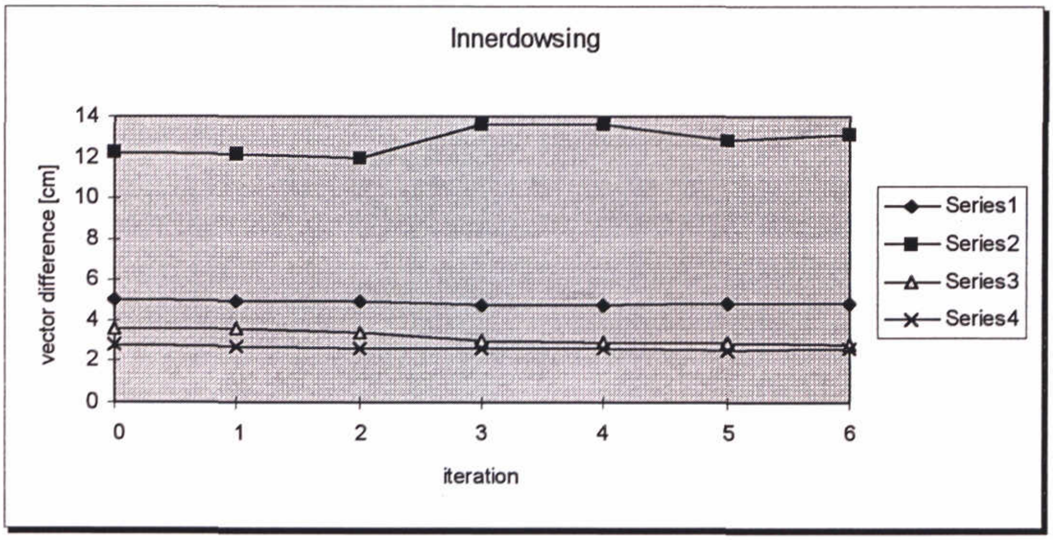


Fig. 5.1b

Fig. 5.1 The vector difference as a function of the iteration index for the 4 groups of constituents. Series 1 = O1+K1, Series 2 = N2+M2+S2, Series 3 = MN4+M4+MS4 and Series 4 = M6 + 2MS6.

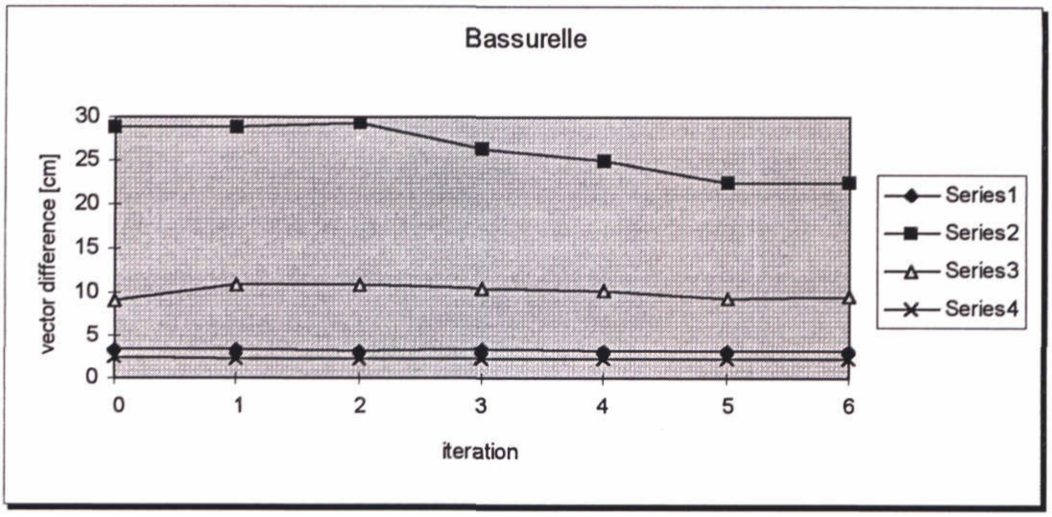


Fig. 5.1c

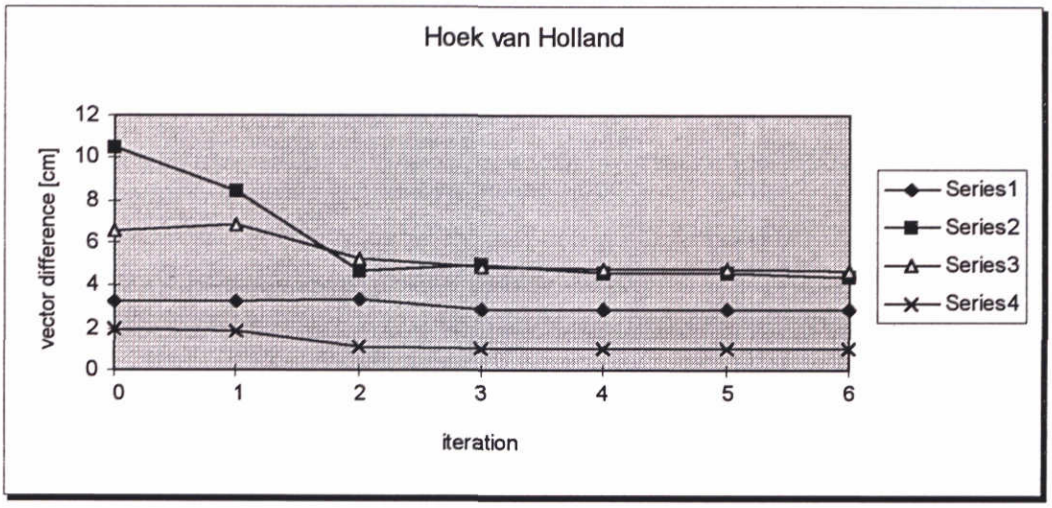


Fig. 5.1d

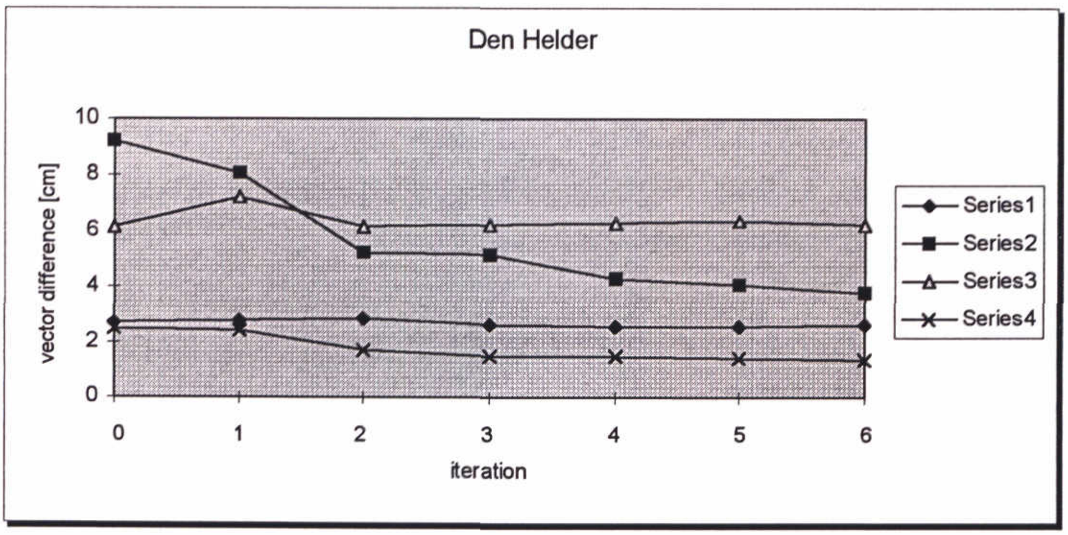


Fig. 5.1e

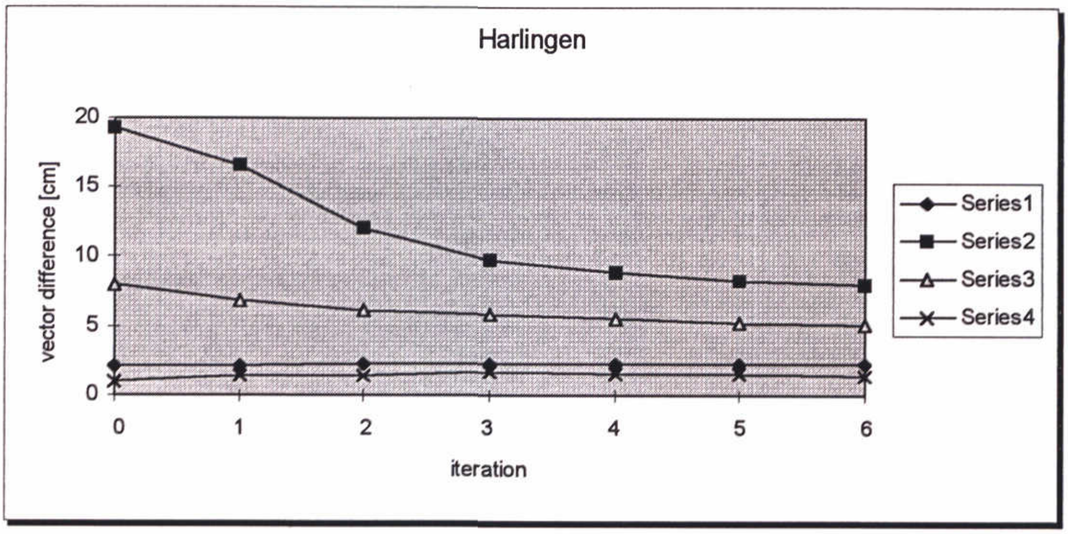


Fig. 5.1f

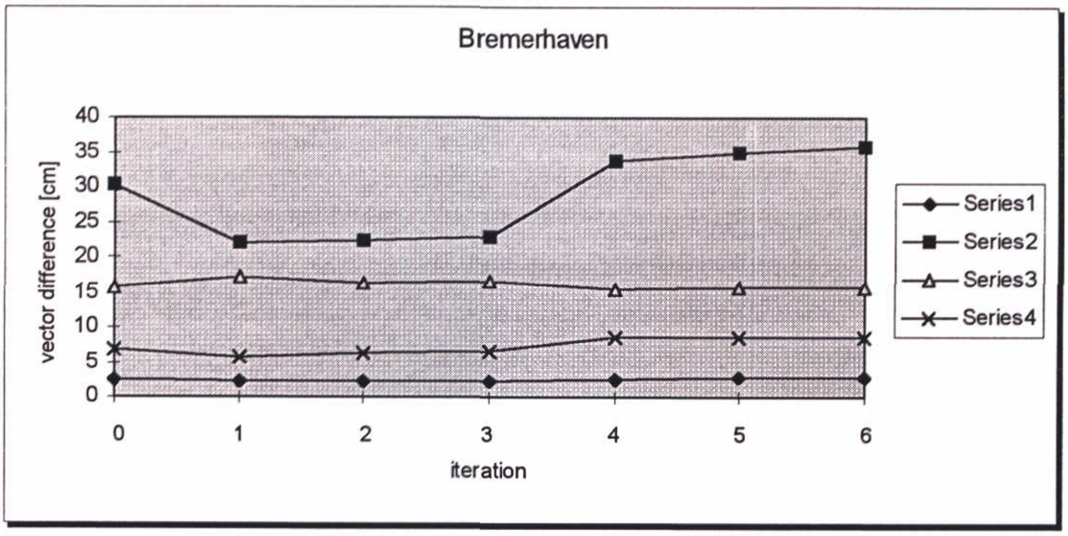


Fig. 5.1g

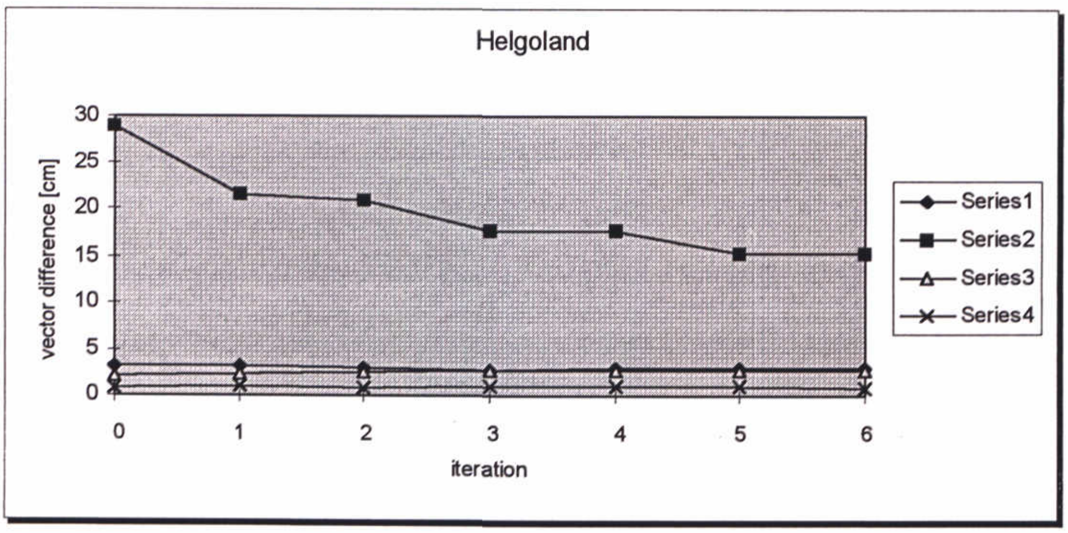


Fig. 5.1h

5.4 Conclusions

The main conclusions from this validation experiment are:

- Calibration of a model based on the minimization of the weighted square of the residual water level time series focuses on the reduction of the error in the dominant tidal constituents, *i.e.* on the semi-diurnal constituents.
- The contribution of the four series of tidal constituents to the vector difference is proportional to the amplitude of these constituents. By consequence, the semi-diurnal constituents dominate the effect of the calibration, the adjustment of the remaining constituents is relatively small, except for those stations with a small error in the semi-diurnal constituents. This is the case for most of the stations in the Dutch coastal area.
- Evaluating the calibration process in terms of a different criterion then the one upon which the calibration is based leads to some differences in the second part of the calibration process when the major errors are already eliminated and a further reduction of the cost function is a rather subtle and criterion-dependent process. This is illustrated by the oscillating behaviour of the vector difference for the semi-diurnal constituents during the iterations 4-6. This hampers the determination of an iteration index that minimizes the overall error, defined in terms of the vector difference.
- Given the fact that the vector difference is a measure for error that combines both an amplitude error and a phase error, the oscillating behaviour of the vector difference is also noted in the amplitude ratio and phase lags, the spectral parameters that are often used in practice to assess the performance of a tidal model. This is confirmed by experiment, see Appendix E where the amplitude ratios and phase lags are listed in full length.

6 Evaluation of the experiments

6.1 Introduction

The calibration of the ZNZ-model is formulated as an optimization problem where a cost function, a measure for the misfit between observed and computed water levels, is minimized by adjusting the prescription of the depth and the bottom friction. From a practical point of view, adjusting the depth and bottom friction is only then acceptable when these adjustments are within some physically acceptable range. This is not only valid for the adjustment of each individual depth or bottom friction parameter but also for the spatial correlation of the depth cq. bottom friction. To some extent these physical constraints can be taken into account in the calibration by means of a penalty function. Still, during the iterative minimization no checks are performed to assure that the results have a sound physical basis. This necessitates that the results of the calibration be evaluated afterwards for being physically feasible and/or acceptable. Therefore, some validation experiments, see Chapter 4 and 5, are carried out to detect possible artefacts in the calibration result that are due to measurements and/or measurement location specific effects. These validation experiments are primarily carried out to validate the *calibration process* rather than the *calibration result* itself.

In this chapter the main focus is on establishing the final calibration result, *i.e.,* to determine the iteration index for which the corresponding depth and bottom friction lead to an 'optimal' model performance under the condition that the adjustment of the depth and bottom friction is within a physically realistic range.

6.2 Summary of the results

The final calibration result should be primarily based on the results of the calibration experiment, discussed in Chapter 3. The results of the validation experiments (see Chapters 4 and 5) provide additional arguments to substantiate the determination of an iteration index that gives rise to an 'optimal' model performance within the present context. Now, the main conclusions from the calibration and validation experiments that are relevant to determine the final calibration result are summarized.

General standard deviation

- In the calibration, the general standard deviation σ_g reduces monotonically for all successive iterations,
- The same statement holds for σ_g of the validation set in case Bremerhaven, where the residuals show a locally distorted behaviour, is excluded. However, because σ_g seems to saturate after the 4-th iteration, the adjustment of the depth and the bottom friction

determined in the last 2 iterations might be considered to be induced by some specific effects in the configuration of measurement stations,

- The results of the validation of the model for a period different from the calibration period are completely consistent with the results of the calibration. As such, the validation experiment does not provide any additional arguments (neither pros nor cons) to determine the final calibration result.

Standard deviation per station

- The monotonicity of σ_g is also reflected in the local standard deviation for the majority of the measurement stations. Only occasionally (*e.g.* Portsmouth, Oostende, Scheveningen and Schiermonnikoog which are all included in the validation set) a local minimum for the standard deviation is found after 4 or 5 iterations. These minima are not sharply tuned, however.

Calibration parameters

- The contribution of the depth to the penalty term increases in the first 3 iterations and decreases thereafter. The penalty term for the bottom friction increases monotonically over the entire iteration index. Still, after 6 iterations the maximum adjustment of the depth is less than 3[m] in the central part of the Southern North Sea and less than 5 [m] in the deep areas in the vicinity of the Northern boundary. This is well within the physically acceptable margin,
- After the 4-th iteration, the adjustment of the parameters to calibrate the bottom friction in the German Bight and near the Western boundary is substantial. This large adjustment originates from the initial model set-up as well as the specification of the calibration, *i.e.* the discontinuity in the initial Chezy field and the fact that the forcing along the Western boundary is not simultaneously calibrated,
- After the 4-th iteration, the depth is adjusted in the vicinity of both the Southern and the Northern boundary of the Kuststrook domain. Again its effect on the standard deviation of the water level residuals is marginal but, contrary to the adjustment of the bottom friction, the adjustment of the depth (*i.e.* the difference of the calibrated and the initial depth) has become smaller. This implies that the adjustments of the depth determined over the first 4 iterations contain some 'overshoot'.

Vector difference

- Although the variations are small, the evolution of the vector difference for the semi-diurnal tidal constituents is less monotonous as the evolution of the standard deviation. For example, in the 6-th iteration the vector difference tends to increase slightly for the stations in the Waddenzee whereas it tends to decrease (again slightly) in the Southwestern part of the the Dutch coastal area.

6.3 The calibration result

Since the results of the calibration and validation experiments are fully consistent, it is difficult to present solid arguments to identify the result of a particular iteration as *the* final calibration result. The positive aspect is that it amounts to the conclusion that the well-posedness of the calibration problem[3] is guaranteed. On the other hand, this strong consistency makes that now only rather subtle arguments are available to substantiate one's choice with respect to the final calibration result.

In the introductory chapter it has already been mentioned that the intended use of the model is one of the factors to take into account when specifying the set up of the calibration. The starting point of the present study was to consider the ZNZ model as a 'stand alone' model, *i.e.* no nesting of more detailed models in this model, and the improvement of the performance over the entire model domain. In this analysis to establish the final calibration result, local features (for good or for bad) that may be seen in particular stations are no argument to prefer the result of one iteration index above the result of a next iteration. By consequence, only the global parameters are relevant to substantiate the iteration index denoting the 'best' result. Now, in a few steps, this index will be deduced by elimation.

First, the effect on the general standard deviation of the adjustment of the depth and bottom friction in the last 3 iterations is limited. The result of the calibration set in combination with the observed reduction in the previous iterations limits the choice to iterations 4, 5 or 6. This conclusion is confirmed by the following observation. In Chapter 3 it has been illustrated (Fig. 3.8) that the adjustment of the depth dominates the adjustment of the bottom friction.

In the 6-th iteration the standard deviation in a number of stations increases again. Although local effects ought to be ignored, this increase tends to be somewhat systematic and can be used here as an argument to skip iteration 6 from the list. The vector difference shows a similar behaviour.

One of the assumptions for the calibration was to consider the gridded depth as relatively accurate. As such, the adjustment of the depth should be small, although a minimal adjustment of the depth is not a secundary objective of the calibration. Since the relative contribution of the adjustment of the depth and the adjustment of the bottom are in line with the assumption made in Chapter 2, the lesser adjustment of the depth in iteration 5 is used as the argument to prefer the result after 5 iterations as the final result.

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[3] *Characterized by (i) the selected set of measurements, (ii) the assumed standard deviation of the measurement error, (iii) the parameterization of the uncertainties with respect to the depth and the bottom friction and (iv) the penalty function).*

7 Performance of the calibrated ZNZ model

7.1 Introduction

The objective of the present study was to calibrate the ZNZ-model focusing on optimizing the performance of the model over the entire model domain. In the previous chapters the calibration itself as well as two validation experiments have been described and analyzed. The validation experiments were carried out to assess the well-posedness of the calibration process. To be more specific, the objective of the validation experiments was to substantiate the conclusions with respect to the final calibration result, *i.e.* to establish whether the final calibration result contained artefacts that were due to an inproper specification of the calibration process. This was done by testing the sensitivity of variations in the configuration of measurement stations, spatially (calibration set versus validation set) as well as temporally (calibration period versus validation period), and the sensitivity with respect to the type of the cost-function (residual time series versus vector difference). As such, the validation primarily addressed the *calibration process* rather than the *calibration result.* In this chapter, the focus is on the calibration result, *i.e.* on the (improvement of the) ZNZ model.

Throughout this report the model performance has been based on inspection of the aggregated parameters such as the cost function value, the general standard deviation and the standard deviation per station. This is in agreement with the set-up of the calibration: given the definition of all coefficients in the cost-function and the selection of stations in the calibration set, these aggregated parameters to quantify the model performance are indeed *the* parameters to be considered first. In terms of the (general) standard deviation, the calibration has shown to be effective, in the sense that the (general) standard deviation is reduced. Now that the calibration result is defined, the improvement of the model performance will be analyzed in more detail. The aim of this is to evaluate the performance of the ZNZ model in a quantitative way.

7.2 Time domain

Time series of the computed water levels from the initial model set-up and the calibrated model as well as the observations are plotted for a one day period at neap tide, mean tide and spring tide for all 40 stations, see Appendix B. It is noted that the cost-function is based on the residual water level time series from which the bias is removed whereas the water level time series presented in Appendix B are not corrected for a possible bias. In general, this difference may have some effect on the interpretation of the results. However, considering the type of conclusions, in the present application the effect will be minor.

From these time series plots, the image emerges that the characteristics of the computed water level time series are not changed: the time series only show an adjustment of the amplitude and phase of the semi-diurnal constituents whereas the higher order and nonlinear interaction constituents are more or less unaffected. This is in line with the conclusion in Chapter 5 stating that the improvement of the model performance in terms of the vector difference was only noted for the semi-diurnal constituents, not for the diurnal constituents, the quarter-diurnal and sexter-diurnal constituents.

The dominant impact of the semi-diurnal constituents is also illustrated by the fact the improvement around spring tide is more obvious than around neap tide, especially for stations with a large tidal amplitude.

For a number of stations in the Dutch coastal area, the improvement of the performance at high tide is partly counterbalanced by a worse performance at low tide around neap tide. This is mainly due to the above mentioned fact that higher order tidal constituents are hardly adjusted. This feature is for example noted in den Helder, IJmuiden, Scheveningen, Petten Zuid, Texel Noordzee and West Terschelling.

7.3 Spectral domain

All relevant spectral parameters for the interpretation of the performance of the ZNZ model (*i.e.* amplitude ratios, phase lags and vector differences for all constituents included in the harmonic analysis and all 40 stations) are displayed in Appendix E. Since a detailed analysis is beyond the scope of this study, many of the conclusions are left to the reader. Here, only some general characteristics will be dicussed.

The harmonic analysis shows that the amplitude and phase errors of the semi-diurnal constituents M2 and S2 are largely reduced during the calibration, especially for M2. The improvement for the series of 1-, 4- and 6-daily constituents is much less or absent. Occasionally the performance is reduced.

The harmonic analysis shows a systematic error with respect to M4 which is induced by the Northern open boundary. After the calibration the amplitude ratio is still above 1.1 for all stations North of Dover Strait. This is likely to be a consequence of the requirement to ensure a direct nesting of the ZNZ model in DCSM98.

In terms of the co-tidal maps of the initial model set up and those of the calibrated ZNZ model, the calibration effects are difficult to detect, see Appendix C.

7.4 Comparison with DCSM98

In recent years, much effort has been invested in improving the tidal model of the North Sea by means of systematic calibration experiments, see ten Brummelhuis (1992), Mouthaan *et al.* (1994), Gebraad and Philippart (1998) and RIKZ *et al.* (1998). Comparison of the performance of the calibrated ZNZ model with the performance of *(i)* the initial set-up of the ZNZ model and *(ii)* DCSM98 shows that:

- the improvement in Portsmouth and Dieppe as noted in the calibration of DCSM98 (RIKZ *et al.*, 1998) is similar to the results of the calibration of ZNZ,
- the effect of the exclusion of the boundary forcing from calibration is noticed in Aberdeen, Hanstholm and Portsmouth,
- the standard deviation in Dover, Westhinder, Bassurelle and CD12 is smaller for the simulation with DCSM98,
- the performance of ZNZ in the Dutch coastal area (especially in the stations K13A, Vlissingen and Hoek van Holland) and the Wadden Sea is better than the performance of DCSM98. This is not only the result of the presently reported calibration but is already noted for the initial set-up of the ZNZ model. The conclusion must be that the increased resolution of the curvilinear grid and the use of the detailed Kuststrook bathymetry pays off.

7.5 Summary

- The calibration of the ZNZ model has led to a substantial reduction of the standard deviation for the stations in the Dutch coastal area. In almost all stations the standard deviation is now below 0.10 [m].
- Comparison of the performance of the ZNZ model and DCSM98 shows that the performance of the ZNZ model in the Dutch coastal area is much better than that of DCSM98. This is not only due to the calibration: a large part of the reduction of the standard deviation is already noted in the standard deviation in the initial set-up of the ZNZ-model. This is a consequence of the finer resolution of the computational grid.
- The requirement to facilitate a direct nesting of the ZNZ model in DCSM98 necessitates the exclusion of the forcing at the open boundaries of the ZNZ model from the calibration. The consequence is that, although the standard deviation of the stations along, for example, the English coast are reduced during the iterative calibration process, the performance of the ZNZ-model in this part of the model domain is not that much better than the performance of DCSM98. By defining the boundary forcing derived from DCSM98 as a strong constraint the dynamics of the tidal behaviour is somewhat constrained which implies that the increased computational resolution is not fully exploited.

Station		standard deviation initial set-up ZNZ [m]	standard deviation DCSM98 [m]	standard deviation calibrated ZNZ [m]
Cherbourg	**V**	0.174	0.170	0.170
Dieppe		0.289	0.232	0.233
Ekofisk		0.049	0.047	0.050
Euro0		0.074	0.076	0.076
Hanstholm	**V**	0.095	0.081	0.092
Helgoland		0.227	0.118	0.133
Portsmouth	**V**	0.258	0.156	0.195
K13A		0.059	0.078	0.054
CD12	**V**	0.146	0.080	0.100
CD14	**V**	0.059	0.059	0.059
Bassurelle	**V**	0.217	0.131	0.153
Westhinder		0.243	0.160	0.184
Den Helder		0.099	0.129	0.083
Harlingen		0.149	0.114	0.082
Delfzijl		0.174	0.221	0.120
Hoek van Holland		0.112	0.110	0.084
Aberdeen	**V**	0.096	0.085	0.095
Dover	**V**	0.195	0.114	0.148
Cuxhaven		0.121	0.174	0.124
IJmuiden		0.121	0.099	0.105
North Shields		0.118	0.095	0.104
Lowestoft		0.097	0.110	0.081
Vlissingen		0.114	0.148	0.105

Table 7.1 Comparison of the standard deviation according to the calibrated ZNZ-model and DCSM98. All stations are included in the calibration set of DCSM98, the symbol V denotes that this station is not used for calibrating ZNZ. For the calibration of DCSM98 measurements are used from the period June 11-August 25 1995 (Gebraad and Philippart, 1998).

8 Evaluation and recommendations

8.1 Evaluation

Calibration - the process

The choices made in Chapter 2 with respect to the specification of the measurement configuration, the calibration parameters and the penalty function have led to a calibration process which' results are fully confirmed by the validation experiments reported in Chapters 4 (validation for a different time period) and 5 (validation in the spectral domain). Moreover, the assumptions that were made concerning the penalty function appear to have been correct. This has allowed a straightforward interpretation of the results and the determination of the 'final' calibration result.

The conclusion that only the dominant semi-diurnal constituents are affected by the calibration has important implications for the specification of the calibration. The evolution of the adjustment of the depth and the bottom friction during the calibration, see Figs. 3.3 and 3.5, illustrates that the typical spatial correlation scale corresponds to the spatial correlation scale of the semi-diurnal constituents which is in the order of 200 - 300 [km]. This implies that, starting from the definition of the cost-function based on the residual time series, the improvement of the model performance on a spatial scale smaller than, say, 200-300 [km] (or on a corresponding temporal scale) is not observed here. This has to be kept in mind when defining the parameterization of the uncertainty in the depth and bottom friction. The spatial correlation scale of the semi-diurnal tide imposes a minimum number of support points in the triangulation. Introducing more support points in the triangulations does not necessarily give rise to a better calibration result (*i.e.* a smaller cost-function value). On the other hand, it may lead to an over-parameterization of which the negative side-effects need to be compensated by imposing constraints in the form of a penalty function. By consequence, the large number of calibration parameters that was introduced in the present study could probably have been reduced without affecting the performance of the calibrated ZNZ model. The results, however, show that the specification of the calibration process did perform well, unwanted side-effects of over-parameterization are ruled out by the penalty function.

Calibration - the results

The calibration has led to a substantial reduction of the standard deviation in the stations in the Dutch coastal area. Almost without exception, standard deviations below 0.10 [m] are found. However, these improvements are not only due to the calibration procedure. Comparison with DCSM98 shows that part of the improvement is already noted in the standard deviations in the initial set-up of the ZNZ model and is induced by the fine resolution of the computational grid.

Interpretation of the results of the calibration in the spectral domain shows the dominant impact of the semi-diurnal tidal constituents in the residual water level time series. The rather general character of the weighted output least squares function that is used as the calibration objective is not able to identify the errors in the tidal constituents with (much) smaller amplitudes. It is noted that those constituents are only then affected by the calibration procedure insofar the errors exceed, or are of the same order as the errors in the dominant constituents. Since the error is proportional to the amplitude, representation in terms of amplitude ratios and phase lags (*i.e.* the parameters that are used in practice to quantify the performance of a model in practice) seems more appropriate to scale the contribution of the various constituents to the cost-function. In the subsection *Calibration in the spectral domain* this problem and possible solutions have been discussed in more detail.

In defining the calibration objective, the ZNZ model was considered as a stand-alone model. Still, its operationalization is seen as part of a new RIKZ suite of hydrodynamic and transport models varying from a global (ocean) scale via a regional (North Sea) scale to a local (*a.o.* Kuststrook) scale. The coupling of these models has been an important issue. For the above mentioned model suite, the coupling was intended to be governed by facilitating a direct nesting of the models. The nesting of the ZNZ model in DCSM98 requires that the boundary forcing of the ZNZ-model is not included in the calibration. The results show that this choice has some effect on the calibration of the ZNZ model. This is illustrated by the large sensitivity of the depth and bottom friction parameters in the vicinity of the Western boundary: the calibrated depth and bottom friction contains with artefacts originating from the set-up of the calibration. Another example is the systematic error in the M4-amplitude that is, likely induced at the Northern boundary, noted along the track of the tidal wave propagating along the English, Belgian and Dutch coastal area. Given the objective of the calibration to optimize the performance of the ZNZ-model over the entire model domain, the direct nesting requirement does constrain the optimization of the ZNZ model especially, in the English coastal area.

8.2 Recommendations

The present study has brought up some items with respect to the use of the ZNZ model and the functionality of WAQAD. In this section some recommendations are given to improve the functionality and result of model calibration tools like WAQAD. When relevant, a link with current activities and developments as part of the strategic cooperation between RIKZ and WL|delft hydraulics is indicated.

WAQAD's penalty option

In the current version of WAQAD, the penalty term is defined by the standard deviation and, for the advanced penalty option, the spatial correlation length of the calibration parameters. This is done in parameter space, independent of the r.m.s.-term in the cost-function. By consequence, it is rather difficult to account for a relative contribution of the penalty term to the cost-function. Commonly used rules to ensure the well-posedness of the calibration stating that

- the contribution of the penalty function should not exceed 10% of the cost-function,
- the adjustment of the calibration parameters should account for, say 0.01 [m], of the general standard deviation in the final stage of the calibration (see Chapter 2).

In the present version of WAQAD these rules cannot be used directly. Although the user is able to assign appropriate values to $\sigma_{depth}, \sigma_{friction}$ by taken the above mentioned criteria into account, $\sigma_{depth}, \sigma_{friction}$ can no longer be interpreted as standard deviation.

In order to be able to account for a relative contribution of the penalty term in the cost-function, it is recommended that the specification of the penalty term is extended with a coefficient to define a relative (some percentage of the initial cost function) or the absolute (reduction of the general standard deviation) impact of the penalty term. In the WAQAD pre-processor, an equalizing coefficient can be computed from this new user defined coefficient and the standard deviation. The explicit decoupling of the standard deviation and the equalizing coefficient will not only contribute to a more appropriate specification of the calibration but will also increase the transparancy of the calibration procedure.

Calibration in the spectral domain

The WAQAD system that has been used in this study is based on the minimization of the difference between observations and their corresponding model equivalent in the time domain. The formulation of such a measure for the difference between model and observations is a very general approach to model calibration. On the other hand, it does not account for a possible specific character of the models involved. For example, for tidal models the non-random errors can be represented in terms of a limited number of spectral components. By first defining a cost-function in terms of the characteristic parameters before the actual calibration is carried out, the well-posedness as well as the intention of the user with respect to the calibration might be improved. The present study supports this conjecture: although time series of sufficient length are available, the effect of the calibration is, de facto, only noted for the semi-diurnal tidal constituents. Adjusting the depth and bottom friction, effectively only improves the representation of the dominant semi-diurnal constituents. From a tidal modelling point of view this is a rather limited result. Simultaneous calibration of the open boundary forcing will certainly lead to a more optimistic conclusion with respect to the improvement of the representation of the higher order constituents. Doing so by defining the amplitude and phase of a number of constituents as calibration parameters, makes the definition of a cost-function in the spectral domain most appropriate. The extension of WAQAD with an option to define a cost-function in terms of spectral parameters, *i.e.* a cost-function that is based on amplitude and phase errors, is subject of a project as part of the strategic co-operation of RIKZ and WL|delft hydraulics, see ten Brummelhuis and Verlaan (1998). The present study has indicated the relevance of this new WAQAD option that will be realized in 1999.

Matlab postprocessing

Matlab has proven to provide a powerful and flexible environment for post-processing of the calibration experiments. However, based on the experience of this study, the possibilities offered by Matlab can be exploited even further, especially in the specification phase of the calibration.

In the current version of WAQAD, the triangulation for the calibration parameters is defined in the computational domain. However, when using boundary fitted curvilinear grids are used, as for the ZNZ model, it is not trivial to ensure a proper distribution of the support points of the triangulation in the physical domain. The availability of a routine to visualize the triangulation in the physical domain would be very useful to support the specification of the triangulation, for example to avoid *(i)* over-parameterization in the areas of the model domain with a large stretching of the computational grid and *(ii)* the situation that some areas near the boundaries are not covered completely. Although the effect of over-parameterization can be overcome by imposing a penalty function, avoiding them seems more appropriate.

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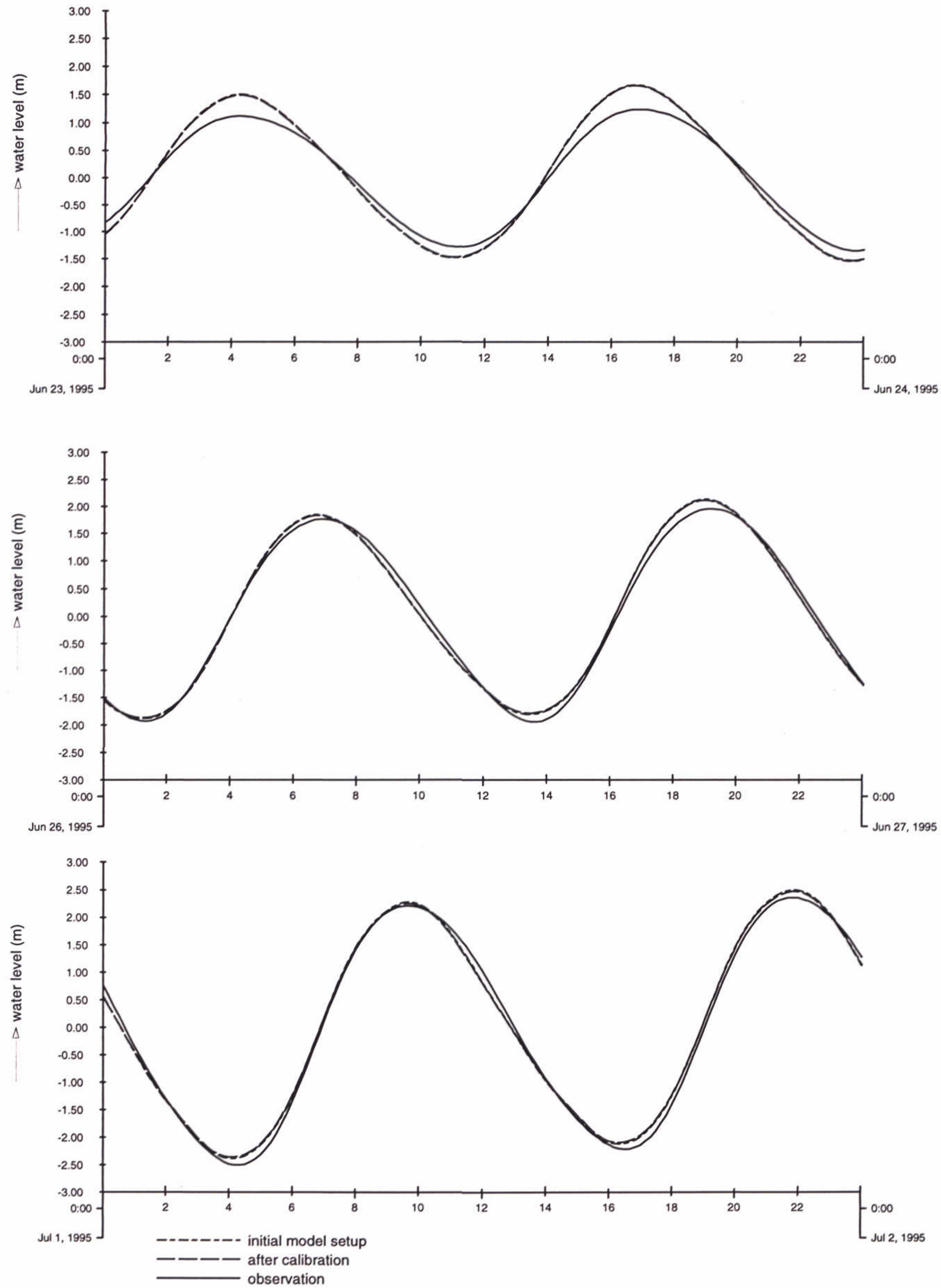
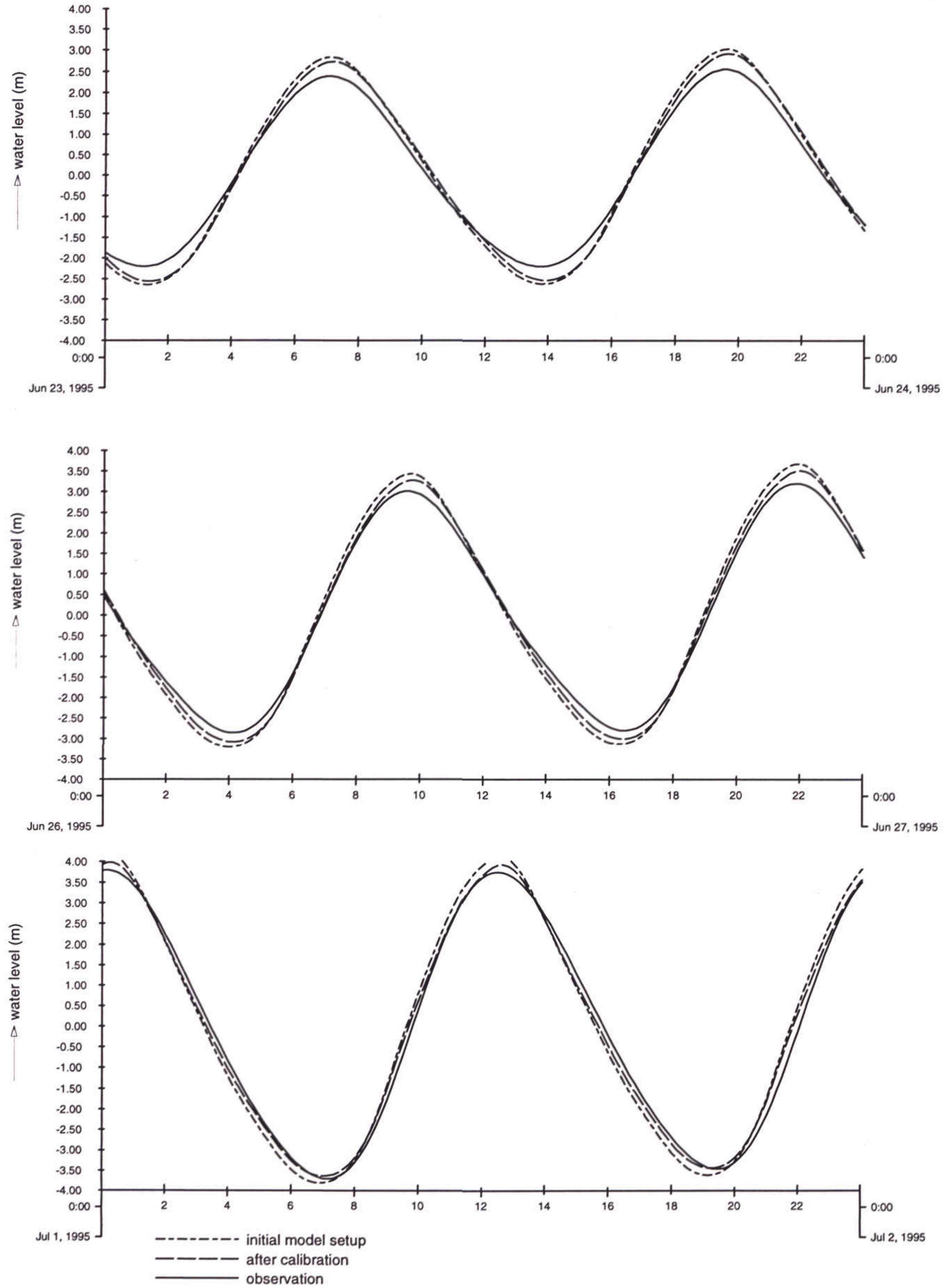
Appendix A

Fig. A-1 The computational grid of the ZNZ model, see van Dijk *et al.* (1998)

Appendix B



Station CHERBOURG Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-01



Station DIEPPE
Water level at neap tide (upper panel), mean tide (middle panel)
and spring tide (lower panel)

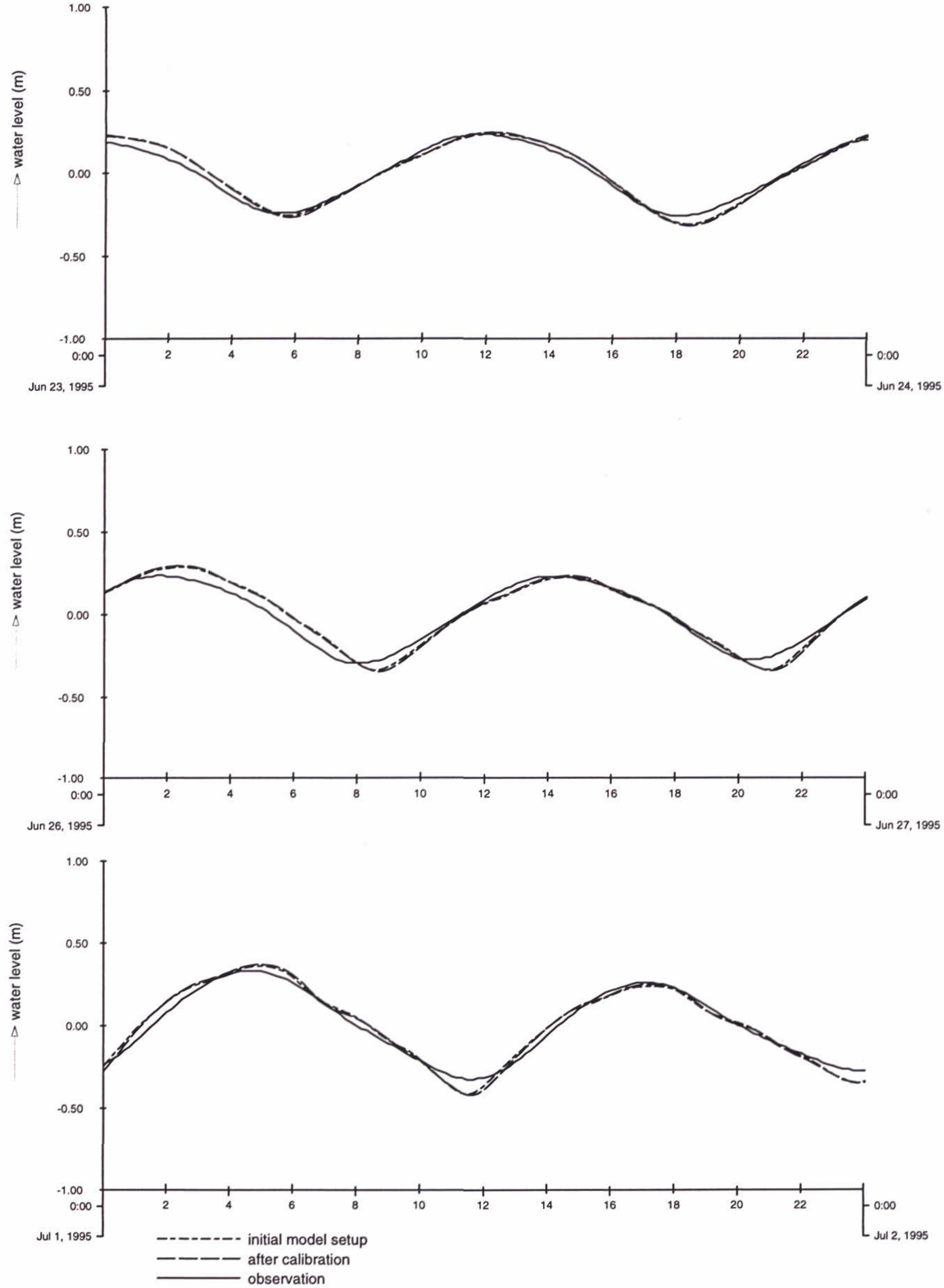
Nov 16 1998

Calibration ZNZ-model

WL|delft hydraulics

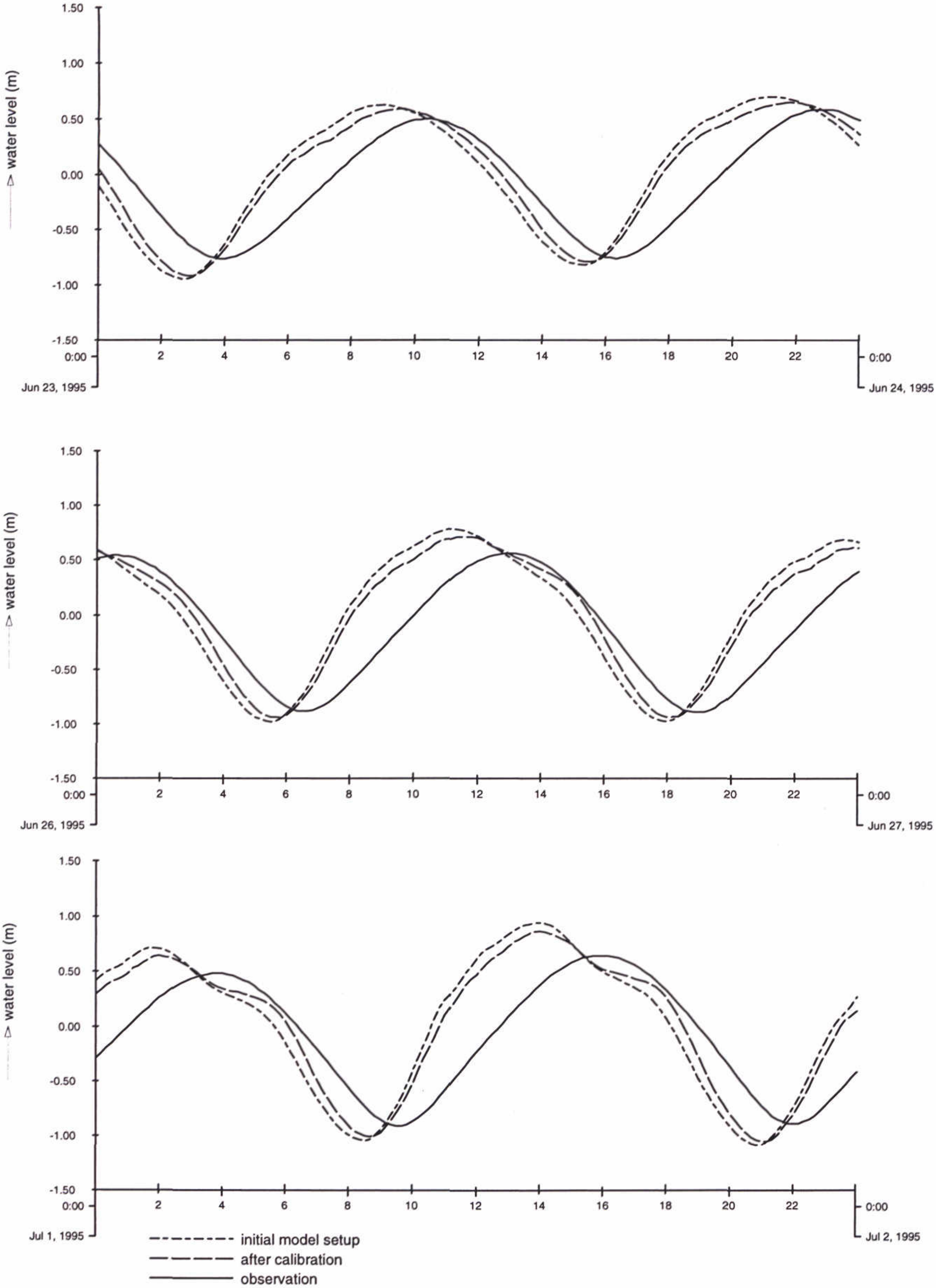
Z-2544

Fig. B-02

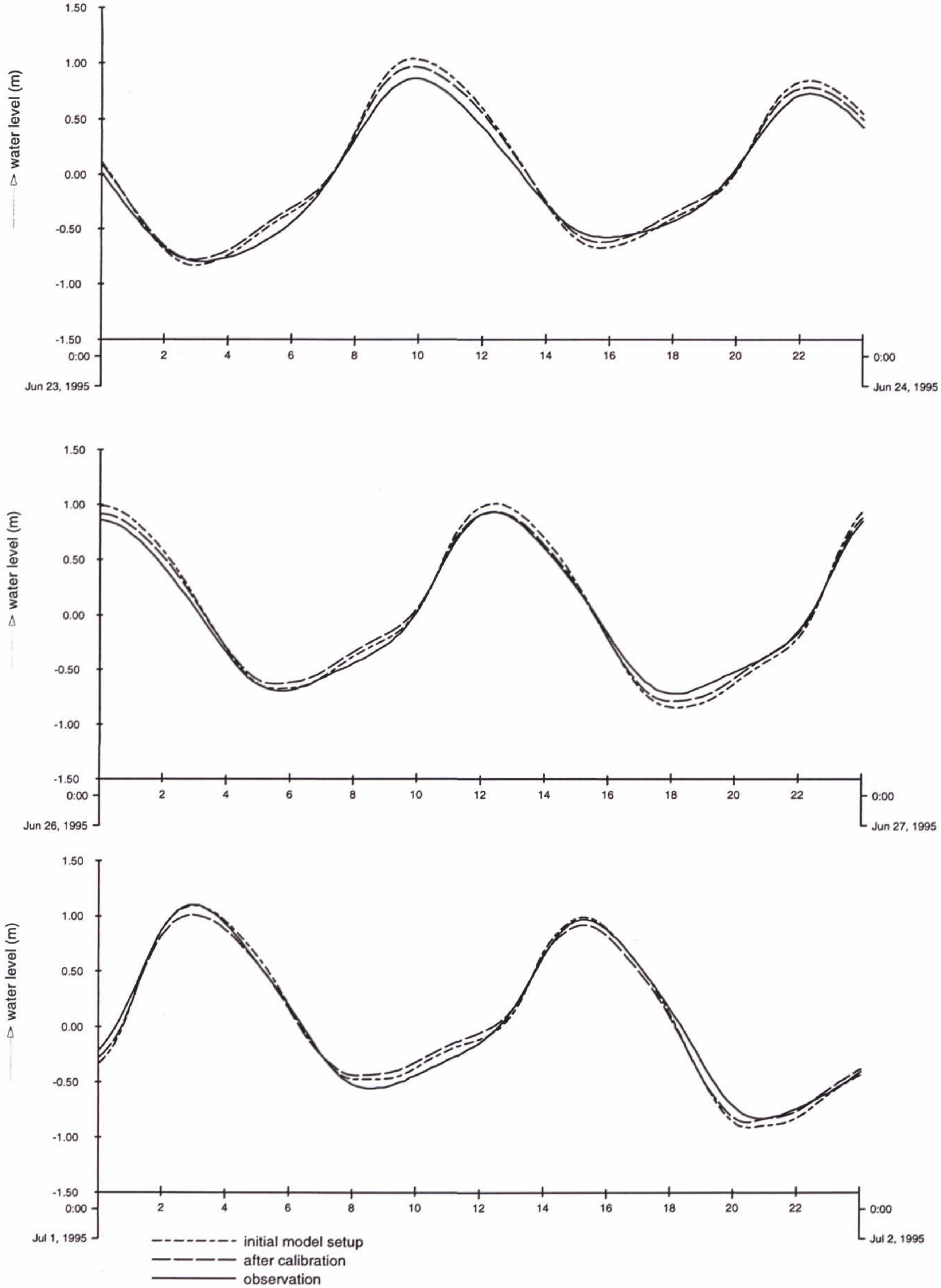


Station EKOFISK
Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

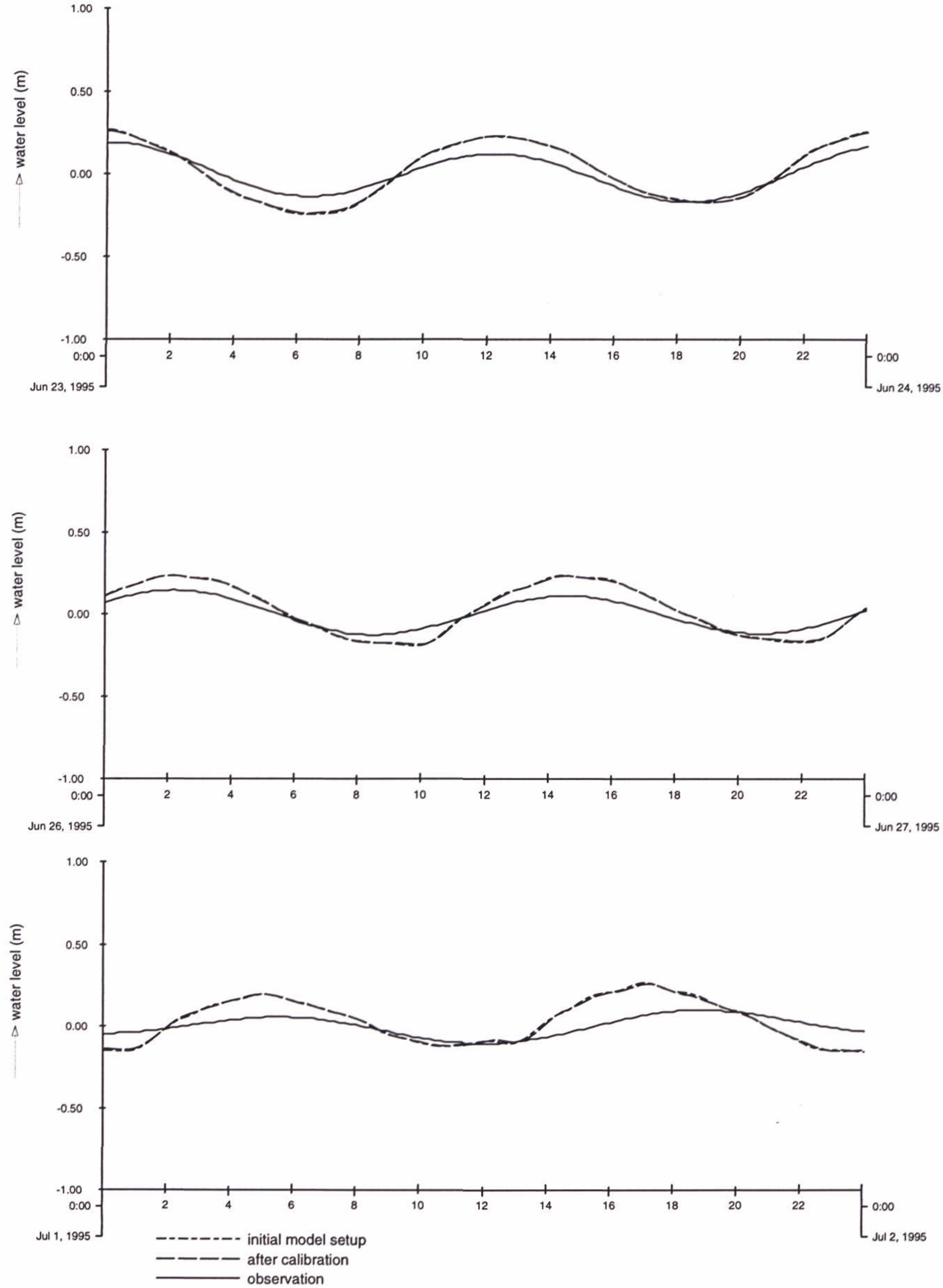
		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-03



Station ESBJERG Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-04



Station EURO0 Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-05



Station HANSTHOLM
Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

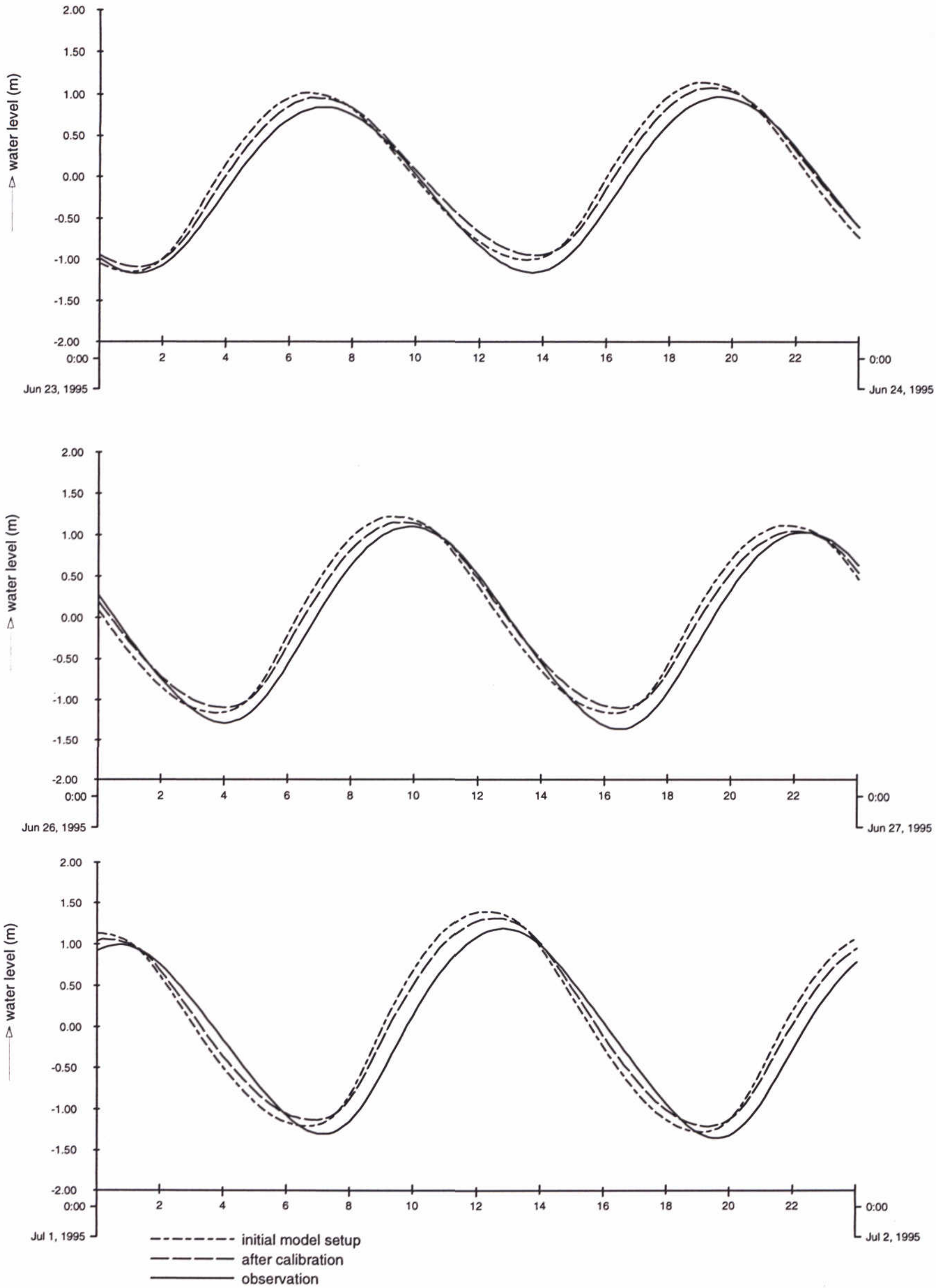
Nov 16 1998

Calibration ZNZ-model

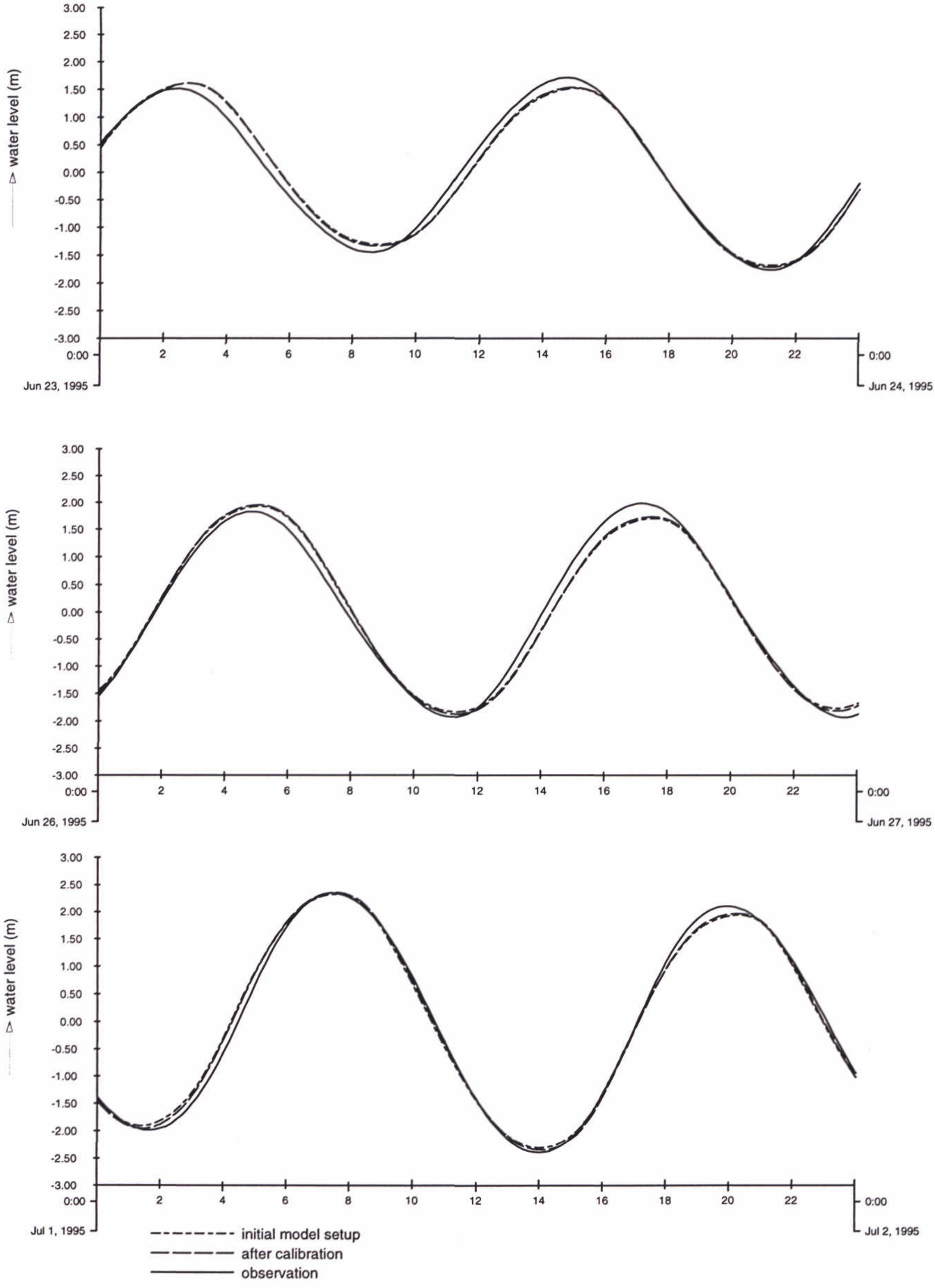
WL|delft hydraulics

Z-2544

Fig. B-06

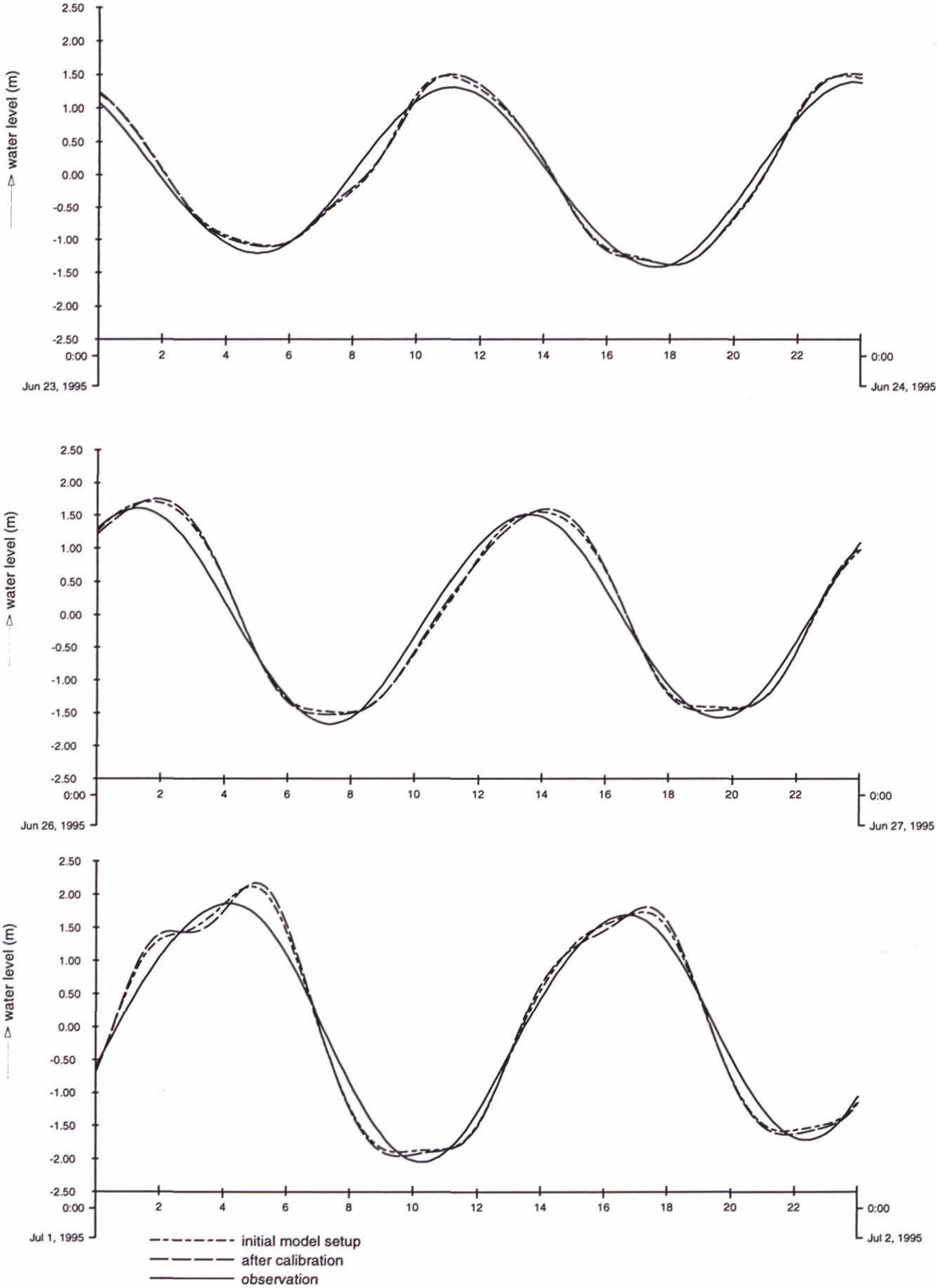


Station HELGOLAND Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-07



Station INNER DOWSING
Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

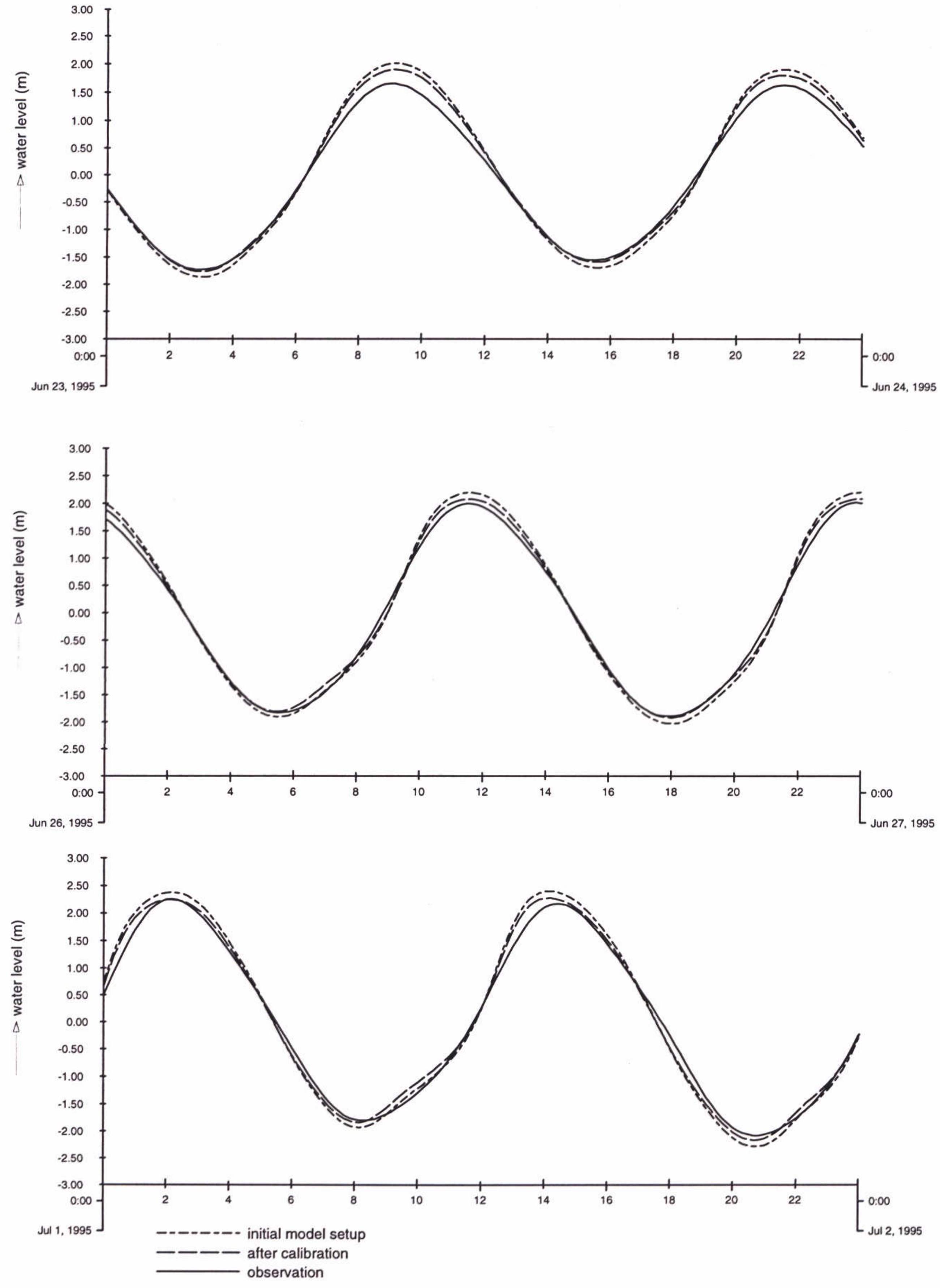
		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-08



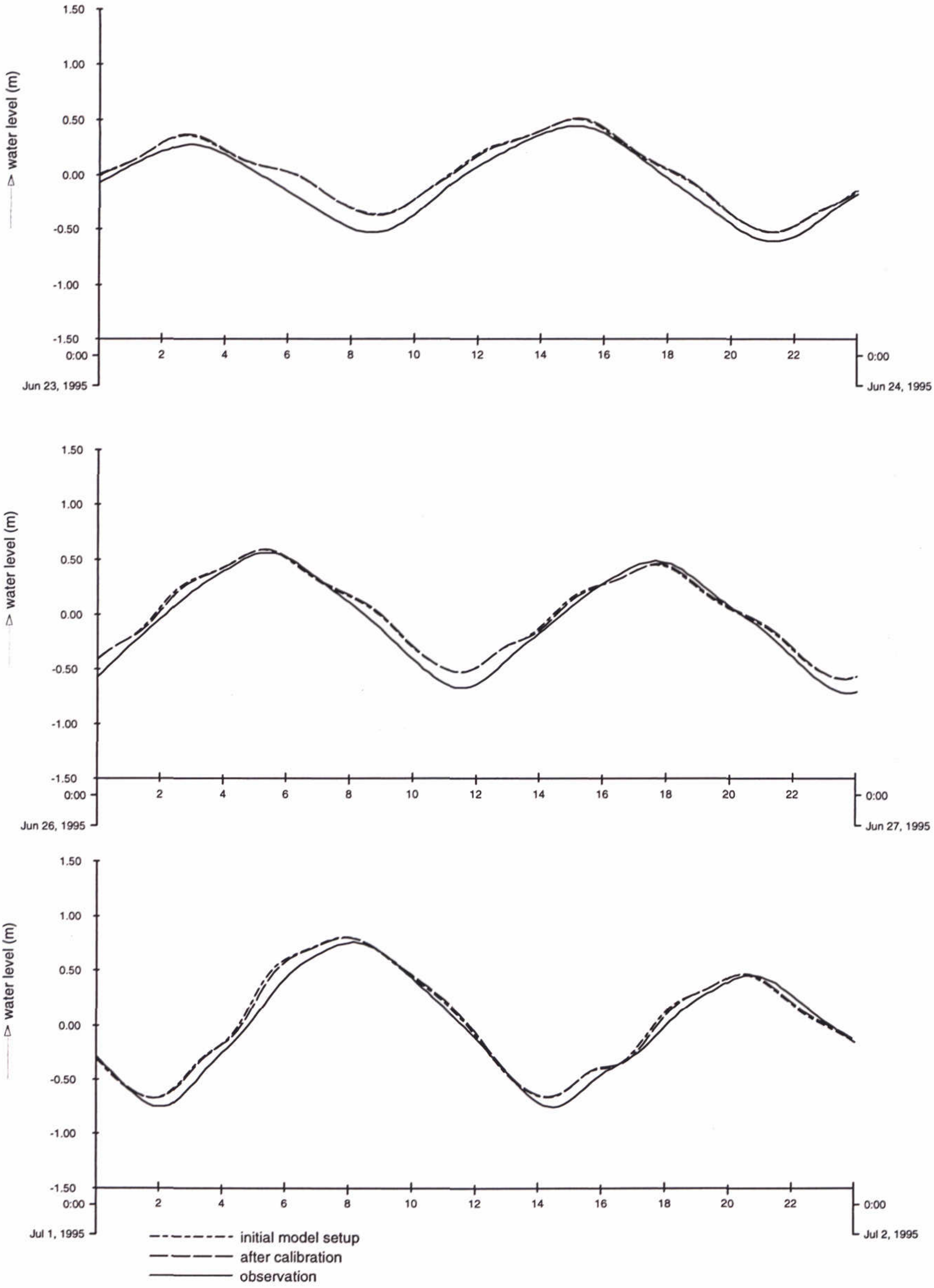
Station LEITH
Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

	Nov 16 1998
Calibration ZNZ-model	

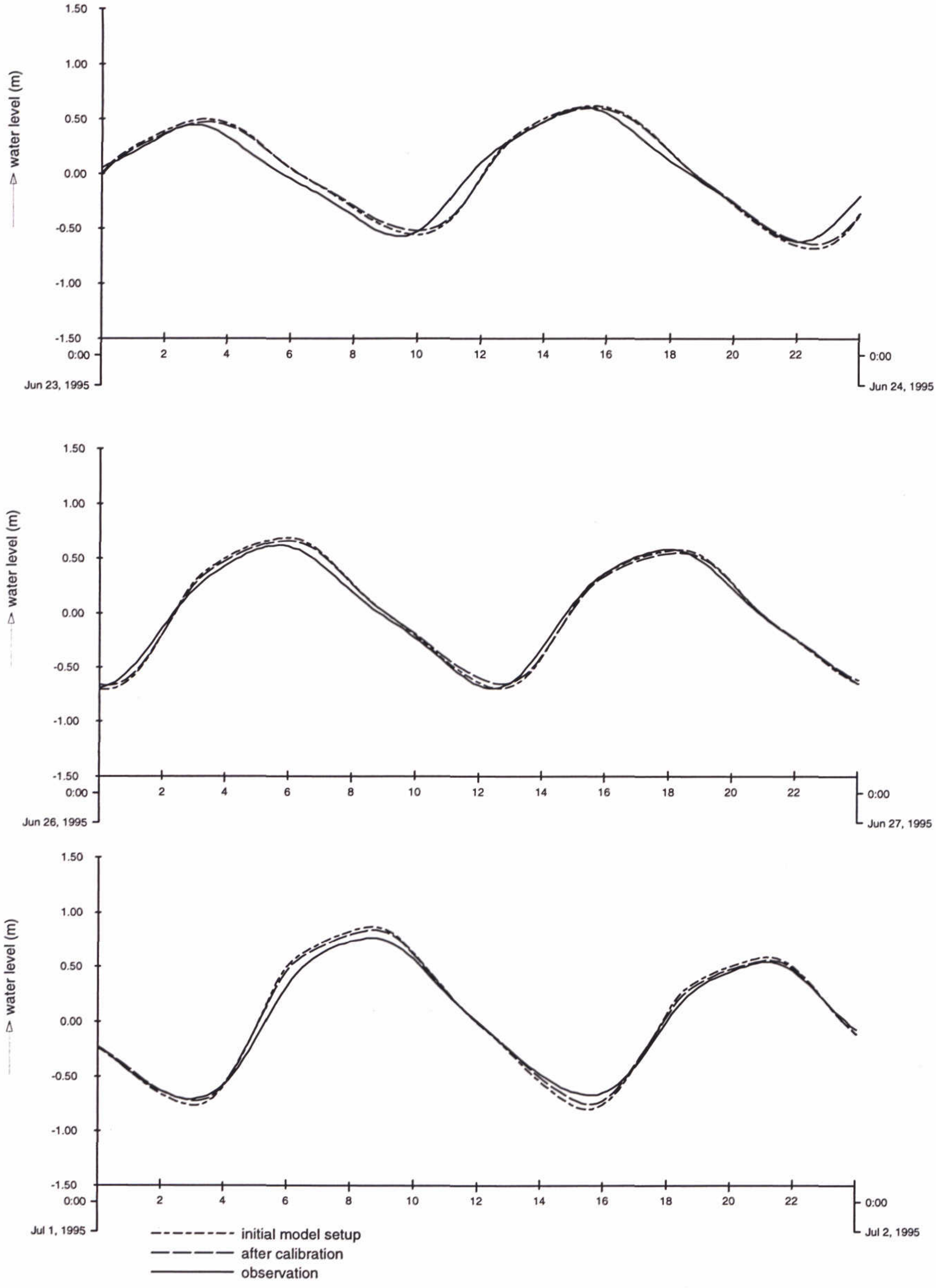
WL|delft hydraulics	Z-2544	Fig. B-09



Station OOSTENDE Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-10



Station STATIONK13A Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-13



Station CD08
Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

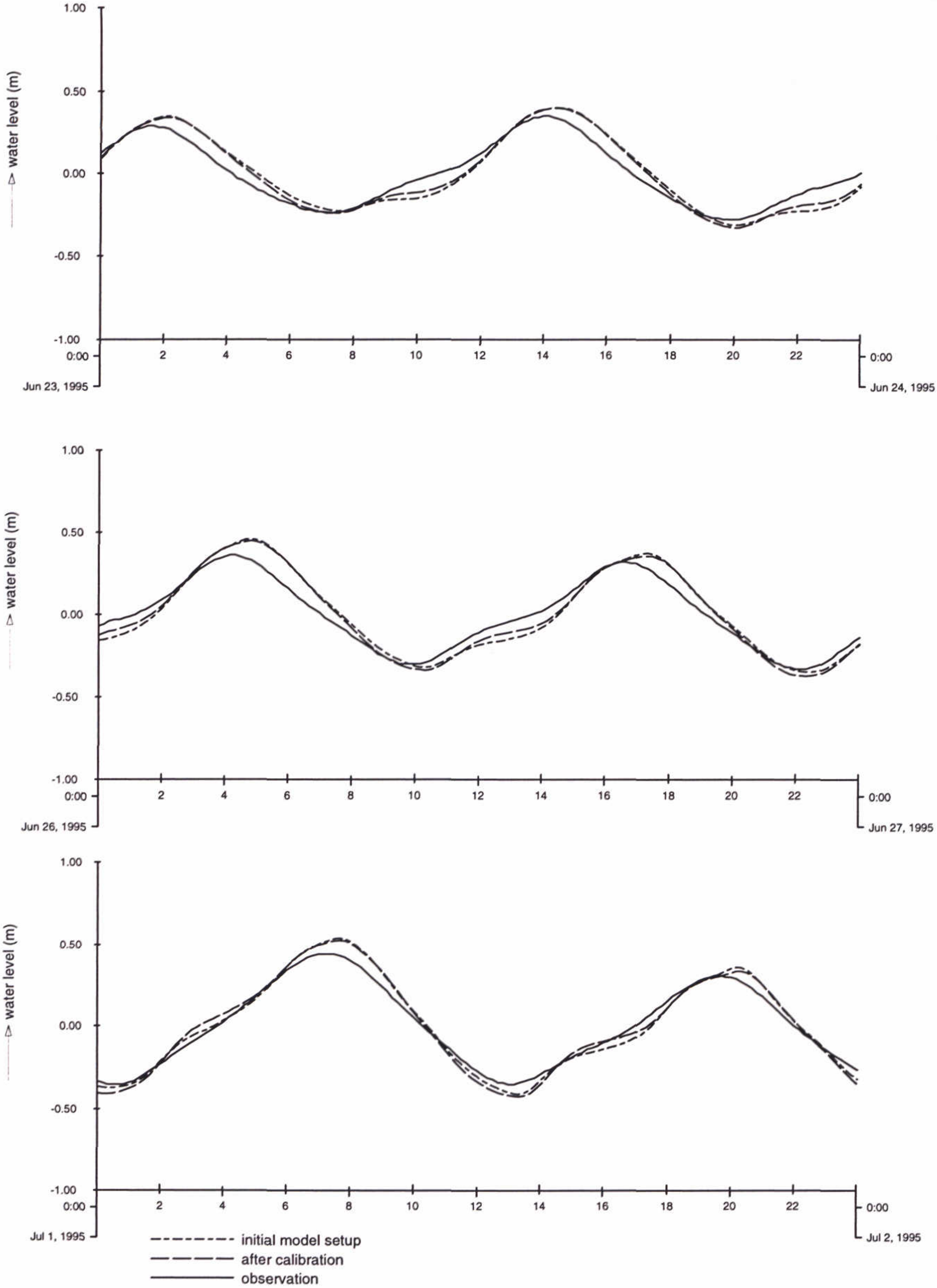
Nov 16 1998

Calibration ZNZ-model

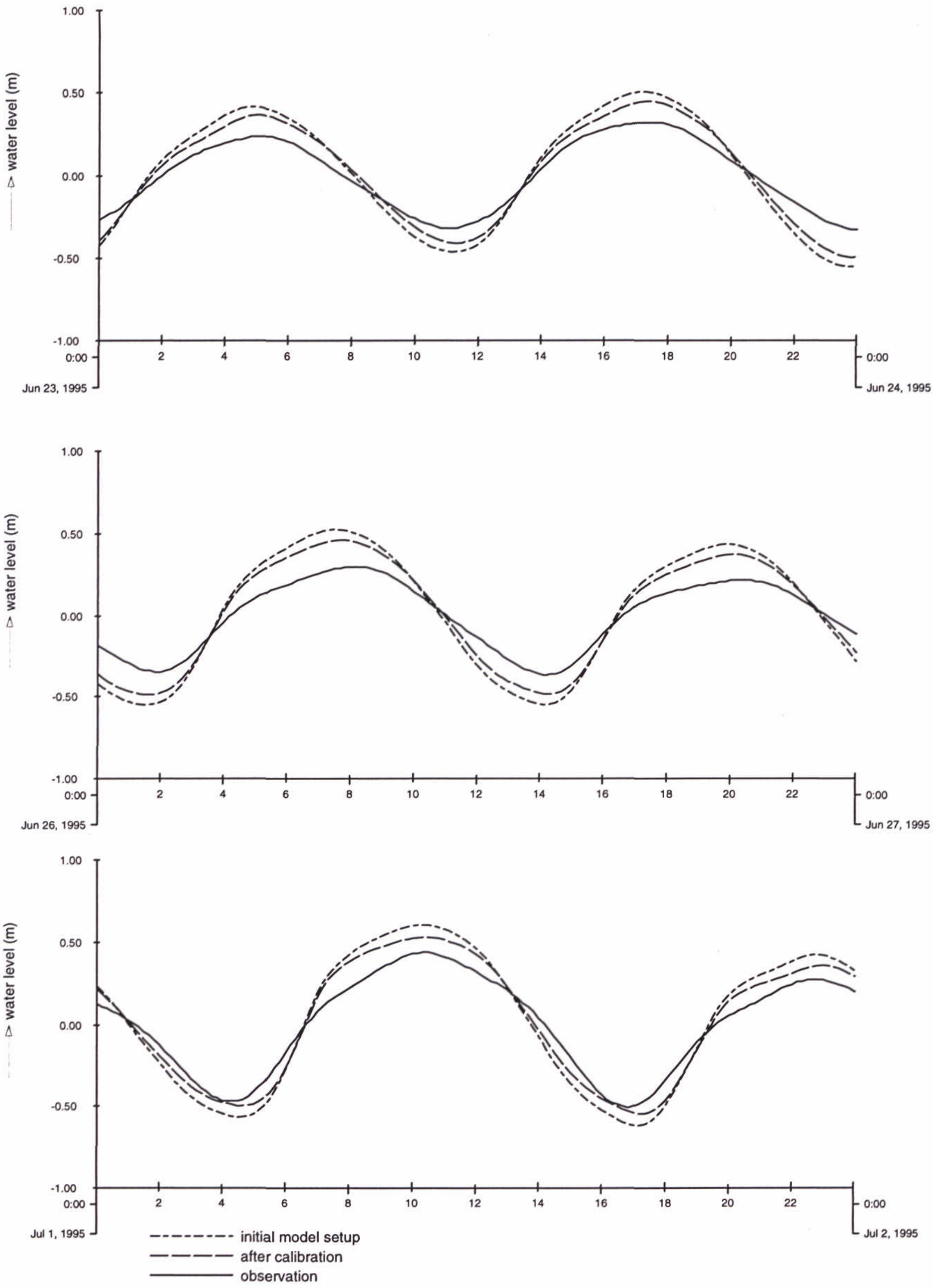
WL|delft hydraulics

Z-2544

Fig. B-14



Station CD09 Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-15



Station CD12
Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

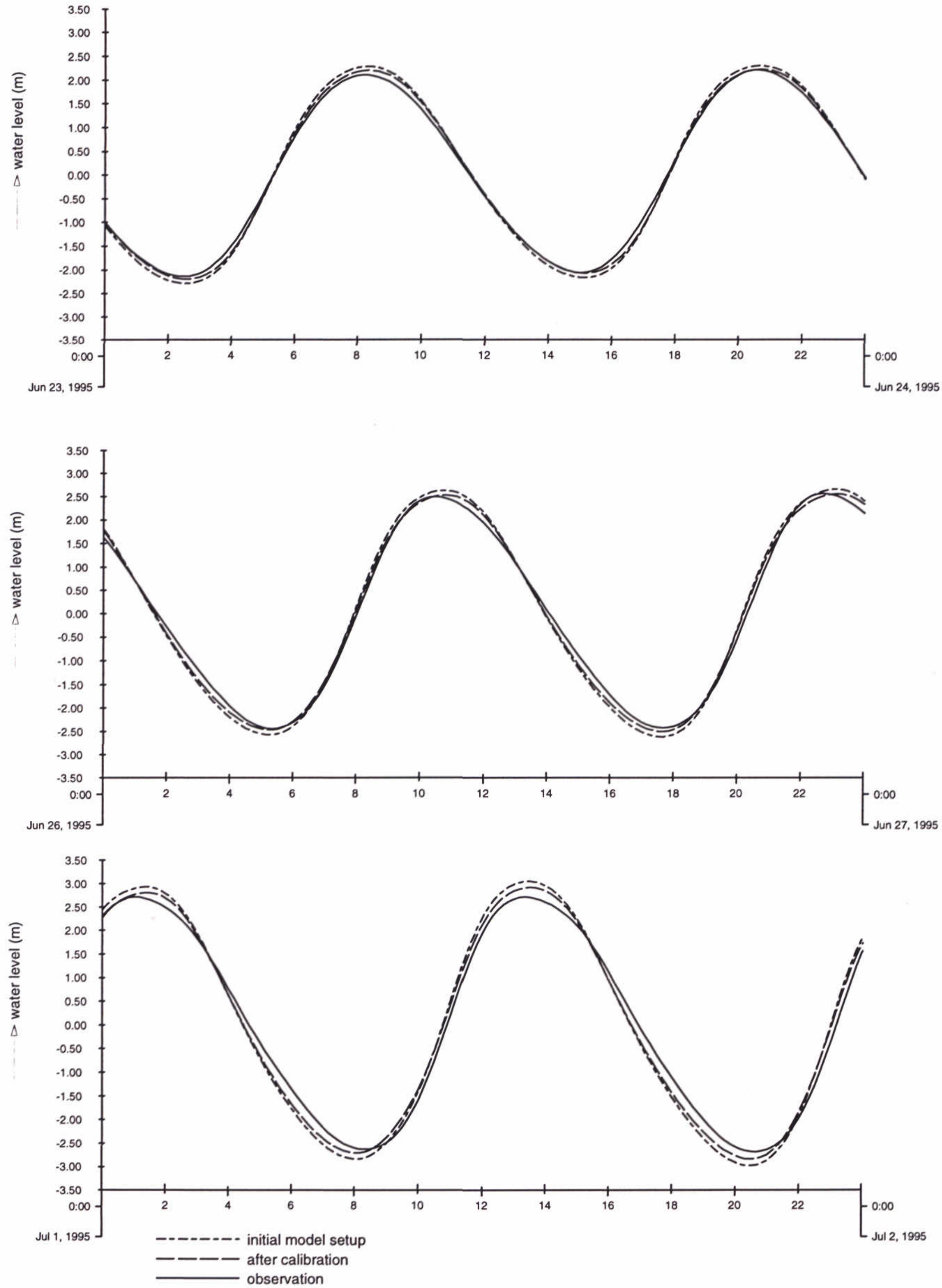
Nov 16 1998

Calibration ZNZ-model

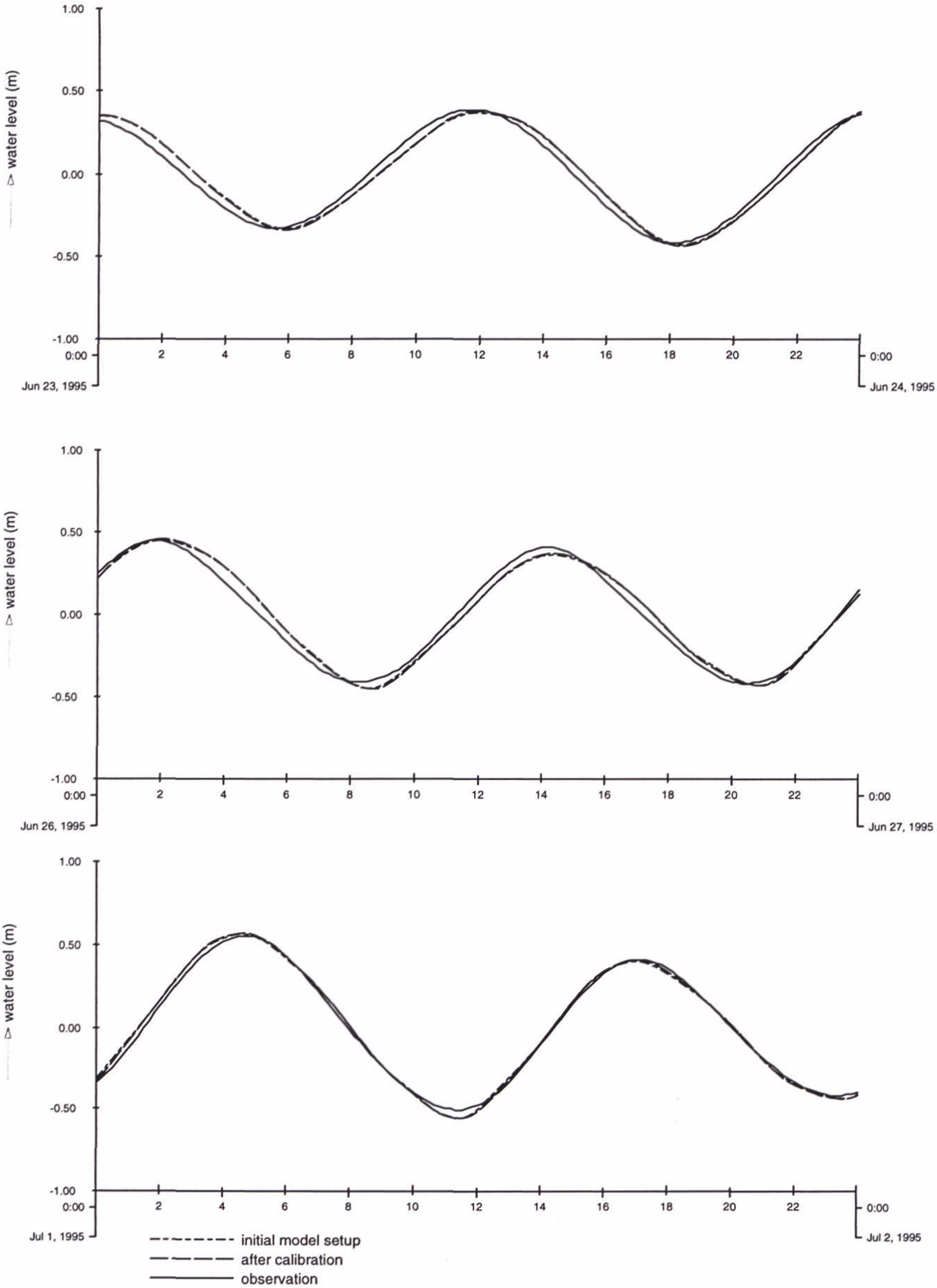
WL|delft hydraulics

Z-2544

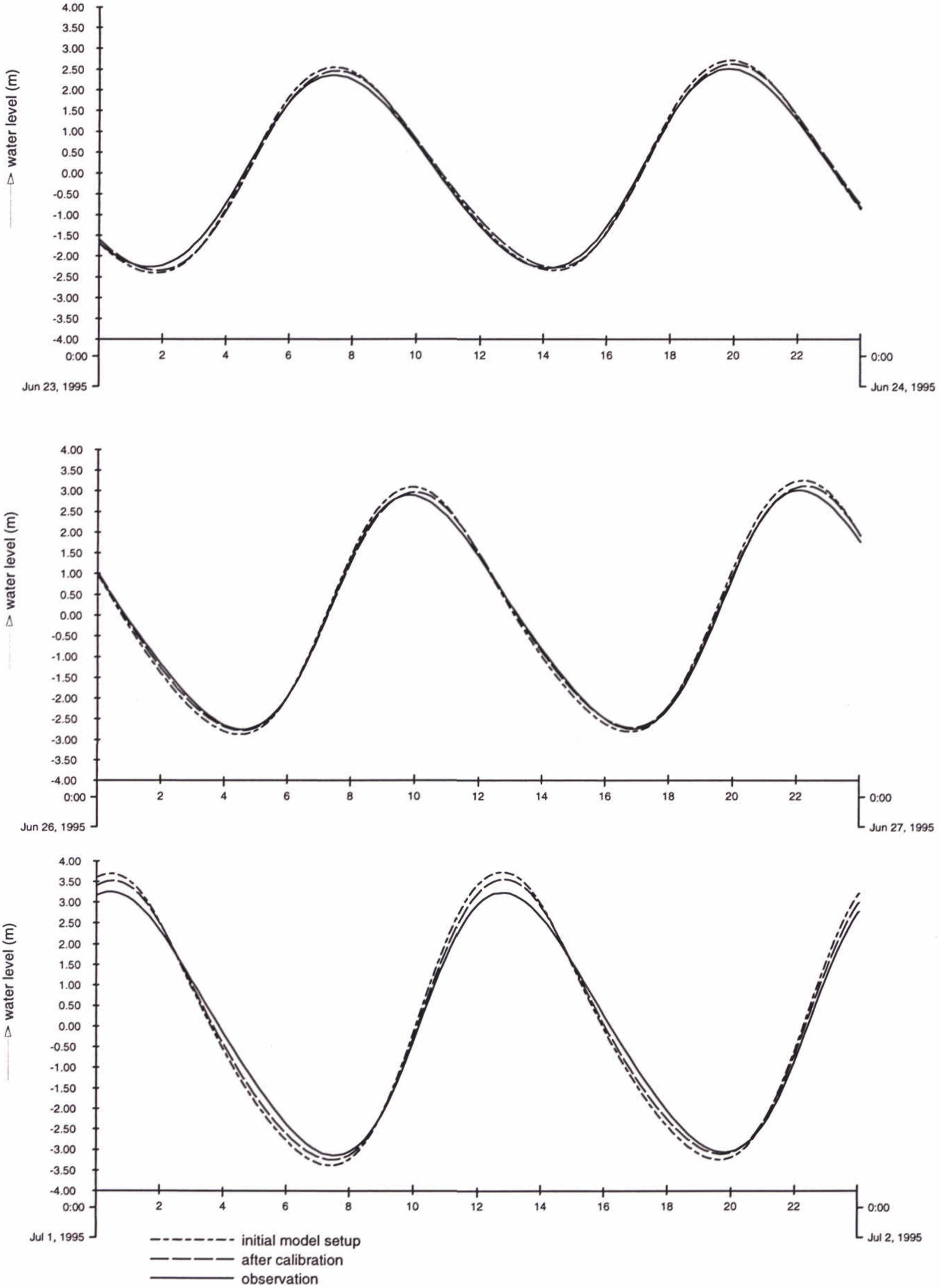
Fig. B-16



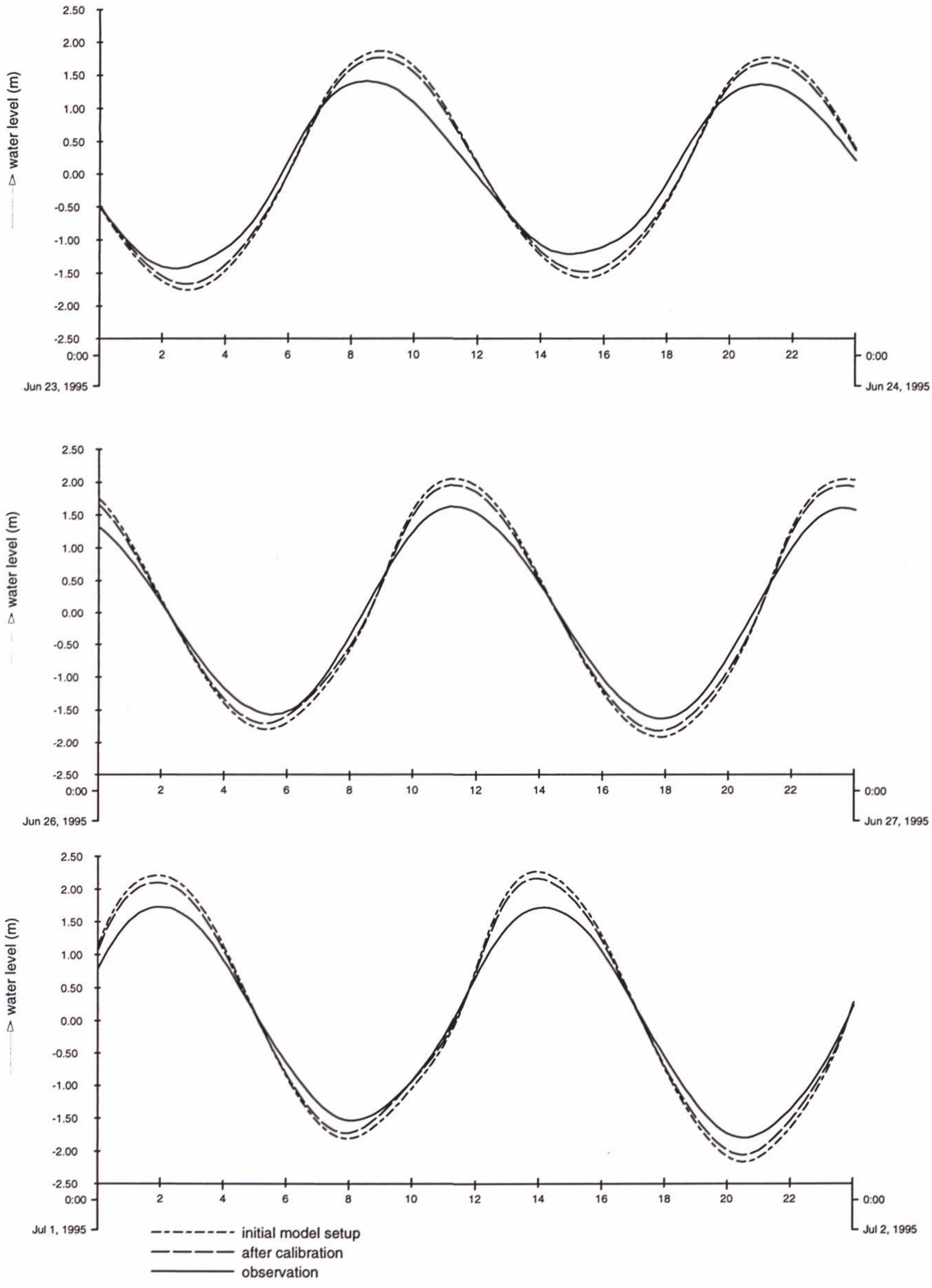
Station CALAIS Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-18



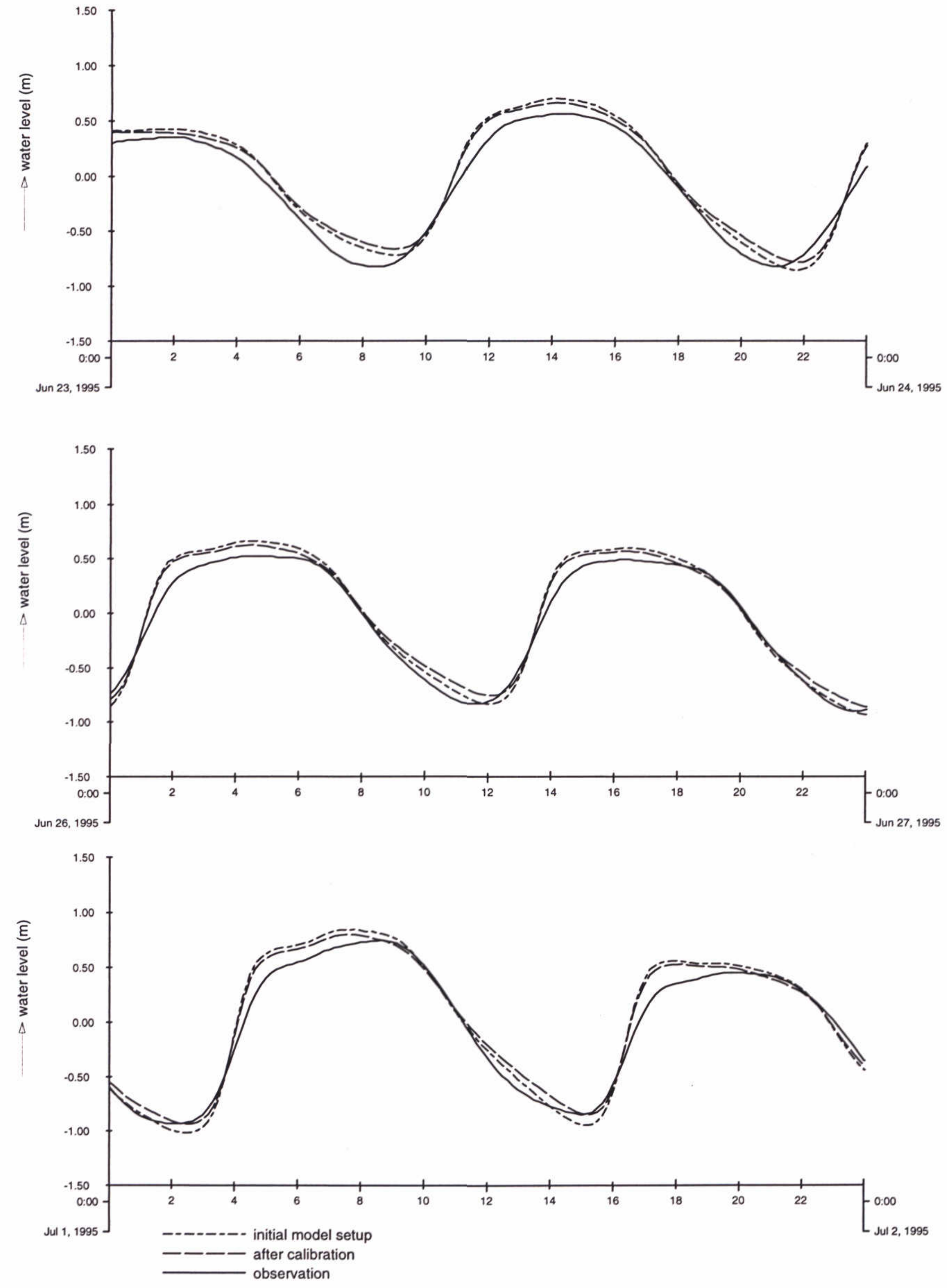
Station UK ALPHA Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-19



Station BASSURELLE Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-20



Station WESTHINDER Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-21



Station DEN HELDER

Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

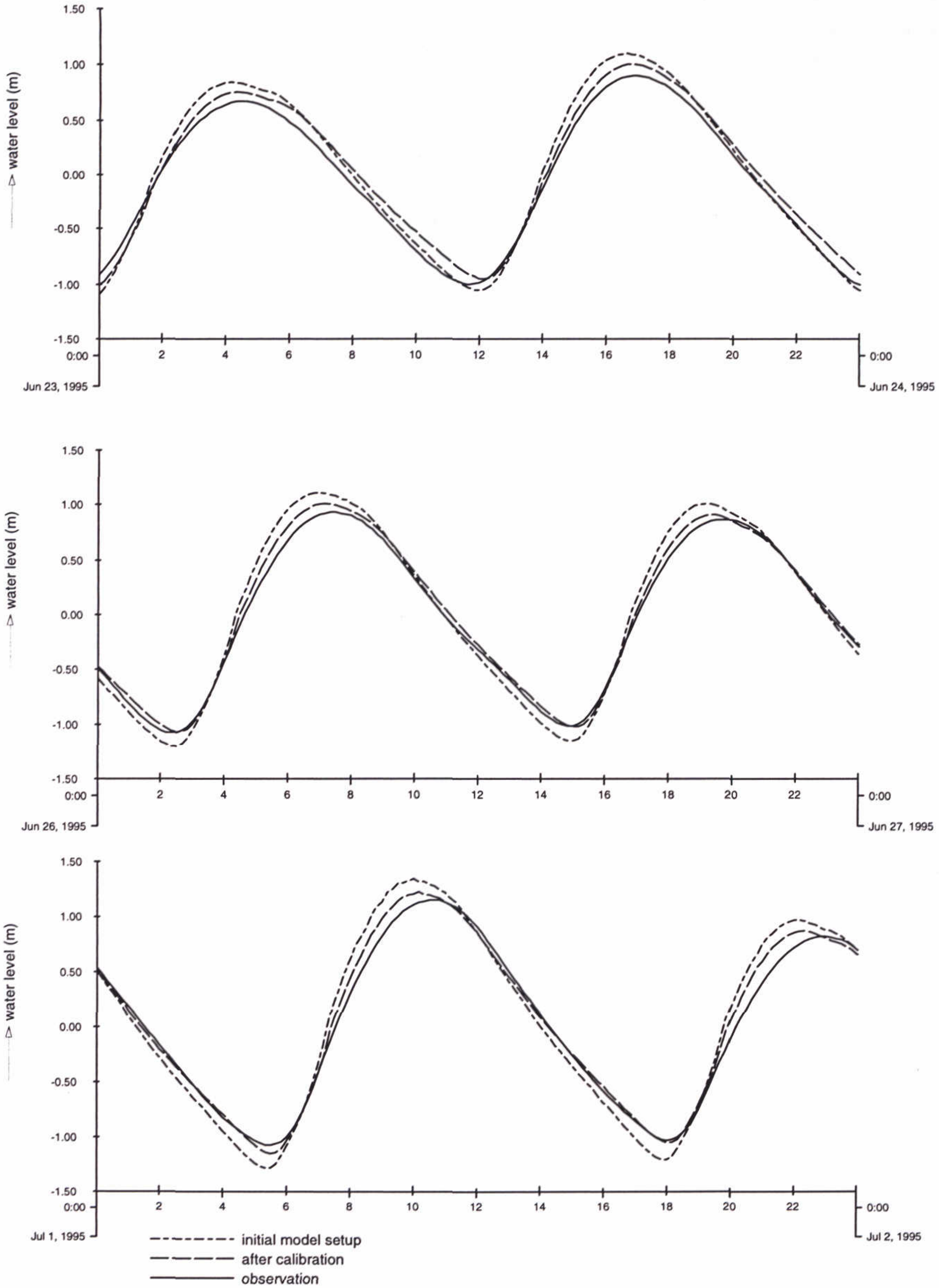
Nov 16 1998

Calibration ZNZ-model

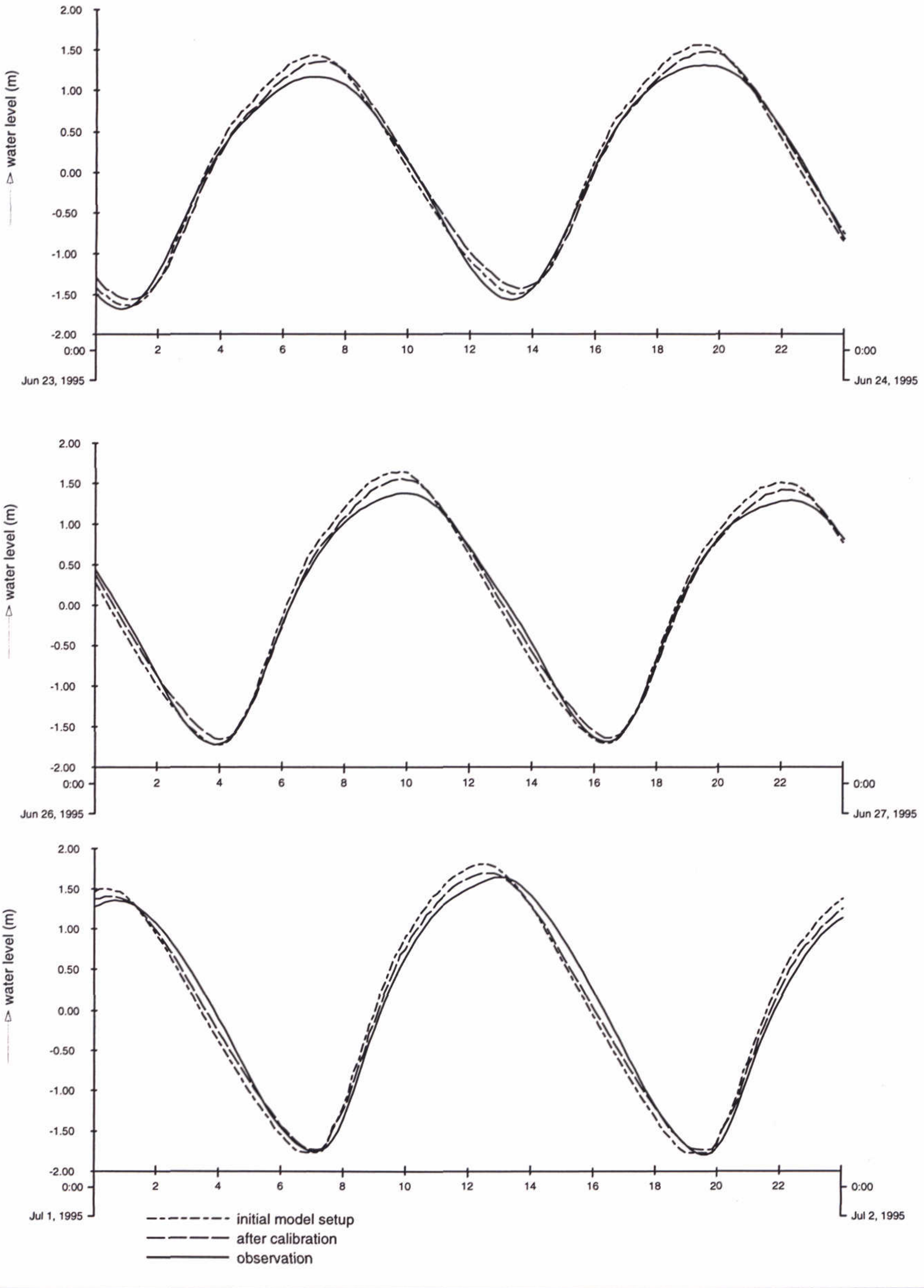
WL|delft hydraulics

Z-2544

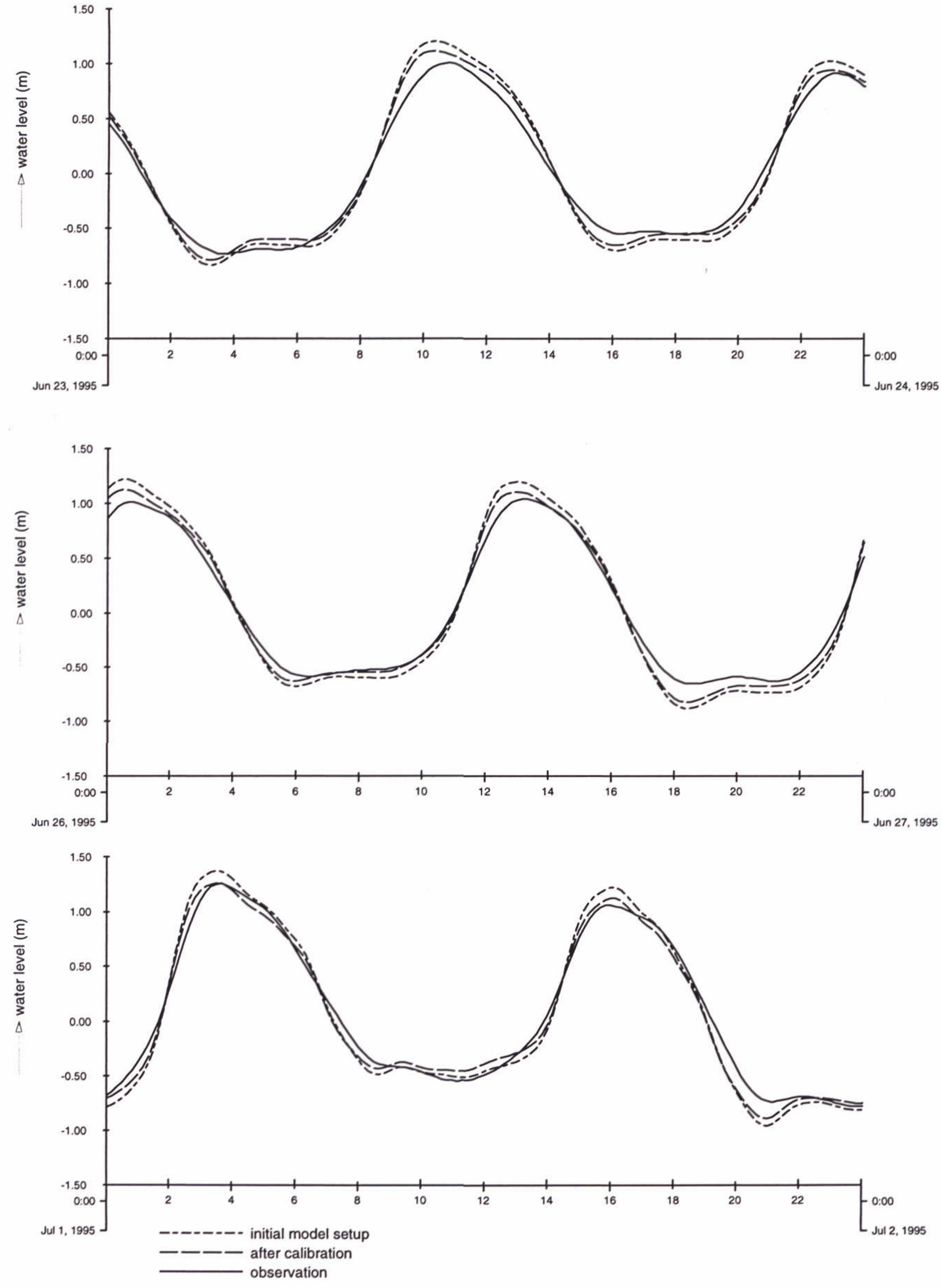
Fig. B-22



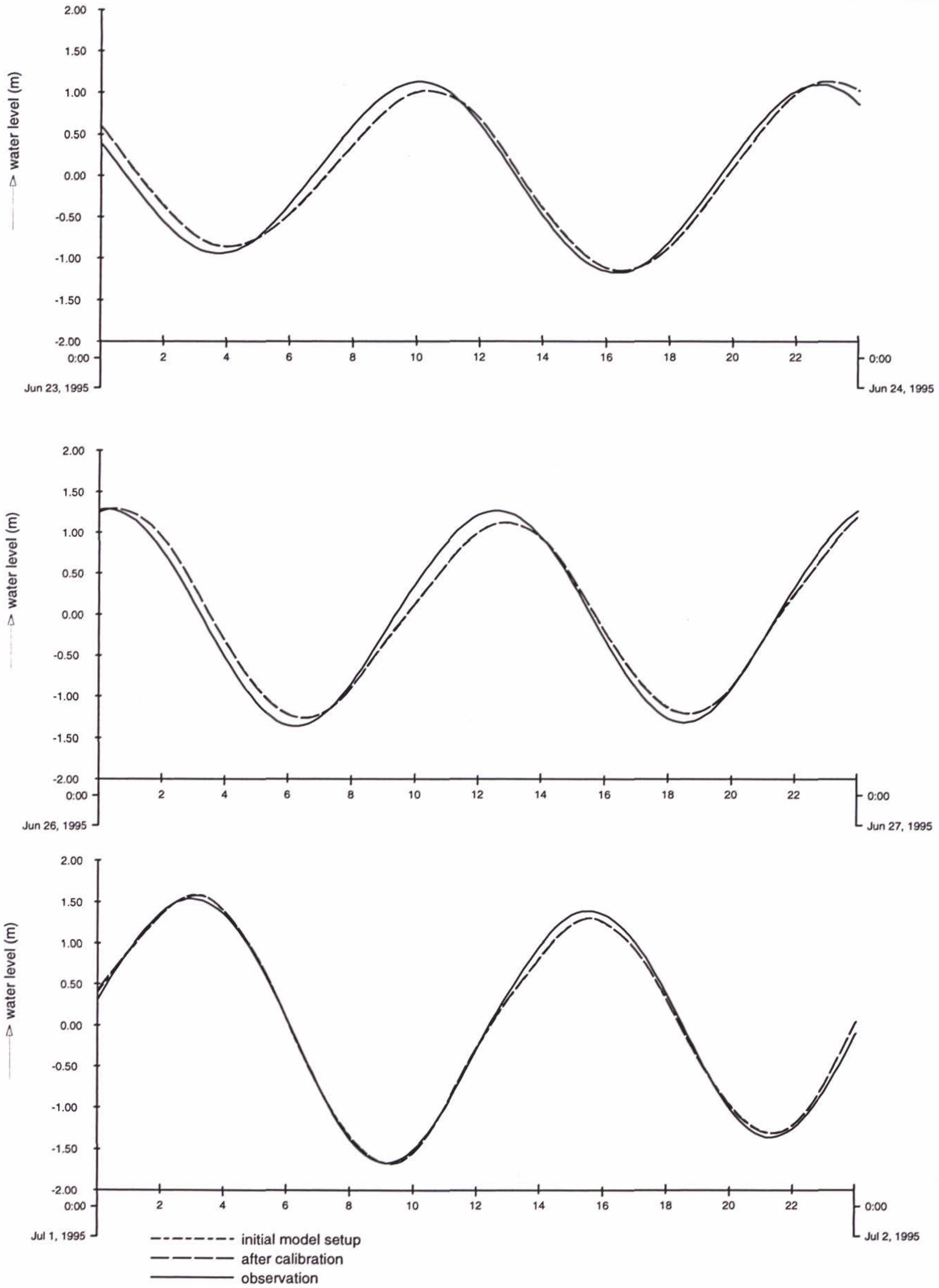
Station HARLINGEN Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-23



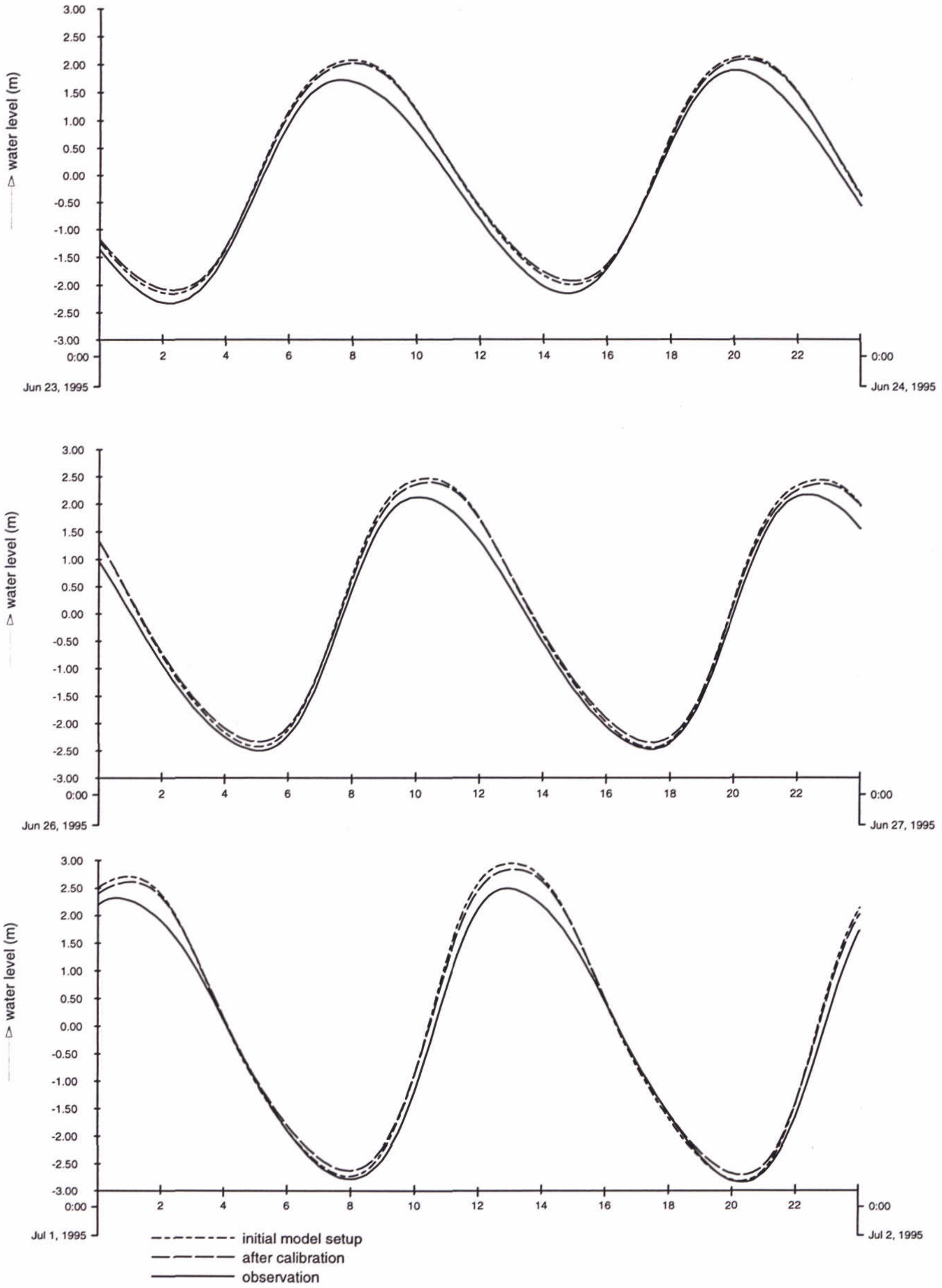
Station DELFZIJL Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-24



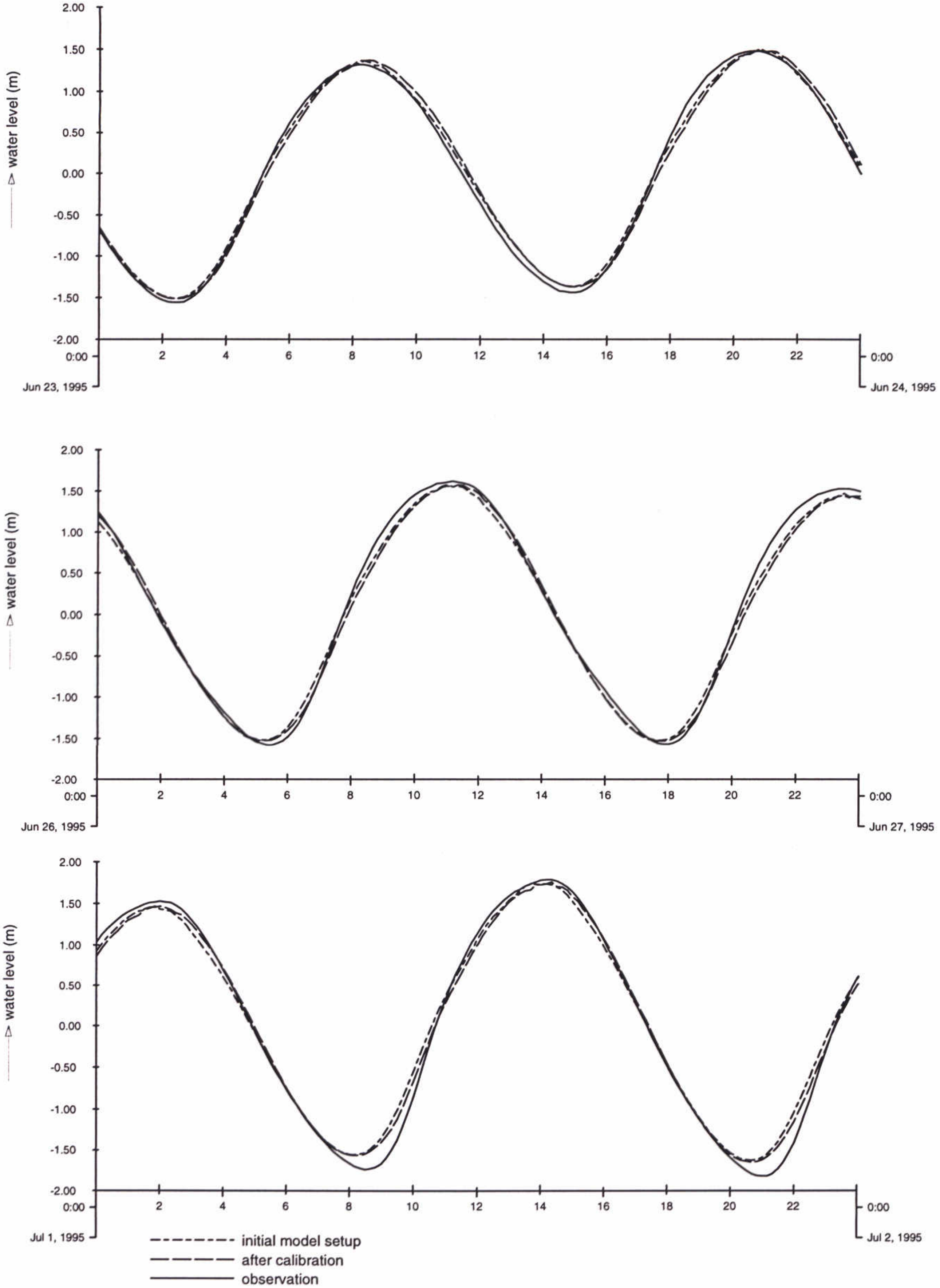
Station HOEK VAN HOLLAND Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-25



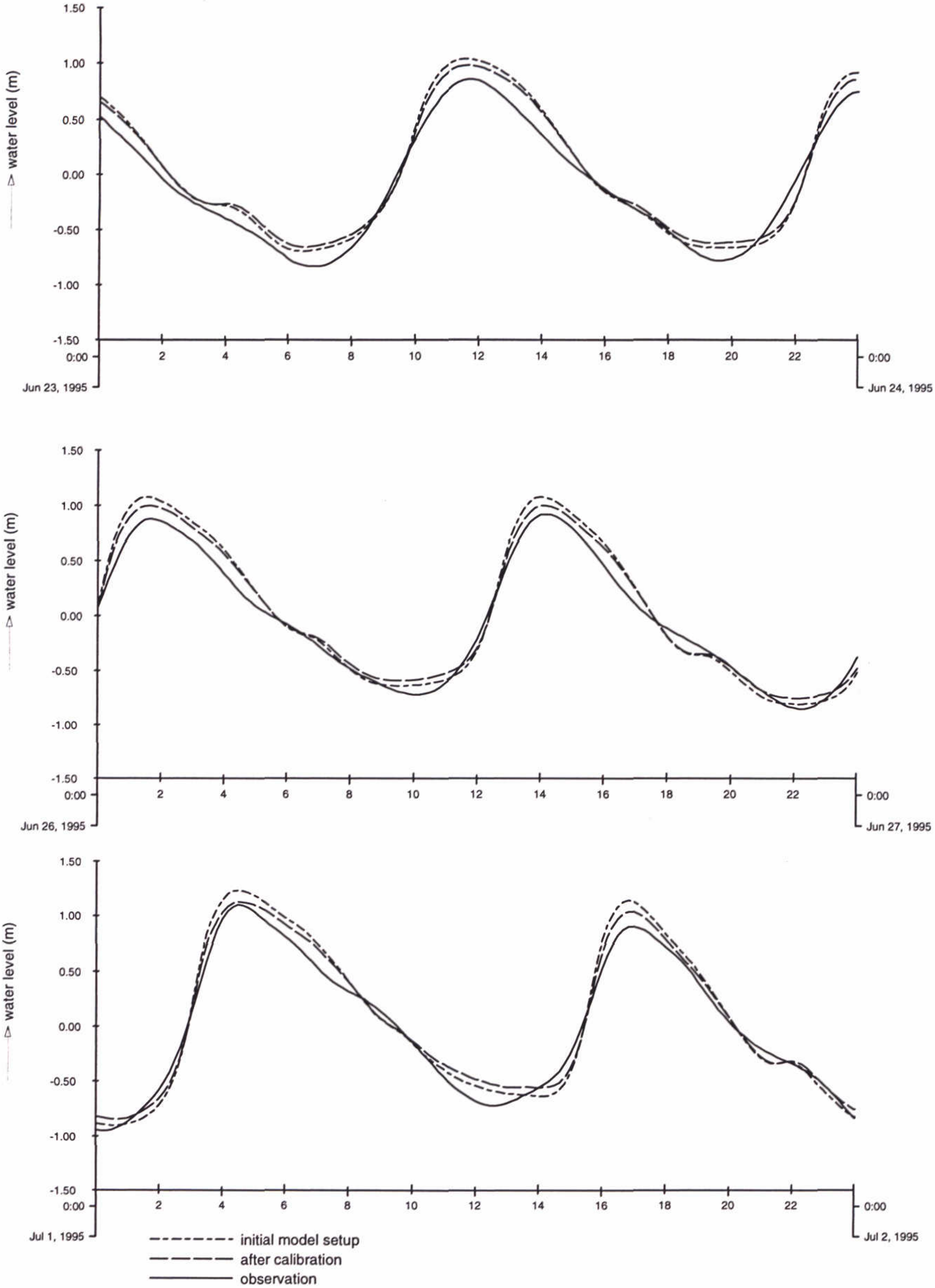
Station ABERDEEN Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-26



Station DOVER Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-27

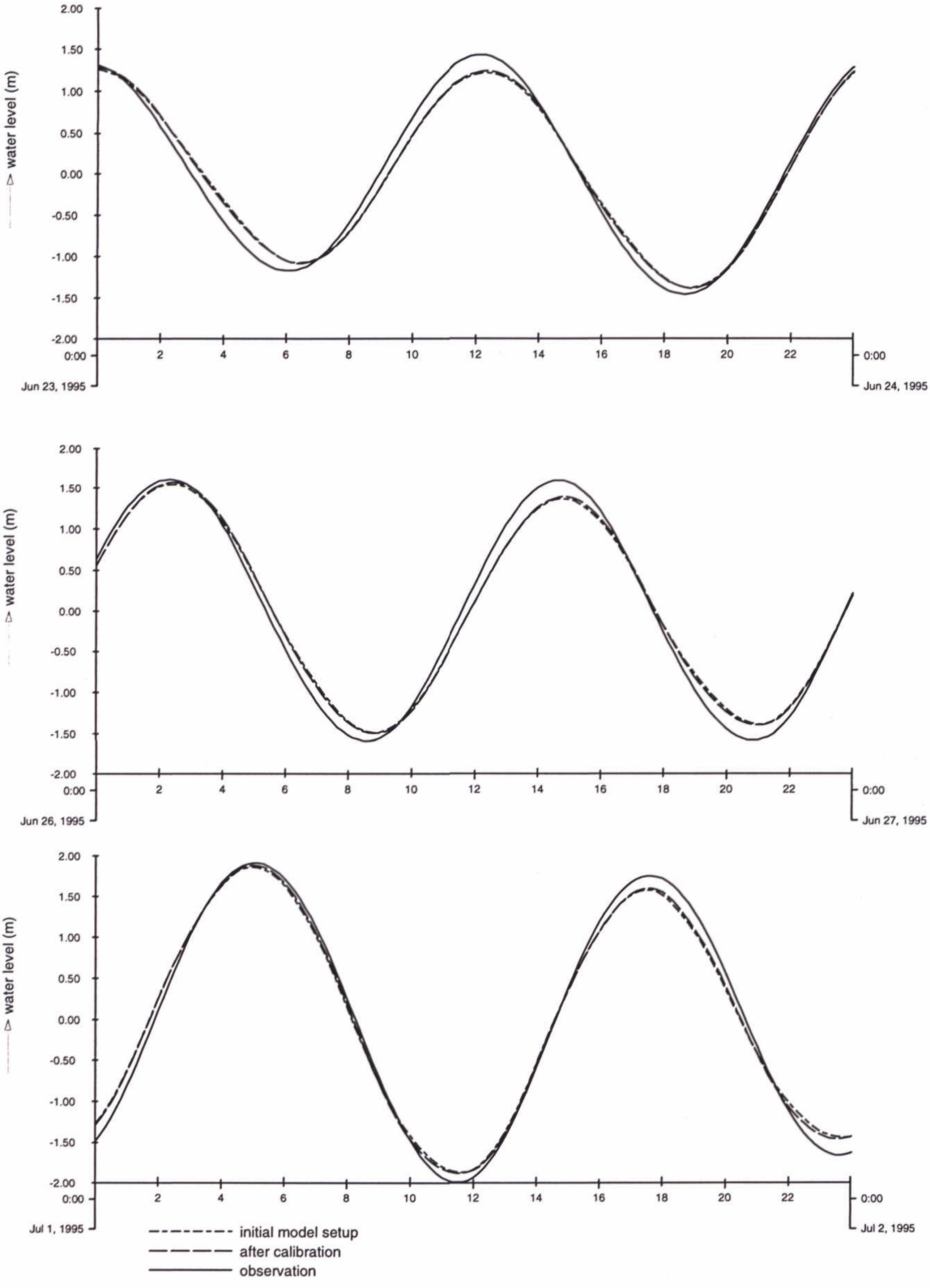


Station CUXHAVEN Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-28

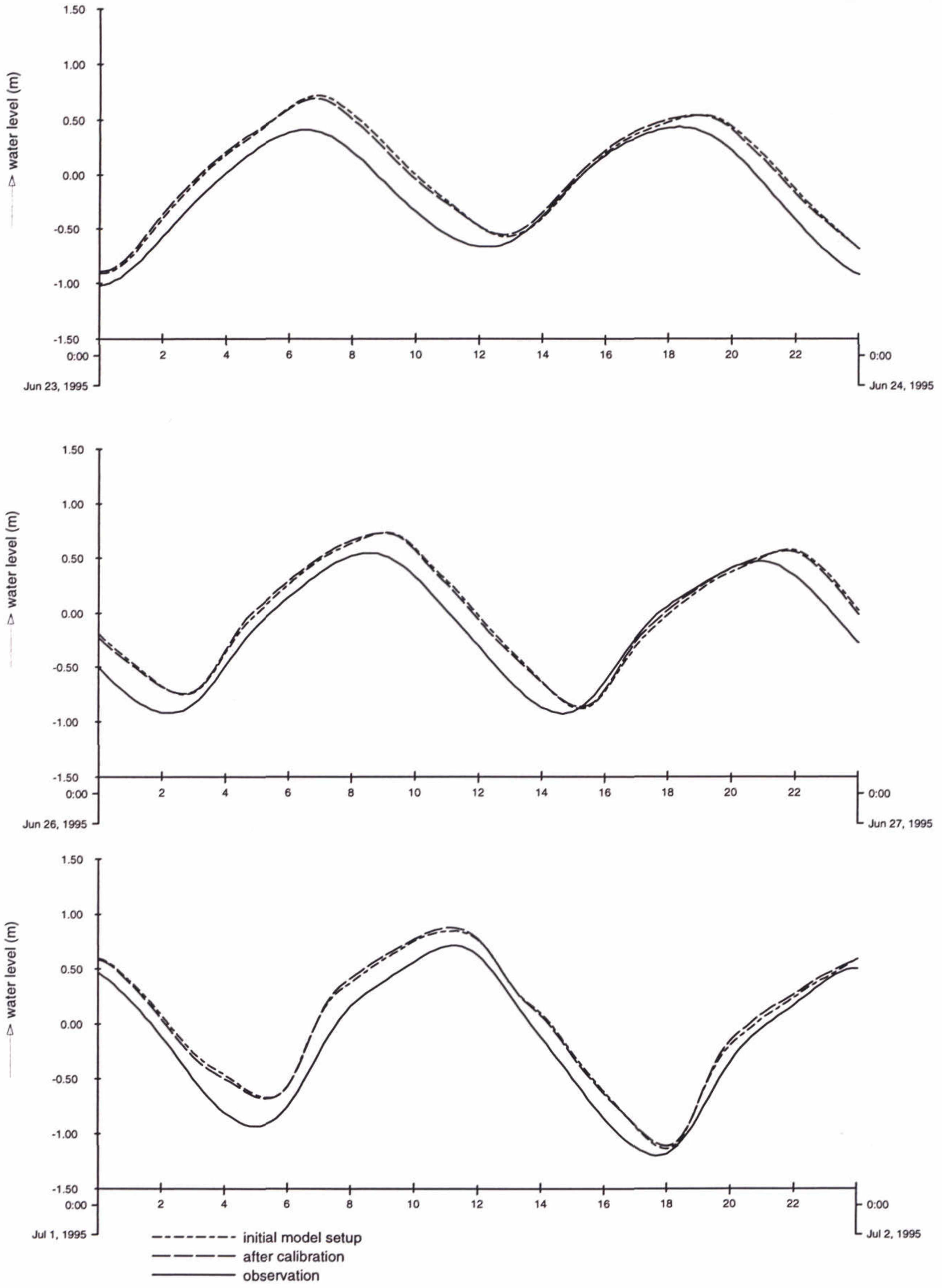


Station IJMUIDEN
Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

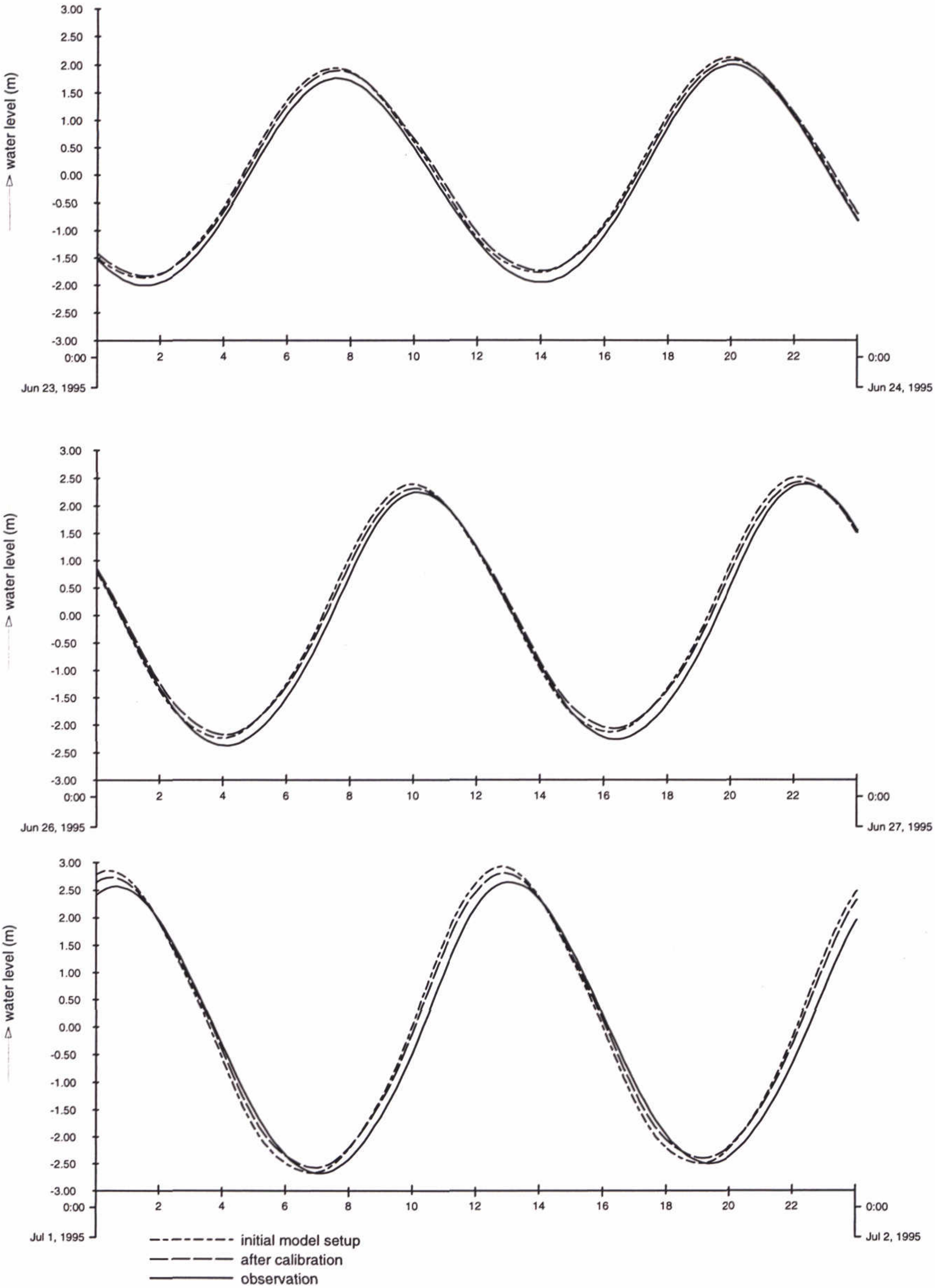
		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-29



Station NORTHSHIELDS Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-30



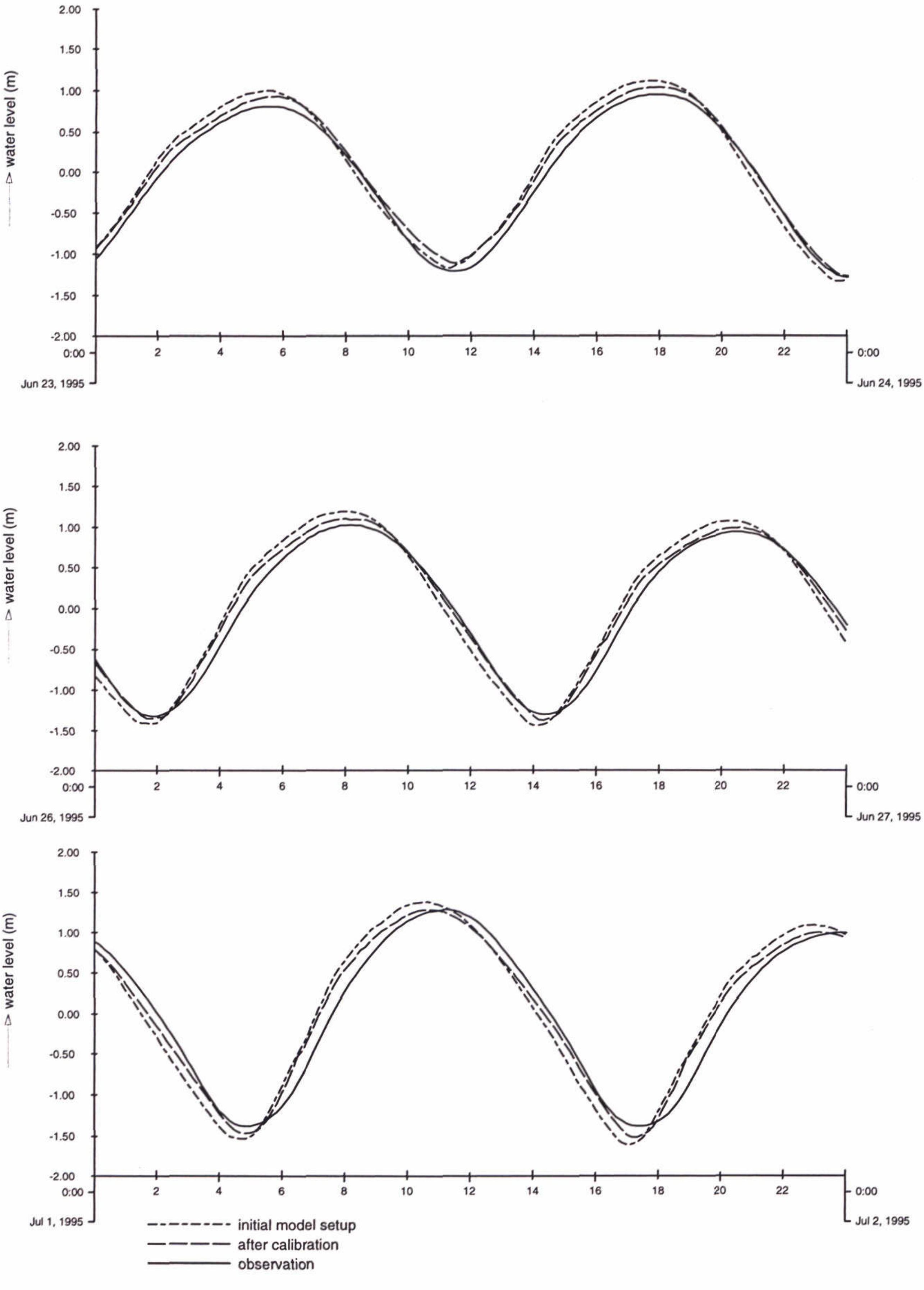
Station LOWESTOFT Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-31



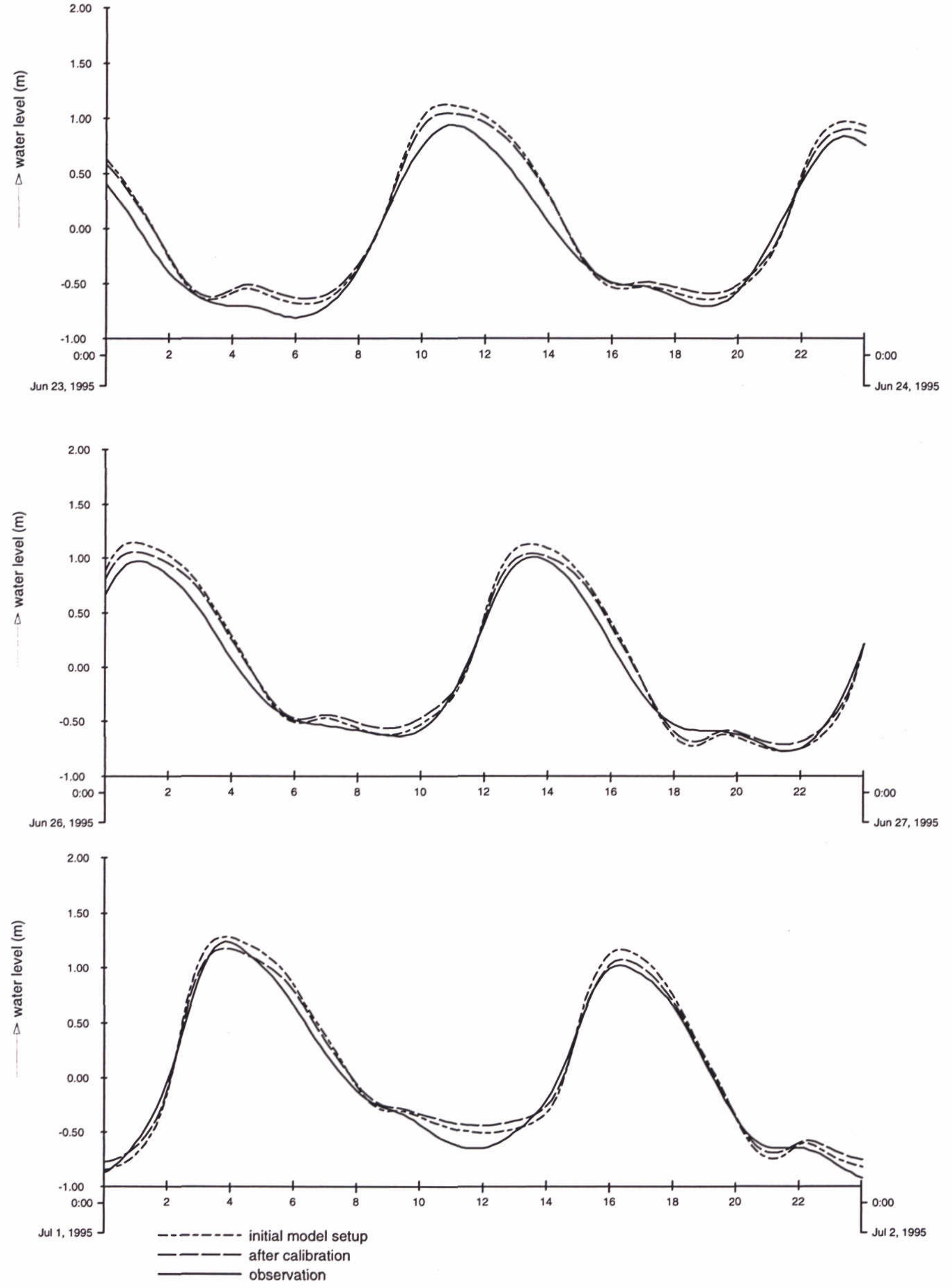
Station NEWHAVEN

Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

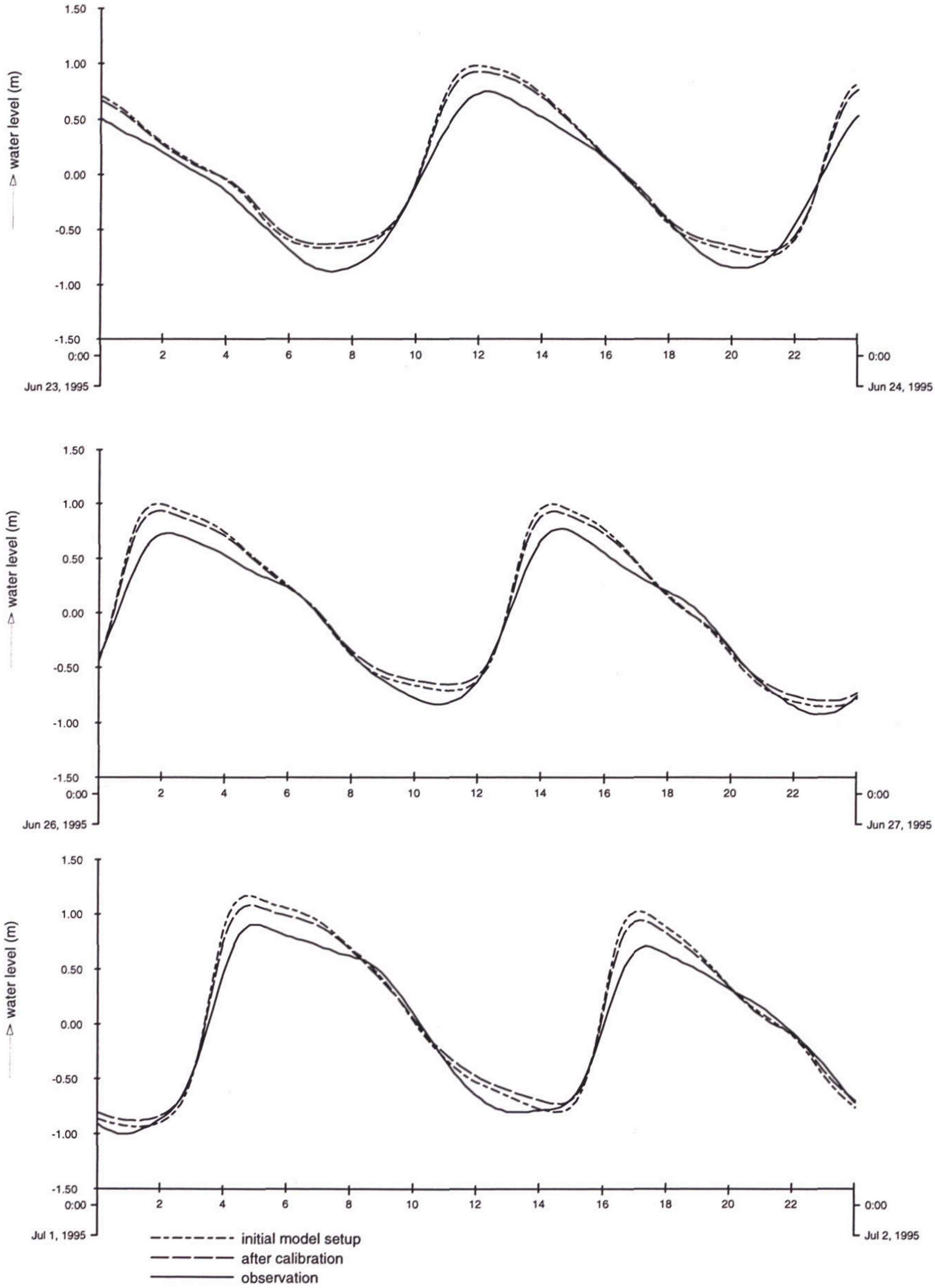
		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-32



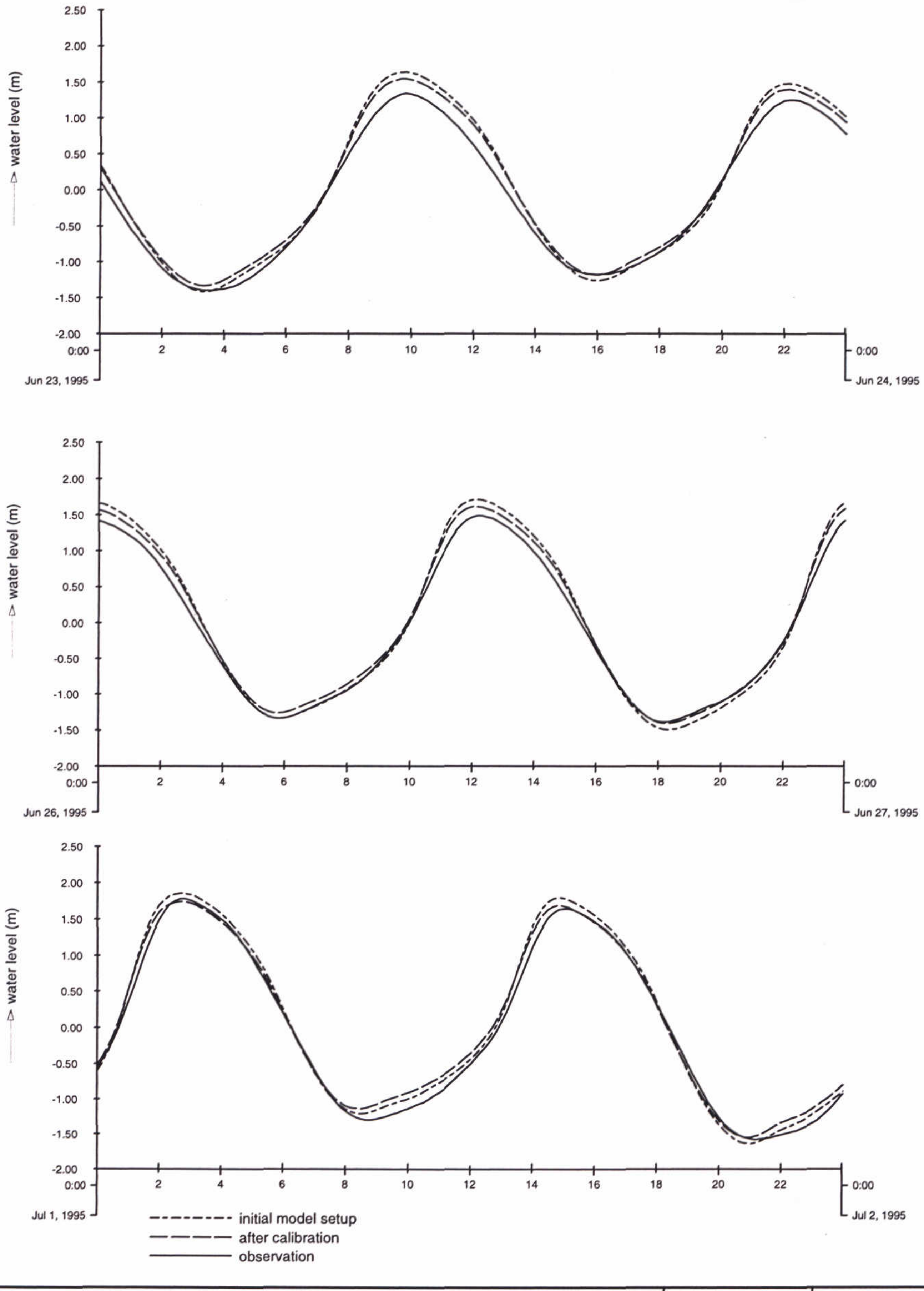
Station SCHIERMONNIKOOG Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-33



Station SCHEVENINGEN Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-34



Station PETTEN ZUID Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-35



Station OOSTERSCHELDE 11
Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)

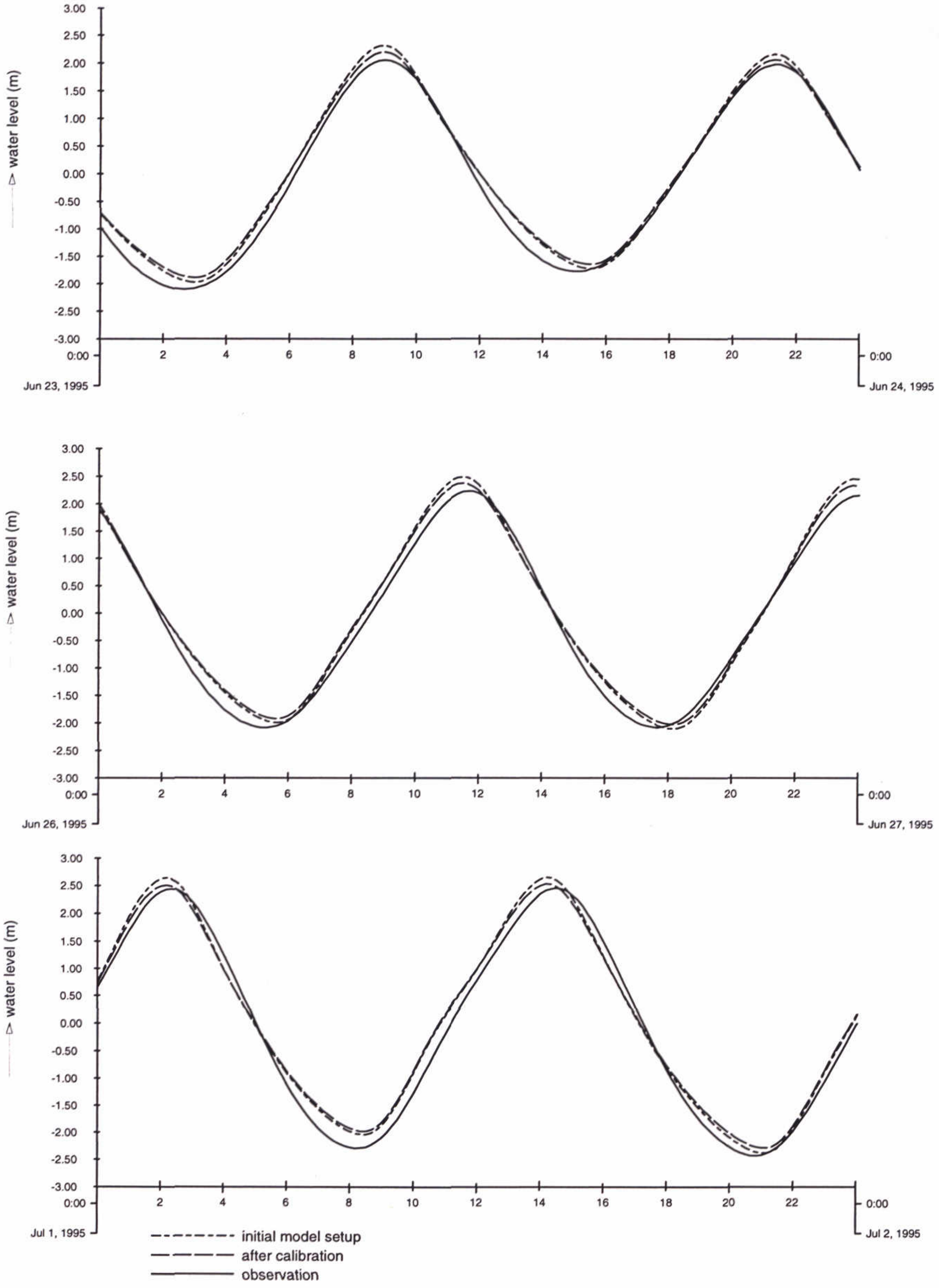
Nov 16 1998

Calibration ZNZ-model

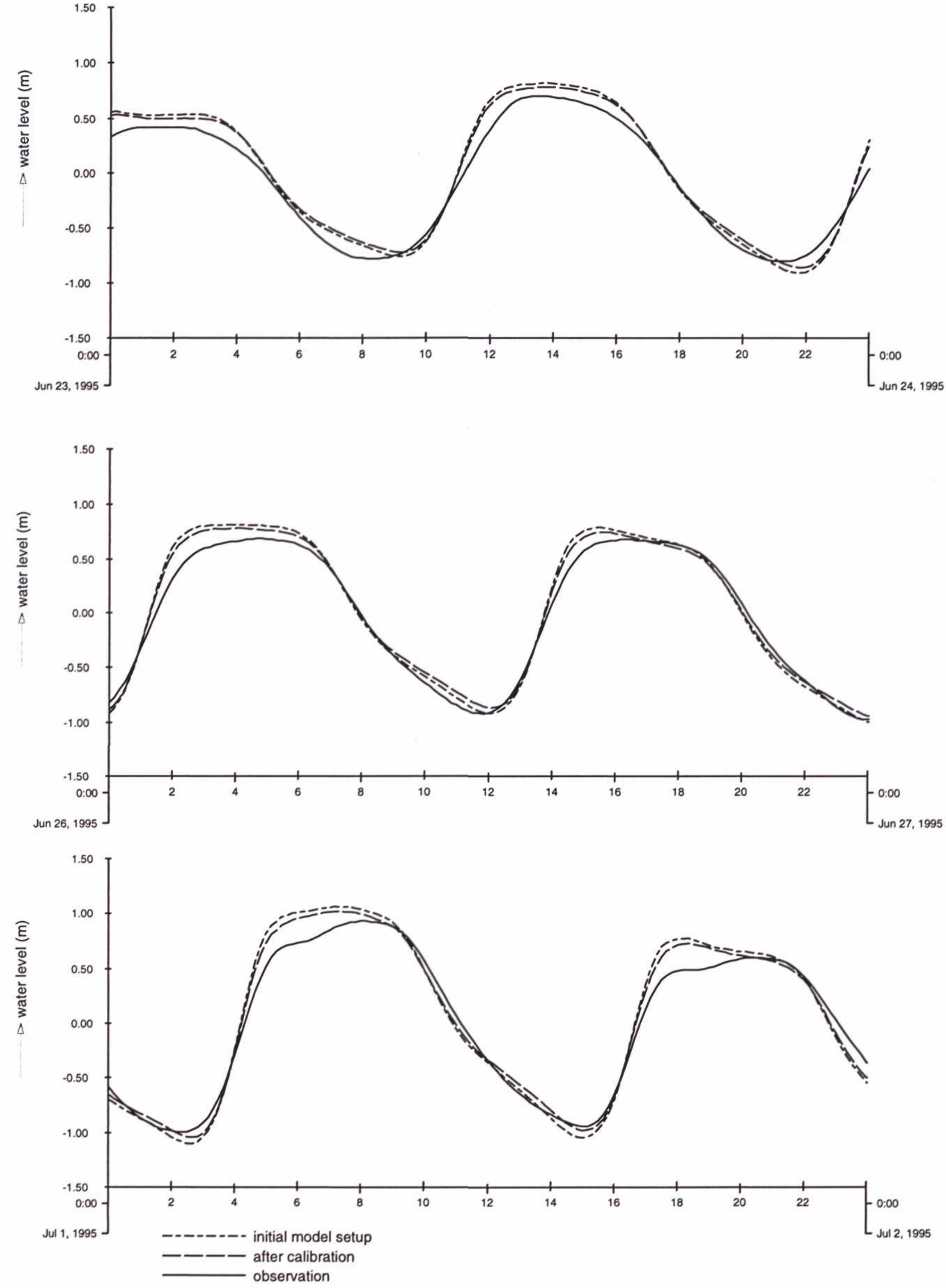
WL|delft hydraulics

Z-2544

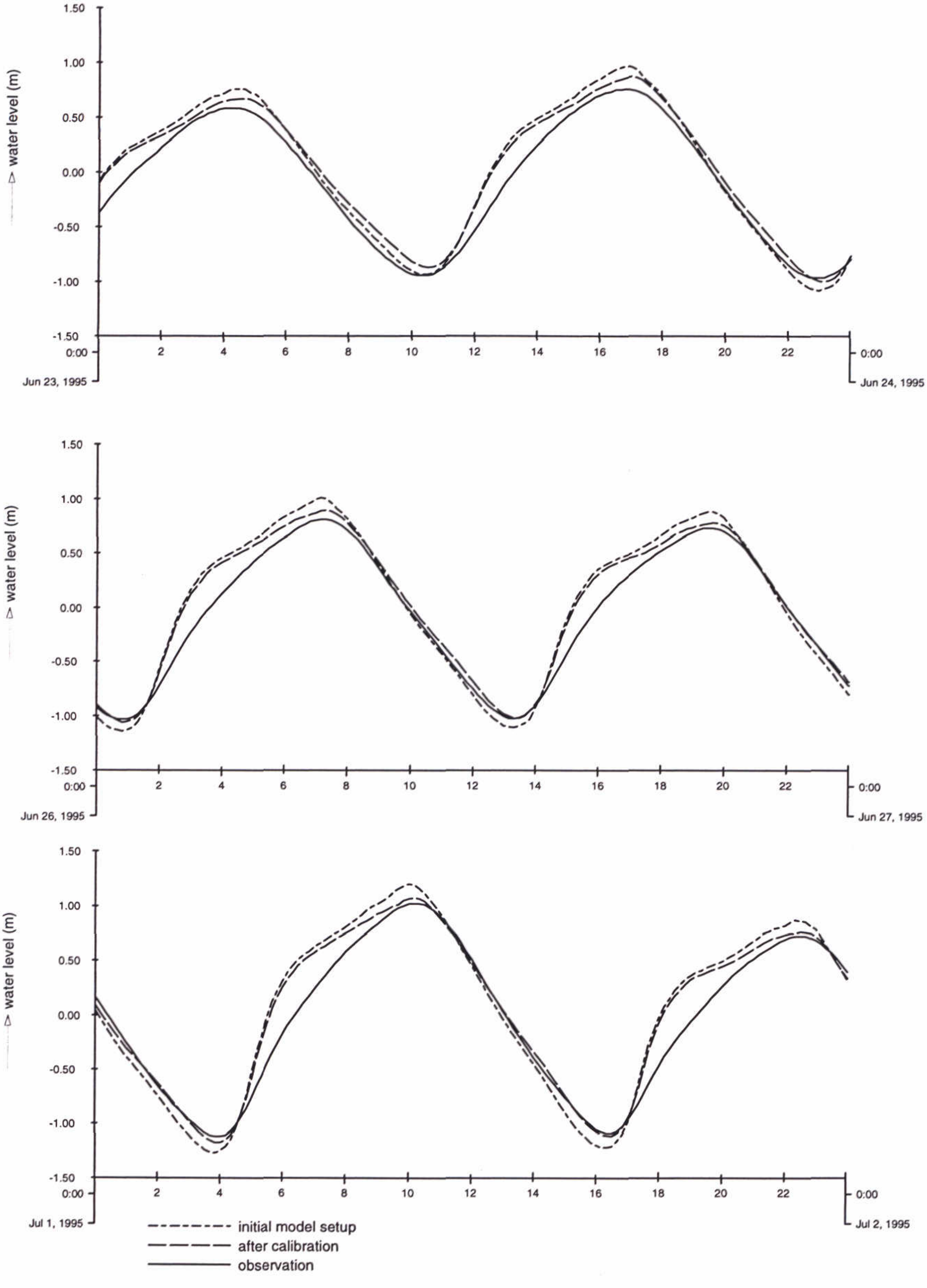
Fig. B-36



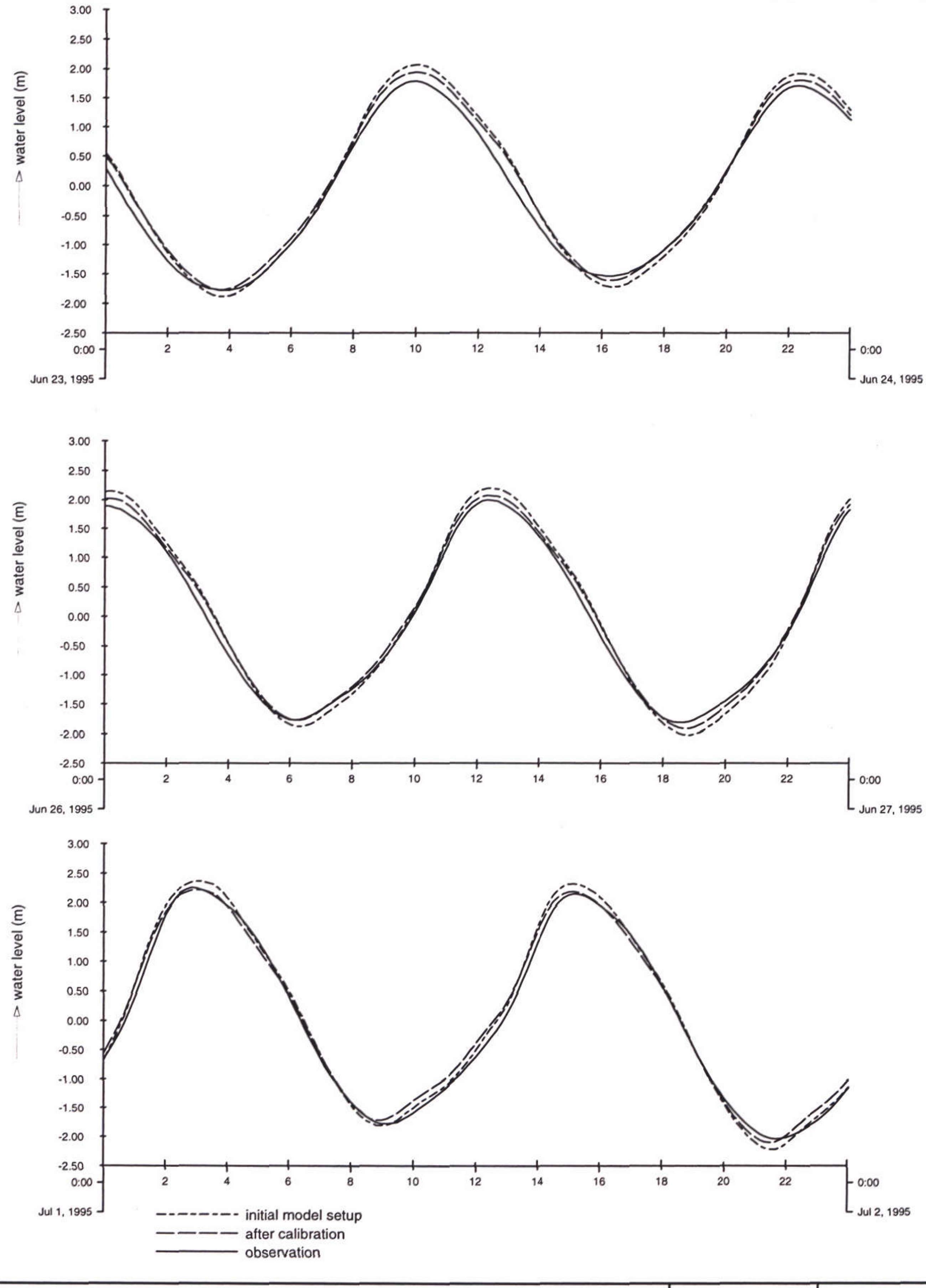
Station SHEERNESS Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)	Calibration ZNZ-model	Nov 16 1998
WL|delft hydraulics	Z-2544	Fig. B-37



Station TEXEL NOORDZEE Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-38

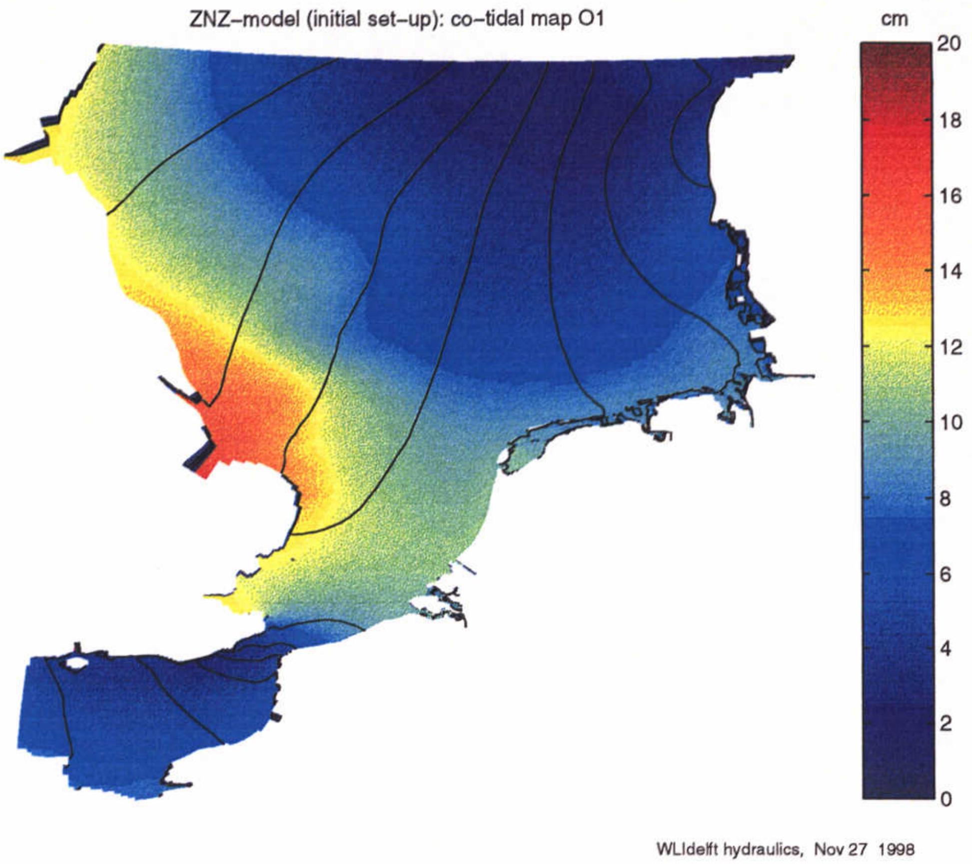


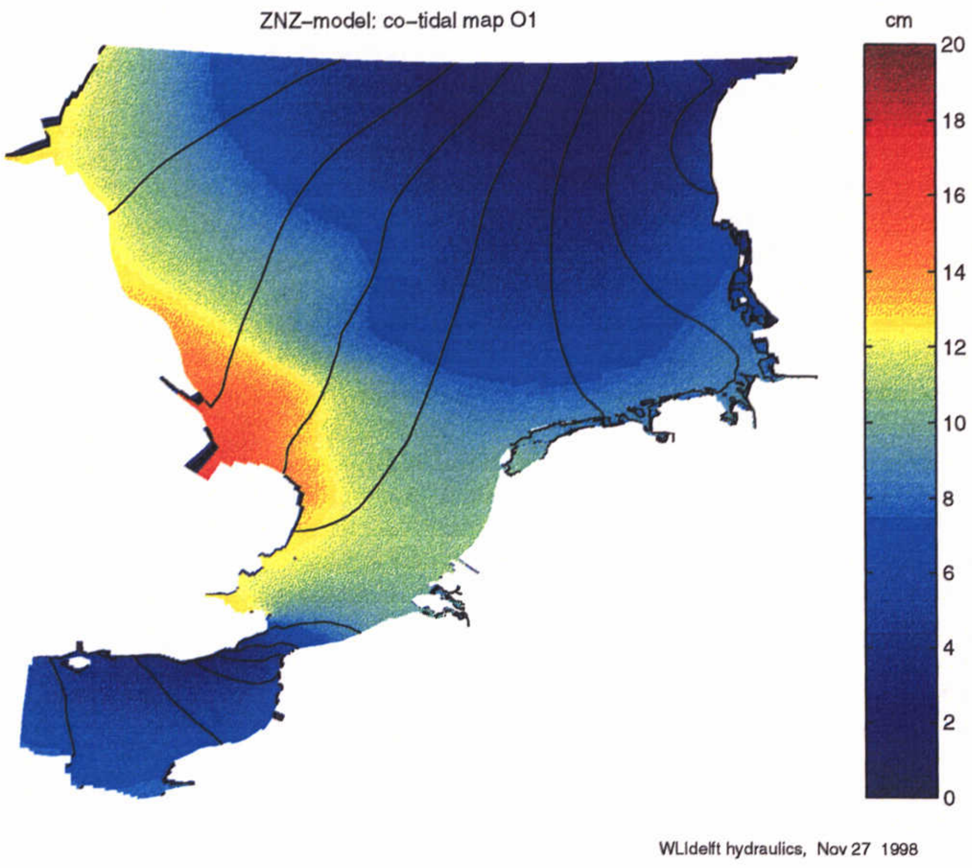
Station WEST-TERSCHELLING Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-39

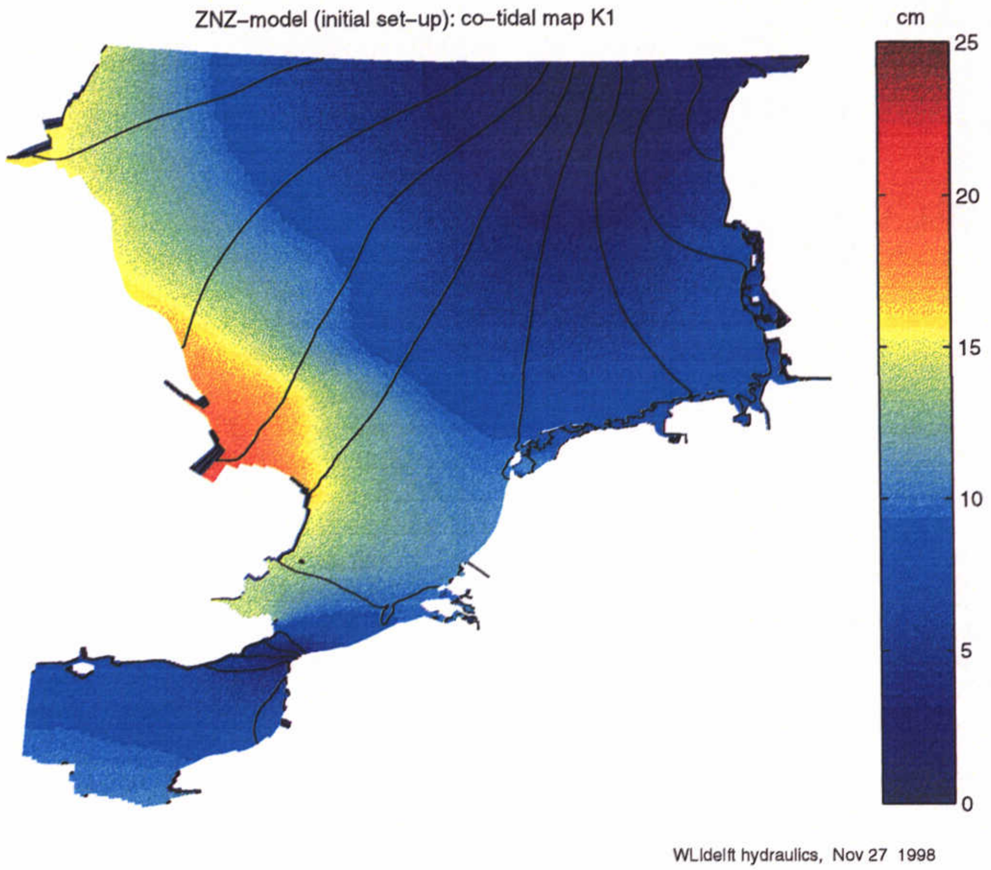


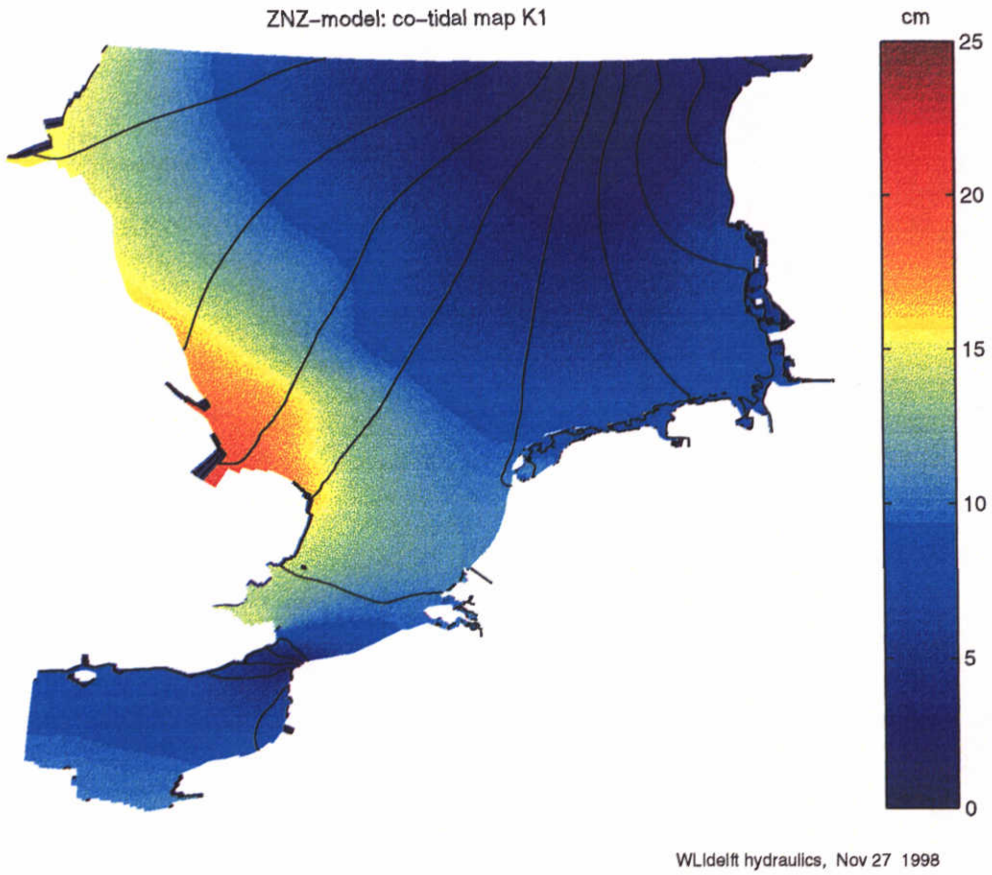
Station VLISSINGEN Water level at neap tide (upper panel), mean tide (middle panel) and spring tide (lower panel)		Nov 16 1998
	Calibration ZNZ-model	
WL|delft hydraulics	Z-2544	Fig. B-40

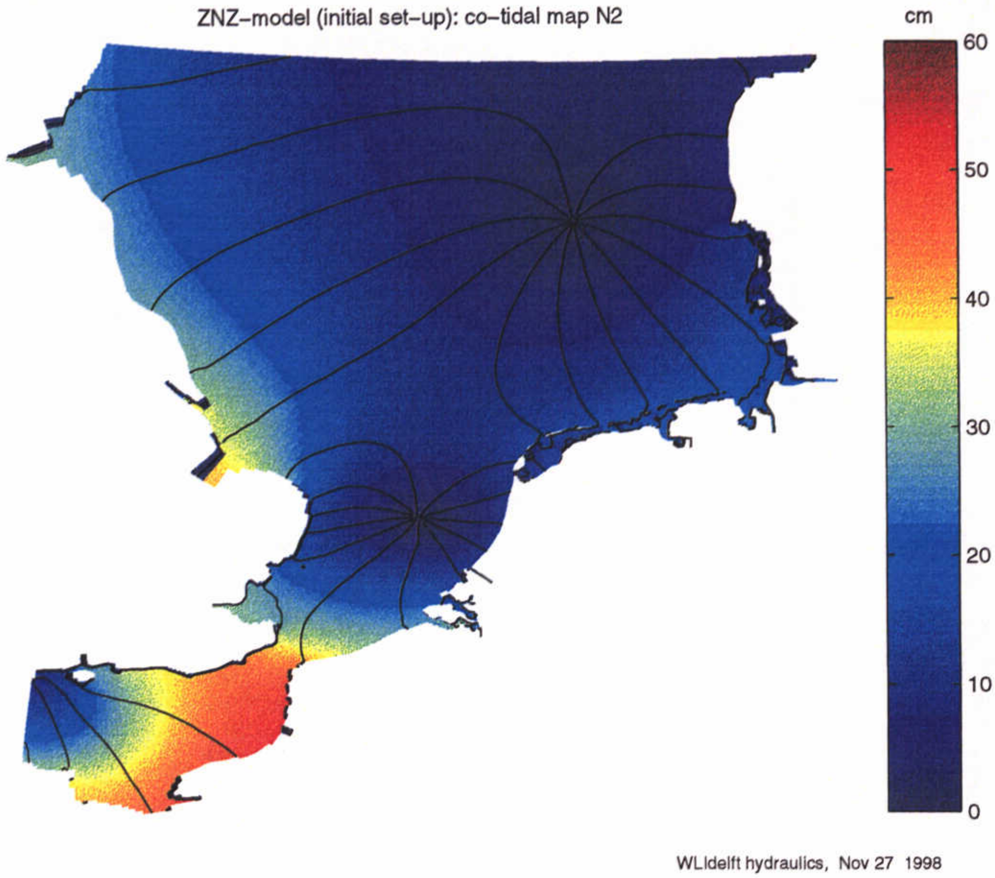
Appendix C

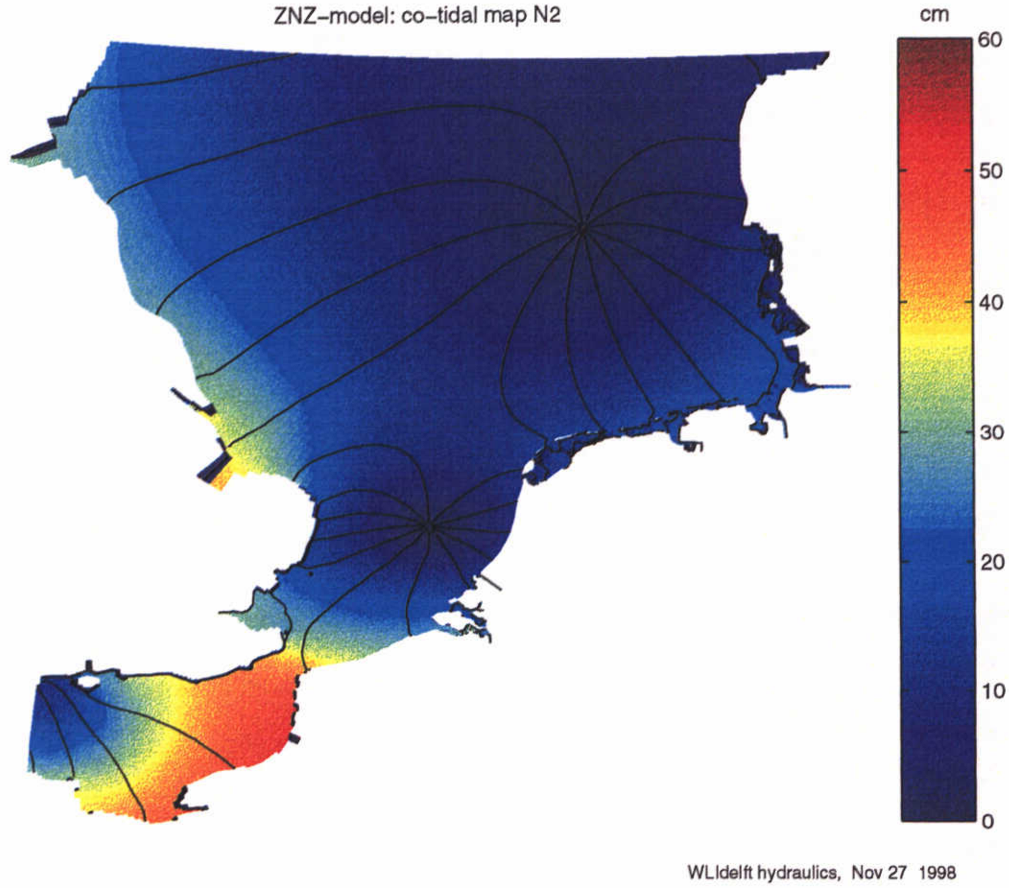

ZNZ–model (initial set–up): co–tidal map O1
cm
20
18
16
14
12
10
8
6
4
2
0
WLIdelft hydraulics, Nov 27 1998

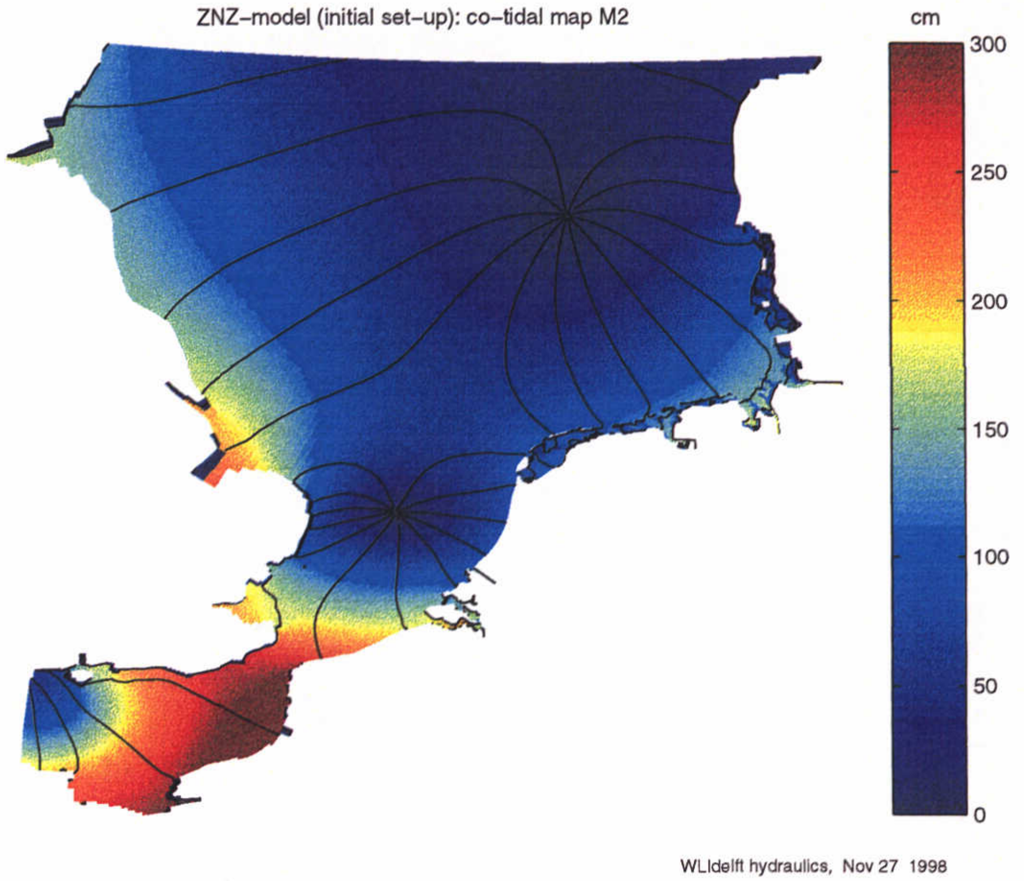

ZNZ–model: co–tidal map O1
cm
20
18
16
14
12
10
8
6
4
2
0
WLIdelft hydraulics, Nov 27 1998

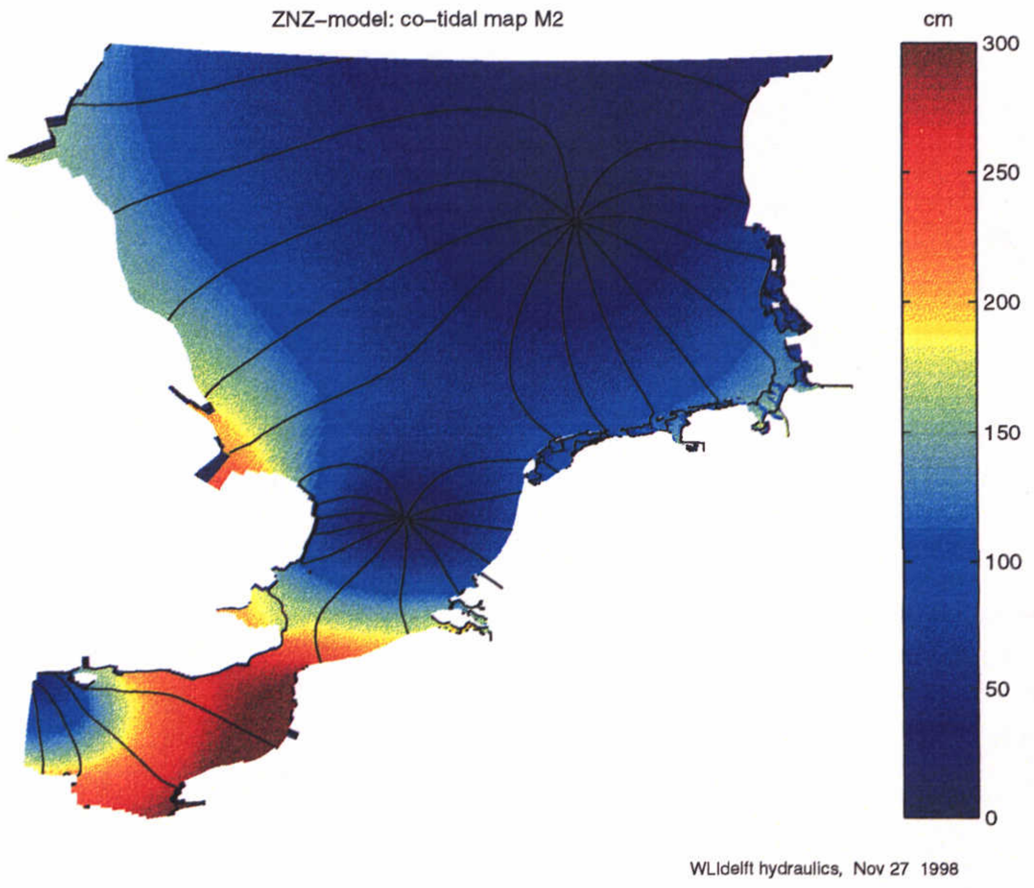

ZNZ–model (initial set–up): co–tidal map K1
cm
25
20
15
10
5
0
WL|delft hydraulics, Nov 27 1998

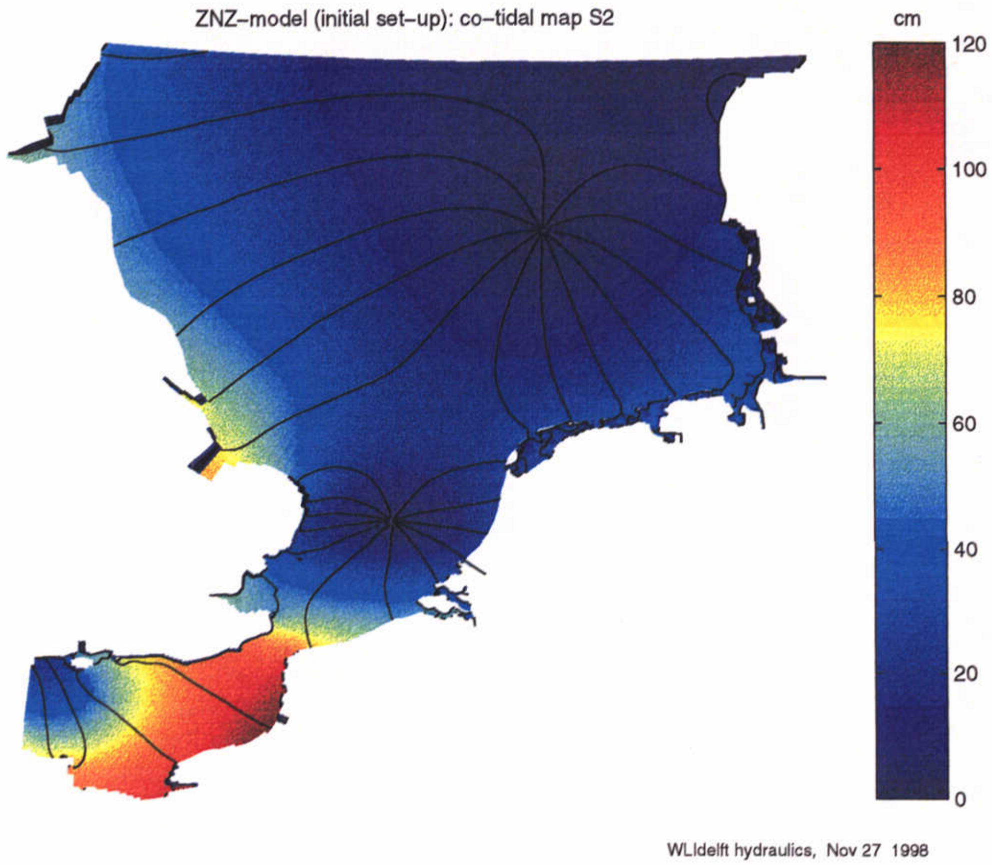

ZNZ–model: co–tidal map K1
cm
25
20
15
10
5
0
WL|delft hydraulics, Nov 27 1998

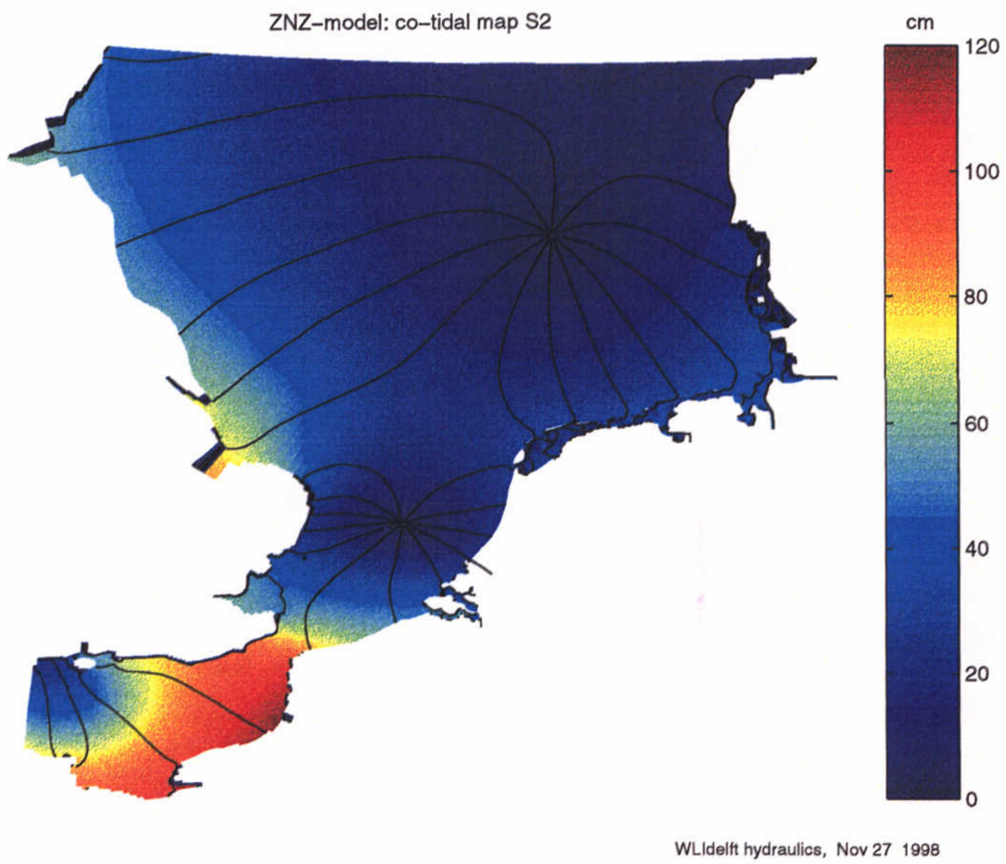

ZNZ-model (initial set-up): co-tidal map N2
cm
60
50
40
30
20
10
0
WL|delft hydraulics, Nov 27 1998

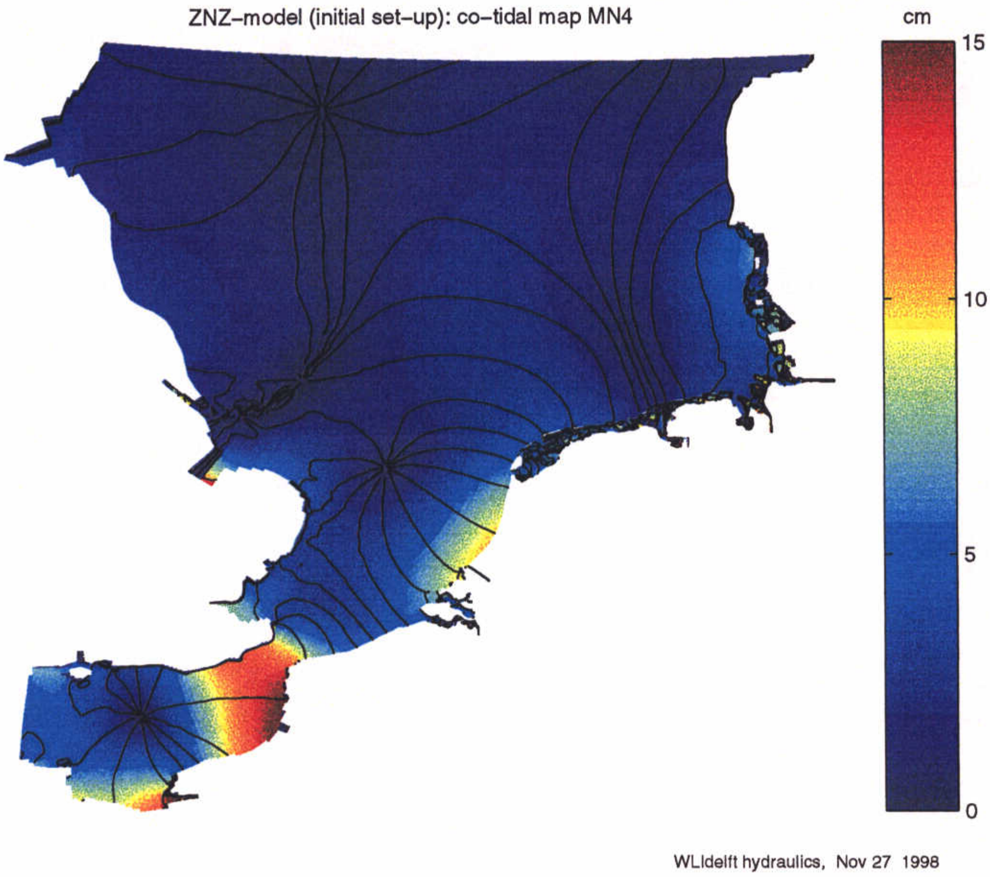

ZNZ-model: co-tidal map N2
cm
60
50
40
30
20
10
0
WL|delft hydraulics, Nov 27 1998

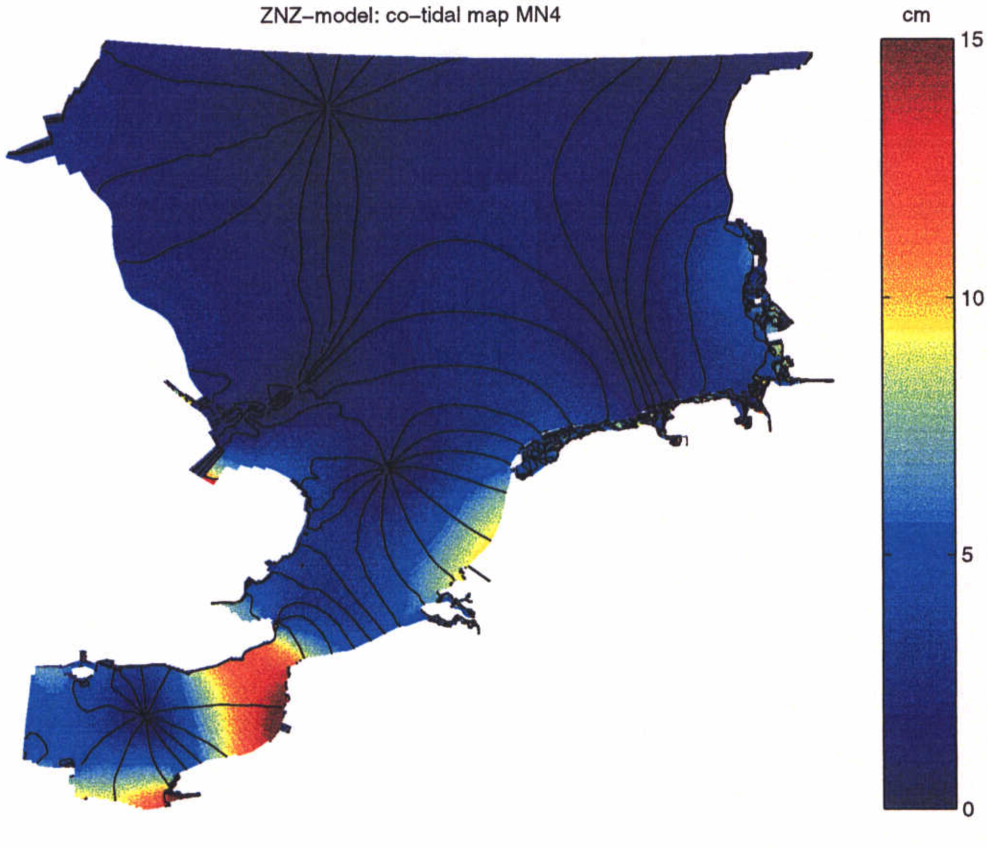

ZNZ-model (initial set-up): co-tidal map M2
cm
300
250
200
150
100
50
0
WL|delft hydraulics, Nov 27 1998

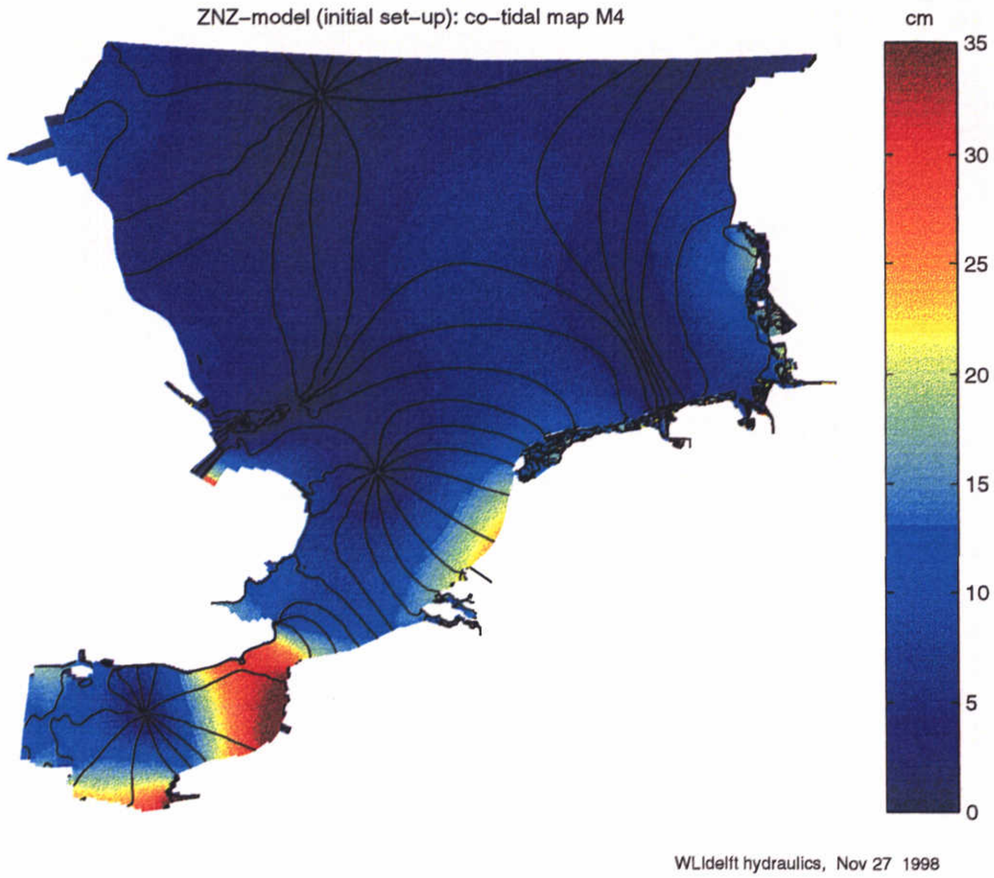

ZNZ-model: co-tidal map M2
cm
300
250
200
150
100
50
0
WL|delft hydraulics, Nov 27 1998

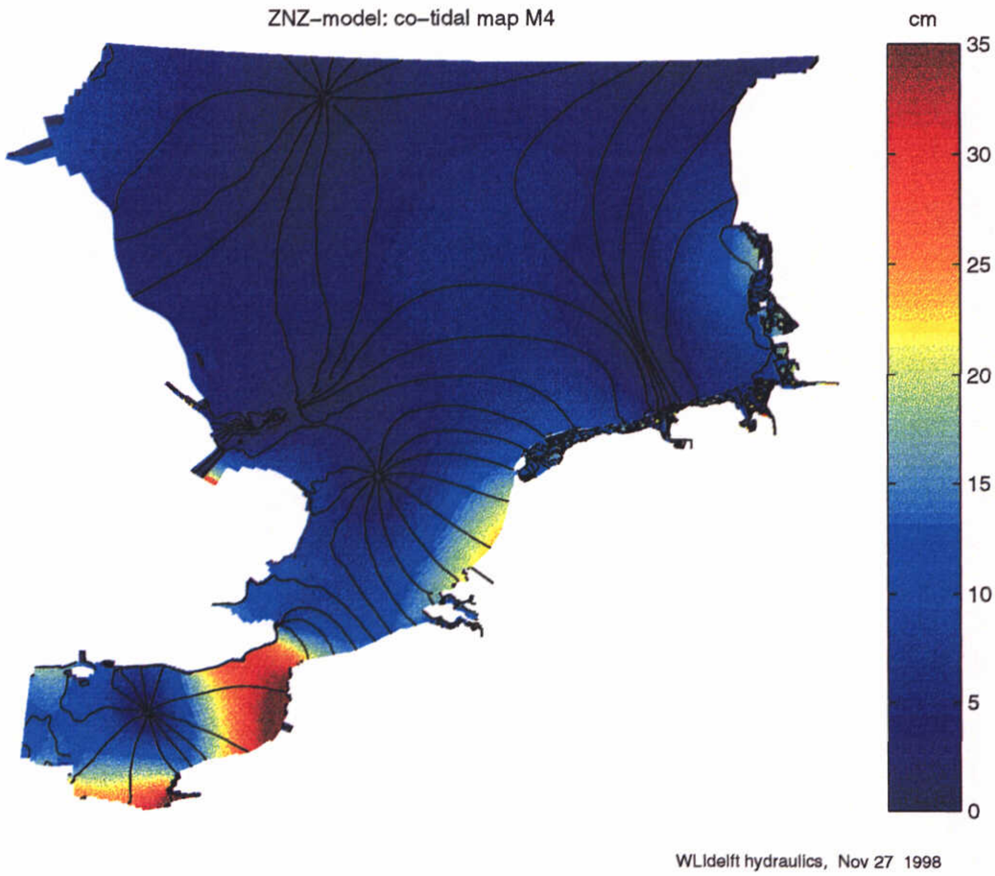

ZNZ–model (initial set–up): co–tidal map S2
cm
120
100
80
60
40
20
0
WL|delft hydraulics, Nov 27 1998


ZNZ–model: co–tidal map S2
cm
120
100
80
60
40
20
0
WL|delft hydraulics, Nov 27 1998

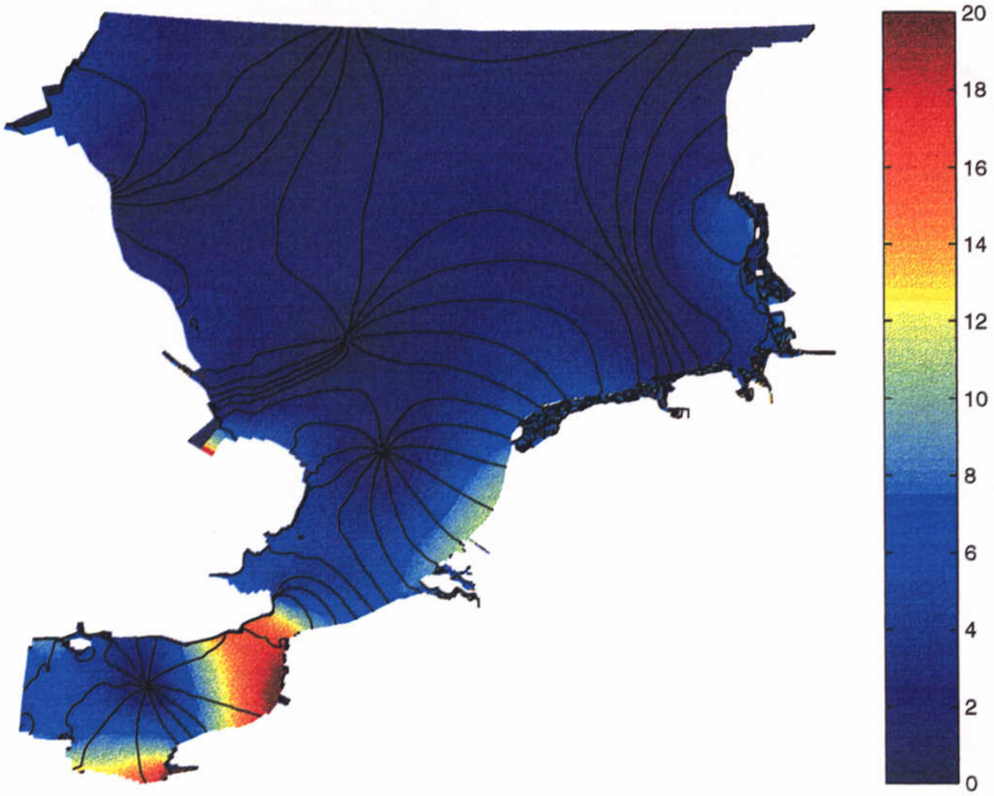

ZNZ–model (initial set–up): co–tidal map MN4
cm
15
10
5
0
WLIdelft hydraulics, Nov 27 1998


ZNZ–model: co–tidal map MN4
cm
15
10
5
0
WLIdelft hydraulics, Nov 27 1998


ZNZ–model (initial set–up): co–tidal map M4
cm
35
30
25
20
15
10
5
0
WLIdelft hydraulics, Nov 27 1998

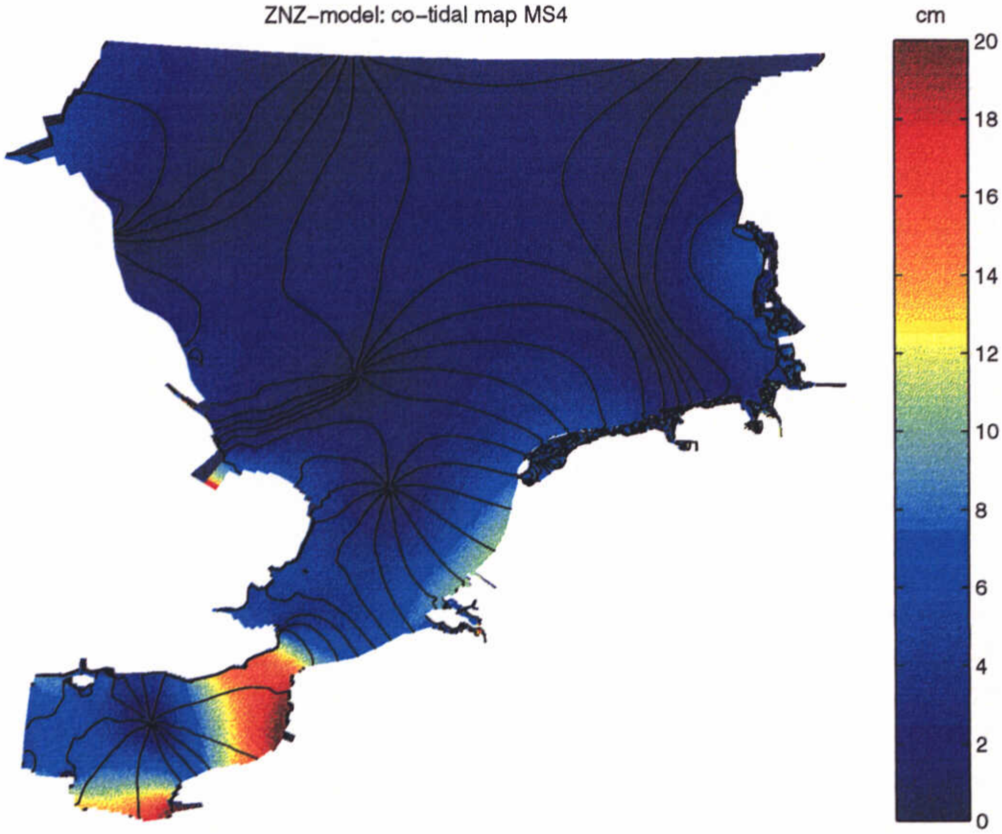

ZNZ–model: co–tidal map M4
cm
35
30
25
20
15
10
5
0
WLIdelft hydraulics, Nov 27 1998

ZNZ-model (initial set-up): co-tidal map MS4

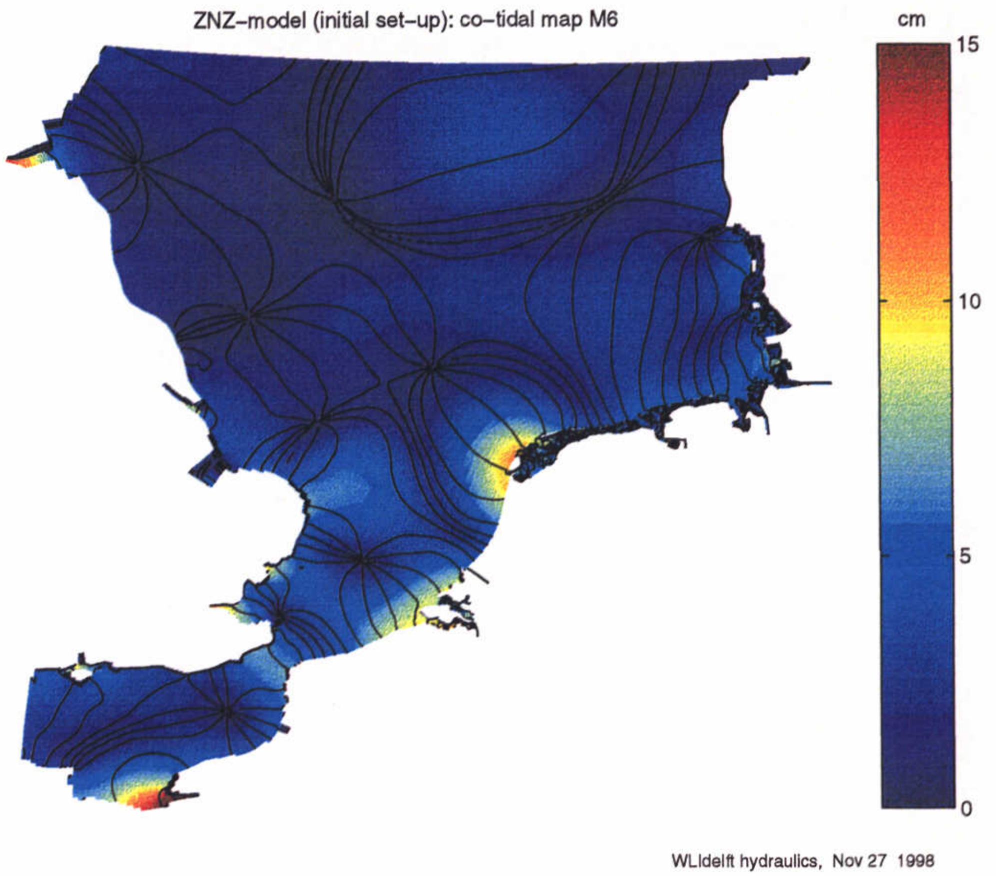


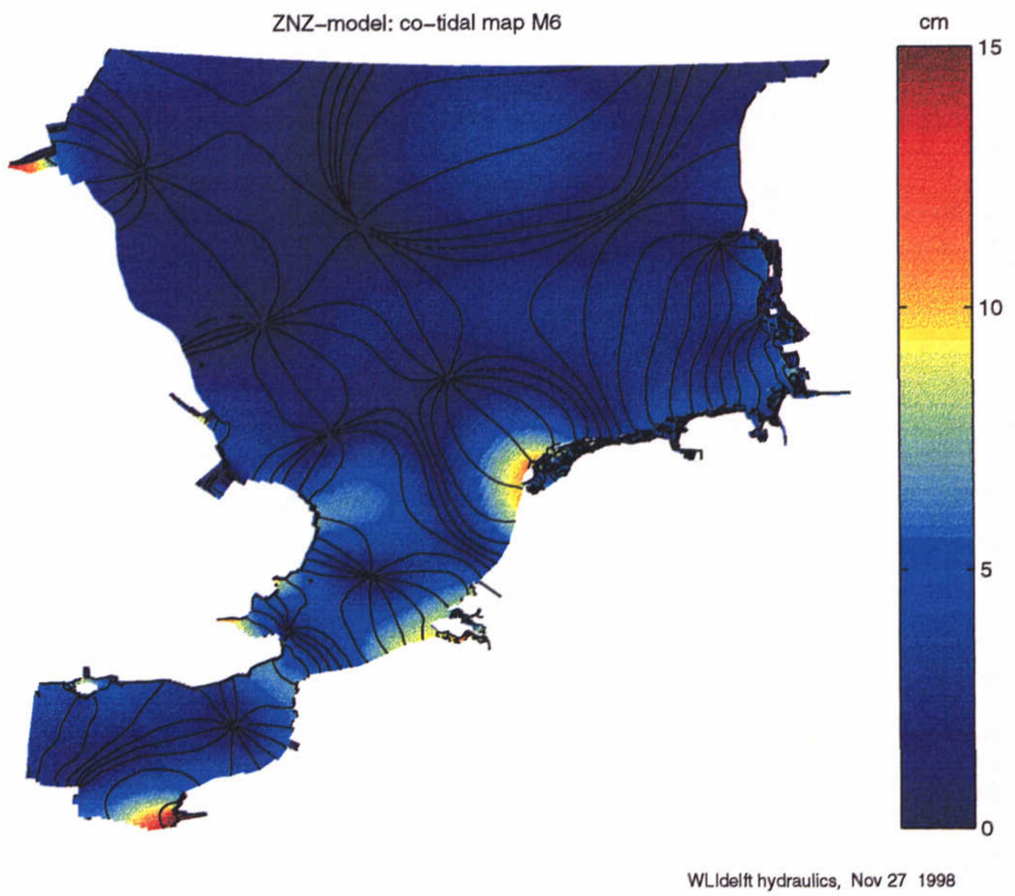
WL|delft hydraulics, Nov 27 1998

ZNZ-model: co-tidal map MS4

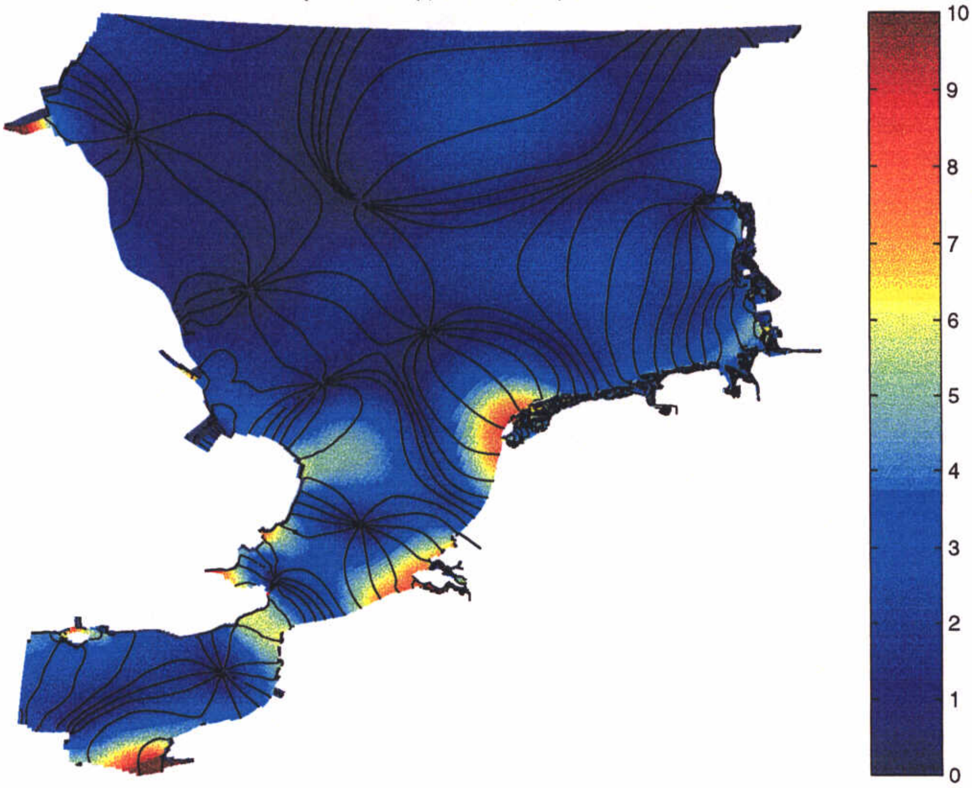


WL|delft hydraulics, Nov 27 1998


ZNZ–model (initial set–up): co–tidal map M6
cm
15
10
5
0
WLIdelft hydraulics, Nov 27 1998

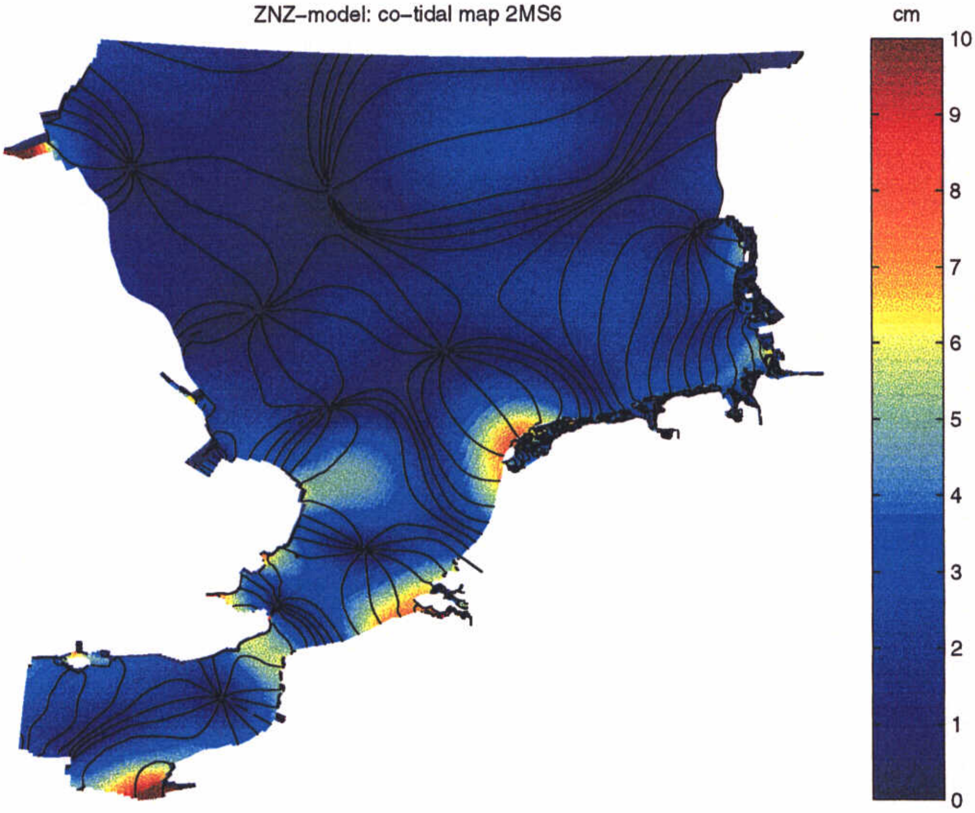

ZNZ–model: co–tidal map M6
cm
15
10
5
0
WLIdelft hydraulics, Nov 27 1998

ZNZ–model (initial set–up): co–tidal map 2MS6



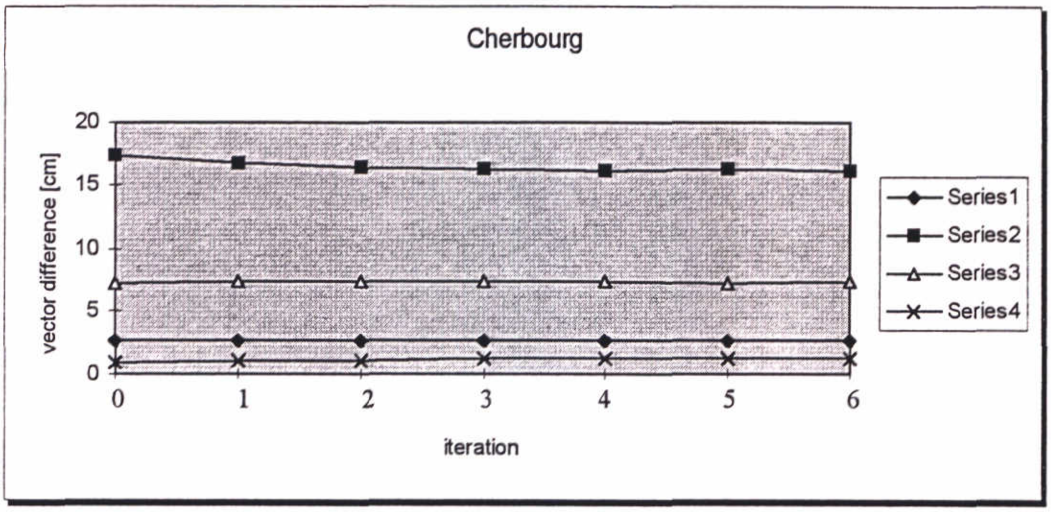
WL|delft hydraulics, Nov 27 1998

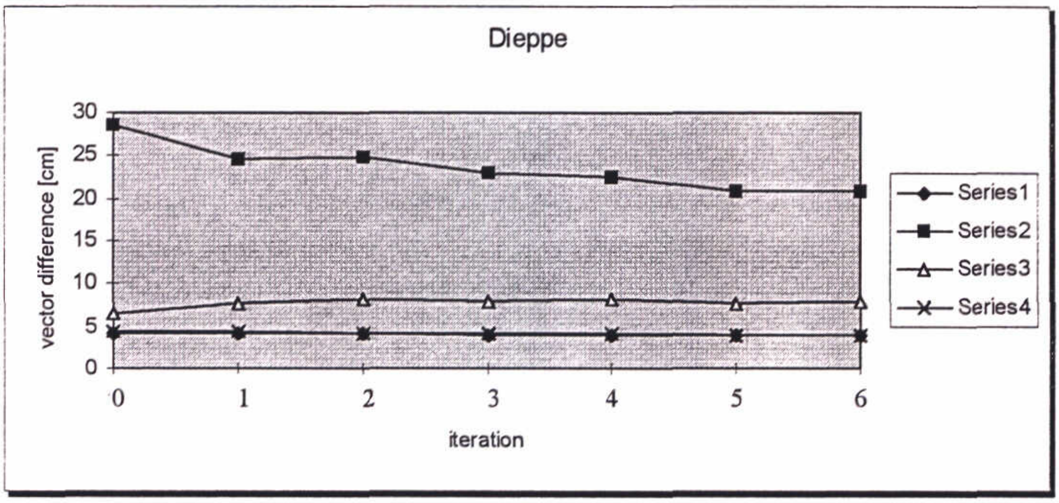
ZNZ–model: co–tidal map 2MS6

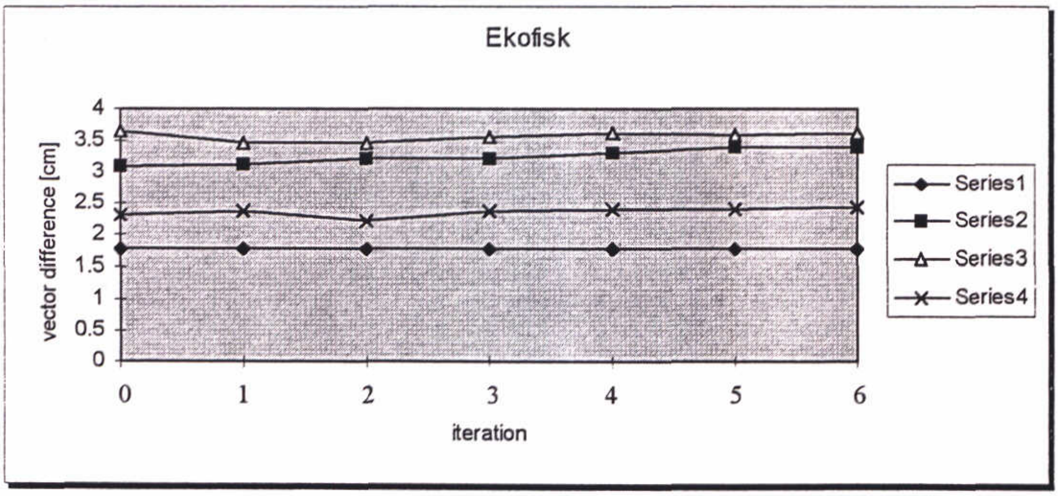


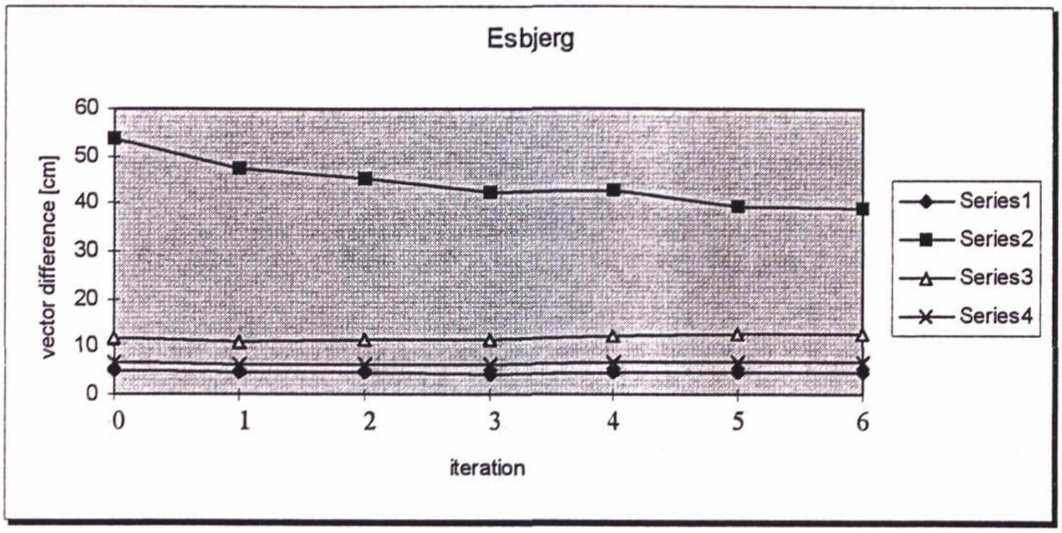
WL|delft hydraulics, Nov 27 1998

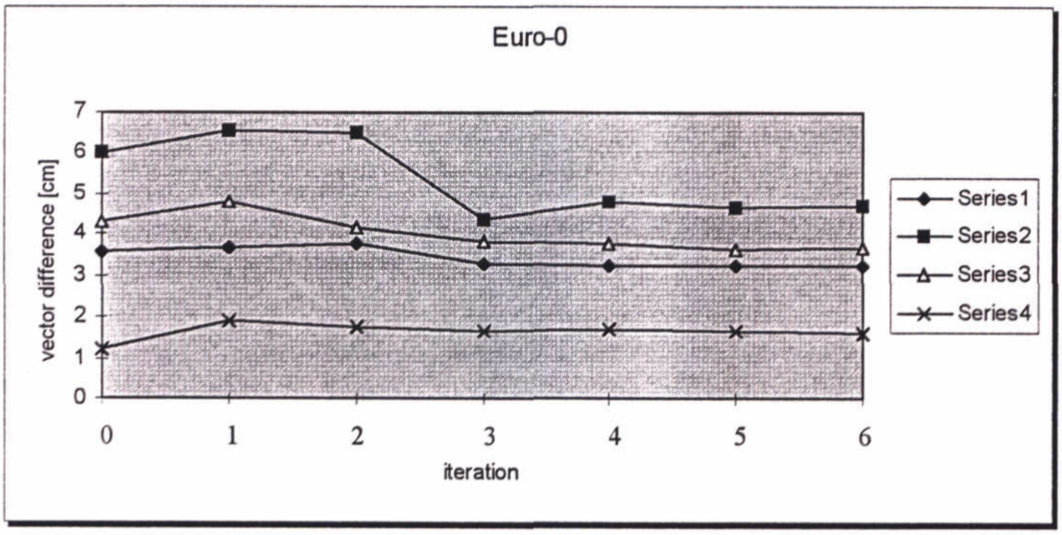
Appendix D

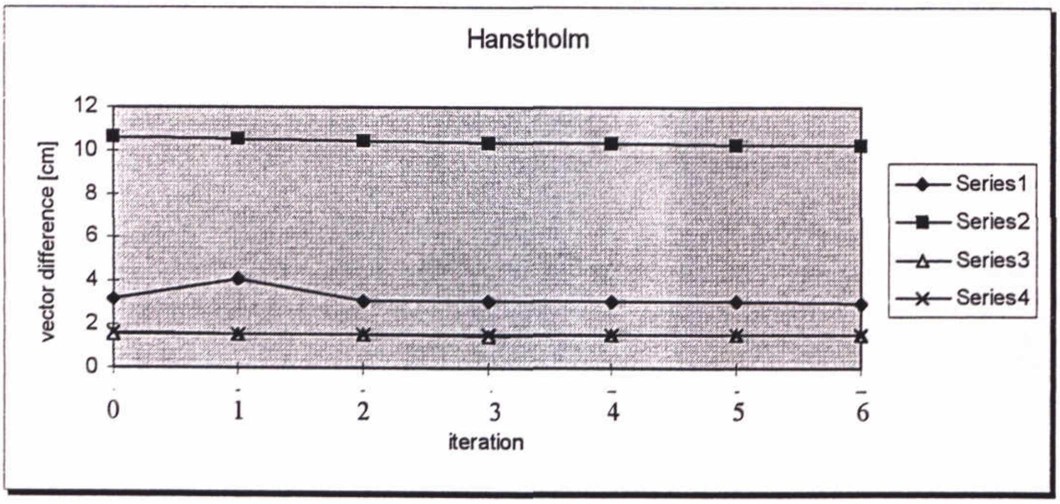

Cherbourg
vector difference [cm]
iteration
Series1
Series2
Series3
Series4

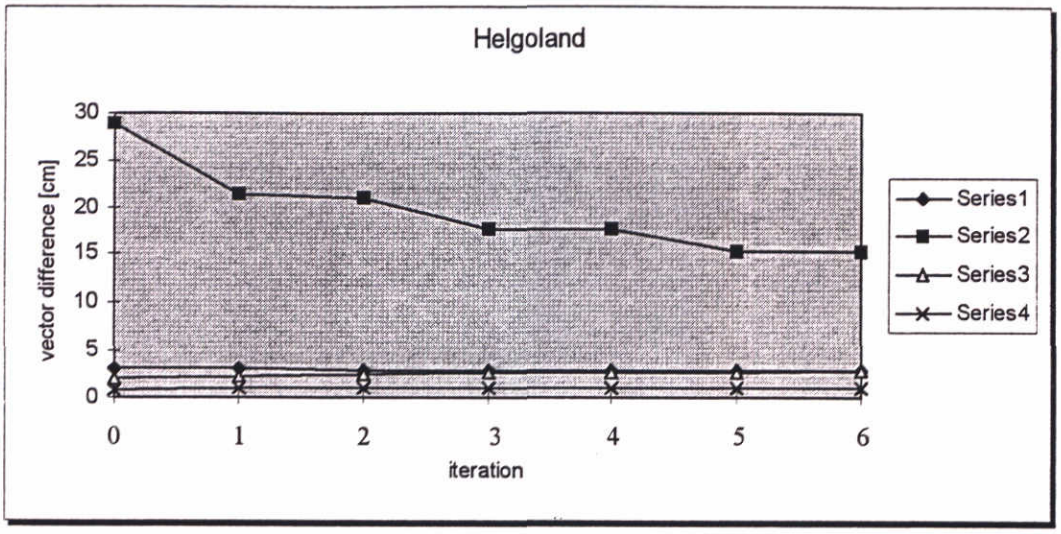

Dieppe
vector difference [cm]
iteration
Series1
Series2
Series3
Series4

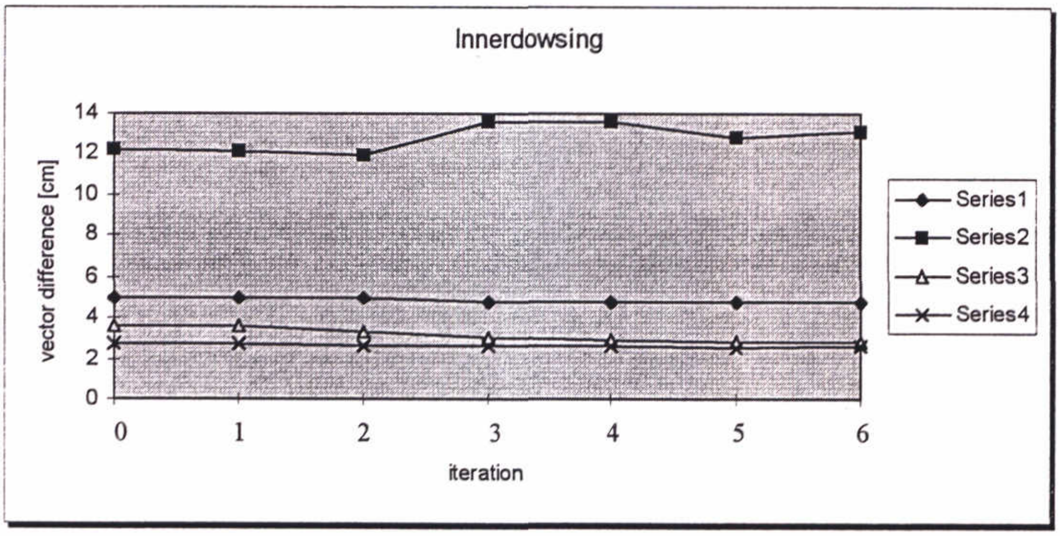

Ekofisk
vector difference [cm]
iteration
Series1
Series2
Series3
Series4

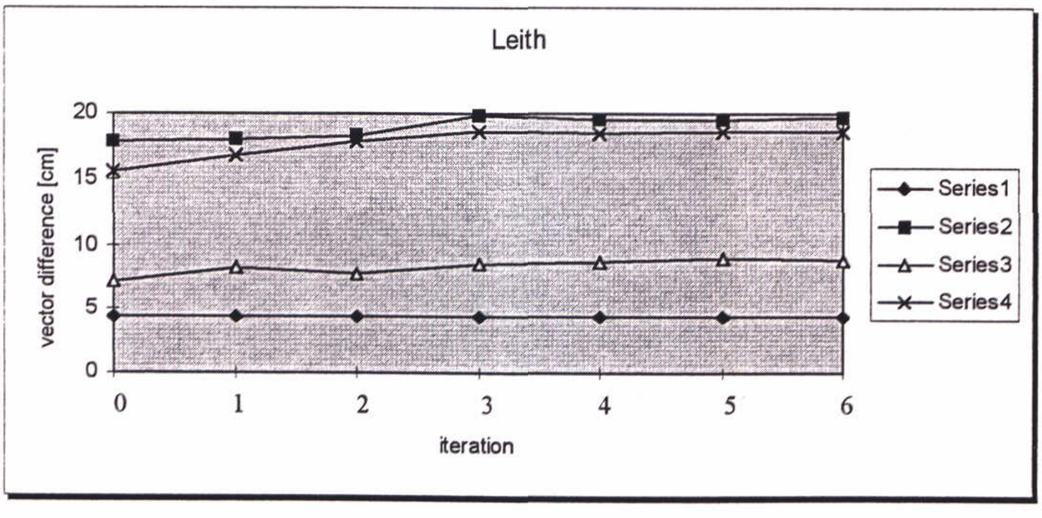

Esbjerg
vector difference [cm]
0
10
20
30
40
50
60
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

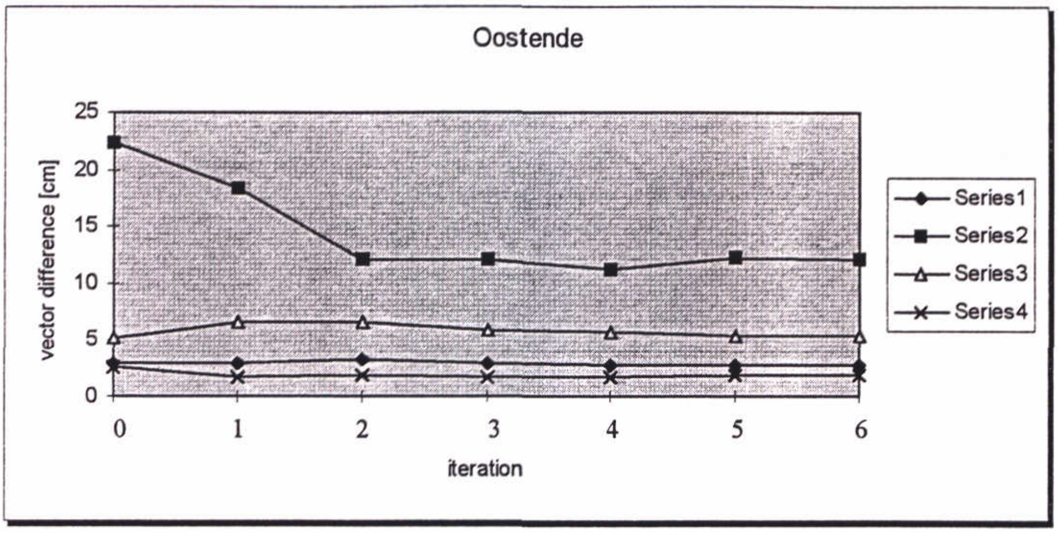

Euro-0
vector difference [cm]
0
1
2
3
4
5
6
7
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

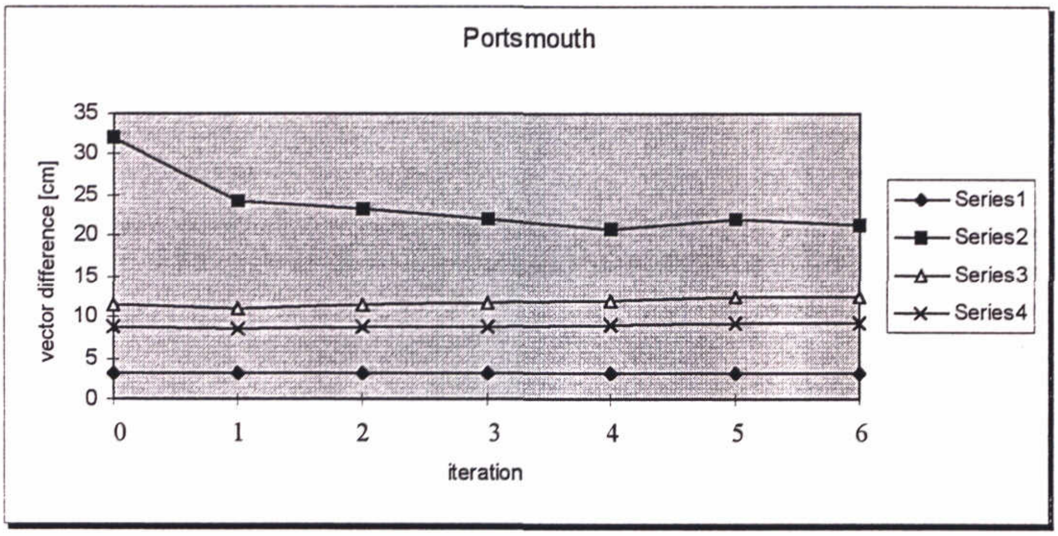

Hanstholm
vector difference [cm]
0
2
4
6
8
10
12
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

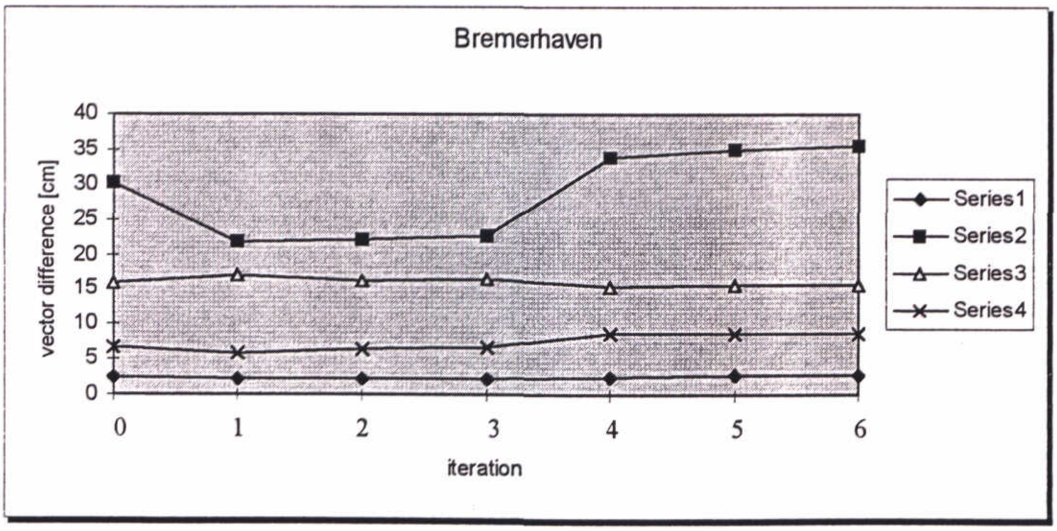

Helgoland
vector difference [cm]
30
25
20
15
10
5
0
0 1 2 3 4 5 6
iteration
Series1
Series2
Series3
Series4

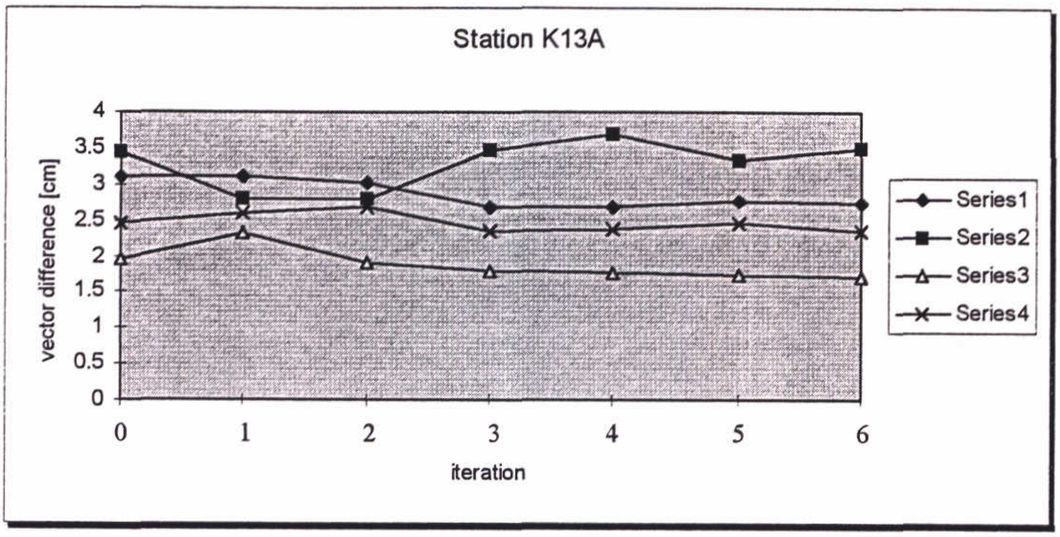

Innerdowsing
vector difference [cm]
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6
iteration
Series1
Series2
Series3
Series4

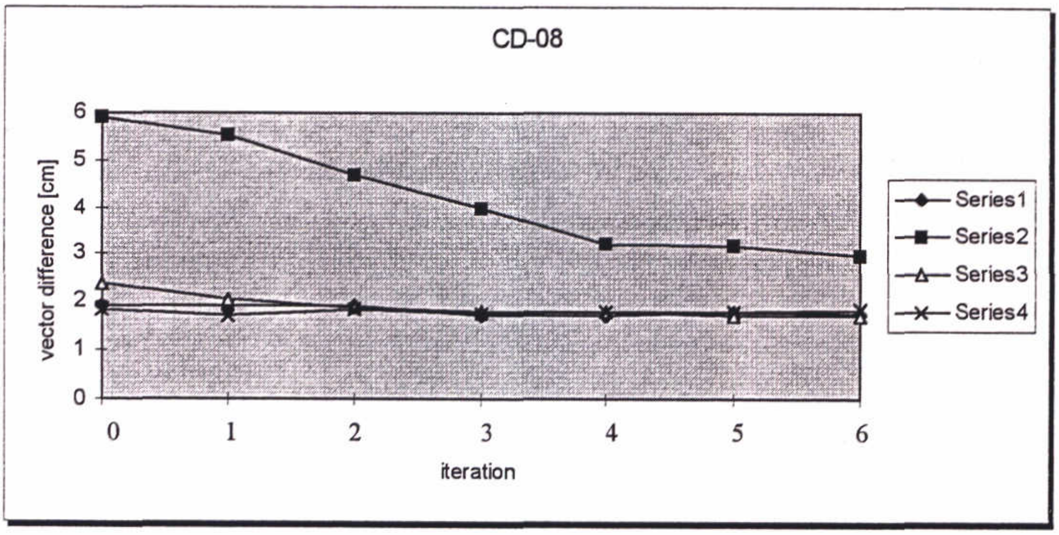

Leith
vector difference [cm]
20
15
10
5
0
0 1 2 3 4 5 6
iteration
Series1
Series2
Series3
Series4

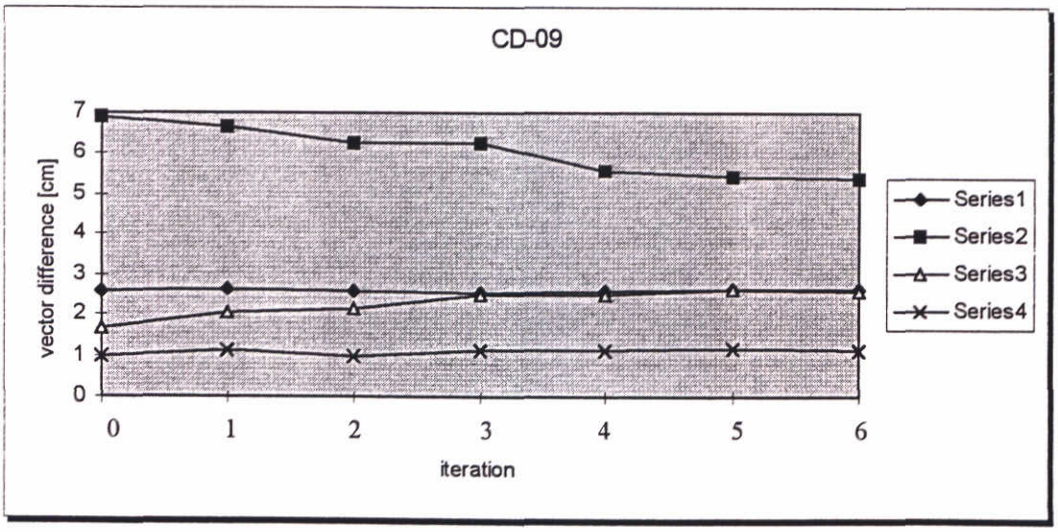

Oostende
vector difference [cm]
0
5
10
15
20
25
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

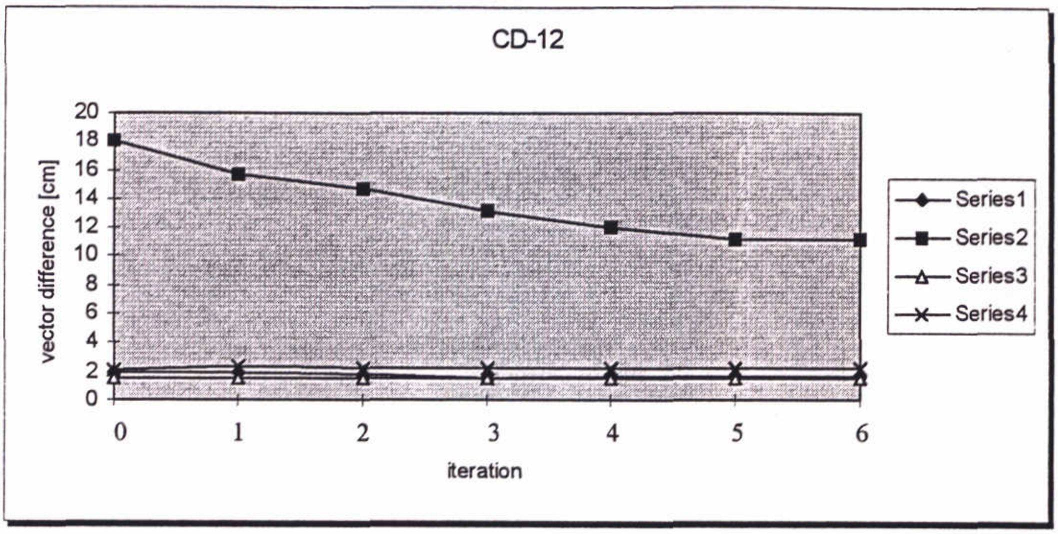

Portsmouth
vector difference [cm]
0
5
10
15
20
25
30
35
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

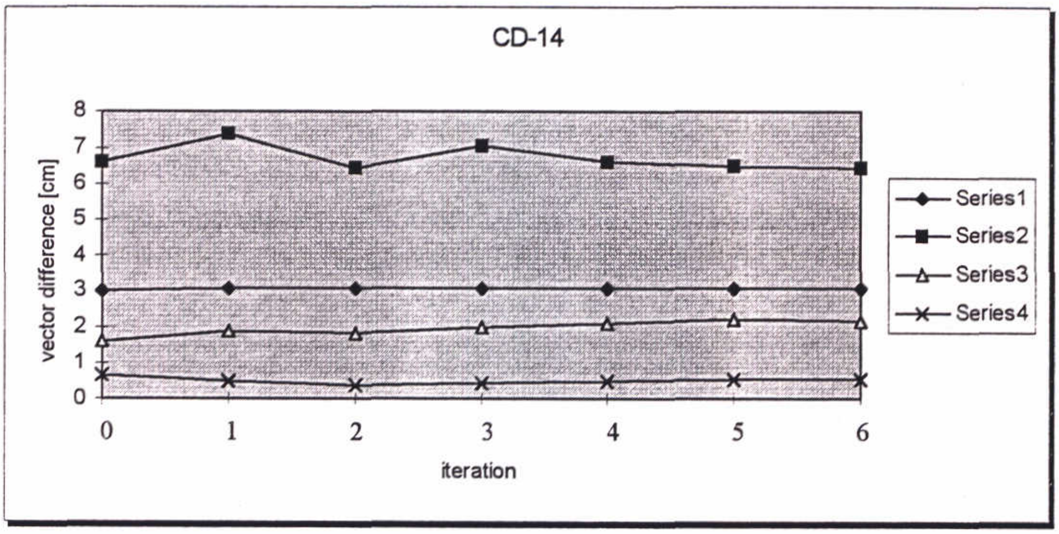

Bremerhaven
vector difference [cm]
0
5
10
15
20
25
30
35
40
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

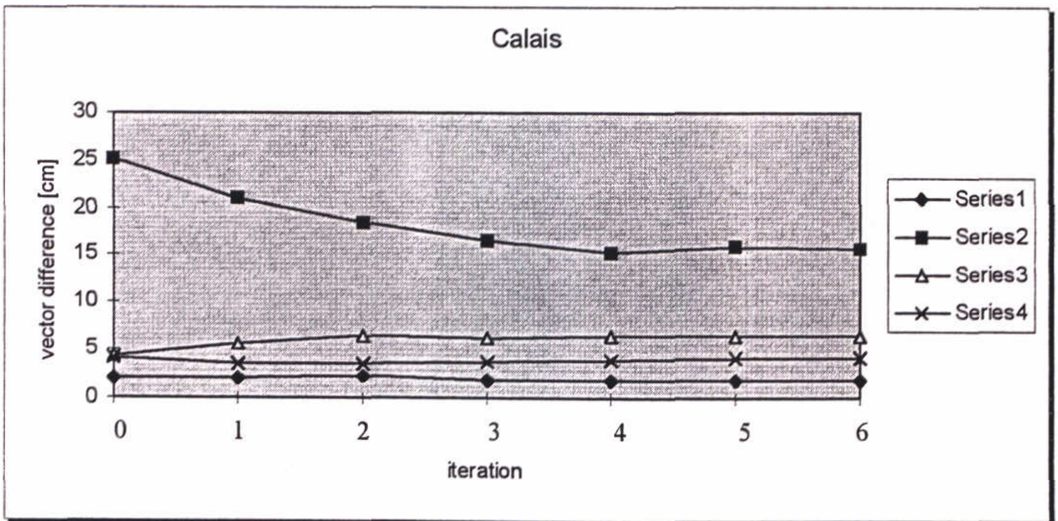

Station K13A
vector difference [cm]
iteration
Series1
Series2
Series3
Series4

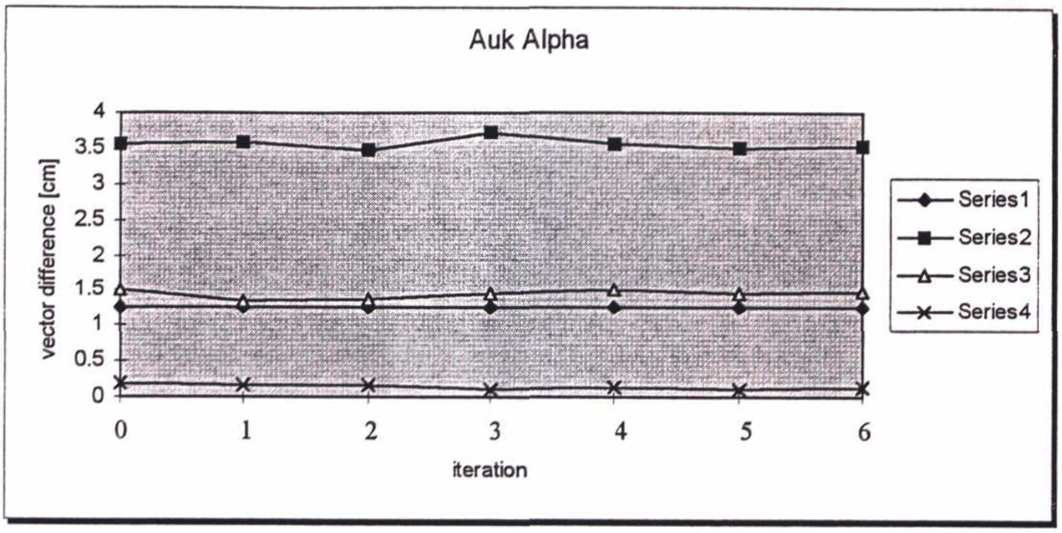

CD-08
vector difference [cm]
iteration
Series1
Series2
Series3
Series4

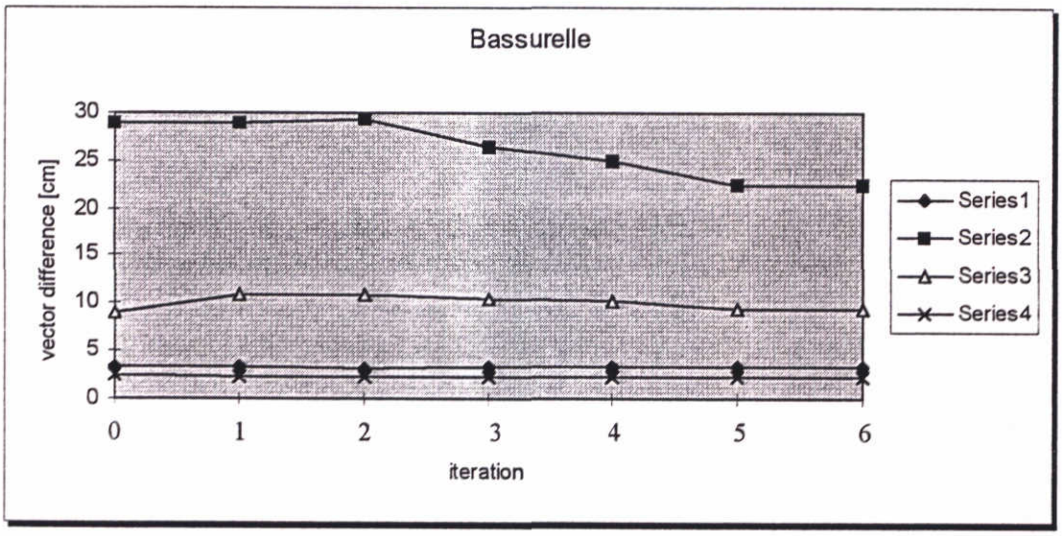

CD-09
vector difference [cm]
iteration
Series1
Series2
Series3
Series4

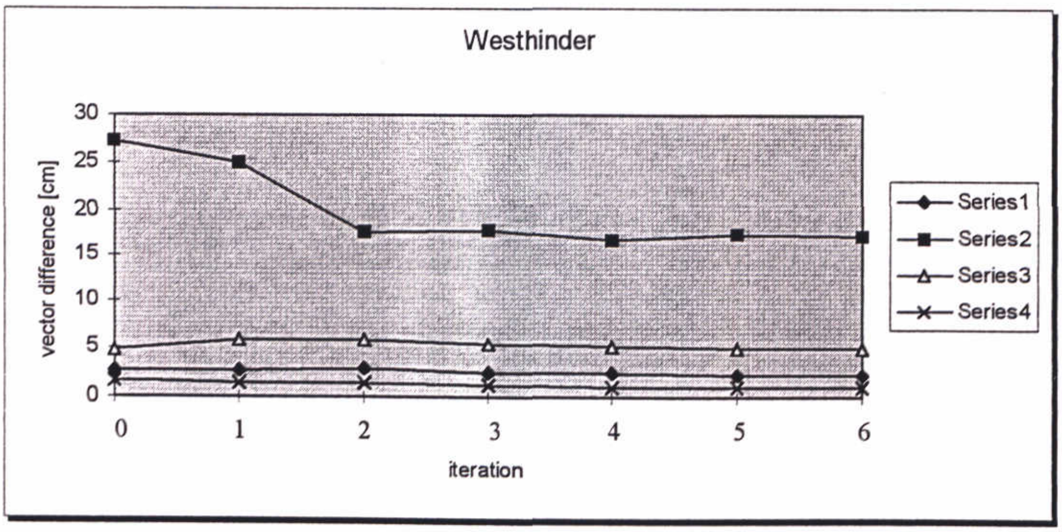

CD-12
vector difference [cm]
20
18
16
14
12
10
8
6
4
2
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

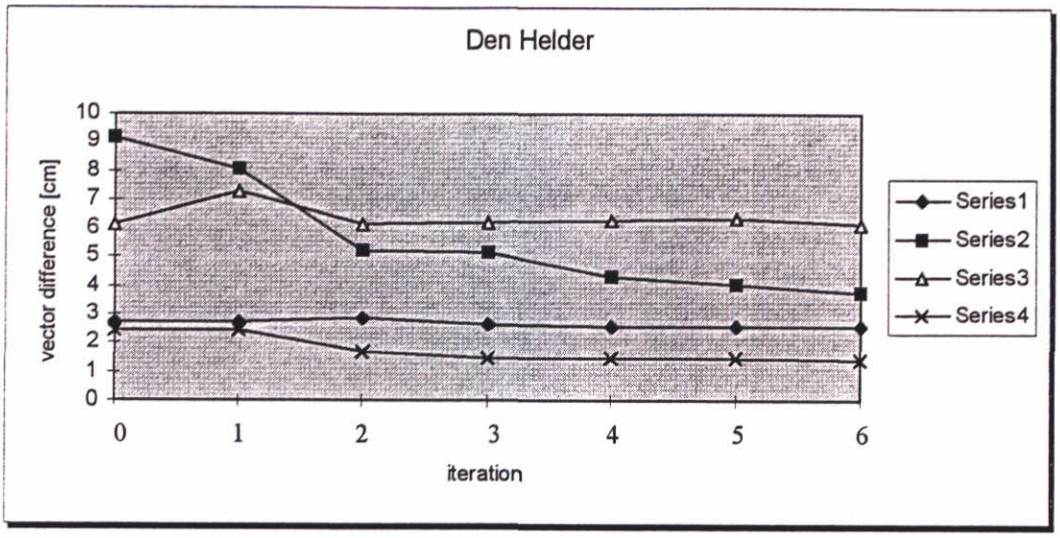

CD-14
vector difference [cm]
8
7
6
5
4
3
2
1
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

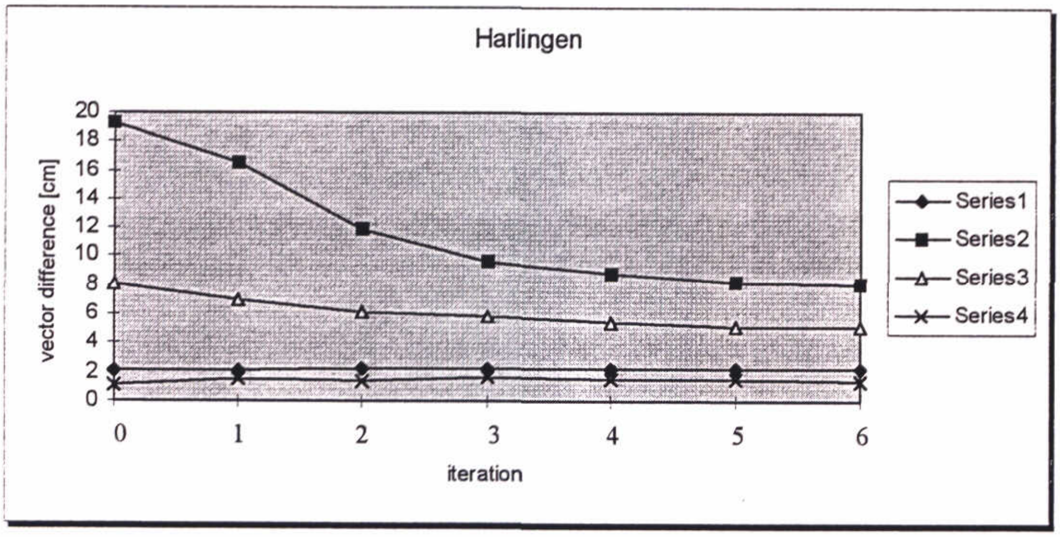

Calais
vector difference [cm]
30
25
20
15
10
5
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

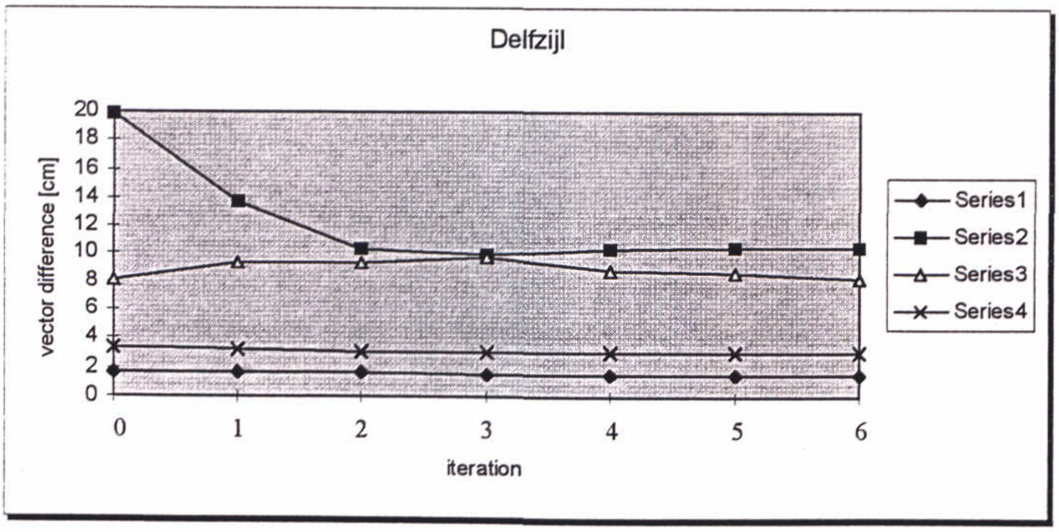

Auk Alpha
vector difference [cm]
4
3.5
3
2.5
2
1.5
1
0.5
0
0 1 2 3 4 5 6
iteration
Series1
Series2
Series3
Series4

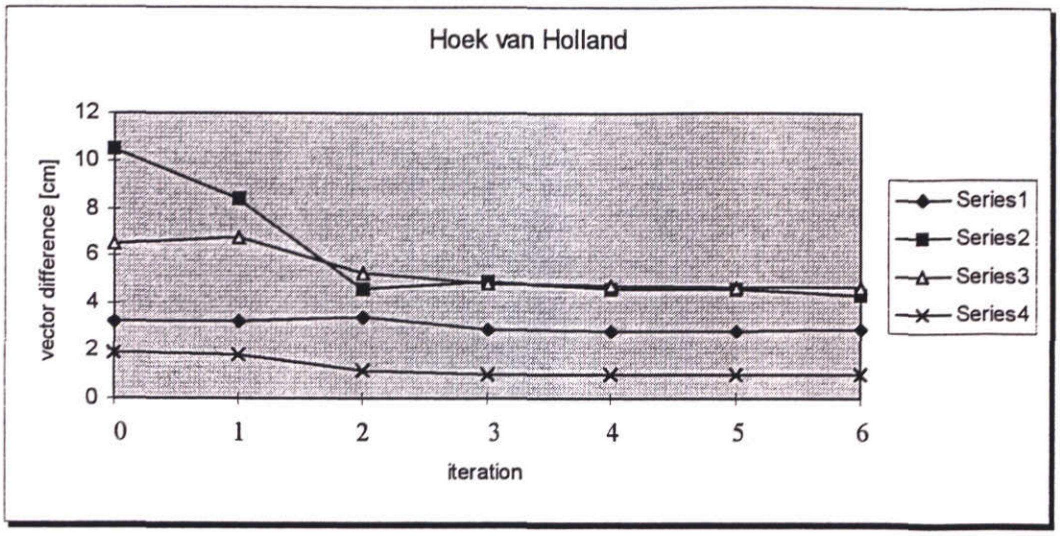

Bassurelle
vector difference [cm]
30
25
20
15
10
5
0
0 1 2 3 4 5 6
iteration
Series1
Series2
Series3
Series4

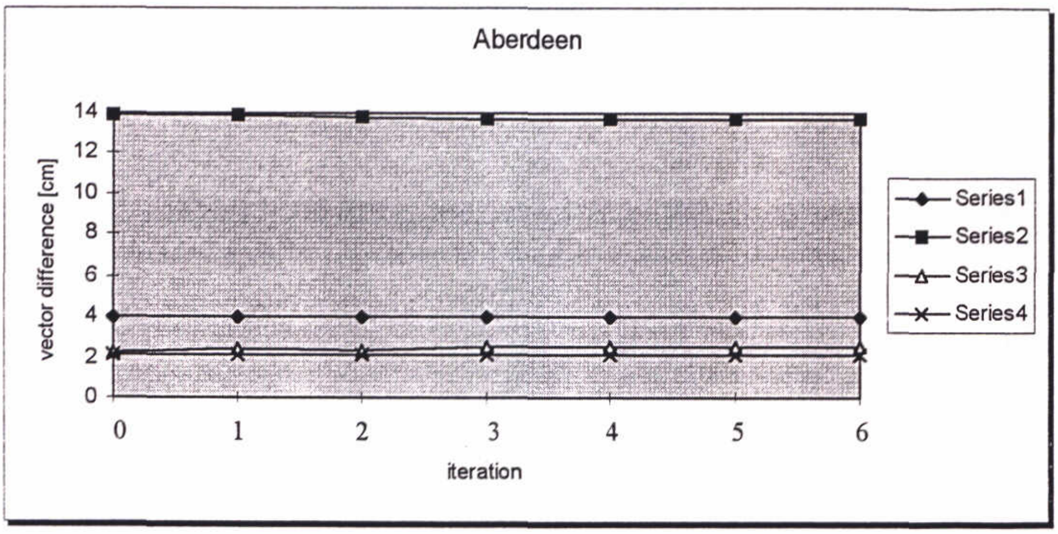

Westhinder
vector difference [cm]
30
25
20
15
10
5
0
0 1 2 3 4 5 6
iteration
Series1
Series2
Series3
Series4

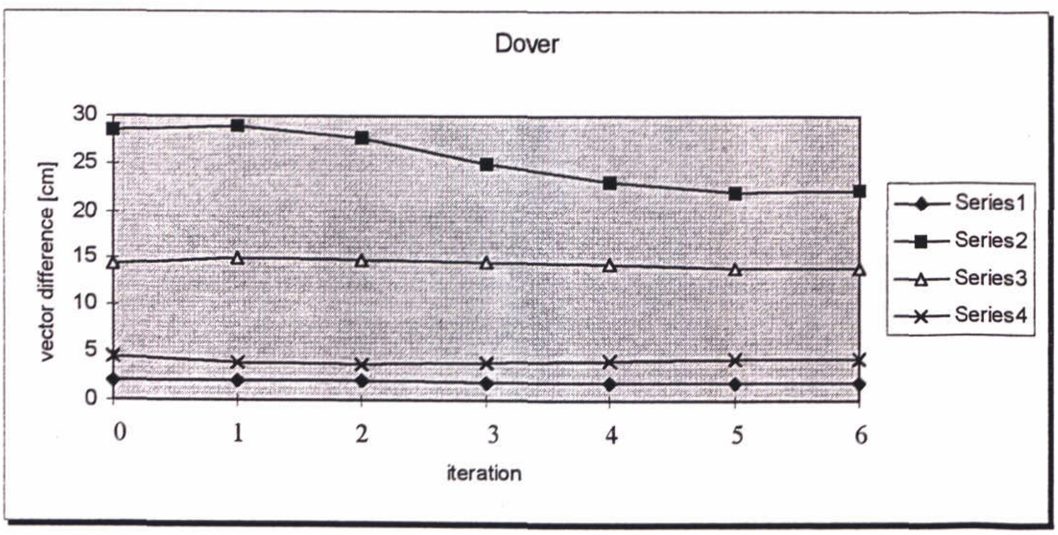

Den Helder
vector difference [cm]
10
9
8
7
6
5
4
3
2
1
0
0 1 2 3 4 5 6
iteration
Series1
Series2
Series3
Series4

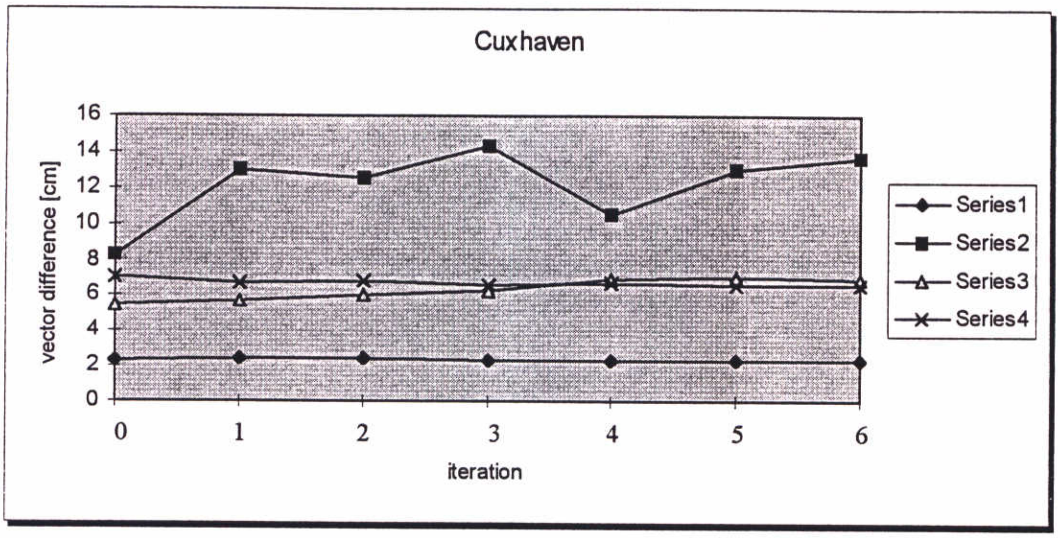

Harlingen
vector difference [cm]
20
18
16
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6
iteration
Series1
Series2
Series3
Series4

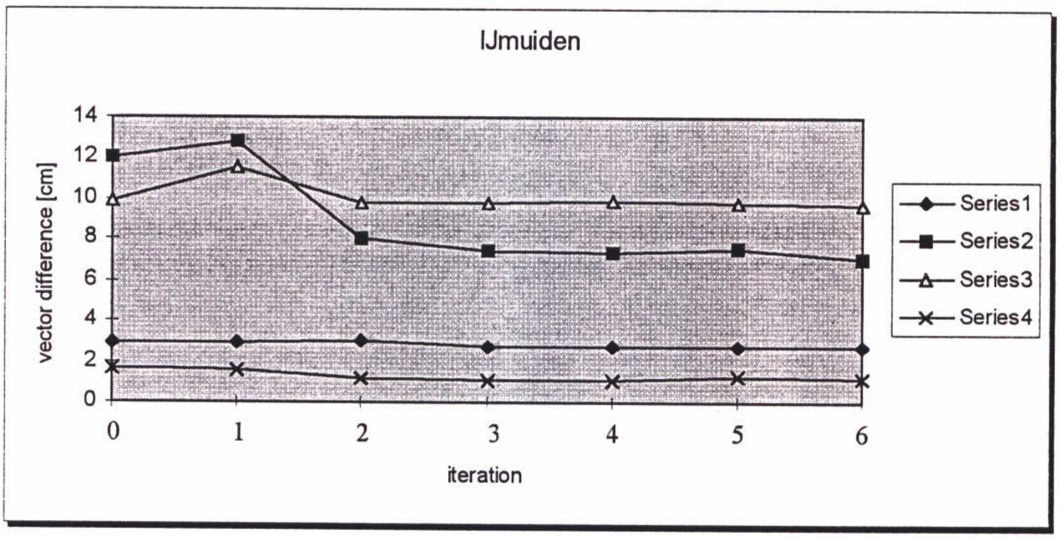

Delfzijl
vector difference [cm]
20
18
16
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6
iteration
Series1
Series2
Series3
Series4

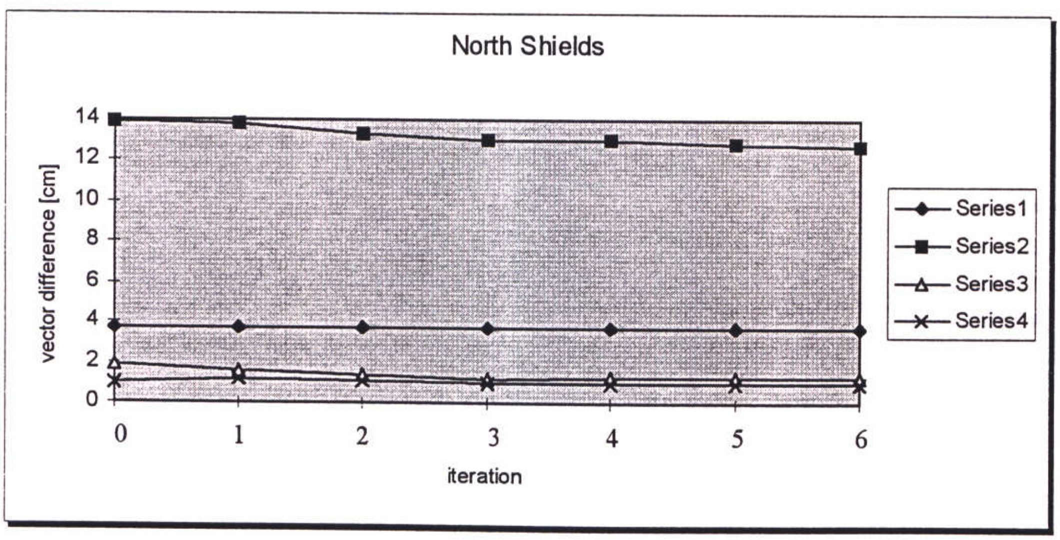

Hoek van Holland
vector difference [cm]
12
10
8
6
4
2
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

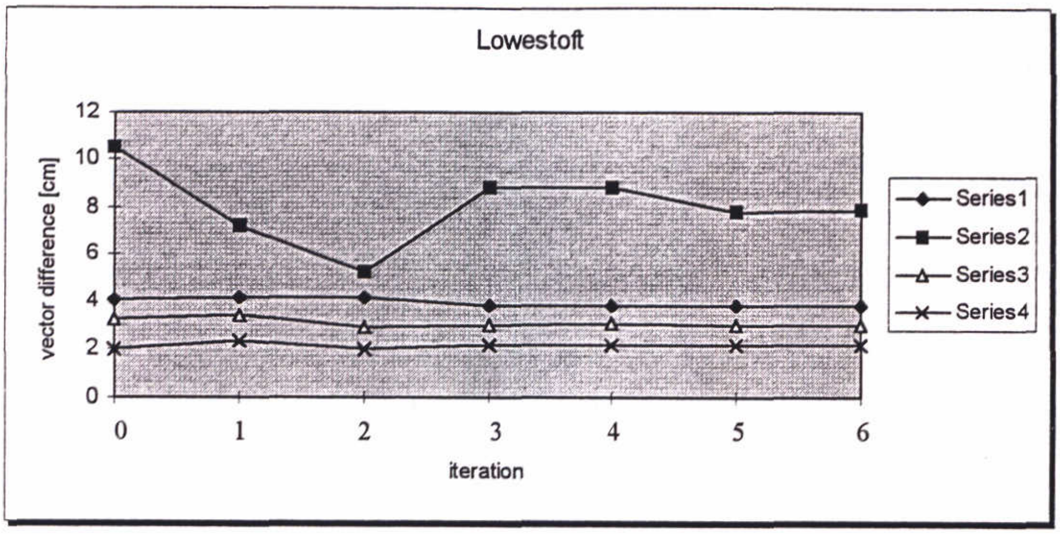

Aberdeen
vector difference [cm]
14
12
10
8
6
4
2
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

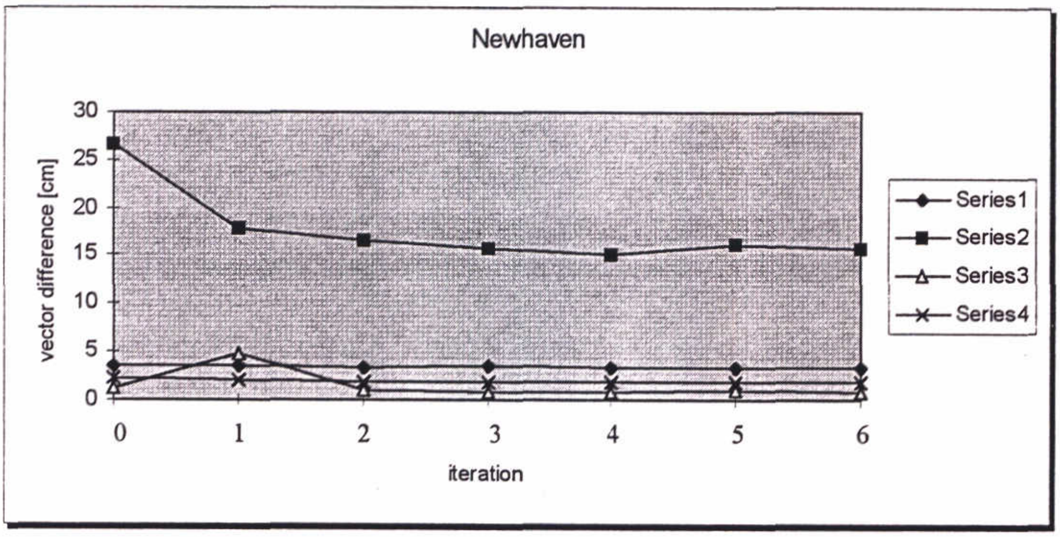

Dover
vector difference [cm]
30
25
20
15
10
5
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

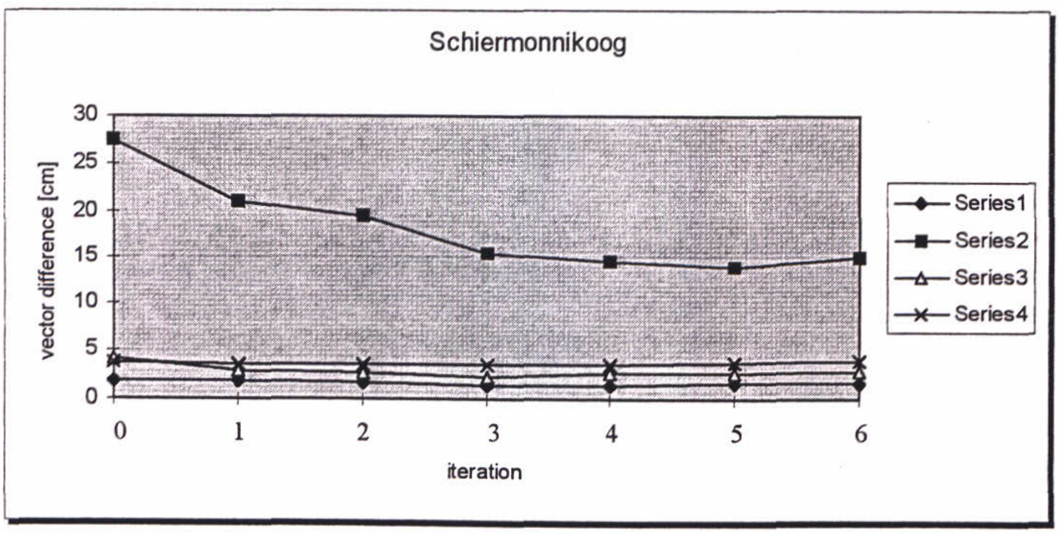

Cuxhaven
vector difference [cm]
16
14
12
10
8
6
4
2
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4

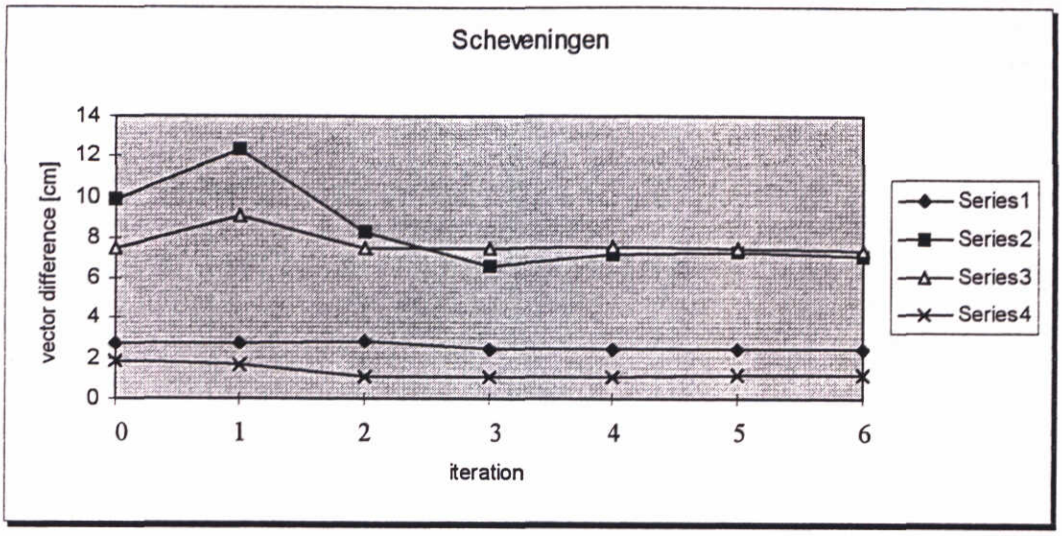

IJmuiden
vector difference [cm]
14
12
10
8
6
4
2
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4


North Shields
vector difference [cm]
14
12
10
8
6
4
2
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4


Lowestoft
vector difference [cm]
12
10
8
6
4
2
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4


Newhaven
vector difference [cm]
30
25
20
15
10
5
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4


Schiermonnikoog
vector difference [cm]
30
25
20
15
10
5
0
0
1
2
3
4
5
6
iteration
Series1
Series2
Series3
Series4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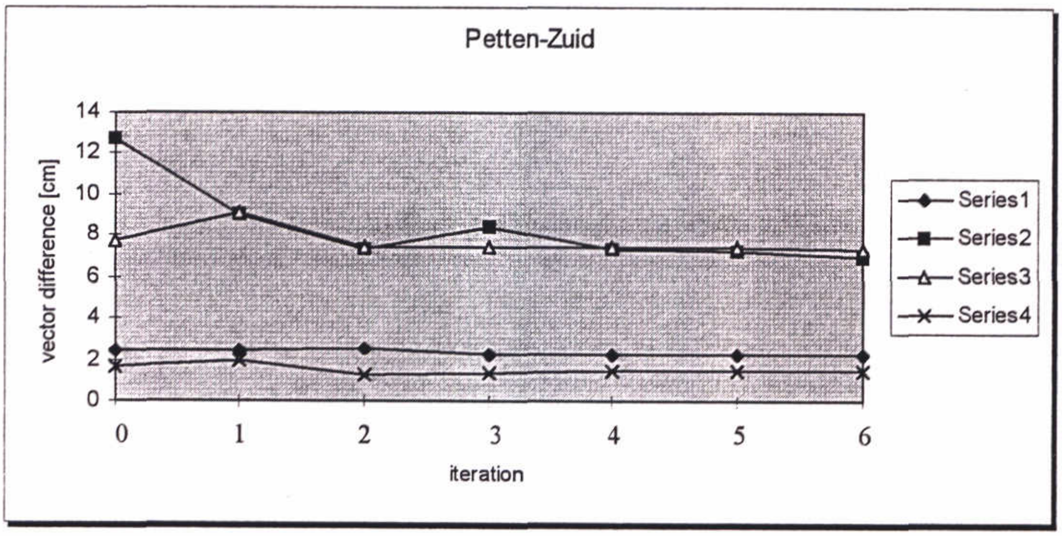
iteration
Series1
Series2
Series3
Series4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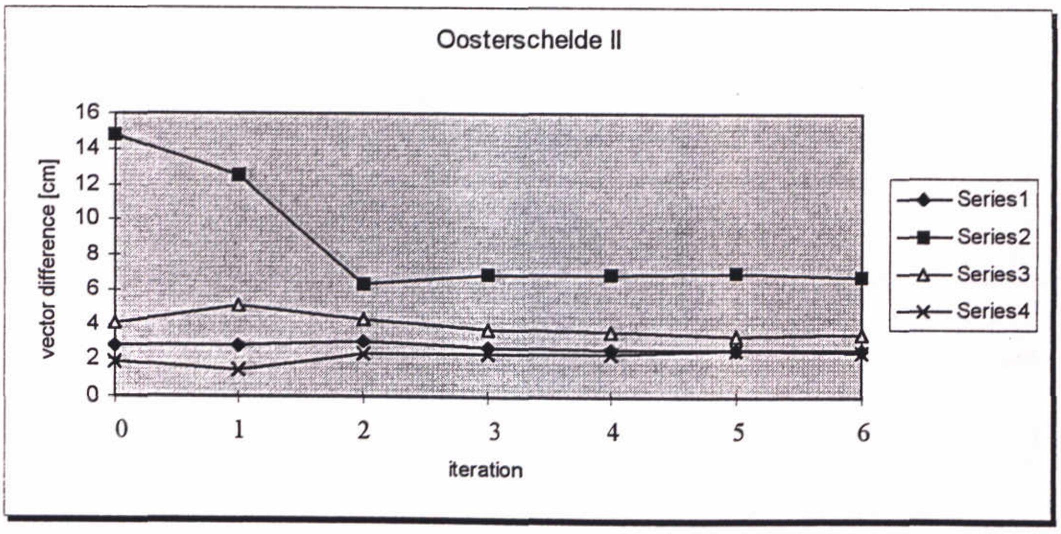
Series1
Series2
Series3
Series4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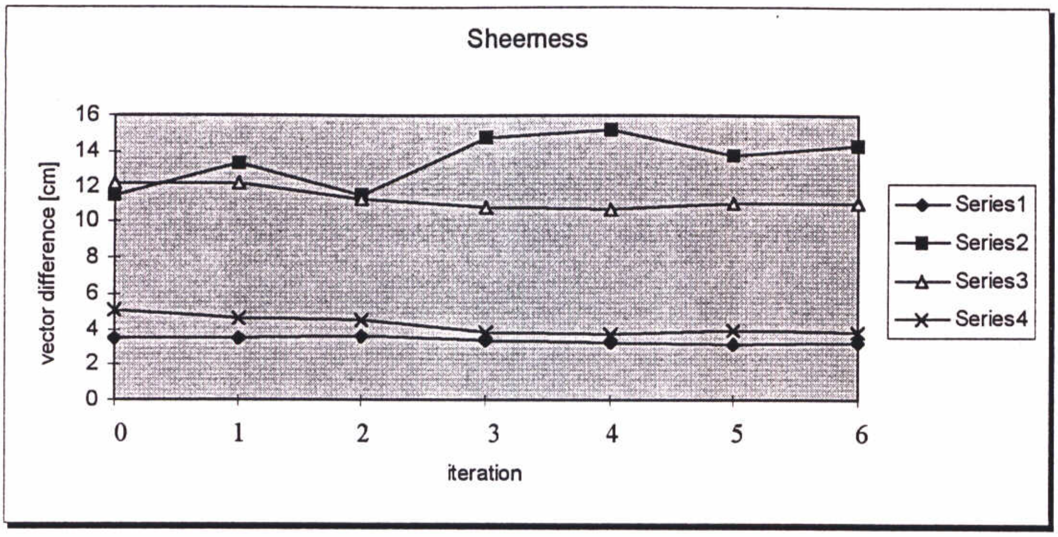
Series1
Series2
Series3
Series4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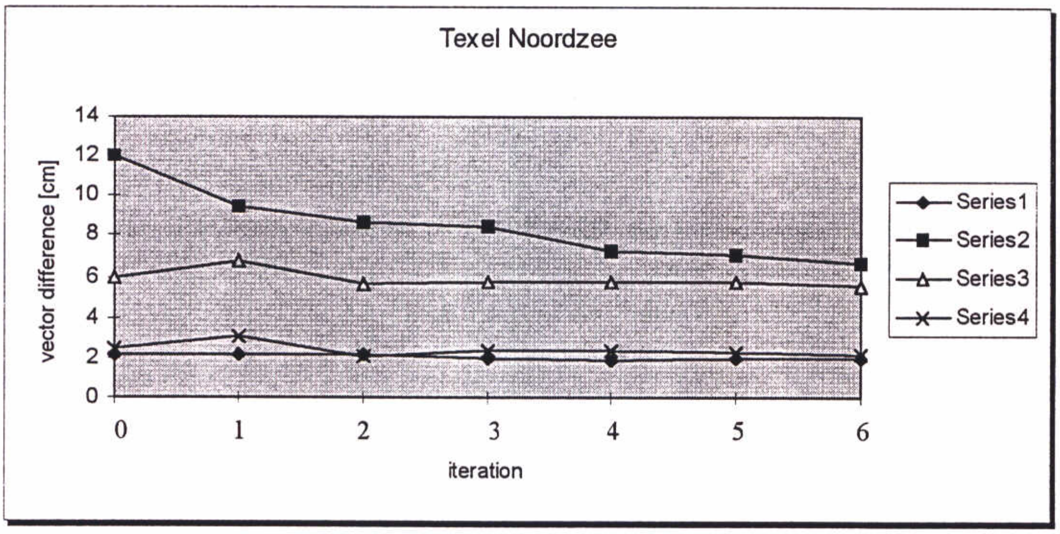
Series1
Series2
Series3
Series4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5
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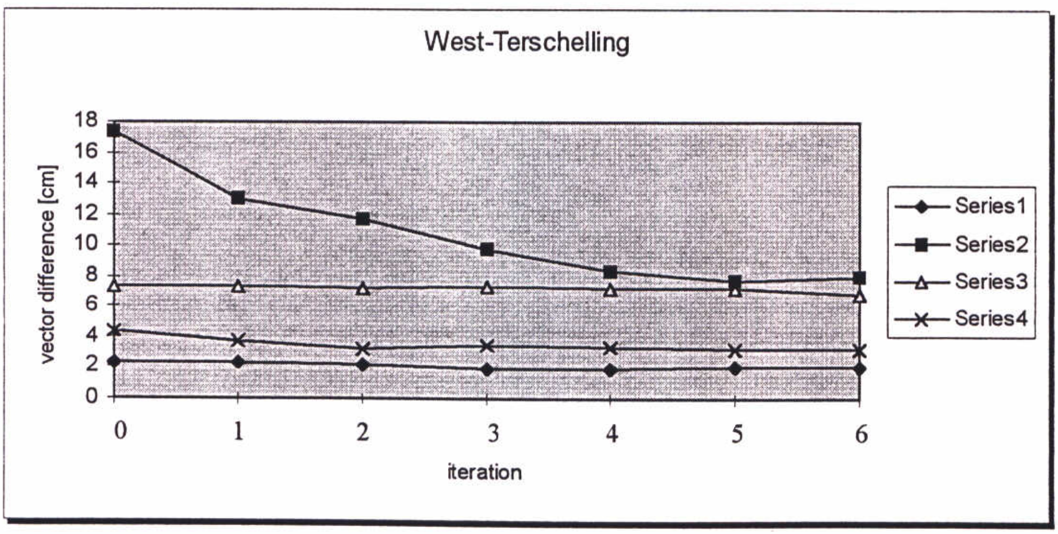
Series1
Series2
Series3
Series4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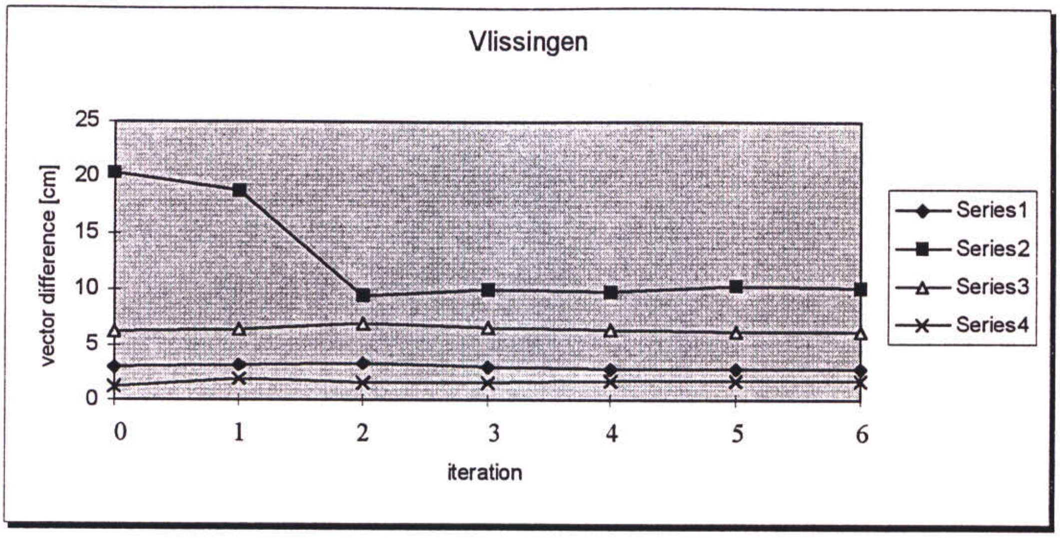
iteration
Series1
Series2
Series3
Series4



Legend:

Series1: vector difference of O1 and K1
Series2: vector difference of N2, M2 and S2
Series3: vector difference of MN4, M4 and MS4
Series4: vector difference of M6 and 2MS6

Appendix E

CHERBOURG

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.77	85.25	0.74	88.33	0.72	90.03	0.69	91.73	0.66	93.93	0.65	94.07	0.64	94.37
Q1				2.54	322.73	2.54	322.78	2.54	322.86	2.54	322.82	2.53	322.83	2.53	322.82	2.53	322.83
O1	13.943036	6.4	354	7.59	8.42	7.61	8.44	7.60	8.50	7.60	8.44	7.59	8.43	7.58	8.43	7.58	8.43
K1	15.041069	9.06	106	9.85	115.16	9.86	115.16	9.85	115.18	9.85	115.16	9.85	115.16	9.85	115.16	9.85	115.16
3MS2				1.26	288.39	1.24	285.91	1.21	285.99	1.22	285.94	1.21	285.78	1.21	285.91	1.21	285.85
MNS2				2.41	217.87	2.35	217.50	2.32	217.74	2.32	217.48	2.31	217.23	2.32	217.26	2.31	217.19
MU2	27.968209	5.7	195	5.91	220.06	5.77	219.27	5.67	219.41	5.69	219.20	5.67	218.91	5.69	219.06	5.68	218.94
N2	28.43973	36.5	217	31.41	208.76	31.29	208.83	31.20	208.83	31.15	208.76	31.08	208.71	31.06	208.65	31.03	208.64
M2	28.984104	187	230	193.14	228.22	192.24	228.39	191.73	228.45	191.41	228.37	191.00	228.32	190.93	228.24	190.74	228.24
2MN2				7.91	36.19	7.81	36.80	7.77	37.20	7.76	37.03	7.74	36.99	7.75	36.83	7.74	36.84
S2	30	69	273	74.74	282.67	74.30	282.62	73.98	282.60	73.90	282.51	73.77	282.42	73.75	282.38	73.69	282.36
MSN2	30.544375	2.7	180	1.91	282.29	1.91	281.63	1.91	281.30	1.91	281.26	1.91	281.13	1.90	281.24	1.90	281.19
2SM2	31.015896	1.8	105	1.15	119.15	1.11	119.08	1.09	119.24	1.09	119.05	1.09	118.98	1.09	118.87	1.09	118.81
NO3				0.28	186.30	0.27	188.44	0.26	188.39	0.26	188.41	0.26	188.19	0.26	187.01	0.26	187.16
2MK3				0.55	223.92	0.52	225.62	0.51	225.60	0.51	225.53	0.51	225.33	0.52	224.38	0.51	224.49
MK3				0.31	314.77	0.28	317.13	0.27	315.96	0.27	316.22	0.27	316.19	0.29	315.25	0.29	315.09
2MNS4				0.65	115.40	0.68	114.74	0.69	114.72	0.69	115.19	0.69	115.48	0.68	115.89	0.68	115.85
3MS4				1.32	121.90	1.38	122.08	1.39	122.42	1.38	122.67	1.38	122.94	1.36	123.12	1.37	123.14
MN4	57.423834	4.5	334	6.33	356.18	6.46	355.81	6.47	355.62	6.43	355.74	6.40	355.76	6.34	355.97	6.35	356.06
M4	57.968208	15.6	353	16.15	15.39	16.49	15.35	16.52	15.27	16.41	15.27	16.35	15.25	16.17	15.31	16.19	15.42
3MN4				2.08	195.92	2.16	196.43	2.17	196.79	2.15	196.76	2.14	196.97	2.11	196.94	2.12	197.06
MS4	58.984104	7.8	49	8.04	68.92	8.17	69.06	8.16	68.96	8.11	68.88	8.07	68.84	8.00	68.81	8.00	68.95
2MSN4				0.80	281.55	0.83	281.65	0.84	281.86	0.83	281.79	0.83	281.90	0.81	281.89	0.82	282.01
3MNS6				0.20	285.43	0.20	295.86	0.20	298.11	0.20	299.09	0.21	301.09	0.21	299.20	0.21	299.37
2NM6				0.25	62.79	0.26	57.07	0.26	55.84	0.26	55.00	0.26	53.93	0.25	54.57	0.25	54.59
2MN6	86.407938	1.6	152.6	1.44	97.03	1.34	97.58	1.32	98.01	1.29	98.32	1.27	98.88	1.29	99.74	1.29	99.53
M6	86.952313	2.5	101	2.05	105.11	1.93	102.89	1.89	102.61	1.86	102.55	1.83	102.52	1.83	103.84	1.83	103.62
MSN6			0	0.76	99.79	0.81	98.96	0.83	95.79	0.83	95.11	0.83	94.56	0.81	94.51	0.82	94.45
2MS6	87.968208	2.7	135	1.82	138.38	1.73	135.48	1.70	135.04	1.68	134.60	1.65	134.35	1.65	135.44	1.65	135.26
3MSN6				0.14	313.49	0.13	299.30	0.12	296.20	0.12	294.53	0.12	292.06	0.12	294.92	0.12	294.93
2SM6				0.80	173.02	0.80	171.60	0.80	171.15	0.80	170.91	0.80	170.73	0.80	171.09	0.80	170.99
2(MN)8				0.22	213.27	0.23	214.68	0.24	214.44	0.24	216.11	0.24	216.75	0.24	216.70	0.24	216.99
3MN8				0.66	234.88	0.68	234.31	0.69	233.34	0.70	234.10	0.71	234.14	0.71	233.70	0.71	234.00
M8				0.89	261.55	0.92	261.81	0.93	261.44	0.94	262.26	0.95	262.48	0.94	262.20	0.94	262.47
2MSN8				0.50	301.57	0.53	302.60	0.54	302.45	0.54	303.93	0.54	304.47	0.54	304.57	0.54	304.86
3MS8				1.00	316.19	1.03	315.84	1.04	315.04	1.06	315.81	1.07	315.87	1.07	315.69	1.07	315.92
2(MS)8				0.37	9.52	0.38	8.82	0.39	8.20	0.39	9.40	0.39	9.64	0.39	9.99	0.39	10.17
4MS10				1.05	95.38	0.96	100.40	0.94	101.94	0.94	100.91	0.93	100.80	0.95	99.16	0.95	99.22

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
O1	1.19	1.19	1.19	1.19	1.19	1.18	1.18	14.42	14.44	14.50	14.44	14.43	14.43	14.43	2.12	2.13	2.13	2.12	2.12	2.11	2.11
K1	1.09	1.09	1.09	1.09	1.09	1.09	1.09	9.16	9.16	9.18	9.16	9.16	9.16	9.16	1.70	1.71	1.71	1.71	1.70	1.70	1.70
MU2	1.04	1.01	1.00	1.00	0.99	1.00	1.00	25.06	24.27	24.41	24.20	23.91	24.06	23.94	2.53	2.41	2.40	2.39	2.36	2.37	2.36
N2	0.86	0.86	0.85	0.85	0.85	0.85	0.85	-8.24	-8.17	-8.17	-8.24	-8.29	-8.35	-8.36	7.04	7.09	7.16	7.22	7.28	7.32	7.34
M2	1.03	1.03	1.03	1.02	1.02	1.02	1.02	-1.78	-1.61	-1.55	-1.63	-1.68	-1.76	-1.76	8.52	7.48	6.97	6.96	6.84	7.01	6.90
S2	1.08	1.08	1.07	1.07	1.07	1.07	1.07	9.67	9.62	9.60	9.51	9.42	9.38	9.36	13.39	13.12	12.95	12.81	12.65	12.60	12.54
MSN2	0.71	0.71	0.71	0.71	0.71	0.70	0.70	102.29	101.63	101.30	101.26	101.13	101.24	101.19	3.62	3.61	3.60	3.60	3.59	3.59	3.59
2SM2	0.64	0.62	0.61	0.61	0.60	0.61	0.60	14.15	14.08	14.24	14.05	13.98	13.87	13.81	0.74	0.77	0.79	0.79	0.79	0.79	0.79
MN4	1.41	1.43	1.44	1.43	1.42	1.41	1.41	22.16	21.81	21.62	21.74	21.76	21.97	22.06	2.75	2.83	2.82	2.80	2.78	2.74	2.76
M4	1.04	1.06	1.06	1.05	1.05	1.04	1.04	22.39	22.35	22.27	22.27	22.25	22.31	22.42	6.19	6.28	6.27	6.23	6.21	6.17	6.21
MS4	1.03	1.05	1.05	1.04	1.04	1.03	1.03	19.92	20.06	19.96	19.88	19.84	19.81	19.95	2.75	2.81	2.79	2.76	2.75	2.72	2.74
2MN6	0.90	0.84	0.82	0.81	0.80	0.81	0.80	-55.57	-55.02	-54.59	-54.28	-53.72	-52.86	-53.07	1.42	1.38	1.36	1.35	1.33	1.32	1.32
M6	0.82	0.77	0.76	0.74	0.73	0.73	0.73	4.11	1.89	1.61	1.55	1.52	2.84	2.62	0.48	0.58	0.61	0.64	0.68	0.68	0.68
2MS6	0.67	0.64	0.63	0.62	0.61	0.61	0.61	3.38	0.48	0.04	-0.40	-0.65	0.44	0.26	0.89	0.97	1.00	1.02	1.05	1.05	1.05

DIEPPE

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.69	76.82	0.67	77.00	0.67	76.63	0.66	77.40	0.64	77.86	0.63	78.45	0.62	78.84
Q1				2.23	0.46	2.19	1.55	2.16	2.37	2.14	1.97	2.12	2.14	2.12	1.88	2.12	1.87
O1	13.943036	5	36	6.43	47.94	6.30	49.04	6.18	49.92	6.14	49.11	6.09	49.26	6.08	48.96	6.07	48.93
K1	15.041069	10	113	8.37	133.91	8.32	134.12	8.20	134.11	8.31	133.90	8.28	133.84	8.28	133.69	8.29	133.69
3MS2				1.35	15.88	1.19	19.65	1.10	25.18	1.11	24.31	1.08	24.05	1.11	23.57	1.10	23.61
MNS2				5.31	342.56	5.22	347.83	5.27	350.12	5.19	349.57	5.12	350.09	5.11	348.69	5.10	349.05
MU2				10.28	2.77	10.10	10.01	10.38	13.49	10.22	12.67	10.07	13.20	10.08	11.60	10.05	12.04
N2	28.43973	58	290	50.99	286.87	50.19	289.10	49.64	289.75	49.06	289.54	48.51	289.68	48.36	288.93	48.25	289.03
M2	28.984104	313	310	328.89	307.67	324.40	310.19	321.68	310.98	318.09	310.72	314.64	310.83	313.68	310.04	312.99	310.14
2MN2				17.77	125.96	17.63	129.81	17.68	131.27	17.47	130.81	17.30	130.97	17.24	129.95	17.21	130.11
S2	30	103	1	114.35	8.86	111.32	10.96	109.40	11.84	108.29	11.54	107.06	11.58	106.94	10.82	106.62	10.88
MSN2				1.01	20.72	0.93	18.90	0.87	19.47	0.87	19.07	0.85	19.00	0.86	19.47	0.86	19.32
2SM2				3.11	212.54	2.96	216.47	2.89	218.69	2.86	218.04	2.84	218.25	2.83	217.19	2.82	217.32
NO3				0.82	241.46	0.78	245.07	0.74	245.45	0.74	245.73	0.73	245.19	0.73	243.16	0.73	243.38
2MK3				1.50	284.89	1.44	288.60	1.39	289.17	1.38	289.35	1.37	288.96	1.38	287.01	1.37	287.27
MK3				2.61	21.07	2.55	23.63	2.51	23.60	2.48	23.48	2.47	23.41	2.48	22.28	2.47	22.30
2MNS4				1.12	262.61	1.19	265.41	1.21	266.36	1.19	266.59	1.18	267.19	1.16	266.61	1.16	266.87
3MS4				2.29	272.61	2.42	275.81	2.43	276.98	2.40	277.07	2.39	277.66	2.34	276.93	2.35	277.24
MN4	57.423834	10	160	11.14	170.32	11.20	172.95	11.00	173.62	10.83	173.39	10.68	173.49	10.55	172.57	10.53	172.67
M4	57.968208	27	187	28.05	192.14	28.24	195.00	27.75	195.70	27.33	195.36	26.96	195.41	26.64	194.36	26.61	194.47
3MN4				3.93	1.40	4.07	5.18	4.05	6.49	3.99	6.32	3.95	6.69	3.88	5.65	3.89	5.91
MS4	58.984104	19	238	14.45	248.94	14.48	252.24	14.18	253.07	13.96	252.73	13.75	252.79	13.59	251.62	13.56	251.76
2MSN4				1.38	83.30	1.42	87.01	1.40	88.00	1.38	87.59	1.37	87.72	1.34	86.53	1.34	86.67
3MNS6				0.74	311.13	0.76	321.15	0.77	323.20	0.74	321.89	0.72	322.01	0.70	317.41	0.70	318.73
2NM6				0.66	292.33	0.69	301.04	0.71	303.39	0.68	301.86	0.67	302.14	0.65	298.74	0.65	299.70
2MN6				2.19	230.94	2.36	238.68	2.39	240.40	2.32	239.53	2.26	240.36	2.13	237.82	2.17	238.56
M6	86.952313	3	319	3.44	269.27	3.70	276.51	3.73	278.27	3.62	277.16	3.54	277.86	3.37	275.35	3.41	276.03
MSN6				1.39	11.95	1.42	20.26	1.43	22.53	1.39	20.74	1.37	21.02	1.35	17.50	1.35	18.18
2MS6				3.39	312.40	3.57	319.48	3.55	321.26	3.49	320.10	3.41	320.46	3.30	318.01	3.32	318.60
3MSN6				0.93	133.12	0.96	141.95	0.94	144.12	0.92	142.68	0.90	142.55	0.89	139.00	0.88	139.67
2SM6				0.74	18.26	0.75	22.66	0.73	23.78	0.73	22.81	0.72	22.95	0.71	21.78	0.72	21.86
2(MN)8				0.40	158.32	0.44	164.04	0.45	166.63	0.45	164.63	0.45	165.33	0.43	162.82	0.43	163.67
3MN8				2.06	135.87	2.20	140.08	2.23	139.31	2.20	139.12	2.18	139.49	2.08	138.18	2.10	138.75
M8				2.38	174.34	2.54	179.48	2.57	179.64	2.55	178.77	2.53	178.97	2.43	177.16	2.45	177.62
2MSN8				1.12	233.79	1.20	241.36	1.21	243.34	1.21	241.71	1.20	242.02	1.17	239.01	1.18	239.64
3MS8				2.46	219.68	2.68	224.95	2.72	225.45	2.70	224.44	2.68	224.79	2.57	222.98	2.59	223.45
2(MS)8				0.77	268.72	0.84	274.32	0.84	275.32	0.84	274.61	0.83	275.10	0.80	273.34	0.80	273.81
4MS10				0.99	101.55	0.87	110.58	0.81	109.64	0.87	106.17	0.87	104.46	0.91	99.38	0.89	99.27

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
O1	1.29	1.26	1.24	1.23	1.22	1.22	1.21	11.94	13.04	13.92	13.11	13.26	12.96	12.93	1.85	1.82	1.79	1.71	1.67	1.65	1.64
K1	0.84	0.83	0.82	0.83	0.83	0.83	0.83	20.91	21.12	21.11	20.90	20.84	20.69	20.69	3.70	3.74	3.77	3.71	3.71	3.69	3.69
N2	0.88	0.87	0.86	0.85	0.84	0.83	0.83	-3.13	-0.90	-0.25	-0.46	-0.32	-1.07	-0.97	7.62	7.86	8.37	8.95	9.49	9.69	9.80
M2	1.05	1.04	1.03	1.02	1.01	1.00	1.00	-2.33	0.19	0.98	0.72	0.83	0.04	0.14	20.58	11.44	10.24	6.45	4.83	0.72	0.76
S2	1.11	1.08	1.06	1.05	1.04	1.04	1.04	7.66	9.96	10.84	10.54	10.58	9.82	9.88	18.41	20.37	21.05	20.11	19.78	18.39	18.41
MN4	1.11	1.12	1.10	1.08	1.07	1.05	1.05	10.32	12.95	13.62	13.39	13.49	12.57	12.67	2.21	2.87	2.88	2.58	2.52	2.31	2.33
M4	1.04	1.05	1.03	1.01	1.00	0.99	0.99	5.14	8.00	8.70	8.36	8.41	7.38	7.47	2.68	4.05	4.22	3.97	3.96	3.46	3.51
MS4	0.76	0.76	0.75	0.73	0.72	0.72	0.71	10.94	14.24	15.07	14.73	14.79	13.62	13.76	5.54	6.11	6.46	6.54	6.70	6.62	6.66
M6	1.15	1.23	1.24	1.21	1.18	1.12	1.14	-49.73	-42.49	-40.73	-41.84	-41.14	-43.65	-42.97	2.73	2.51	2.44	2.43	2.35	2.39	2.38

EKOFISK

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.18	338.29	0.18	334.79	0.18	334.72	0.19	331.33	0.19	330.50	0.19	330.40	0.19	330.30
Q1				1.03	65.63	1.02	65.66	1.02	65.76	1.02	65.77	1.02	65.82	1.02	65.91	1.02	65.87
O1	13.943036	3	120	3.28	119.88	3.28	119.89	3.27	119.95	3.27	119.95	3.27	120.01	3.28	120.11	3.27	120.08
K1	15.041069	2	256	3.68	267.88	3.67	267.88	3.67	267.89	3.66	267.92	3.67	268.00	3.67	268.10	3.67	268.07
3MS2				0.22	36.20	0.22	36.07	0.22	35.50	0.21	35.30	0.21	36.00	0.21	35.67	0.21	35.59
MNS2				0.23	229.12	0.22	227.86	0.22	224.66	0.22	223.30	0.22	223.50	0.22	221.58	0.22	221.42
MU2				1.07	264.99	1.07	264.32	1.08	262.58	1.07	261.69	1.05	261.69	1.05	260.61	1.06	260.49
N2	28.43973	7	66	5.51	55.55	5.54	55.43	5.59	55.55	5.59	55.69	5.59	55.36	5.62	55.32	5.62	55.33
M2	28.984104	28	85	28.18	83.56	28.32	83.54	28.72	83.76	28.76	84.02	28.81	83.55	29.03	83.59	29.05	83.63
2MN2				1.10	334.01	1.11	334.02	1.14	333.13	1.15	332.99	1.14	332.11	1.16	331.71	1.16	331.74
S2	30	7	115	8.95	124.64	8.97	124.73	9.05	125.35	9.02	125.80	9.07	125.58	9.11	125.83	9.12	125.87
MSN2				0.49	77.85	0.49	77.85	0.49	77.65	0.49	77.54	0.48	77.47	0.48	77.38	0.48	77.36
2SM2				0.31	66.64	0.31	66.93	0.32	66.65	0.32	66.99	0.32	66.34	0.32	66.38	0.32	66.46
NO3				0.06	354.69	0.07	353.42	0.06	347.94	0.07	347.90	0.06	348.25	0.06	343.28	0.06	342.97
2MK3				0.17	44.50	0.18	44.56	0.17	40.41	0.17	41.44	0.17	41.57	0.16	38.26	0.17	38.37
MK3				0.15	184.14	0.16	183.89	0.16	178.11	0.16	183.44	0.15	184.17	0.15	179.75	0.15	179.91
2MNS4				0.22	44.62	0.21	50.33	0.22	50.93	0.23	50.98	0.24	50.02	0.24	52.10	0.24	51.97
3MS4				0.51	82.79	0.50	87.09	0.51	88.43	0.53	88.80	0.53	87.66	0.54	89.27	0.54	88.94
MN4	57.423834	1	146	1.06	315.39	1.01	319.75	1.02	320.78	1.07	320.14	1.08	318.83	1.07	320.45	1.08	319.91
M4	57.968208	2	54	3.24	359.31	3.15	3.60	3.19	4.89	3.29	5.01	3.32	3.71	3.31	5.10	3.34	4.77
3MN4				0.64	210.48	0.65	215.97	0.66	217.63	0.68	217.96	0.68	216.84	0.69	218.00	0.69	217.75
MS4	58.984104	0	176	1.46	95.17	1.47	100.69	1.48	102.49	1.50	103.13	1.51	101.64	1.53	103.40	1.53	103.06
2MSN4				0.25	300.59	0.25	306.13	0.26	307.65	0.27	308.72	0.27	307.49	0.27	307.92	0.27	308.19
3MNS6				0.31	340.47	0.32	343.83	0.29	335.28	0.31	341.95	0.32	343.50	0.33	345.50	0.33	344.77
2NM6				0.36	250.60	0.35	253.05	0.38	253.85	0.39	256.45	0.38	256.21	0.38	257.26	0.39	256.19
2MN6				1.41	226.73	1.45	229.21	1.35	226.66	1.43	232.36	1.45	232.26	1.46	232.73	1.48	232.37
M6	86.952313	1	262	2.29	271.91	2.35	274.69	2.23	274.09	2.37	278.40	2.38	277.93	2.40	278.23	2.41	278.05
MSN6				0.58	324.85	0.56	329.82	0.59	332.54	0.59	337.29	0.58	335.73	0.58	338.59	0.58	338.10
2MS6				1.90	330.64	1.93	333.78	1.83	333.14	1.91	337.75	1.93	337.30	1.93	338.06	1.94	337.68
3MSN6				0.44	193.91	0.45	196.93	0.43	195.99	0.45	199.73	0.45	200.08	0.46	201.14	0.46	200.52
2SM6				0.42	27.24	0.42	30.00	0.40	31.33	0.40	35.75	0.40	34.17	0.40	36.37	0.41	36.06
2(MN)8				0.18	274.37	0.19	279.30	0.18	279.98	0.18	288.19	0.18	290.50	0.18	287.70	0.18	287.79
3MN8				0.21	220.11	0.30	237.71	0.28	244.97	0.26	268.52	0.27	270.09	0.27	265.68	0.27	267.94
M8				0.29	287.00	0.39	299.09	0.35	302.70	0.37	320.89	0.38	323.09	0.37	318.84	0.36	321.64
2MSN8				0.21	0.38	0.26	11.69	0.24	11.45	0.27	25.10	0.26	26.57	0.26	26.67	0.26	27.82
3MS8				0.26	323.54	0.36	341.90	0.32	345.83	0.32	14.17	0.32	16.70	0.31	11.31	0.31	15.17
2(MS)8				0.02	279.77	0.02	81.47	0.02	106.62	0.06	145.48	0.07	151.95	0.06	147.86	0.07	148.64
4MS10				0.45	163.27	0.48	185.35	0.43	191.46	0.38	200.88	0.37	199.09	0.37	198.53	0.36	198.45

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
O1	1.09	1.09	1.09	1.09	1.09	1.09	1.09	-0.12	-0.11	-0.05	-0.05	0.01	0.11	0.08	0.28	0.28	0.27	0.27	0.27	0.28	0.27
K1	1.84	1.84	1.83	1.83	1.83	1.83	1.83	11.88	11.88	11.89	11.92	12.00	12.10	12.07	1.77	1.76	1.76	1.76	1.76	1.76	1.76
N2	0.79	0.79	0.80	0.80	0.80	0.80	0.80	-10.45	-10.57	-10.45	-10.31	-10.64	-10.68	-10.67	1.87	1.86	1.81	1.80	1.83	1.81	1.81
M2	1.01	1.01	1.03	1.03	1.03	1.04	1.04	-1.44	-1.46	-1.24	-0.98	-1.45	-1.41	-1.37	0.73	0.78	0.94	0.91	1.08	1.24	1.25
S2	1.28	1.28	1.29	1.29	1.30	1.30	1.30	9.64	9.73	10.35	10.80	10.58	10.83	10.87	2.36	2.39	2.50	2.51	2.54	2.60	2.60
MN4	1.06	1.01	1.02	1.07	1.08	1.07	1.08	169.39	173.75	174.78	174.14	172.83	174.45	173.91	2.05	2.01	2.02	2.06	2.08	2.07	2.08
M4	1.62	1.58	1.59	1.65	1.66	1.66	1.67	-54.69	-50.40	-49.11	-48.99	-50.29	-48.90	-49.23	2.65	2.43	2.41	2.49	2.56	2.50	2.53
M6	2.29	2.35	2.23	2.37	2.38	2.40	2.41	9.91	12.69	12.09	16.40	15.93	16.23	16.05	1.31	1.39	1.27	1.43	1.45	1.46	1.48

ESBJERG

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				1.14	64.08	1.13	64.77	1.12	65.00	1.15	65.40	1.13	66.03	1.14	66.55	1.15	66.49
Q1	13.398661	2.1	228.0013	2.13	172.94	2.12	174.12	2.12	175.53	2.07	176.70	2.09	175.54	2.14	175.83	2.14	176.21
O1	13.943036	8	276.357	6.91	245.15	6.86	246.33	6.84	247.92	6.65	249.25	6.77	248.17	6.86	248.17	6.90	248.45
K1	15.041069	5.1	73.75893	6.83	54.12	6.79	55.30	6.74	57.23	6.50	57.85	6.63	56.58	6.75	56.66	6.77	56.98
3MS2				0.57	184.94	0.55	190.46	0.55	190.88	0.55	191.82	0.56	192.29	0.54	194.10	0.55	194.07
MNS2	27.423834	1.6	104.0762	2.28	49.50	2.19	53.68	2.14	54.58	2.10	57.10	2.16	56.76	2.13	58.77	2.11	59.38
MU2	27.968209	6.7	129.7318	5.81	89.96	5.65	94.93	5.52	95.75	5.46	98.05	5.57	98.02	5.50	99.90	5.46	100.48
N2	28.43973	10.6	6.760271	11.13	321.19	10.77	324.95	10.43	326.00	10.34	328.27	10.55	328.40	10.47	330.80	10.42	331.23
M2	28.984104	65.6	35.5159	76.99	353.93	74.42	357.91	72.15	359.01	71.38	1.26	72.70	1.40	71.97	3.70	71.59	4.12
2MN2				5.63	199.85	5.46	204.51	5.30	205.64	5.21	207.91	5.30	208.08	5.20	210.29	5.16	210.84
S2	30	16.2	97.6	20.43	64.53	19.56	68.02	18.88	69.10	18.64	71.35	18.93	71.68	18.74	73.98	18.63	74.30
MSN2	30.544375	0.2	142.4556	0.42	269.20	0.41	274.94	0.39	274.99	0.37	279.30	0.38	280.73	0.36	284.03	0.36	285.48
2SM2	31.015896	1.3	330.0841	0.84	306.19	0.80	310.32	0.77	312.03	0.76	315.33	0.76	315.41	0.74	318.34	0.74	319.65
NO3				0.49	101.66	0.49	105.83	0.49	105.10	0.48	107.89	0.43	102.93	0.42	103.90	0.43	103.49
2MK3				0.94	158.97	0.94	164.06	0.96	164.88	0.91	166.45	0.88	162.69	0.85	161.28	0.83	161.99
MK3	44.025173	0.5	5.074827	1.42	284.46	1.42	289.93	1.42	292.35	1.39	293.65	1.39	289.12	1.39	289.32	1.39	289.88
2MNS4				0.97	235.59	0.98	241.20	1.02	241.66	1.04	239.84	1.02	241.53	1.04	241.03	1.04	240.15
3MS4				2.05	263.87	2.02	269.17	2.06	270.75	2.14	270.81	2.09	270.07	2.18	270.33	2.19	269.01
MN4	57.423834	2.2	189.2762	5.15	149.37	5.09	154.20	5.17	154.61	5.31	154.88	5.39	151.63	5.54	152.94	5.63	152.45
M4	57.968208	6.1	227.2318	14.55	188.80	14.40	194.10	14.65	195.17	15.00	195.81	15.31	193.01	15.68	194.34	15.88	194.01
3MN4				2.66	29.61	2.68	37.30	2.72	39.67	2.79	40.27	2.87	39.26	2.93	40.14	2.95	39.79
MS4	58.984104	2.9	292.6159	6.55	270.64	6.52	277.12	6.50	278.49	6.59	279.76	6.76	276.66	6.95	278.40	7.03	278.34
2MSN4				1.04	127.55	1.05	134.29	1.06	138.17	1.08	138.00	1.18	135.53	1.20	136.40	1.21	136.91
3MNS6				0.99	67.75	0.92	74.92	0.91	74.00	0.98	80.36	1.04	75.68	1.09	81.53	1.11	83.84
2NM6				0.05	243.66	0.09	235.92	0.08	269.41	0.08	237.85	0.09	283.45	0.07	235.98	0.10	217.55
2MN6	86.407938	1.1	60.49206	2.93	302.72	2.84	306.73	2.92	307.35	3.06	313.86	3.14	310.69	3.19	313.84	3.25	315.82
M6	86.952313	2	93.34769	3.82	339.31	3.74	342.29	3.82	344.38	4.01	350.17	4.18	345.89	4.20	349.16	4.23	351.00
MSN6	87.423834	0.3	141.2762	0.14	237.01	0.16	266.52	0.09	251.37	0.13	229.92	0.02	157.08	0.06	222.76	0.10	212.24
2MS6	87.968208	1.8	155.4318	3.25	38.67	3.20	42.43	3.25	44.66	3.43	50.61	3.63	45.56	3.65	49.76	3.69	51.04
3MSN6				0.95	264.85	0.90	270.59	0.96	272.07	0.99	278.45	1.01	266.93	1.03	272.13	1.05	274.18
2SM6	88.984104	0.4	246.3159	0.53	72.50	0.53	75.22	0.50	78.04	0.53	83.06	0.58	84.41	0.57	88.78	0.59	89.52
2(MN)8				0.17	297.29	0.18	302.86	0.17	293.91	0.17	294.99	0.19	283.00	0.19	291.93	0.23	289.59
3MN8	115.39204	0.3	290.008	1.10	270.29	1.09	282.07	1.10	283.30	1.10	288.34	1.06	287.39	1.04	292.53	1.02	296.06
M8	115.93642	0.5	321.3636	1.15	317.98	1.14	327.84	1.15	329.69	1.16	335.50	1.15	333.30	1.13	338.82	1.10	340.63
2MSN8	116.40794	0.2	359.4921	0.43	16.82	0.40	20.59	0.39	18.33	0.42	23.21	0.40	20.97	0.43	19.05	0.43	21.19
3MS8	116.95231	0.6	20.54769	1.42	14.91	1.40	26.09	1.39	27.32	1.39	35.05	1.36	33.01	1.33	38.31	1.28	40.35
2(MS)8	117.96821	0.1	77.23179	0.52	79.95	0.51	87.11	0.50	91.82	0.50	98.78	0.49	98.03	0.47	104.14	0.48	105.11
4MS10				0.22	133.46	0.23	147.98	0.17	157.33	0.15	160.17	0.20	187.49	0.16	198.39	0.18	197.65

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
Q1	1.02	1.01	1.01	0.98	1.00	1.02	1.02	-55.06	-53.88	-52.47	-51.30	-52.46	-52.17	-51.79	1.96	1.91	1.86	1.80	1.85	1.86	1.85
O1	0.86	0.86	0.85	0.83	0.85	0.86	0.86	-31.21	-30.03	-28.44	-27.11	-28.19	-28.19	-27.91	4.15	4.00	3.81	3.67	3.79	3.78	3.75
K1	1.34	1.33	1.32	1.27	1.30	1.32	1.33	-19.64	-18.46	-16.53	-15.91	-17.18	-17.10	-16.78	2.65	2.53	2.35	2.12	2.31	2.40	2.40
MNS2	1.42	1.37	1.34	1.31	1.35	1.33	1.32	-54.58	-50.40	-49.50	-46.98	-47.32	-45.31	-44.70	1.88	1.70	1.64	1.55	1.59	1.52	1.48
MU2	0.87	0.84	0.82	0.81	0.83	0.82	0.81	-39.77	-34.80	-33.98	-31.68	-31.71	-29.83	-29.25	4.34	3.83	3.74	3.53	3.52	3.35	3.30
N2	1.05	1.02	0.98	0.96	1.00	0.99	0.98	-45.57	-41.81	-40.76	-38.49	-38.36	-35.96	-35.53	8.43	7.62	7.32	6.91	6.95	6.50	6.42
M2	1.17	1.13	1.10	1.09	1.11	1.10	1.09	-41.59	-37.61	-36.51	-34.26	-34.12	-31.82	-31.40	51.73	45.89	43.59	40.72	41.13	38.20	37.56
S2	1.26	1.21	1.17	1.15	1.17	1.16	1.15	-33.07	-29.58	-28.50	-26.25	-25.92	-23.62	-23.30	11.18	9.69	9.02	8.26	8.32	7.57	7.43
MSN2	2.08	2.03	1.94	1.84	1.91	1.82	1.78	126.74	132.48	132.53	136.84	138.27	141.57	143.02	0.56	0.56	0.54	0.53	0.55	0.53	0.53
2SM2	0.65	0.62	0.59	0.58	0.58	0.57	0.57	-23.89	-19.76	-18.05	-14.75	-14.67	-11.74	-10.43	0.63	0.61	0.62	0.60	0.60	0.59	0.59
MK3	2.84	2.83	2.84	2.78	2.77	2.78	2.79	-80.61	-75.14	-72.72	-71.42	-75.95	-75.75	-75.19	1.43	1.38	1.36	1.32	1.35	1.36	1.36
MN4	2.34	2.31	2.35	2.41	2.45	2.52	2.56	-39.91	-35.08	-34.67	-34.40	-37.65	-36.34	-36.83	3.74	3.52	3.58	3.71	3.89	3.99	4.09
M4	2.38	2.36	2.40	2.46	2.51	2.57	2.60	-38.43	-33.13	-32.06	-31.42	-34.22	-32.89	-33.22	10.48	9.87	10.02	10.30	10.83	11.07	11.28
MS4	2.26	2.25	2.24	2.27	2.33	2.40	2.42	-21.98	-15.50	-14.13	-12.86	-15.96	-14.22	-14.28	4.01	3.80	3.75	3.82	4.05	4.20	4.28
2MN6	2.66	2.58	2.65	2.78	2.85	2.90	2.95	-117.77	-113.76	-113.14	-106.63	-109.80	-106.65	-104.67	3.58	3.44	3.50	3.53	3.66	3.66	3.68
M6	1.91	1.87	1.91	2.01	2.09	2.10	2.11	-114.04	-111.06	-108.97	-103.18	-107.46	-104.19	-102.35	4.98	4.84	4.85	4.87	5.15	5.07	5.05
MSN6	0.46	0.52	0.30	0.45	0.08	0.21	0.32	95.73	125.24	110.09	88.64	15.80	81.48	70.96	0.34	0.41	0.34	0.33	0.28	0.30	0.28
2MS6	1.80	1.78	1.81	1.90	2.02	2.03	2.05	-116.76	-113.00	-110.77	-104.82	-109.87	-105.67	-104.39	4.36	4.24	4.24	4.26	4.57	4.48	4.49
2SM6	1.31	1.33	1.26	1.34	1.44	1.43	1.46	-173.82	-171.10	-168.28	-163.26	-161.91	-157.54	-156.80	0.92	0.93	0.90	0.92	0.96	0.95	0.97
3MN8	3.67	3.63	3.67	3.67	3.52	3.47	3.41	-19.72	-7.94	-6.71	-1.67	-2.62	2.52	6.05	0.82	0.79	0.80	0.80	0.76	0.74	0.73
M8	2.31	2.28	2.29	2.32	2.29	2.27	2.19	-3.38	6.48	8.33	14.14	11.94	17.46	19.27	0.65	0.65	0.65	0.69	0.67	0.67	0.65
2MSN8	2.16	2.02	1.97	2.08	2.01	2.13	2.17	17.33	21.10	18.84	23.72	21.48	19.56	21.70	0.25	0.23	0.21	0.25	0.23	0.25	0.26
3MS8	2.37	2.34	2.31	2.32	2.27	2.22	2.14	-5.84	5.54	6.77	14.50	12.46	17.76	19.80	0.82	0.81	0.80	0.82	0.79	0.78	0.75
2(MS)8	5.15	5.05	4.99	4.97	4.89	4.70	4.75	2.72	9.88	14.59	21.55	20.80	26.91	27.88	0.42	0.41	0.40	0.41	0.40	0.38	0.39

EURO0

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	4.143	61.5841	2.06	61.17	2.05	61.76	1.98	62.27	2.01	62.33	1.99	62.36	2.01	62.43	1.99	62.38
Q1	13.398661	3.265	119.7213	2.76	100.30	2.77	101.00	2.78	100.85	2.70	102.29	2.69	102.26	2.70	101.86	2.70	102.02
O1	13.943036	10.139	169.507	10.80	171.85	10.83	172.61	10.86	172.31	10.57	174.09	10.54	174.04	10.54	173.70	10.55	173.82
K1	15.041069	7.679	344.8789	11.14	341.73	11.20	342.22	11.29	341.87	10.84	343.96	10.79	343.89	10.78	343.50	10.80	343.66
3MS2	26.952313	1.777	267.6777	0.81	237.45	0.80	241.23	0.79	240.18	0.77	239.62	0.77	240.17	0.78	239.37	0.78	240.07
MNS2	27.423834	1.224	127.2262	2.79	105.52	2.64	108.29	2.56	106.28	2.56	105.75	2.55	106.36	2.56	106.25	2.55	106.20
MU2	27.968208	6.446	153.8918	7.78	138.08	7.41	140.86	7.23	139.08	7.19	138.51	7.16	139.10	7.16	138.61	7.14	138.64
N2	28.43973	11.557	357.4003	10.38	347.74	9.55	347.45	9.41	343.00	9.78	345.39	9.69	345.82	9.68	345.88	9.68	345.44
M2	28.984104	72.937	25.6659	76.45	27.56	70.59	28.61	68.55	24.80	71.16	25.69	70.48	26.13	70.67	25.97	70.47	25.62
2MN2	29.528479	6.425	232.6715	7.82	237.88	7.45	240.08	7.25	237.91	7.28	237.49	7.22	237.87	7.25	237.35	7.23	237.27
S2	30	18.123	80.19	17.60	91.58	15.87	91.71	15.36	86.35	16.48	87.55	16.29	87.70	16.36	87.81	16.32	87.23
MSN2	30.544375	1.565	295.1456	0.92	285.71	0.91	286.64	0.90	285.42	0.86	285.46	0.84	285.76	0.85	285.63	0.85	285.49
2SM2	31.015896	2.23	324.1241	1.39	329.36	1.30	330.26	1.26	327.73	1.28	327.99	1.27	328.12	1.28	327.46	1.28	327.07
NO3	42.382765	0.338	72.48724	1.04	60.78	1.00	63.57	0.99	62.73	1.01	62.02	1.01	62.17	1.01	61.32	1.01	61.21
2MK3	42.92714	1.255	94.78286	1.73	108.93	1.64	112.11	1.64	111.37	1.67	109.96	1.67	110.17	1.68	109.26	1.67	109.14
MK3	44.025173	1.308	240.7948	2.08	216.21	1.99	218.05	1.97	217.52	2.04	216.74	2.03	217.02	2.04	216.17	2.04	215.97
2MNS4	56.407938	0.435	117.3821	0.71	159.37	0.72	164.96	0.70	162.66	0.67	162.96	0.66	162.75	0.67	161.77	0.67	162.13
3MS4	56.952313	1.049	143.0577	0.97	161.76	0.95	168.38	0.94	167.18	0.89	164.72	0.89	164.80	0.89	163.99	0.89	164.46
MN4	57.423834	3.483	45.51617	5.55	56.38	5.48	59.97	5.27	58.07	5.11	58.29	5.06	58.42	5.07	57.81	5.06	57.93
M4	57.968208	9.798	71.12179	12.30	83.06	12.08	87.00	11.63	85.09	11.27	84.47	11.16	84.54	11.14	83.75	11.15	83.94
3MN4	58.512583	1.414	256.8274	1.54	252.94	1.50	258.35	1.46	257.06	1.42	254.10	1.41	254.34	1.41	252.62	1.41	253.10
MS4	58.984104	6.723	125.0559	6.40	137.97	6.26	141.54	6.01	139.55	5.92	138.86	5.85	138.97	5.86	138.07	5.86	138.30
2MSN4	59.528479	0.652	312.4915	0.50	359.21	0.49	4.17	0.48	2.01	0.45	358.64	0.44	358.53	0.44	356.08	0.44	356.64
3MNS6	85.392042	0.543	81.59796	1.18	79.40	1.12	86.39	1.07	81.13	1.05	81.85	1.05	82.78	1.03	81.94	1.04	82.16
2NM6	85.863563	0.785	325.9064	0.93	64.36	0.90	72.55	0.87	70.99	0.85	69.64	0.84	70.23	0.84	69.18	0.84	69.02
2MN6	86.407938	2.105	336.0421	3.25	328.41	3.01	334.93	2.81	328.89	2.87	329.43	2.85	329.89	2.82	328.69	2.85	328.96
M6	86.952313	3.942	6.187687	4.00	17.97	3.71	26.41	3.40	21.49	3.43	20.12	3.40	20.50	3.35	18.64	3.39	19.17
MSN6	87.423834	0.755	25.31617	1.65	149.82	1.62	158.39	1.57	157.35	1.52	155.69	1.49	156.00	1.47	154.66	1.48	154.84
2MS6	87.968208	3.738	57.77179	2.94	64.81	2.68	73.22	2.48	67.39	2.51	64.47	2.47	64.57	2.44	62.12	2.46	62.90
3MSN6	88.512583	0.924	262.2774	0.83	269.99	0.79	277.83	0.75	272.98	0.73	270.06	0.72	270.38	0.71	267.63	0.71	268.59
2SM6	88.984104	0.659	114.7459	0.29	152.68	0.27	165.93	0.22	162.41	0.20	152.99	0.20	153.12	0.19	150.21	0.19	151.64
2(MN)8	114.84767	0.317	340.4823	0.33	10.01	0.31	20.97	0.30	16.95	0.30	16.44	0.29	16.46	0.30	13.87	0.30	15.00
3MN8	115.39204	0.72	358.098	1.47	331.91	1.51	340.93	1.43	337.76	1.41	337.42	1.41	337.33	1.40	335.41	1.38	335.94
M8	115.93642	0.989	28.58358	1.57	17.82	1.58	27.43	1.50	24.41	1.47	24.05	1.46	23.89	1.45	21.99	1.44	22.39
2MSN8	116.40794	0.576	47.29206	0.68	96.55	0.66	109.51	0.63	106.09	0.61	105.06	0.60	104.91	0.59	101.62	0.59	102.30
3MS8	116.95231	1.41	75.14769	1.75	59.82	1.75	70.12	1.64	66.60	1.61	65.37	1.59	65.29	1.60	63.08	1.58	63.55
2(MS)8	117.96821	0.56	133.9018	0.49	114.43	0.47	124.00	0.45	120.88	0.44	119.20	0.44	118.93	0.44	116.39	0.44	116.67
4MS10	145.93642	0.424	353.6138	0.48	324.60	0.40	330.05	0.30	328.25	0.37	337.60	0.38	335.21	0.40	330.55	0.40	330.99

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.50	0.49	0.48	0.49	0.48	0.48	0.48	-0.41	0.18	0.69	0.75	0.78	0.85	0.80	2.09	2.10	2.16	2.13	2.16	2.14	2.16
Q1	0.85	0.85	0.85	0.83	0.83	0.83	0.83	-19.42	-18.72	-18.87	-17.43	-17.46	-17.86	-17.70	1.13	1.10	1.10	1.06	1.07	1.08	1.07
O1	1.07	1.07	1.07	1.04	1.04	1.04	1.04	2.34	3.10	2.80	4.58	4.53	4.19	4.31	0.79	0.89	0.88	0.93	0.91	0.86	0.88
K1	1.45	1.46	1.47	1.41	1.41	1.40	1.41	-3.15	-2.66	-3.01	-0.92	-0.99	-1.38	-1.22	3.50	3.54	3.64	3.17	3.12	3.11	3.13
3MS2	0.46	0.45	0.44	0.43	0.44	0.44	0.44	-30.23	-26.45	-27.50	-28.06	-27.51	-28.31	-27.61	1.15	1.12	1.14	1.16	1.15	1.15	1.15
MNS2	2.28	2.16	2.09	2.09	2.09	2.09	2.08	-21.71	-18.94	-20.95	-21.48	-20.87	-20.98	-21.03	1.72	1.53	1.49	1.49	1.48	1.48	1.47
MU2	1.21	1.15	1.12	1.11	1.11	1.11	1.11	-15.81	-13.03	-14.81	-15.38	-14.79	-15.28	-15.25	2.36	1.84	1.93	1.97	1.89	1.94	1.93
N2	0.90	0.83	0.81	0.85	0.84	0.84	0.84	-9.86	-9.95	-14.40	-12.01	-11.58	-11.52	-11.96	2.19	2.71	3.38	2.85	2.84	2.83	2.90
M2	1.05	0.97	0.94	0.98	0.97	0.97	0.97	1.89	2.94	-0.87	0.02	0.46	0.30	-0.05	4.29	4.37	4.51	1.78	2.53	2.30	2.46
2MN2	1.22	1.16	1.13	1.13	1.12	1.13	1.12	5.21	7.41	5.24	4.82	5.20	4.68	4.80	1.53	1.36	1.03	1.03	1.01	0.99	0.97
S2	0.97	0.88	0.85	0.91	0.90	0.90	0.90	11.39	11.52	6.16	7.36	7.51	7.62	7.04	3.58	4.08	3.29	2.76	2.90	2.89	2.77
MSN2	0.59	0.58	0.57	0.55	0.54	0.54	0.55	-9.44	-8.51	-9.73	-9.69	-9.39	-9.52	-9.66	0.68	0.68	0.70	0.74	0.75	0.74	0.74
2SM2	0.62	0.58	0.57	0.58	0.57	0.58	0.57	5.24	6.14	3.61	3.87	4.00	3.34	2.95	0.86	0.94	0.97	0.95	0.97	0.95	0.95
NO3	3.08	2.95	2.94	2.98	2.98	3.00	2.99	-11.71	-8.92	-9.76	-10.47	-10.32	-11.17	-11.28	0.71	0.66	0.66	0.68	0.68	0.69	0.68
2MK3	1.38	1.31	1.31	1.33	1.33	1.34	1.33	14.15	17.33	16.59	15.18	15.39	14.48	14.36	0.59	0.58	0.57	0.56	0.57	0.56	0.55
MK3	1.59	1.52	1.51	1.56	1.55	1.56	1.56	-24.58	-22.74	-23.27	-24.05	-23.77	-24.62	-24.82	1.04	0.93	0.93	1.00	0.99	1.01	1.02
2MNS4	1.64	1.66	1.62	1.53	1.52	1.54	1.54	41.99	47.58	45.28	45.58	45.37	44.39	44.75	0.49	0.54	0.50	0.48	0.47	0.47	0.47
3MS4	0.92	0.91	0.89	0.85	0.85	0.85	0.85	18.70	25.32	24.12	21.66	21.74	20.93	21.40	0.34	0.45	0.43	0.40	0.40	0.39	0.39
MN4	1.59	1.57	1.51	1.47	1.45	1.45	1.45	10.86	14.45	12.55	12.77	12.90	12.29	12.41	2.23	2.28	2.02	1.88	1.84	1.82	1.82
M4	1.25	1.23	1.19	1.15	1.14	1.14	1.14	11.94	15.88	13.97	13.35	13.42	12.63	12.82	3.38	3.77	3.18	2.85	2.80	2.66	2.69
3MN4	1.09	1.06	1.03	1.00	1.00	1.00	1.00	-3.89	1.52	0.23	-2.73	-2.49	-4.21	-3.73	0.16	0.10	0.05	0.07	0.06	0.10	0.09
MS4	0.95	0.93	0.89	0.88	0.87	0.87	0.87	12.91	16.48	14.49	13.80	13.91	13.01	13.24	1.51	1.92	1.76	1.72	1.75	1.68	1.69
2MSN4	0.76	0.76	0.74	0.69	0.68	0.67	0.67	46.72	51.68	49.52	46.15	46.04	43.59	44.15	0.48	0.52	0.50	0.47	0.47	0.45	0.46
3MNS6	2.17	2.06	1.97	1.94	1.93	1.90	1.92	-2.20	4.79	-0.47	0.25	1.18	0.34	0.58	0.64	0.58	0.52	0.51	0.51	0.49	0.50
2NM6	1.18	1.15	1.11	1.09	1.08	1.07	1.07	98.45	106.64	105.08	103.73	104.32	103.27	103.11	1.30	1.35	1.32	1.29	1.29	1.27	1.27
2MN6	1.54	1.43	1.34	1.36	1.35	1.34	1.35	-7.63	-1.11	-7.15	-8.61	-8.15	-7.35	-7.08	1.19	0.90	0.77	0.81	0.79	0.78	0.81
M6	1.01	0.94	0.86	0.87	0.86	0.85	0.86	11.78	20.22	15.30	13.93	14.31	12.45	12.98	0.82	1.38	1.11	1.03	1.06	0.98	0.99
MSN6	2.18	2.15	2.08	2.01	1.97	1.95	1.96	124.50	133.07	132.03	130.37	130.68	129.34	129.52	2.16	2.21	2.15	2.09	2.06	2.04	2.05
2MS6	0.79	0.72	0.66	0.67	0.66	0.65	0.66	7.04	15.45	9.62	6.70	6.80	4.35	5.13	0.90	1.36	1.36	1.28	1.32	1.32	1.30
3MSN6	0.90	0.85	0.82	0.79	0.77	0.76	0.77	7.71	15.55	10.70	7.78	8.10	5.35	6.31	0.15	0.27	0.23	0.22	0.24	0.23	0.23
2SM6	0.44	0.40	0.33	0.31	0.30	0.29	0.29	37.93	51.18	47.66	38.24	38.37	35.46	36.89	0.46	0.53	0.54	0.52	0.52	0.52	0.52
2(MN)8	1.03	0.99	0.94	0.94	0.93	0.95	0.94	29.53	40.49	36.47	35.96	35.98	33.39	34.52	0.16	0.22	0.19	0.19	0.19	0.18	0.18
3MN8	2.04	2.10	1.98	1.96	1.95	1.95	1.92	-26.19	-17.17	-20.34	-20.68	-20.77	-22.69	-22.16	0.88	0.85	0.79	0.78	0.78	0.79	0.77
M8	1.58	1.60	1.52	1.49	1.48	1.47	1.46	-10.76	-1.15	-4.17	-4.53	-4.69	-6.59	-6.19	0.62	0.59	0.52	0.49	0.48	0.49	0.47
2MSN8	1.17	1.14	1.09	1.05	1.03	1.03	1.02	49.26	62.22	58.80	57.77	57.62	54.33	55.01	0.53	0.64	0.59	0.57	0.57	0.53	0.54
3MS8	1.24	1.24	1.16	1.14	1.13	1.13	1.12	-15.33	-5.03	-8.55	-9.78	-9.86	-12.07	-11.60	0.54	0.36	0.32	0.32	0.32	0.37	0.35
2(MS)8	0.87	0.85	0.79	0.79	0.78	0.79	0.78	-19.47	-9.90	-13.02	-14.70	-14.97	-17.51	-17.23	0.19	0.12	0.16	0.17	0.18	0.19	0.19
4MS10	1.12	0.95	0.71	0.87	0.89	0.95	0.94	-29.01	-23.56	-25.36	-16.01	-18.40	-23.06	-22.62	0.23	0.17	0.20	0.12	0.14	0.17	0.16

HANSTHOLM

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.93	63.19	0.91	63.13	0.90	63.29	0.91	63.25	0.89	63.36	0.90	63.47	0.90	63.37
Q1				0.67	165.86	0.64	164.76	0.61	163.41	0.59	160.79	0.59	162.01	0.57	163.17	0.56	163.38
O1				2.66	258.96	2.57	258.29	2.45	257.27	2.38	255.13	2.40	256.33	2.36	257.29	2.33	257.58
K1	13.943036	2.4	2.056964	2.28	95.96	2.20	96.07	2.08	95.85	2.03	93.47	2.06	94.78	2.05	96.32	2.03	96.86
3MS2	15.041069	2.3	185.9589	0.39	337.07	0.39	337.04	0.40	337.10	0.39	337.21	0.39	337.15	0.40	337.10	0.40	337.09
MNS2				0.53	205.84	0.52	206.10	0.52	206.14	0.52	206.26	0.52	206.54	0.52	206.72	0.51	206.77
MU2				2.31	231.10	2.31	231.10	2.31	231.03	2.31	231.09	2.31	231.14	2.30	231.08	2.30	231.06
N2	28.43973	2.9	47.56027	4.20	45.66	4.18	45.64	4.17	45.55	4.16	45.56	4.16	45.64	4.15	45.61	4.15	45.59
M2	28.984104	12.2	105.0159	20.76	88.28	20.66	88.28	20.60	88.19	20.54	88.22	20.52	88.34	20.46	88.32	20.45	88.30
2MN2				1.75	342.20	1.74	342.36	1.74	342.43	1.74	342.53	1.74	342.60	1.74	342.68	1.73	342.69
S2	30	2.7	14	2.92	104.23	2.91	103.76	2.91	103.34	2.89	103.08	2.88	103.06	2.87	102.70	2.88	102.62
MSN2				0.58	53.28	0.58	53.31	0.58	53.27	0.58	53.28	0.58	53.35	0.58	53.38	0.58	53.39
2SM2				0.44	90.17	0.44	90.37	0.44	90.54	0.43	90.61	0.44	90.67	0.44	90.83	0.44	90.87
NO3				0.05	203.32	0.05	205.23	0.05	206.71	0.05	208.40	0.05	208.21	0.05	209.10	0.05	209.30
2MK3				0.19	246.54	0.18	246.83	0.18	246.86	0.18	247.13	0.18	247.26	0.17	247.66	0.17	247.69
MK3				0.09	30.75	0.09	31.78	0.08	32.04	0.08	32.78	0.08	33.76	0.08	36.09	0.08	36.52
2MNS4				0.07	154.03	0.07	155.14	0.07	155.45	0.07	156.46	0.07	155.81	0.07	156.35	0.07	156.51
3MS4				0.07	198.36	0.07	200.46	0.07	200.56	0.07	201.41	0.07	200.69	0.07	200.79	0.07	200.81
MN4				0.63	47.89	0.62	48.42	0.62	48.59	0.62	49.22	0.62	48.98	0.62	49.24	0.62	49.35
M4				1.34	90.66	1.32	91.07	1.31	91.09	1.30	91.55	1.31	91.36	1.31	91.59	1.32	91.72
3MN4				0.19	338.45	0.19	340.25	0.19	340.50	0.19	341.05	0.19	340.30	0.19	340.36	0.19	340.23
MS4				0.47	159.67	0.46	159.69	0.46	159.19	0.46	159.32	0.46	159.23	0.46	159.43	0.46	159.69
2MSN4				0.08	79.07	0.08	80.75	0.08	81.06	0.08	81.79	0.08	81.31	0.08	81.47	0.08	81.14
3MNS6				0.28	141.97	0.27	144.84	0.26	144.37	0.26	145.04	0.26	145.51	0.26	145.74	0.26	145.53
2NM6				0.14	322.56	0.14	318.60	0.15	319.84	0.15	319.44	0.15	319.05	0.15	318.27	0.15	318.30
2MN6				0.55	8.34	0.51	10.65	0.50	9.66	0.50	10.47	0.50	11.39	0.48	11.45	0.48	10.67
M6	86.952313	1	175.0477	0.95	63.48	0.91	65.37	0.90	64.78	0.90	65.18	0.90	65.91	0.87	66.10	0.87	65.47
MSN6				0.23	306.17	0.24	308.95	0.23	309.43	0.23	309.71	0.24	309.66	0.23	311.04	0.23	311.45
2MS6				0.33	90.59	0.29	91.28	0.28	89.66	0.28	89.86	0.27	91.06	0.26	89.29	0.26	87.60
3MSN6				0.16	333.87	0.15	336.05	0.15	334.46	0.14	334.92	0.14	335.85	0.14	334.60	0.14	333.79
2SM6				0.16	38.71	0.16	37.41	0.16	37.01	0.16	37.15	0.16	36.65	0.16	36.62	0.16	36.67
2(MN)8				0.11	305.01	0.10	304.07	0.10	305.38	0.10	308.44	0.11	307.52	0.10	307.18	0.11	307.13
3MN8				0.41	327.35	0.41	333.26	0.40	334.19	0.43	336.01	0.43	335.73	0.43	336.24	0.43	335.22
M8				0.49	6.59	0.47	11.17	0.46	11.99	0.49	13.76	0.49	13.01	0.48	13.41	0.49	12.61
2MSN8				0.21	52.38	0.20	52.98	0.20	54.04	0.21	56.17	0.21	54.96	0.21	56.10	0.21	55.74
3MS8				0.61	64.03	0.60	68.53	0.59	68.87	0.63	70.42	0.63	69.90	0.62	70.45	0.63	69.75
2(MS)8				0.22	122.04	0.21	125.42	0.21	125.95	0.22	127.67	0.22	127.16	0.22	128.01	0.22	127.32
4MS10				0.52	66.64	0.59	69.74	0.61	73.33	0.62	78.32	0.61	76.09	0.64	76.64	0.64	76.98

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
K1	0.95	0.92	0.87	0.85	0.86	0.85	0.84	93.90	94.01	93.79	91.41	92.72	94.26	94.80	3.42	3.37	3.28	3.18	3.24	3.27	3.27
3MS2	0.17	0.17	0.17	0.17	0.17	0.17	0.17	151.11	151.08	151.14	151.25	151.19	151.14	151.13	2.65	2.65	2.65	2.65	2.65	2.65	2.65
N2	1.45	1.44	1.44	1.44	1.43	1.43	1.43	-1.90	-1.92	-2.01	-2.00	-1.92	-1.95	-1.97	1.30	1.29	1.28	1.27	1.27	1.26	1.26
M2	1.70	1.69	1.69	1.68	1.68	1.68	1.68	-16.74	-16.74	-16.83	-16.80	-16.68	-16.70	-16.72	9.74	9.64	9.59	9.54	9.50	9.45	9.44
S2	1.08	1.08	1.08	1.07	1.07	1.06	1.06	90.23	89.76	89.34	89.08	89.06	88.70	88.62	3.98	3.96	3.94	3.93	3.92	3.90	3.90
M6	0.95	0.91	0.90	0.90	0.90	0.87	0.87	-111.57	-109.68	-110.27	-109.87	-109.14	-108.95	-109.58	1.61	1.56	1.56	1.56	1.55	1.53	1.53

HELGOLAND

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				1.03	66.74	1.01	67.35	1.00	68.15	1.02	67.99	0.98	67.77	0.98	67.72	0.97	67.65
Q1	13.398661	2.9	172.7013	2.49	147.89	2.47	148.93	2.46	149.92	2.41	150.95	2.41	150.20	2.44	150.03	2.45	150.02
O1	13.943036	9.2	234.757	8.26	218.40	8.21	219.42	8.17	220.67	7.94	221.68	7.97	220.72	8.07	220.36	8.10	220.39
K1	15.041069	6.4	20.55893	8.21	24.60	8.17	25.58	8.11	27.10	7.81	27.48	7.86	26.37	7.99	26.04	8.01	26.15
3MS2				0.85	126.02	0.83	130.73	0.83	130.49	0.83	132.07	0.84	132.25	0.84	132.90	0.84	132.90
MNS2	27.423834	2.3	13.37617	3.35	354.35	3.26	358.69	3.20	358.66	3.16	0.50	3.18	0.32	3.18	1.28	3.19	1.39
MU2	27.968209	9.9	40.83179	8.78	32.14	8.54	36.55	8.42	36.45	8.31	38.14	8.36	38.12	8.34	38.95	8.35	39.11
N2	28.43973	17.5	284.8603	16.23	265.17	15.72	268.35	15.34	268.39	15.14	270.23	15.24	270.18	15.21	271.63	15.23	271.61
M2	28.984104	108.6	312.0159	113.97	297.81	110.44	301.20	107.93	301.33	106.52	303.08	107.05	303.00	106.84	304.26	107.01	304.27
2MN2	29.528479	9.2	149.1715	8.82	142.35	8.58	146.24	8.43	146.36	8.30	147.88	8.32	147.75	8.29	148.64	8.30	148.69
S2	30	28.9	17.7	30.50	10.29	29.40	13.31	28.65	13.48	28.28	15.35	28.41	15.20	28.40	16.56	28.46	16.52
MSN2	30.544375	1.8	212.7556	0.71	205.35	0.69	209.41	0.67	208.63	0.66	210.52	0.66	209.86	0.64	210.11	0.64	210.48
2SM2	31.015896	2.6	237.0841	1.43	249.60	1.37	253.30	1.34	253.59	1.32	255.53	1.32	255.32	1.32	256.57	1.32	256.65
NO3				0.54	68.77	0.55	72.92	0.55	73.16	0.55	74.83	0.55	76.13	0.55	76.46	0.56	77.33
2MK3				0.84	119.19	0.85	124.08	0.87	123.93	0.86	125.37	0.86	126.61	0.87	127.02	0.87	127.42
MK3	44.025173	0.5	243.3748	0.72	205.86	0.71	211.67	0.75	215.07	0.74	214.26	0.70	214.59	0.71	214.82	0.71	214.24
2MNS4				0.71	195.34	0.68	203.57	0.66	203.55	0.65	206.75	0.66	205.96	0.65	207.75	0.66	207.61
3MS4				0.87	226.40	0.84	236.34	0.80	235.82	0.79	239.19	0.81	238.34	0.79	240.10	0.80	240.07
MN4	57.423834	2.5	123.4762	2.90	107.33	2.80	115.22	2.65	114.62	2.63	118.48	2.65	117.81	2.65	119.61	2.65	119.66
M4	57.968208	7	147.7318	6.16	146.53	5.91	155.05	5.55	154.28	5.50	157.71	5.56	157.31	5.54	159.23	5.53	159.39
3MN4				0.99	320.62	0.91	329.32	0.87	327.27	0.85	329.14	0.85	329.24	0.83	330.78	0.83	331.15
MS4	58.984104	4.3	206.7159	2.60	198.40	2.41	205.63	2.30	203.04	2.28	206.08	2.28	206.27	2.24	207.77	2.23	207.85
2MSN4				0.29	44.77	0.26	53.28	0.24	48.16	0.24	48.75	0.23	50.13	0.22	53.16	0.22	52.13
3MNS6				0.63	7.87	0.61	16.85	0.57	15.98	0.58	18.43	0.58	18.03	0.57	18.77	0.56	18.02
2NM6				0.44	331.86	0.41	340.22	0.40	340.13	0.40	340.80	0.40	340.76	0.39	340.39	0.39	339.11
2MN6	86.407938	1.1	263.6921	2.00	255.83	1.93	263.65	1.82	262.46	1.84	265.32	1.82	264.91	1.78	264.91	1.77	263.96
M6	86.952313	2	291.8477	2.76	300.56	2.67	308.58	2.54	307.73	2.58	310.08	2.55	309.88	2.49	309.69	2.48	308.78
MSN6	87.423834	0.4	326.3762	0.64	57.63	0.59	67.87	0.57	65.11	0.56	66.75	0.55	67.12	0.56	65.86	0.56	64.17
2MS6	87.968208	2.1	348.4318	2.31	354.39	2.22	2.07	2.13	1.41	2.16	3.70	2.13	2.99	2.10	3.14	2.09	2.06
3MSN6				0.61	209.33	0.60	217.98	0.57	217.75	0.58	219.76	0.57	219.41	0.57	218.84	0.56	217.48
2SM6	88.984104	0.3	42.3159	0.38	53.68	0.35	58.51	0.36	57.31	0.38	59.21	0.35	59.06	0.35	59.51	0.36	58.83
2(MN)8				0.12	122.94	0.11	134.13	0.11	130.05	0.10	134.98	0.10	134.59	0.10	134.50	0.10	137.64
3MN8				0.56	84.81	0.56	96.88	0.52	95.75	0.49	99.61	0.50	100.16	0.49	99.97	0.47	99.45
M8	115.93642	0.4	122.2636	0.59	136.82	0.58	148.26	0.55	147.63	0.53	151.86	0.53	151.70	0.52	151.55	0.51	152.07
2MSN8				0.29	207.75	0.26	218.34	0.26	217.52	0.25	220.92	0.25	218.41	0.25	219.05	0.26	219.28
3MS8				0.63	193.21	0.64	204.42	0.59	204.22	0.56	209.12	0.56	209.84	0.55	209.46	0.55	210.17
2(MS)8				0.17	259.57	0.18	268.84	0.16	270.84	0.15	274.21	0.15	273.00	0.15	273.87	0.15	273.51
4MS10				0.38	322.11	0.35	337.32	0.37	336.04	0.38	339.52	0.38	334.60	0.39	337.99	0.39	337.01

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
Q1	0.86	0.85	0.85	0.83	0.83	0.84	0.85	-24.81	-23.77	-22.78	-21.75	-22.50	-22.67	-22.68	1.23	1.18	1.14	1.11	1.14	1.14	1.14
O1	0.90	0.89	0.89	0.86	0.87	0.88	0.88	-16.36	-15.34	-14.09	-13.08	-14.04	-14.40	-14.37	2.65	2.52	2.36	2.32	2.43	2.44	2.42
K1	1.28	1.28	1.27	1.22	1.23	1.25	1.25	4.04	5.02	6.54	6.92	5.81	5.48	5.59	1.88	1.88	1.90	1.65	1.63	1.73	1.76
MNS2	1.46	1.42	1.39	1.37	1.38	1.38	1.39	-19.03	-14.69	-14.72	-12.88	-13.06	-12.10	-11.99	1.40	1.18	1.13	1.05	1.08	1.05	1.05
MU2	0.89	0.86	0.85	0.84	0.84	0.84	0.84	-8.69	-4.28	-4.38	-2.69	-2.71	-1.88	-1.72	1.80	1.53	1.64	1.64	1.60	1.59	1.58
N2	0.93	0.90	0.88	0.87	0.87	0.87	0.87	-19.69	-16.51	-16.47	-14.63	-14.68	-13.23	-13.25	5.90	5.08	5.17	4.77	4.75	4.40	4.40
M2	1.05	1.02	0.99	0.98	0.99	0.98	0.99	-14.21	-10.82	-10.69	-8.94	-9.02	-7.76	-7.75	28.03	20.72	20.17	16.89	17.02	14.68	14.65
2MN2	0.96	0.93	0.92	0.90	0.90	0.90	0.90	-6.82	-2.93	-2.81	-1.29	-1.42	-0.53	-0.48	1.14	0.77	0.89	0.93	0.91	0.92	0.91
S2	1.06	1.02	0.99	0.98	0.98	0.98	0.98	-7.41	-4.39	-4.22	-2.35	-2.50	-1.14	-1.18	4.16	2.29	2.13	1.33	1.34	0.76	0.74
MSN2	0.39	0.38	0.37	0.36	0.36	0.36	0.36	-7.41	-3.35	-4.13	-2.24	-2.90	-2.65	-2.28	1.10	1.12	1.13	1.15	1.15	1.16	1.16
2SM2	0.55	0.53	0.52	0.51	0.51	0.51	0.51	12.52	16.22	16.51	18.45	18.24	19.49	19.57	1.24	1.34	1.37	1.41	1.41	1.42	1.42
MK3	1.44	1.43	1.50	1.48	1.40	1.42	1.41	-37.51	-31.70	-28.30	-29.11	-28.78	-28.55	-29.13	0.44	0.39	0.39	0.39	0.36	0.36	0.36
MN4	1.16	1.12	1.06	1.05	1.06	1.06	1.06	-16.15	-8.26	-8.86	-5.00	-5.67	-3.87	-3.82	0.85	0.48	0.42	0.26	0.30	0.23	0.23
M4	0.88	0.84	0.79	0.79	0.79	0.79	0.79	-1.20	7.32	6.55	9.98	9.58	11.50	11.66	0.85	1.36	1.62	1.85	1.78	1.92	1.94
MS4	0.61	0.56	0.53	0.53	0.53	0.52	0.52	-8.32	-1.09	-3.68	-0.64	-0.45	1.05	1.13	1.76	1.89	2.02	2.02	2.02	2.06	2.07
2MN6	1.82	1.75	1.66	1.67	1.66	1.62	1.60	-7.86	-0.04	-1.23	1.63	1.22	1.22	0.27	0.92	0.83	0.72	0.74	0.72	0.68	0.67
M6	1.38	1.33	1.27	1.29	1.27	1.25	1.24	8.71	16.73	15.88	18.23	18.03	17.84	16.93	0.84	0.95	0.83	0.92	0.89	0.85	0.81
MSN6	1.61	1.46	1.41	1.41	1.38	1.41	1.40	91.25	101.49	98.73	100.37	100.74	99.48	97.79	0.76	0.77	0.74	0.75	0.74	0.74	0.73
2MS6	1.10	1.06	1.02	1.03	1.01	1.00	1.00	5.96	13.64	12.98	15.27	14.56	14.71	13.63	0.31	0.53	0.48	0.57	0.54	0.54	0.50
2SM6	1.25	1.18	1.19	1.21	1.16	1.18	1.19	11.36	16.19	14.99	16.89	16.74	17.19	16.51	0.10	0.11	0.10	0.11	0.11	0.11	0.11
M8	1.47	1.45	1.38	1.32	1.32	1.30	1.28	14.56	26.00	25.37	29.60	29.44	29.29	29.81	0.22	0.28	0.25	0.27	0.27	0.26	0.26

INNER DOWSING

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.36	231.44	0.34	229.89	0.34	230.18	0.33	229.42	0.34	229.77	0.34	228.23	0.34	228.36
Q1				4.05	50.32	4.04	50.44	4.05	50.46	4.01	51.45	4.01	51.48	4.02	51.32	4.02	51.42
O1	13.943036	17.7	114	15.55	113.58	15.53	113.74	15.51	113.82	15.40	114.90	15.40	114.91	15.41	114.74	15.40	114.85
K1	15.041069	14.9	285.3	19.09	279.39	19.07	279.54	19.04	279.65	18.89	280.75	18.90	280.77	18.92	280.60	18.91	280.74
3MS2				0.64	157.70	0.62	156.98	0.59	160.45	0.57	162.74	0.58	162.89	0.58	164.18	0.59	164.73
MNS2				1.56	239.57	1.64	238.39	1.59	236.20	1.71	236.16	1.66	236.66	1.62	234.78	1.64	234.49
MU2				3.53	292.07	3.78	289.51	3.62	286.46	3.90	284.71	3.77	284.94	3.71	282.32	3.75	282.19
N2	28.43973	37.6	139.4	33.48	138.02	33.59	138.14	33.44	137.61	33.58	138.92	33.48	138.95	33.52	138.54	33.52	138.72
M2	28.984104	196.9	162.2	190.44	162.41	191.98	162.70	191.58	162.08	193.48	163.43	192.78	163.33	193.41	162.92	193.50	163.10
2MN2				6.66	12.90	6.94	13.41	6.90	12.05	7.19	12.77	7.11	12.25	7.14	11.67	7.17	11.89
S2	30	68.2	208.5	66.52	216.49	68.51	217.02	66.55	216.68	66.92	218.48	66.95	218.38	67.13	218.13	67.14	218.32
MSN2				1.41	170.48	1.41	168.37	1.41	169.61	1.34	169.08	1.34	170.39	1.37	170.80	1.36	170.20
2SM2				1.87	117.30	1.91	118.53	1.90	118.32	1.96	119.32	1.94	119.03	1.98	118.59	1.99	118.47
NO3				1.41	202.84	1.39	201.57	1.39	199.63	1.42	200.00	1.42	199.87	1.41	198.82	1.42	198.61
2MK3				2.23	241.23	2.23	239.49	2.24	236.99	2.34	237.64	2.33	237.51	2.31	236.15	2.33	236.20
MK3				2.99	5.84	3.01	4.35	3.05	1.93	3.18	4.01	3.17	4.14	3.15	2.46	3.18	2.73
2MNS4				0.52	82.91	0.55	82.87	0.49	79.39	0.48	85.45	0.46	88.58	0.40	83.74	0.41	84.25
3MS4				0.63	134.61	0.68	135.55	0.56	132.78	0.57	142.80	0.57	146.73	0.51	143.20	0.53	142.94
MN4				1.61	264.14	1.49	264.33	1.72	259.26	1.53	258.60	1.47	255.97	1.48	254.07	1.47	253.75
M4	57.968208	3.5	242.3	1.95	283.27	1.69	281.19	2.34	275.90	2.10	268.36	1.99	261.94	2.01	259.72	2.06	258.58
3MN4				0.46	183.63	0.47	192.69	0.44	173.73	0.36	182.70	0.31	183.89	0.28	182.76	0.27	183.05
MS4	58.984104	3.7	287.8	1.64	307.55	1.60	302.88	1.87	308.25	1.94	303.73	1.94	301.69	2.01	301.17	2.03	301.19
2MSN4				0.41	277.39	0.42	281.04	0.40	274.30	0.37	278.67	0.34	279.42	0.31	281.90	0.33	282.35
3MNS6				0.64	0.39	0.65	3.99	0.62	2.10	0.63	6.96	0.64	8.09	0.62	13.79	0.63	12.78
2NM6				0.41	302.43	0.41	304.54	0.39	306.66	0.41	311.80	0.40	313.12	0.37	312.19	0.38	310.40
2MN6				3.17	238.36	3.19	241.86	3.11	239.12	3.13	245.67	3.14	245.46	3.12	245.69	3.15	246.36
M6	86.952313	3.2	272.6	3.37	273.70	3.36	277.82	3.23	274.90	3.20	281.05	3.23	280.44	3.23	280.79	3.24	281.84
MSN6				0.63	359.11	0.63	4.49	0.58	4.50	0.59	13.09	0.58	10.87	0.54	16.16	0.54	16.52
2MS6				2.77	317.03	2.70	320.33	2.62	316.28	2.60	321.75	2.63	321.27	2.53	321.42	2.55	322.29
3MSN6				0.28	185.63	0.28	187.57	0.23	189.37	0.23	187.15	0.23	191.50	0.25	203.44	0.24	196.53
2SM6				0.40	358.23	0.37	0.69	0.38	352.56	0.35	358.66	0.37	355.96	0.31	354.43	0.31	358.62
2(MN)8				0.02	55.39	0.04	76.03	0.02	339.57	0.01	68.76	0.01	61.02	0.01	3.85	0.02	39.80
3MN8				0.69	340.35	0.64	342.52	0.66	332.75	0.59	341.40	0.61	342.53	0.56	340.58	0.54	342.08
M8				0.52	2.27	0.49	2.34	0.56	354.37	0.49	1.07	0.50	2.75	0.47	2.80	0.47	2.63
2MSN8				0.20	55.64	0.18	67.46	0.22	53.19	0.18	67.47	0.19	68.92	0.19	51.26	0.19	53.51
3MS8				0.93	53.40	0.90	54.16	0.94	49.59	0.85	55.77	0.87	56.88	0.83	55.12	0.83	55.04
2(MS)8				0.27	112.07	0.26	111.36	0.27	110.69	0.24	115.07	0.25	117.83	0.24	105.68	0.23	107.46
4MS10				0.47	312.72	0.44	315.51	0.47	304.68	0.53	316.49	0.52	315.68	0.54	315.58	0.55	317.75

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
O1	0.88	0.88	0.88	0.87	0.87	0.87	0.87	-0.42	-0.26	-0.18	0.90	0.91	0.74	0.85	2.15	2.17	2.19	2.32	2.32	2.30	2.31
K1	1.28	1.28	1.28	1.27	1.27	1.27	1.27	-5.91	-5.76	-5.65	-4.55	-4.53	-4.70	-4.56	4.54	4.50	4.46	4.21	4.21	4.25	4.23
N2	0.89	0.89	0.89	0.89	0.89	0.89	0.89	-1.38	-1.26	-1.79	-0.48	-0.45	-0.86	-0.68	4.21	4.09	4.31	4.03	4.13	4.12	4.10
M2	0.97	0.98	0.97	0.98	0.98	0.98	0.98	0.21	0.50	-0.12	1.23	1.13	0.72	0.90	6.50	5.20	5.33	5.41	5.63	4.27	4.58
S2	0.98	0.98	0.98	0.98	0.98	0.98	0.98	7.99	8.52	8.18	9.98	9.88	9.63	9.82	9.53	10.15	9.75	11.82	11.70	11.41	11.63
M4	0.56	0.48	0.67	0.60	0.57	0.57	0.59	40.97	38.89	33.60	24.06	19.64	17.42	16.28	2.40	2.43	2.02	1.80	1.76	1.69	1.63
MS4	0.44	0.43	0.51	0.52	0.52	0.54	0.55	19.75	15.08	20.45	15.93	13.89	13.37	13.39	2.22	2.19	2.05	1.91	1.88	1.81	1.78
M6	1.05	1.05	1.01	1.00	1.01	1.01	1.01	1.10	5.22	2.30	8.45	7.84	8.19	9.24	0.18	0.34	0.13	0.47	0.44	0.46	0.52

LEITH

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.39	52.01	0.39	51.85	0.39	51.95	0.40	53.01	0.40	53.14	0.40	53.28	0.40	53.43
Q1	13.398661	5.1	19.2	3.45	6.94	3.44	6.93	3.45	6.96	3.45	7.13	3.45	7.10	3.45	7.09	3.45	7.11
O1	13.943036	14.1	65	12.84	65.97	12.83	66.01	12.84	66.03	12.85	66.23	12.86	66.22	12.86	66.21	12.86	66.23
K1	15.041069	11.8	222.6	15.93	225.61	15.93	225.64	15.94	225.67	15.95	225.88	15.95	225.87	15.95	225.85	15.96	225.88
3MS2				0.88	44.15	0.87	44.48	0.87	45.16	0.86	45.63	0.87	45.77	0.87	46.08	0.87	46.05
MNS2				0.74	151.14	0.74	150.32	0.74	148.32	0.77	146.11	0.76	146.45	0.75	145.83	0.75	145.49
MU2	27.968209	2.8	339.9	2.09	231.27	2.07	229.77	2.01	228.13	1.98	225.16	1.96	226.02	1.93	225.49	1.93	225.06
N2	28.43973	31.7	32.8	30.90	34.29	30.91	34.32	30.94	34.25	31.15	34.50	31.12	34.47	31.10	34.39	31.13	34.41
M2	28.984104	160.9	56.4	169.73	58.21	169.94	58.28	170.36	58.16	171.81	58.40	171.63	58.32	171.64	58.24	171.85	58.26
2MN2				4.99	281.33	5.05	281.40	5.06	280.69	5.15	280.20	5.12	280.02	5.13	279.84	5.14	279.79
S2	30	53.5	94.4	60.73	107.13	60.69	107.26	60.85	107.30	61.31	107.76	61.35	107.67	61.33	107.66	61.40	107.69
MSN2				2.04	67.52	2.05	67.22	2.04	67.41	2.03	67.83	2.03	67.97	2.03	67.86	2.03	67.91
2SM2	31.015896	1	322.5	1.59	16.21	1.59	16.32	1.60	16.09	1.62	16.09	1.61	15.89	1.62	15.77	1.62	15.77
NO3				0.30	332.48	0.33	330.05	0.33	329.70	0.37	330.22	0.37	331.02	0.37	330.13	0.37	330.72
2MK3				0.83	349.24	0.90	351.25	0.91	351.11	0.97	353.79	0.97	353.76	0.96	353.24	0.96	354.01
MK3	44.025173	1.6	192.7	1.70	133.56	1.80	134.72	1.82	135.09	1.93	137.18	1.92	136.69	1.92	136.30	1.93	136.70
2MNS4				1.23	215.48	1.32	219.82	1.29	219.94	1.33	225.91	1.33	225.51	1.33	225.14	1.33	225.37
3MS4				2.52	258.53	2.72	261.75	2.69	262.20	2.84	267.74	2.84	267.16	2.88	267.18	2.88	267.51
MN4	57.423834	1.1	133.9	2.34	108.03	2.55	120.81	2.41	119.84	2.41	132.55	2.45	131.93	2.53	133.97	2.49	134.44
M4	57.968208	3.7	193.8	9.96	175.70	11.09	182.13	10.76	183.14	11.53	191.09	11.63	190.59	11.90	191.61	11.82	191.97
3MN4				2.40	2.98	2.66	9.91	2.58	11.57	2.76	19.59	2.81	18.77	2.84	20.26	2.83	20.75
MS4	58.984104	4.4	307.7	6.01	285.24	6.78	287.92	6.68	290.41	7.44	296.29	7.51	295.72	7.63	295.95	7.64	296.58
2MSN4				1.63	83.99	1.69	88.87	1.66	89.75	1.70	96.18	1.71	95.81	1.69	97.18	1.69	97.59
3MNS6				1.70	54.05	1.58	47.35	1.75	42.78	1.73	46.13	1.76	46.82	1.77	47.28	1.78	47.74
2NM6				2.49	218.05	2.60	222.89	2.52	224.81	2.57	228.52	2.53	227.71	2.56	227.48	2.56	227.68
2MN6	86.407938	0.7	216.3	6.05	276.63	6.34	270.51	6.89	268.38	7.22	272.12	7.12	272.65	7.14	271.18	7.19	272.07
M6	86.952312	1.5	240.9	12.17	296.18	13.13	293.50	13.90	293.93	14.43	297.37	14.27	297.44	14.40	296.48	14.40	297.31
MSN6				4.73	310.33	4.82	316.99	4.75	318.93	4.79	323.81	4.75	322.84	4.74	323.59	4.68	323.60
2MS6	87.968208	1.4	288.8	11.11	357.96	11.95	355.92	12.58	356.77	13.09	0.65	12.99	0.58	13.03	0.21	13.04	0.81
3MSN6				2.44	216.74	2.69	212.42	2.88	214.75	3.01	217.39	3.00	217.80	3.07	217.88	3.05	218.19
2SM6				3.08	42.24	3.20	43.44	3.29	44.32	3.34	49.10	3.30	48.44	3.32	49.05	3.32	49.60
2(MN)8				0.91	251.39	0.99	261.75	0.95	259.92	0.96	264.05	0.94	263.85	0.94	264.19	0.95	264.52
3MN8				1.62	151.88	1.74	184.97	1.47	183.88	1.51	193.50	1.47	193.95	1.36	192.18	1.29	190.65
M8				2.36	268.28	3.09	280.01	2.87	282.34	2.98	287.18	2.95	287.82	2.89	288.79	2.81	288.83
2MSN8				2.39	344.66	2.55	354.19	2.47	353.57	2.43	357.92	2.41	358.29	2.36	357.46	2.34	357.20
3MS8				1.72	345.80	2.67	353.55	2.49	357.86	2.71	359.43	2.71	0.43	2.63	2.08	2.55	2.59
2(MS)8				0.70	58.67	0.93	63.13	0.90	67.56	0.95	69.95	0.96	70.12	0.92	71.86	0.90	72.94
4MS10				0.79	117.64	0.74	104.24	0.89	105.71	0.87	110.59	0.87	109.76	0.92	111.17	0.92	112.98

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
Q1	0.68	0.68	0.68	0.68	0.68	0.68	0.68	-12.26	-12.27	-12.24	-12.07	-12.10	-12.11	-12.09	1.88	1.88	1.88	1.87	1.87	1.87	1.87
O1	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.97	1.01	1.03	1.23	1.22	1.21	1.23	1.28	1.29	1.28	1.28	1.28	1.28	1.27
K1	1.35	1.35	1.35	1.35	1.35	1.35	1.35	3.01	3.04	3.07	3.28	3.27	3.25	3.28	4.19	4.19	4.21	4.22	4.23	4.22	4.23
MU2	0.75	0.74	0.72	0.71	0.70	0.69	0.69	-108.63	-110.13	-111.77	-114.74	-113.88	-114.41	-114.84	3.99	4.02	4.00	4.05	4.02	4.00	4.01
N2	0.97	0.97	0.98	0.98	0.98	0.98	0.98	1.49	1.52	1.45	1.70	1.67	1.59	1.61	1.14	1.15	1.10	1.08	1.08	1.06	1.05
M2	1.05	1.06	1.06	1.07	1.07	1.07	1.07	1.81	1.88	1.76	2.00	1.92	1.84	1.86	10.25	10.55	10.74	12.36	12.09	12.00	12.21
S2	1.14	1.13	1.14	1.15	1.15	1.15	1.15	12.73	12.86	12.90	13.36	13.27	13.26	13.29	14.56	14.65	14.78	15.45	15.39	15.37	15.44
2SM2	1.59	1.59	1.60	1.62	1.61	1.62	1.62	53.71	53.82	53.59	53.59	53.39	53.27	53.27	1.28	1.29	1.29	1.30	1.30	1.30	1.30
MK3	1.07	1.12	1.14	1.20	1.20	1.20	1.20	-59.14	-57.98	-57.61	-55.52	-56.01	-56.40	-56.00	1.63	1.66	1.66	1.67	1.68	1.69	1.68
MN4	2.13	2.32	2.19	2.19	2.22	2.30	2.26	-25.87	-13.09	-14.06	-1.35	-1.97	0.07	0.54	1.43	1.50	1.37	1.31	1.35	1.43	1.39
M4	2.69	3.00	2.91	3.12	3.14	3.22	3.19	-18.10	-11.67	-10.66	-2.71	-3.21	-2.19	-1.83	6.54	7.50	7.16	7.84	7.93	8.21	8.12
MS4	1.37	1.54	1.52	1.69	1.71	1.73	1.74	-22.46	-19.78	-17.29	-11.41	-11.98	-11.75	-11.12	2.57	3.03	2.81	3.24	3.33	3.44	3.43
2MN6	8.65	9.06	9.84	10.31	10.17	10.19	10.28	60.33	54.21	52.08	55.82	56.35	54.88	55.77	5.74	5.96	6.48	6.85	6.76	6.76	6.82
M6	8.11	8.75	9.26	9.62	9.52	9.60	9.60	55.28	52.60	53.03	56.47	56.54	55.58	56.41	11.38	12.28	13.05	13.65	13.50	13.61	13.62
2MS6	7.93	8.53	8.98	9.35	9.28	9.31	9.31	71.16	69.12	69.97	73.85	73.78	73.41	74.01	10.73	11.52	12.17	12.77	12.67	12.70	12.72

OOSTENDE

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				1.77	62.56	1.79	63.28	1.80	63.98	1.80	63.96	1.76	64.09	1.75	64.27	1.73	64.25
Q1	13.398661	3.2	118.53	2.37	91.13	2.38	92.09	2.40	92.36	2.33	93.67	2.33	93.51	2.33	92.87	2.32	93.08
O1	13.943036	9.48	167.54	9.29	166.02	9.32	167.15	9.43	167.11	9.15	168.75	9.10	168.59	9.07	168.03	9.08	168.22
K1	15.041069	5.51	349.24	8.50	345.20	8.54	345.81	8.75	345.00	8.38	347.72	8.30	347.63	8.21	347.21	8.23	347.42
3MS2				0.93	207.20	0.93	210.71	0.92	209.89	0.89	209.52	0.89	210.47	0.89	208.31	0.89	209.09
MNS2	27.423834	2.48	98.95	4.90	73.10	4.76	75.43	4.60	74.15	4.56	73.97	4.53	74.43	4.55	73.54	4.55	73.66
MU2	27.968209	9.94	113.64	12.61	106.92	12.34	109.42	12.00	108.28	11.87	107.96	11.78	108.35	11.83	107.08	11.82	107.29
N2	28.439729	30.55	341.19	28.53	335.91	28.63	337.15	27.75	334.81	27.68	335.45	27.50	335.67	27.68	335.43	27.68	335.39
M2	28.984104	179.56	5.26	198.91	5.28	193.26	6.79	187.24	4.73	186.92	5.06	185.57	5.22	187.14	4.79	187.03	4.78
2MN2				14.23	206.84	13.96	208.98	13.58	207.66	13.50	207.43	13.38	207.50	13.49	206.62	13.48	206.73
S2	30	52.42	57.68	57.73	67.48	55.79	68.72	53.97	66.35	54.13	66.82	53.79	66.81	54.41	66.61	54.36	66.54
MSN2	30.544375	2.86	263.68	0.77	272.02	0.79	274.17	0.79	273.58	0.78	272.83	0.74	272.68	0.74	271.79	0.74	271.98
2SM2	31.015896	3.51	285.21	2.62	303.69	2.53	305.87	2.45	304.60	2.44	304.57	2.42	304.42	2.46	303.63	2.46	303.60
NO3				1.72	40.75	1.76	43.65	1.79	43.46	1.75	43.31	1.75	43.52	1.74	42.48	1.73	42.51
2MK3				3.04	82.37	3.12	85.85	3.16	85.92	3.09	85.64	3.08	85.84	3.07	84.71	3.06	84.69
MK3	44.025173	2.23	228.61	3.33	196.50	3.42	200.42	3.46	200.90	3.37	200.73	3.34	200.98	3.32	199.96	3.33	199.91
2MNS4				0.71	43.06	0.72	49.51	0.71	51.07	0.68	48.58	0.68	49.27	0.66	47.99	0.66	48.21
3MS4				1.61	68.54	1.68	74.74	1.67	78.42	1.63	75.34	1.61	75.64	1.58	74.33	1.58	74.79
MN4	57.423834	3.39	311.9	4.37	331.43	4.37	337.71	4.13	339.18	3.99	336.04	3.93	335.78	3.92	334.14	3.87	334.31
M4	57.968208	10.48	335.32	12.76	354.43	12.78	0.49	12.21	1.46	11.91	359.14	11.74	358.85	11.71	357.36	11.62	357.52
3MN4				2.53	161.35	2.59	168.17	2.52	169.75	2.45	168.89	2.41	168.97	2.39	167.77	2.38	168.14
MS4	58.984104	6.43	37.35	6.55	58.55	6.53	65.60	6.23	67.24	5.99	65.13	5.90	64.81	5.86	63.20	5.80	63.45
2MSN4				0.81	236.34	0.81	243.44	0.77	244.55	0.75	243.88	0.74	243.86	0.73	242.79	0.73	242.78
3MNS6				0.93	347.96	1.04	358.13	1.05	0.32	1.00	358.31	0.96	359.02	0.92	356.00	0.93	356.11
2NM6				1.29	288.95	1.26	298.61	1.19	299.13	1.18	298.16	1.15	297.64	1.16	294.26	1.16	294.91
2MN6	86.407938	3.72	275.16	5.01	256.90	5.29	262.35	5.32	261.32	5.08	261.27	4.99	261.34	4.92	259.60	4.90	259.89
M6	86.952312	6.79	298.68	7.92	284.28	8.17	290.65	8.11	290.14	7.81	289.83	7.68	289.66	7.64	287.83	7.60	288.04
MSN6	87.423834	1.75	334.59	2.45	7.93	2.36	17.84	2.24	18.42	2.21	17.42	2.17	16.62	2.18	13.39	2.17	13.91
2MS6	87.968208	6.96	345.44	6.74	334.39	6.94	340.66	6.90	339.94	6.63	339.70	6.52	339.51	6.45	337.72	6.43	337.86
3MSN6				1.25	164.94	1.31	174.64	1.31	175.77	1.25	174.74	1.22	174.50	1.18	172.33	1.19	172.25
2SM6	88.984104	1.27	49.28	1.24	37.40	1.23	42.06	1.21	40.00	1.17	40.54	1.16	40.07	1.15	38.43	1.14	38.57
2(MN)8				0.68	198.15	0.66	209.65	0.59	207.68	0.60	205.69	0.60	205.45	0.61	201.63	0.60	202.94
3MN8				3.21	171.86	3.30	179.72	3.21	177.87	3.13	175.85	3.09	175.47	3.05	172.61	3.05	173.62
M8				3.46	210.98	3.51	219.81	3.37	218.38	3.33	216.27	3.29	215.86	3.27	212.95	3.26	213.74
2MSN8				1.64	278.66	1.61	290.27	1.50	289.32	1.49	287.11	1.47	286.72	1.48	282.76	1.47	283.59
3MS8				3.89	251.66	3.95	261.13	3.77	259.97	3.73	257.72	3.68	257.28	3.67	254.06	3.65	254.86
2(MS)8				1.09	305.70	1.09	315.27	1.04	313.87	1.03	311.49	1.01	310.92	1.02	307.45	1.01	308.08
4MS10				1.01	177.48	0.88	192.07	0.72	207.91	0.84	199.75	0.82	198.20	0.82	190.38	0.83	190.91

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
Q1	0.74	0.74	0.75	0.73	0.73	0.73	0.73	-27.40	-26.44	-26.17	-24.86	-25.02	-25.66	-25.45	1.55	1.51	1.49	1.46	1.47	1.49	1.49
O1	0.98	0.98	0.99	0.96	0.96	0.96	0.96	-1.52	-0.39	-0.43	1.21	1.05	0.49	0.68	0.31	0.17	0.09	0.39	0.41	0.42	0.42
K1	1.54	1.55	1.59	1.52	1.51	1.49	1.49	-4.04	-3.43	-4.24	-1.52	-1.61	-2.03	-1.82	3.03	3.05	3.28	2.87	2.80	2.71	2.73
MNS2	1.98	1.92	1.85	1.84	1.83	1.84	1.83	-25.85	-23.52	-24.80	-24.98	-24.52	-25.41	-25.29	2.88	2.67	2.57	2.53	2.50	2.55	2.54
MU2	1.27	1.24	1.21	1.19	1.19	1.19	1.19	-6.72	-4.22	-5.36	-5.68	-5.29	-6.56	-6.35	2.97	2.54	2.30	2.21	2.09	2.26	2.23
N2	0.97	0.94	0.91	0.91	0.90	0.91	0.91	-5.28	-4.04	-6.38	-5.74	-5.52	-5.76	-5.80	2.95	2.84	4.28	4.09	4.13	4.09	4.11
M2	1.11	1.08	1.04	1.04	1.03	1.04	1.04	0.02	1.53	-0.53	-0.20	-0.04	-0.47	-0.48	19.35	14.58	7.87	7.39	6.02	7.73	7.62
S2	1.10	1.06	1.03	1.03	1.03	1.04	1.04	9.80	11.04	8.67	9.14	9.13	8.93	8.86	10.80	10.94	8.19	8.66	8.56	8.55	8.47
MSN2	0.27	0.28	0.28	0.27	0.26	0.26	0.26	8.34	10.49	9.88	9.15	9.00	8.11	8.30	2.10	2.09	2.09	2.11	2.13	2.13	2.13
2SM2	0.75	0.72	0.70	0.70	0.69	0.70	0.70	18.48	20.66	19.39	19.36	19.21	18.42	18.39	1.32	1.45	1.45	1.45	1.46	1.41	1.41
MK3	1.50	1.53	1.55	1.51	1.50	1.49	1.49	-32.11	-28.19	-27.71	-27.88	-27.63	-28.65	-28.70	1.87	1.79	1.82	1.74	1.71	1.73	1.74
MN4	1.29	1.29	1.22	1.18	1.16	1.16	1.14	19.53	25.81	27.28	24.14	23.88	22.24	22.41	1.63	1.98	1.91	1.65	1.60	1.50	1.49
M4	1.22	1.22	1.16	1.14	1.12	1.12	1.11	19.11	25.17	26.14	23.82	23.53	22.04	22.20	4.47	5.54	5.40	4.83	4.69	4.41	4.40
MS4	1.02	1.02	0.97	0.93	0.92	0.91	0.90	21.20	28.25	29.89	27.78	27.46	25.85	26.10	2.39	3.17	3.27	3.01	2.97	2.80	2.83
2MN6	1.35	1.42	1.43	1.37	1.34	1.32	1.32	-18.26	-12.81	-13.84	-13.89	-13.82	-15.56	-15.27	1.88	1.86	1.93	1.72	1.64	1.66	1.63
M6	1.17	1.20	1.19	1.15	1.13	1.12	1.12	-14.40	-8.03	-8.54	-8.85	-9.02	-10.85	-10.64	2.16	1.73	1.72	1.52	1.44	1.60	1.56
MSN6	1.40	1.35	1.28	1.26	1.24	1.25	1.24	33.34	43.25	43.83	42.83	42.03	38.80	39.32	1.38	1.62	1.56	1.51	1.46	1.37	1.38
2MS6	0.97	1.00	0.99	0.95	0.94	0.93	0.92	-11.05	-4.78	-5.60	-5.74	-5.93	-7.72	-7.58	1.34	0.58	0.68	0.76	0.82	1.04	1.03
2SM6	0.97	0.97	0.95	0.92	0.91	0.91	0.90	-11.88	-7.22	-9.28	-8.74	-9.21	-10.85	-10.71	0.26	0.16	0.21	0.21	0.23	0.26	0.26

PORTSMOUTH

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.70	74.38	0.73	74.07	0.75	72.71	0.75	73.39	0.73	73.27	0.73	73.56	0.73	73.48
Q1	13.398661	0.27	319.1	1.48	359.44	1.45	0.33	1.42	1.25	1.41	0.37	1.40	0.53	1.40	0.35	1.40	0.27
O1	13.943036	2.5	354	3.95	37.07	3.85	37.72	3.73	38.61	3.78	37.27	3.73	37.26	3.74	36.97	3.74	36.92
K1	15.041069	9	110.75	8.72	121.96	8.70	122.45	8.62	122.28	8.71	122.90	8.69	122.84	8.68	122.65	8.69	122.76
3MS2				0.99	354.74	0.88	352.91	0.78	352.58	0.79	353.43	0.78	353.25	0.79	353.70	0.79	353.53
MNS2	27.423834	0.71	65.09	1.22	353.05	1.15	7.31	1.25	16.05	1.25	13.92	1.24	14.85	1.25	11.41	1.24	12.22
MU2	27.968209	2.14	30.72	1.30	343.77	0.88	19.91	1.21	49.09	1.19	43.17	1.21	44.78	1.24	37.61	1.22	39.59
N2	28.43973	28.03	303.67	27.05	298.81	26.35	301.55	26.27	302.80	26.02	302.33	25.78	302.47	25.84	301.50	25.74	301.58
M2	28.984104	141.7	326.94	185.32	320.42	161.17	323.62	161.25	325.13	159.88	324.60	158.57	324.70	158.98	323.65	158.37	323.74
2MN2				6.85	142.23	6.71	148.22	6.88	151.39	6.84	150.38	6.82	150.50	6.84	148.91	6.81	149.10
S2	30	44.29	12.65	56.13	17.34	53.72	19.97	52.88	21.48	52.53	20.98	52.04	21.07	52.34	20.08	52.09	20.09
MSN2	30.544375	2.42	211.63	1.06	340.78	1.05	339.26	1.01	337.65	1.00	337.97	0.98	337.57	0.97	337.93	0.98	337.82
2SM2	31.015896	2.93	231.21	1.27	234.85	1.19	240.18	1.17	243.94	1.17	242.56	1.16	242.79	1.16	241.08	1.16	241.25
NO3				0.71	262.55	0.68	266.58	0.67	267.99	0.67	266.76	0.67	266.51	0.68	264.51	0.67	264.62
2MK3				1.34	310.19	1.30	314.38	1.28	316.09	1.28	314.70	1.29	314.52	1.30	312.50	1.29	312.63
MK3	44.025173	1.36	112.26	1.63	69.72	1.60	73.25	1.59	72.87	1.59	72.25	1.60	72.06	1.62	70.35	1.61	70.44
2MNS4				0.73	72.73	0.77	77.89	0.77	78.10	0.75	78.01	0.74	78.28	0.72	76.62	0.73	77.14
3MS4				1.29	94.81	1.37	99.67	1.35	100.89	1.33	100.37	1.32	100.97	1.28	99.49	1.28	100.04
MN4	57.423834	7	350.52	4.22	341.84	4.39	346.31	4.29	345.83	4.18	345.86	4.09	345.88	3.94	344.32	3.95	344.99
M4	57.968208	19.92	13.34	11.62	10.11	12.04	14.41	11.75	14.43	11.50	14.09	11.28	14.11	10.93	12.52	10.93	13.19
3MN4				1.89	182.93	1.99	189.14	1.94	189.06	1.92	188.30	1.89	188.60	1.84	186.66	1.85	187.38
MS4	58.984104	13.43	69.01	5.95	71.66	6.12	76.24	5.94	76.17	5.84	75.97	5.71	76.04	5.55	74.49	5.55	75.22
2MSN4				0.70	260.67	0.72	265.72	0.70	265.88	0.70	264.54	0.69	264.24	0.67	261.91	0.67	262.55
3MNS6				1.16	223.12	1.19	241.92	1.20	243.46	1.16	241.28	1.13	241.79	1.10	235.50	1.09	235.48
2NM6				0.84	188.83	0.76	207.97	0.77	209.87	0.76	207.73	0.75	207.84	0.77	201.66	0.77	201.95
2MN6	86.407938	6.09	123.25	4.46	104.55	4.53	116.85	4.49	118.84	4.33	117.44	4.24	117.94	4.12	113.89	4.10	113.71
M6	86.952313	11.48	148.14	6.50	138.30	6.36	147.55	6.29	149.86	6.11	148.43	5.99	148.84	5.90	145.02	5.86	144.92
MSN6	87.423834	2.84	189.28	0.99	222.59	0.68	235.68	0.68	243.12	0.70	240.54	0.70	240.59	0.78	235.14	0.77	235.65
2MS6	87.968208	12.27	197.01	5.63	179.17	5.42	189.12	5.33	191.66	5.20	189.98	5.09	190.29	5.05	186.68	5.02	186.55
3MSN6				1.18	15.00	1.06	27.92	1.05	30.70	1.04	27.65	1.02	27.23	1.03	21.80	1.02	21.96
2SM6	88.984104	2.94	259.57	1.53	222.57	1.49	227.61	1.44	229.39	1.41	228.36	1.38	228.70	1.38	226.70	1.37	226.46
2(MN)8				0.15	302.52	0.19	308.10	0.19	311.97	0.19	311.96	0.19	313.10	0.17	310.92	0.18	311.34
3MN8				0.02	140.09	0.10	257.30	0.11	278.86	0.11	279.87	0.12	279.13	0.08	268.52	0.08	272.74
M8				0.19	354.07	0.30	339.90	0.33	345.83	0.33	346.10	0.33	346.26	0.28	347.60	0.29	347.21
2MSN8				0.37	31.80	0.45	34.92	0.45	38.97	0.45	39.23	0.45	40.40	0.42	39.15	0.42	39.19
3MS8				0.08	274.98	0.19	341.31	0.19	356.74	0.20	355.93	0.20	356.29	0.14	344.54	0.16	347.89
2(MS)8				0.10	127.92	0.13	114.18	0.14	117.21	0.14	116.52	0.14	116.90	0.12	119.85	0.12	118.56
4MS10				0.74	144.09	0.84	152.41	0.86	149.85	0.84	147.95	0.84	146.62	0.80	142.28	0.79	142.08

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
Q1	5.48	5.37	5.25	5.23	5.17	5.18	5.18	40.34	41.23	42.15	41.27	41.43	41.25	41.17	1.29	1.26	1.23	1.22	1.21	1.21	1.21
O1	1.58	1.54	1.49	1.51	1.49	1.50	1.50	43.07	43.72	44.61	43.27	43.26	42.97	42.92	2.73	2.68	2.62	2.61	2.57	2.56	2.56
K1	0.97	0.97	0.96	0.97	0.97	0.96	0.97	11.21	11.70	11.53	12.15	12.09	11.90	12.01	1.75	1.83	1.81	1.90	1.89	1.86	1.88
MNS2	1.71	1.62	1.76	1.75	1.74	1.77	1.75	-72.04	-57.78	-49.04	-51.17	-50.24	-53.68	-52.87	1.21	0.98	0.95	0.97	0.95	1.01	0.99
MU2	0.61	0.41	0.56	0.56	0.56	0.58	0.57	-46.95	-10.81	18.37	12.45	14.06	6.89	8.87	1.57	1.29	1.06	1.01	1.01	0.92	0.95
N2	0.97	0.94	0.94	0.93	0.92	0.92	0.92	-4.86	-2.12	-0.87	-1.34	-1.20	-2.17	-2.09	2.53	1.95	1.80	2.10	2.32	2.42	2.49
M2	1.17	1.14	1.14	1.13	1.12	1.12	1.12	-6.52	-3.32	-1.81	-2.34	-2.24	-3.29	-3.20	29.34	21.35	20.13	19.19	17.86	19.31	18.65
S2	1.27	1.21	1.19	1.19	1.18	1.18	1.18	4.69	7.32	8.83	8.33	8.42	7.43	7.44	12.53	11.30	11.37	10.81	10.48	10.18	9.99
MSN2	0.44	0.44	0.42	0.41	0.41	0.40	0.40	129.15	127.63	126.02	126.34	125.94	126.30	126.19	3.20	3.17	3.12	3.12	3.10	3.10	3.10
2SM2	0.43	0.40	0.40	0.40	0.40	0.40	0.39	3.64	8.97	12.73	11.35	11.58	9.87	10.04	1.67	1.77	1.81	1.80	1.81	1.79	1.80
MK3	1.20	1.18	1.17	1.17	1.17	1.19	1.18	-42.54	-39.01	-39.39	-40.01	-40.20	-41.91	-41.82	1.11	1.01	1.02	1.03	1.04	1.09	1.08
MN4	0.60	0.63	0.61	0.60	0.58	0.56	0.56	-8.68	-4.21	-4.69	-4.66	-4.64	-6.20	-5.53	2.90	2.64	2.74	2.85	2.94	3.11	3.10
M4	0.58	0.60	0.59	0.58	0.57	0.55	0.55	-3.23	1.07	1.09	0.75	0.77	-0.82	-0.15	8.35	7.89	8.18	8.42	8.64	9.00	8.99
MS4	0.44	0.46	0.44	0.43	0.43	0.41	0.41	2.65	7.23	7.16	6.96	7.03	5.48	6.21	7.49	7.40	7.57	7.66	7.79	7.93	7.94
2MN6	0.73	0.74	0.74	0.71	0.70	0.68	0.67	-18.70	-6.40	-4.41	-5.81	-5.31	-9.36	-9.54	2.35	1.67	1.65	1.83	1.91	2.13	2.16
M6	0.57	0.55	0.55	0.53	0.52	0.51	0.51	-11.84	-0.59	1.72	0.29	0.70	-3.12	-3.22	5.29	5.12	5.20	5.37	5.50	5.60	5.64
MSN6	0.35	0.24	0.24	0.25	0.25	0.27	0.27	33.31	46.40	53.84	51.26	51.31	45.86	46.37	2.08	2.42	2.50	2.46	2.46	2.37	2.37
2MS6	0.46	0.44	0.43	0.42	0.41	0.41	0.41	-17.84	-7.89	-5.35	-7.03	-6.72	-10.33	-10.48	7.12	6.94	6.98	7.14	7.24	7.36	7.39
2SM6	0.52	0.51	0.49	0.48	0.47	0.47	0.46	-37.00	-31.96	-30.18	-31.21	-30.87	-32.87	-33.11	1.95	1.85	1.85	1.88	1.89	1.93	1.94

BREMERHAVEN

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				1.99	80.38	1.95	81.07	1.85	81.57	1.73	82.09	1.59	82.00	1.59	82.34	1.62	81.99
Q1	13.398661	2.8	185.4013	2.63	173.52	2.64	174.49	2.62	174.17	2.59	174.06	2.61	171.38	2.65	170.45	2.67	170.36
O1	13.943036	9.4	257.457	9.18	244.65	9.14	245.49	9.10	245.71	8.87	245.22	8.93	242.05	9.08	241.00	9.13	241.08
K1	15.041069	7.6	47.65893	8.68	52.45	8.63	53.32	8.59	54.12	8.31	53.02	8.43	49.53	8.60	48.49	8.62	48.64
3MS2				2.38	158.97	2.30	163.19	2.31	162.44	2.31	161.89	2.32	157.69	2.36	157.88	2.36	158.12
MNS2				6.19	35.04	6.03	39.31	6.00	38.08	5.99	38.01	6.10	34.00	6.17	34.27	6.22	34.51
MU2	27.968209	18	76.83179	17.35	73.53	16.92	77.68	16.82	76.62	16.82	76.33	17.09	72.47	17.30	72.58	17.39	72.90
N2	28.43973	23.6	332.4603	23.61	317.14	23.12	320.33	22.95	319.09	23.01	319.22	23.68	315.27	23.97	315.85	24.11	315.95
M2	28.984104	151.9	356.9159	174.70	350.81	170.80	354.24	169.63	353.10	170.22	353.07	174.93	348.99	177.30	349.40	178.38	349.55
2MN2	29.528479	13.1	192.8715	15.17	192.28	14.83	196.11	14.78	195.09	14.78	194.78	15.14	190.71	15.33	190.88	15.42	191.12
S2	30	37.1	72.3	44.10	72.56	42.96	75.60	42.62	74.43	42.94	74.47	44.38	70.09	45.09	70.57	45.38	70.67
MSN2	30.544375	2.7	265.7556	1.06	248.13	1.03	252.88	1.02	251.21	1.02	251.10	1.04	245.76	1.04	245.73	1.06	246.29
2SM2	31.015896	3.3	296.0841	2.29	316.87	2.21	320.97	2.19	319.46	2.20	319.09	2.29	314.37	2.34	314.35	2.36	314.44
NO3				0.74	110.92	0.75	117.36	0.74	117.64	0.75	120.97	0.76	120.84	0.79	122.75	0.81	123.41
2MK3				1.44	163.08	1.46	169.34	1.45	170.11	1.44	172.59	1.44	170.95	1.54	172.21	1.56	172.62
MK3	44.025173	0.8	269.9748	2.61	285.69	2.58	290.79	2.58	291.27	2.55	290.70	2.52	285.08	2.65	286.03	2.69	286.58
2MNS4				1.09	303.40	1.02	311.98	1.00	310.33	0.97	312.31	0.96	309.76	0.99	309.34	1.02	309.37
3MS4				1.30	322.43	1.18	332.20	1.14	328.92	1.07	330.39	1.01	328.15	1.04	326.16	1.07	326.20
MN4	57.423834	4.5	169.2762	4.68	222.90	4.43	230.73	4.26	228.24	4.21	229.89	4.20	225.46	4.35	225.73	4.43	225.48
M4	57.968208	13.8	189.4318	10.01	258.61	9.37	266.76	9.00	263.61	8.82	264.58	8.68	259.87	8.99	259.92	9.15	259.46
3MN4				1.92	67.93	1.77	74.95	1.77	72.06	1.72	71.41	1.67	65.75	1.74	65.01	1.78	64.59
MS4	58.984104	8.8	272.1159	5.05	318.47	4.68	324.86	4.64	321.14	4.67	321.01	4.68	314.32	4.90	314.42	5.01	314.24
2MSN4				0.66	154.90	0.61	160.46	0.63	157.05	0.63	156.09	0.62	149.89	0.64	148.81	0.67	148.55
3MNS6				1.66	14.95	1.56	26.22	1.50	21.43	1.41	18.64	1.37	359.11	1.37	358.72	1.41	359.64
2NM6				1.29	11.48	1.22	22.82	1.14	17.68	1.07	15.67	0.97	355.31	0.98	355.27	1.00	356.26
2MN6	86.407938	2.9	358.3921	3.43	286.26	3.26	297.51	3.13	292.18	2.87	288.98	2.73	266.29	2.68	266.63	2.76	267.21
M6	86.952313	6.4	24.94769	4.63	339.13	4.36	350.41	4.16	344.47	3.80	341.46	3.58	316.99	3.54	317.41	3.65	317.97
MSN6	87.423834	1.3	103.6762	2.40	124.06	2.29	134.68	2.17	131.45	2.05	129.88	1.84	112.13	1.81	112.95	1.86	113.68
2MS6	87.968208	6.5	96.53179	3.74	46.78	3.56	57.53	3.37	51.90	3.07	49.85	2.83	26.03	2.79	26.40	2.87	27.23
3MSN6				1.29	254.67	1.21	265.26	1.15	259.66	1.08	257.12	1.02	234.52	1.00	234.65	1.03	236.45
2SM6	88.984104	1.3	197.2159	0.37	163.16	0.37	172.48	0.34	170.93	0.32	174.14	0.22	156.51	0.21	162.59	0.21	163.12
2(MN)8				0.30	289.89	0.27	305.54	0.23	305.18	0.22	312.65	0.19	316.72	0.20	319.36	0.20	317.74
3MN8				1.48	241.78	1.37	259.53	1.26	256.24	1.26	261.32	1.19	254.78	1.26	255.89	1.29	254.73
M8	115.93642	1.5	279.8636	1.37	301.85	1.29	319.22	1.16	316.93	1.15	321.84	1.06	316.85	1.12	317.95	1.13	316.64
2MSN8				0.73	16.83	0.65	30.85	0.58	28.60	0.55	31.52	0.47	27.45	0.49	30.62	0.50	29.05
3MS8				1.51	337.01	1.34	353.96	1.24	347.97	1.22	351.73	1.07	343.36	1.13	345.33	1.17	343.74
2(MS)8				0.47	45.41	0.43	60.78	0.40	55.00	0.41	57.44	0.38	45.17	0.38	49.17	0.40	49.06
4MS10				0.29	261.36	0.31	278.07	0.32	279.12	0.39	278.83	0.52	275.24	0.55	272.34	0.54	270.82

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
Q1	0.94	0.94	0.94	0.92	0.93	0.94	0.95	-11.88	-10.91	-11.23	-11.34	-14.02	-14.95	-15.04	0.59	0.54	0.58	0.57	0.69	0.72	0.73
O1	0.98	0.97	0.97	0.94	0.95	0.97	0.97	-12.81	-11.97	-11.75	-12.24	-15.41	-16.48	-16.38	2.08	1.95	1.92	2.02	2.50	2.68	2.65
K1	1.14	1.14	1.13	1.09	1.11	1.13	1.13	4.79	5.66	6.46	5.36	1.87	0.83	0.98	1.27	1.30	1.35	1.03	0.87	1.00	1.02
MU2	0.96	0.94	0.93	0.93	0.95	0.96	0.97	-3.30	0.85	-0.21	-0.50	-4.36	-4.27	-3.93	1.21	1.12	1.19	1.19	1.62	1.49	1.36
N2	1.00	0.98	0.97	0.98	1.00	1.02	1.02	-15.32	-12.13	-13.37	-13.24	-17.19	-16.61	-16.51	6.29	4.96	5.48	5.41	7.07	6.88	6.87
M2	1.15	1.12	1.12	1.12	1.15	1.17	1.17	-6.11	-2.68	-3.82	-3.85	-7.93	-7.52	-7.37	28.65	20.34	20.71	21.26	32.22	33.29	33.89
2MN2	1.16	1.13	1.13	1.13	1.16	1.17	1.18	-0.59	3.24	2.22	1.91	-2.16	-1.99	-1.75	2.08	1.90	1.76	1.75	2.11	2.28	2.36
S2	1.19	1.16	1.15	1.16	1.20	1.22	1.22	0.26	3.30	2.13	2.17	-2.21	-1.73	-1.63	7.00	6.29	5.72	6.04	7.44	8.09	8.34
MSN2	0.39	0.38	0.38	0.38	0.39	0.39	0.39	-17.63	-12.88	-14.55	-14.66	-20.00	-20.03	-19.47	1.72	1.72	1.74	1.74	1.76	1.76	1.73
2SM2	0.70	0.67	0.66	0.67	0.69	0.71	0.71	20.79	24.89	23.38	23.01	18.29	18.27	18.36	1.41	1.60	1.56	1.54	1.33	1.31	1.30
MK3	3.26	3.23	3.23	3.19	3.15	3.31	3.37	15.72	20.82	21.30	20.73	15.11	16.06	16.61	1.85	1.86	1.86	1.82	1.76	1.89	1.94
MN4	1.04	0.98	0.95	0.93	0.93	0.97	0.98	53.62	61.45	58.96	60.61	56.18	56.45	56.20	4.14	4.56	4.31	4.40	4.11	4.19	4.20
M4	0.73	0.68	0.65	0.64	0.63	0.65	0.66	69.18	77.33	74.18	75.15	70.44	70.49	70.03	13.87	14.88	14.27	14.35	13.62	13.72	13.71
MS4	0.57	0.53	0.53	0.53	0.53	0.56	0.57	46.35	52.74	49.02	48.89	42.20	42.30	42.12	6.45	7.03	6.74	6.72	6.19	6.14	6.09
2MN6	1.18	1.13	1.08	0.99	0.94	0.92	0.95	-72.13	-60.88	-66.21	-69.41	-92.10	-91.76	-91.18	3.75	3.14	3.30	3.29	4.05	4.01	4.04
M6	0.72	0.68	0.65	0.59	0.56	0.55	0.57	-45.82	-34.54	-40.48	-43.49	-67.96	-67.54	-66.98	4.59	3.74	4.22	4.48	6.05	6.02	6.00
MSN6	1.84	1.76	1.67	1.57	1.42	1.39	1.43	20.38	31.00	27.77	26.20	8.45	9.27	10.00	1.26	1.35	1.19	1.05	0.59	0.57	0.62
2MS6	0.58	0.55	0.52	0.47	0.43	0.43	0.44	-49.75	-39.00	-44.63	-46.68	-70.50	-70.13	-69.30	4.98	4.36	4.74	4.93	6.16	6.14	6.11
2SM6	0.28	0.28	0.26	0.24	0.17	0.16	0.16	-34.06	-24.74	-26.29	-23.08	-40.71	-34.63	-34.10	1.01	0.98	1.01	1.02	1.14	1.14	1.13
M8	0.91	0.86	0.77	0.77	0.71	0.75	0.75	21.99	39.36	37.07	41.98	36.99	38.09	36.78	0.56	0.96	0.90	1.00	0.91	0.93	0.90

STATIONK13A

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.4	43.9841	0.79	60.72	0.76	61.23	0.79	61.92	0.81	61.71	0.80	61.65	0.80	61.59	0.79	61.43
Q1	13.398661	3.41	118.2813	2.75	98.05	2.75	98.45	2.73	98.65	2.69	99.91	2.69	99.91	2.70	99.66	2.69	99.74
O1	13.943036	10.105	169.497	10.23	164.05	10.23	164.46	10.16	164.73	9.98	166.18	9.98	166.15	10.02	165.85	10.00	165.94
K1	15.041069	8.219	331.4289	11.19	328.54	11.21	328.91	11.14	329.14	10.88	330.55	10.88	330.49	10.93	330.18	10.91	330.30
3MS2	26.952313	0.722	338.2377	0.28	254.51	0.27	259.91	0.28	260.91	0.28	262.52	0.28	261.40	0.29	261.87	0.29	262.32
MNS2	27.423834	0.754	200.4462	0.91	185.86	0.91	192.23	0.92	189.86	0.91	190.32	0.90	189.90	0.93	189.28	0.92	189.59
MU2	27.968208	4.136	216.3418	2.12	211.89	2.12	219.52	2.19	217.48	2.19	217.91	2.17	217.29	2.23	216.94	2.21	217.22
N2	28.43973	10.017	161.3503	8.53	160.29	8.79	162.17	8.57	161.22	8.35	161.55	8.31	161.89	8.40	161.77	8.36	161.86
M2	28.984104	53.225	176.5659	51.60	174.24	53.37	177.03	52.38	175.79	51.22	176.02	50.89	176.19	51.51	176.14	51.25	176.23
2MN2	29.528479	3.651	345.7715	2.53	331.76	2.57	338.18	2.59	336.50	2.56	336.67	2.55	336.30	2.58	336.36	2.56	336.53
S2	30	18.895	233.26	19.43	237.58	19.70	240.17	19.35	239.43	18.90	240.00	18.84	240.15	19.08	240.27	18.97	240.33
MSN2	30.544375	1.152	27.32563	0.40	262.33	0.38	261.02	0.38	262.48	0.37	263.23	0.37	264.05	0.38	264.54	0.38	263.91
2SM2	31.015896	1.392	52.8641	0.33	104.64	0.34	113.83	0.34	112.29	0.33	112.60	0.33	112.10	0.34	112.99	0.33	113.71
NO3	42.382765	0.586	223.3472	0.60	228.51	0.64	229.88	0.64	228.75	0.63	229.97	0.63	230.51	0.62	229.98	0.62	230.28
2MK3	42.92714	1.539	270.4829	1.15	270.59	1.22	273.06	1.23	271.89	1.20	273.38	1.20	273.74	1.18	273.25	1.18	273.40
MK3	44.025173	1.128	89.97483	1.18	36.80	1.27	39.72	1.28	39.11	1.24	41.63	1.24	41.91	1.23	41.60	1.22	41.83
2MNS4	56.407938	0.269	220.8121	0.27	240.55	0.26	244.75	0.25	238.13	0.25	235.62	0.24	238.48	0.23	237.80	0.23	237.79
3MS4	56.952313	0.739	253.8877	0.60	267.57	0.60	271.41	0.60	267.07	0.61	266.78	0.58	268.30	0.58	267.22	0.58	267.15
MN4	57.423834	0.586	148.4662	0.99	179.80	1.02	188.58	0.90	182.21	0.83	180.06	0.79	183.09	0.77	184.01	0.77	183.07
M4	57.968208	2.252	166.3118	3.21	199.39	3.24	206.47	3.08	200.32	2.99	198.75	2.86	200.10	2.82	199.98	2.81	199.48
3MN4	58.512583	0.505	358.4074	0.82	0.06	0.82	5.94	0.82	2.23	0.83	2.65	0.80	3.18	0.80	2.97	0.80	2.84
MS4	58.984104	1.638	256.6559	1.76	271.77	1.82	279.18	1.73	275.25	1.67	275.96	1.61	276.95	1.60	277.35	1.59	276.96
2MSN4	59.528479	0.338	64.43152	0.26	68.10	0.25	74.91	0.25	71.93	0.26	73.02	0.25	73.04	0.25	73.63	0.25	73.23
3MNS6	85.392042	0.532	273.278	0.79	249.90	0.75	251.28	0.78	243.49	0.80	246.91	0.80	247.89	0.80	248.20	0.80	248.32
2NM6	85.863563	0.662	94.79644	0.33	267.52	0.30	271.61	0.31	264.70	0.31	262.20	0.32	263.24	0.32	264.39	0.32	262.90
2MN6	86.407938	1.898	130.1321	2.40	101.73	2.32	101.38	2.51	95.67	2.58	101.04	2.56	101.31	2.55	100.01	2.55	101.17
M6	86.952313	3.321	158.8677	1.98	134.64	1.90	132.49	2.16	126.32	2.24	132.62	2.21	132.51	2.22	130.77	2.21	132.82
MSN6	87.423834	0.598	174.0262	0.48	10.86	0.45	14.53	0.45	6.91	0.44	2.73	0.43	4.46	0.45	2.68	0.45	1.32
2MS6	87.968208	2.855	206.2218	1.64	171.12	1.61	168.36	1.85	165.14	1.92	171.82	1.91	171.34	1.90	169.59	1.88	171.55
3MSN6	88.512583	0.668	58.04742	0.37	72.19	0.34	68.97	0.39	61.82	0.41	63.87	0.40	64.20	0.41	63.42	0.41	63.79
2SM6	88.984104	0.51	244.6559	0.27	184.25	0.27	183.54	0.31	182.46	0.30	190.50	0.30	189.21	0.29	186.25	0.28	188.19
2(MN)8	114.84767	0.286	31.78233	0.33	74.00	0.33	84.80	0.32	81.11	0.34	84.47	0.33	85.53	0.32	84.47	0.32	82.94
3MN8	115.39204	0.698	63.53796	0.98	11.44	1.01	25.69	0.92	20.40	1.05	24.06	1.04	24.44	1.03	23.49	1.02	22.77
M8	115.93642	0.96	92.09358	1.28	75.20	1.32	87.74	1.23	83.19	1.33	86.32	1.29	86.68	1.30	85.64	1.28	84.54
2MSN8	116.40794	0.541	137.1321	0.72	168.55	0.75	180.95	0.70	177.33	0.73	179.75	0.70	180.92	0.69	180.72	0.68	179.61
3MS8	116.95231	1.429	155.8677	1.37	118.52	1.39	133.57	1.29	128.76	1.39	132.28	1.36	132.43	1.35	131.41	1.34	130.52
2(MS)8	117.96821	0.532	229.3418	0.30	182.19	0.30	201.91	0.28	195.40	0.30	198.54	0.29	197.40	0.27	198.11	0.28	197.56
4MS10	145.93642	0.845	250.7736	0.99	221.52	1.03	235.29	0.99	232.41	1.01	235.86	0.98	235.81	0.97	233.25	0.96	232.89

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.33	0.32	0.33	0.34	0.33	0.33	0.33	16.74	17.25	17.94	17.73	17.67	17.61	17.45	1.66	1.69	1.67	1.65	1.66	1.66	1.66
Q1	0.80	0.81	0.80	0.79	0.79	0.79	0.79	-20.23	-19.83	-19.63	-18.37	-18.37	-18.62	-18.54	1.26	1.24	1.24	1.21	1.21	1.21	1.21
O1	1.01	1.01	1.01	0.99	0.99	0.99	0.99	-4.45	-4.04	-3.77	-2.32	-2.35	-2.65	-2.56	0.80	0.73	0.67	0.42	0.43	0.47	0.46
K1	1.36	1.36	1.36	1.32	1.32	1.33	1.33	-2.89	-2.52	-2.29	-0.88	-0.94	-1.25	-1.13	3.01	3.02	2.95	2.66	2.66	2.72	2.70
3MS2	0.39	0.37	0.39	0.39	0.39	0.40	0.40	-83.73	-78.33	-77.33	-75.72	-76.84	-76.37	-75.92	0.75	0.72	0.71	0.71	0.71	0.71	0.71
MNS2	1.20	1.20	1.22	1.21	1.20	1.23	1.22	-14.59	-8.22	-10.59	-10.13	-10.55	-11.17	-10.86	0.26	0.19	0.23	0.22	0.21	0.24	0.23
MU2	0.51	0.51	0.53	0.53	0.52	0.54	0.54	-4.45	3.18	1.14	1.57	0.95	0.60	0.88	2.03	2.02	1.94	1.95	1.97	1.91	1.92
N2	0.85	0.88	0.86	0.83	0.83	0.84	0.83	-1.06	0.82	-0.13	0.20	0.54	0.42	0.51	1.50	1.23	1.45	1.67	1.71	1.62	1.66
M2	0.97	1.00	0.98	0.96	0.96	0.97	0.96	-2.33	0.46	-0.78	-0.55	-0.38	-0.43	-0.34	2.67	0.46	1.11	2.07	2.36	1.76	2.00
2MN2	0.69	0.70	0.71	0.70	0.70	0.71	0.70	-14.01	-7.59	-9.27	-9.10	-9.47	-9.41	-9.24	1.34	1.16	1.17	1.19	1.21	1.19	1.20
S2	1.03	1.04	1.02	1.00	1.00	1.01	1.00	4.32	6.91	6.17	6.74	6.89	7.01	7.07	1.54	2.46	2.11	2.22	2.27	2.33	2.34
MSN2	0.35	0.33	0.33	0.32	0.32	0.33	0.33	-125.00	-126.31	-124.85	-124.10	-123.28	-122.79	-123.42	1.42	1.41	1.40	1.39	1.39	1.39	1.40
2SM2	0.23	0.25	0.24	0.24	0.24	0.24	0.24	51.78	60.97	59.43	59.74	59.24	60.13	60.85	1.22	1.26	1.25	1.26	1.26	1.26	1.26
NO3	1.02	1.10	1.10	1.07	1.07	1.06	1.05	5.16	6.53	5.40	6.62	7.16	6.63	6.93	0.05	0.09	0.08	0.08	0.09	0.08	0.08
2MK3	0.75	0.79	0.80	0.78	0.78	0.77	0.76	0.11	2.58	1.41	2.90	3.26	2.77	2.92	0.39	0.32	0.32	0.35	0.35	0.36	0.37
MK3	1.05	1.13	1.13	1.10	1.10	1.09	1.08	-53.17	-50.25	-50.86	-48.34	-48.06	-48.37	-48.14	1.04	1.03	1.04	0.98	0.97	0.97	0.96
2MNS4	1.00	0.96	0.94	0.93	0.89	0.85	0.86	19.74	23.94	17.32	14.81	17.67	16.99	16.98	0.09	0.11	0.08	0.07	0.08	0.08	0.08
3MS4	0.81	0.82	0.81	0.82	0.79	0.78	0.78	13.68	17.52	13.18	12.89	14.41	13.33	13.26	0.21	0.24	0.21	0.20	0.23	0.22	0.22
MN4	1.69	1.73	1.54	1.41	1.35	1.32	1.31	31.33	40.11	33.74	31.59	34.62	35.54	34.60	0.58	0.68	0.53	0.45	0.45	0.45	0.44
M4	1.42	1.44	1.37	1.33	1.27	1.25	1.25	33.08	40.16	34.01	32.44	33.79	33.67	33.17	1.80	2.10	1.75	1.63	1.59	1.57	1.54
3MN4	1.61	1.62	1.62	1.64	1.58	1.58	1.57	1.65	7.53	3.82	4.24	4.77	4.56	4.43	0.31	0.33	0.32	0.33	0.30	0.30	0.29
MS4	1.07	1.11	1.06	1.02	0.98	0.98	0.97	15.11	22.52	18.59	19.30	20.29	20.69	20.30	0.46	0.70	0.55	0.55	0.57	0.58	0.57
2MSN4	0.78	0.74	0.75	0.77	0.74	0.73	0.74	3.67	10.48	7.50	8.59	8.61	9.20	8.80	0.08	0.10	0.09	0.09	0.10	0.10	0.10
3MNS6	1.48	1.40	1.47	1.50	1.50	1.49	1.50	-23.38	-22.00	-29.79	-26.37	-25.39	-25.08	-24.96	0.37	0.32	0.41	0.40	0.39	0.39	0.39
2NM6	0.49	0.45	0.47	0.47	0.48	0.48	0.48	172.72	176.81	169.90	167.40	168.44	169.59	168.10	0.99	0.96	0.97	0.97	0.97	0.98	0.97
2MN6	1.26	1.22	1.32	1.36	1.35	1.34	1.34	-28.40	-28.75	-34.46	-29.09	-28.82	-30.12	-28.96	1.16	1.12	1.43	1.30	1.28	1.31	1.28
M6	0.60	0.57	0.65	0.67	0.67	0.67	0.67	-24.23	-26.38	-32.55	-26.25	-26.36	-28.10	-26.05	1.72	1.83	1.90	1.64	1.66	1.72	1.65
MSN6	0.80	0.75	0.75	0.74	0.72	0.75	0.76	-163.17	-159.50	-167.12	-171.30	-169.57	-171.35	-172.71	1.06	1.03	1.04	1.04	1.02	1.04	1.05
2MS6	0.58	0.56	0.65	0.67	0.67	0.66	0.66	-35.10	-37.86	-41.08	-34.40	-34.88	-36.63	-34.67	1.78	1.87	1.90	1.67	1.69	1.75	1.69
3MSN6	0.55	0.51	0.58	0.61	0.60	0.61	0.61	14.14	10.92	3.77	5.82	6.15	5.37	5.74	0.32	0.34	0.28	0.27	0.27	0.26	0.27
2SM6	0.52	0.53	0.60	0.58	0.59	0.57	0.55	-60.41	-61.12	-62.20	-54.16	-55.45	-58.41	-56.47	0.44	0.45	0.46	0.41	0.42	0.44	0.43
2(MN)8	1.16	1.16	1.12	1.18	1.14	1.13	1.12	42.22	53.02	49.33	52.69	53.75	52.69	51.16	0.23	0.28	0.25	0.28	0.28	0.27	0.26
3MN8	1.40	1.45	1.32	1.51	1.48	1.47	1.45	-52.10	-37.85	-43.14	-39.48	-39.10	-40.05	-40.77	0.78	0.63	0.63	0.68	0.66	0.67	0.67
M8	1.33	1.38	1.28	1.38	1.35	1.35	1.33	-16.89	-4.35	-8.90	-5.77	-5.41	-6.45	-7.55	0.45	0.37	0.31	0.38	0.35	0.36	0.35
2MSN8	1.33	1.38	1.29	1.35	1.30	1.28	1.26	31.42	43.82	40.20	42.62	43.79	43.59	42.48	0.38	0.52	0.45	0.49	0.49	0.48	0.46
3MS8	0.96	0.97	0.90	0.97	0.95	0.95	0.94	-37.35	-22.30	-27.11	-23.59	-23.44	-24.46	-25.35	0.90	0.55	0.65	0.58	0.57	0.59	0.61
2(MS)8	0.56	0.56	0.52	0.57	0.55	0.52	0.52	-47.15	-27.43	-33.94	-30.80	-31.94	-31.23	-31.78	0.40	0.30	0.34	0.31	0.32	0.33	0.33
4MS10	1.17	1.21	1.17	1.19	1.16	1.15	1.14	-29.25	-15.48	-18.36	-14.91	-14.96	-17.52	-17.88	0.48	0.31	0.33	0.29	0.27	0.30	0.30

CD08

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.72	50.58	0.69	50.42	0.72	52.81	0.74	53.37	0.72	53.15	0.72	53.30	0.71	53.21
Q1	13.398661	2.412	99.1	2.25	109.36	2.24	109.95	2.24	110.42	2.20	111.46	2.20	111.40	2.22	111.19	2.22	111.24
O1	13.943036	7.193	179	7.87	176.26	7.85	176.84	7.84	177.40	7.68	178.51	7.69	178.36	7.74	178.04	7.74	178.11
K1	15.041069	6.476	334.6	8.18	338.71	8.17	339.23	8.15	339.85	7.94	340.63	7.95	340.44	8.02	340.11	8.01	340.21
3MS2	26.952313	0.541	28.9	0.18	14.61	0.18	18.50	0.18	12.68	0.18	12.56	0.18	16.02	0.17	12.35	0.17	11.96
MNS2	27.423834	0.165	220.5	1.27	245.94	1.25	248.98	1.24	246.08	1.22	246.55	1.19	247.51	1.19	246.39	1.18	246.38
MU2	27.968208	3.616	266.5	3.18	282.09	3.17	285.07	3.17	282.06	3.12	282.23	3.04	283.09	3.03	281.75	3.02	281.66
N2	28.43973	9.157	170.3	10.16	163.60	10.06	165.12	9.91	163.53	9.77	164.15	9.63	164.72	9.61	164.69	9.56	164.51
M2	28.984104	60.54	189.6	65.10	189.11	64.53	190.86	63.85	189.10	63.01	189.60	61.95	190.03	61.88	189.79	61.61	189.60
2MN2				3.76	25.87	3.77	28.44	3.76	26.04	3.71	26.22	3.63	26.44	3.63	25.63	3.62	25.46
S2	30	16.528	247.1	19.66	251.40	19.37	252.99	19.23	251.41	19.00	252.05	18.70	252.19	18.75	252.12	18.67	251.92
MSN2	30.544375	1.178	54.1	0.17	151.81	0.18	152.09	0.17	149.23	0.16	150.18	0.16	151.95	0.15	152.65	0.15	152.24
2SM2	31.015896	0.65	146.9	0.69	137.47	0.69	140.45	0.68	138.79	0.67	139.46	0.66	139.48	0.66	139.28	0.66	139.17
NO3				0.64	255.06	0.66	256.98	0.69	256.59	0.69	257.48	0.69	258.03	0.69	257.94	0.69	258.19
2MK3				1.16	299.21	1.20	301.95	1.26	301.70	1.26	302.64	1.26	302.88	1.26	302.99	1.26	303.04
MK3	44.025173	1.012	86.5	1.12	52.14	1.16	56.00	1.22	57.41	1.22	58.17	1.21	58.17	1.22	58.48	1.21	58.51
2MNS4				0.58	324.39	0.56	330.05	0.55	328.02	0.54	328.88	0.54	328.91	0.53	329.88	0.53	329.11
3MS4	56.952313	1.21	339.1	0.94	344.67	0.90	349.93	0.88	348.17	0.87	348.41	0.88	348.73	0.86	348.86	0.86	348.55
MN4	57.423834	1.431	235.1	2.86	233.61	2.76	238.79	2.67	236.92	2.63	238.15	2.63	238.43	2.60	239.19	2.59	238.81
M4	57.968208	5.842	268.9	6.95	265.28	6.65	270.25	6.42	268.13	6.34	268.80	6.35	269.33	6.27	269.87	6.25	269.59
3MN4	58.512583	1.195	116.6	1.22	90.26	1.17	95.42	1.13	92.73	1.12	92.67	1.12	93.41	1.11	93.60	1.10	93.53
MS4	58.984104	2.189	347.4	3.41	327.83	3.27	332.02	3.18	329.53	3.18	330.46	3.17	331.16	3.12	331.30	3.11	331.13
2MSN4	59.528479	0.478	161.5	0.34	173.06	0.32	178.35	0.31	173.90	0.31	172.73	0.31	173.63	0.30	174.88	0.30	173.95
3MNS6				0.87	7.91	0.83	15.58	0.80	10.68	0.84	11.17	0.84	10.41	0.86	10.34	0.85	9.86
2NM6				0.40	6.06	0.38	19.63	0.36	11.55	0.36	9.86	0.36	9.83	0.36	9.35	0.35	9.64
2MN6	86.407938	1.352	265.8	2.46	251.04	2.30	257.27	2.24	253.01	2.38	253.86	2.38	252.95	2.38	252.48	2.38	251.84
M6	86.952313	4.418	302.7	3.36	294.36	3.11	300.47	3.08	296.63	3.25	297.18	3.24	296.10	3.25	295.51	3.24	294.98
MSN6	87.423834	1.3	5.7	0.75	96.28	0.71	108.56	0.67	101.82	0.68	99.90	0.68	99.88	0.69	98.17	0.68	97.83
2MS6	87.968208	1.996	19	2.75	349.04	2.55	354.99	2.51	351.12	2.65	351.73	2.65	350.69	2.65	350.44	2.64	349.86
3MSN6				0.84	205.53	0.78	211.83	0.77	208.47	0.80	208.61	0.80	207.97	0.81	207.31	0.80	206.70
2SM6	88.984104	0.208	35.8	0.33	30.07	0.30	32.50	0.30	29.42	0.33	33.60	0.32	31.20	0.32	32.46	0.33	31.76
2(MN)8				0.16	108.27	0.15	118.83	0.13	114.43	0.14	117.90	0.14	118.23	0.14	116.16	0.14	116.77
3MN8	115.39204	0.715	42.6	0.85	45.58	0.82	55.72	0.77	47.08	0.75	49.20	0.74	49.51	0.72	49.29	0.73	49.22
M8	115.93642	1.422	73.6	0.81	94.53	0.76	103.82	0.73	95.57	0.73	97.36	0.72	97.62	0.70	97.21	0.71	97.15
2MSN8	116.40794	0.709	130.3	0.38	181.46	0.35	191.79	0.34	185.77	0.35	189.64	0.35	188.97	0.33	188.49	0.33	188.39
3MS8	116.95231	0.989	163.2	0.99	142.57	0.95	151.14	0.91	144.09	0.91	147.05	0.90	147.41	0.87	146.48	0.87	146.49
2(MS)8	117.96821	0.135	245.4	0.24	210.34	0.24	218.19	0.22	211.67	0.22	214.72	0.22	215.33	0.20	213.23	0.20	213.45
4MS10				0.15	116.68	0.13	96.24	0.22	101.93	0.27	121.16	0.27	121.63	0.28	120.48	0.29	120.77

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM																					
Q1	0.93	0.93	0.93	0.91	0.91	0.92	0.92	10.26	10.85	11.32	12.36	12.30	12.09	12.14	0.45	0.47	0.49	0.54	0.54	0.52	0.53
O1	1.09	1.09	1.09	1.07	1.07	1.08	1.08	-2.74	-2.16	-1.60	-0.49	-0.64	-0.96	-0.89	0.77	0.72	0.68	0.49	0.50	0.56	0.56
K1	1.26	1.26	1.26	1.23	1.23	1.24	1.24	4.11	4.63	5.25	6.03	5.84	5.51	5.61	1.78	1.79	1.80	1.65	1.65	1.69	1.69
3MS2	0.33	0.33	0.34	0.34	0.32	0.32	0.32	-14.29	-10.40	-16.22	-16.34	-12.88	-16.55	-16.94	0.37	0.36	0.37	0.37	0.37	0.38	0.38
MNS2	7.68	7.59	7.52	7.39	7.22	7.21	7.18	25.44	28.48	25.58	26.05	27.01	25.89	25.88	1.12	1.11	1.09	1.07	1.05	1.04	1.04
MU2	0.88	0.88	0.88	0.86	0.84	0.84	0.84	15.59	18.57	15.56	15.73	16.59	15.25	15.16	1.02	1.18	1.02	1.05	1.12	1.06	1.06
N2	1.11	1.10	1.08	1.07	1.05	1.05	1.04	-6.70	-5.18	-6.77	-6.15	-5.58	-5.61	-5.79	1.51	1.25	1.35	1.18	1.03	1.02	1.03
M2	1.08	1.07	1.05	1.04	1.02	1.02	1.02	-0.49	1.26	-0.50	0.00	0.43	0.19	0.00	4.59	4.22	3.36	2.46	1.48	1.35	1.07
2MN2																					
S2	1.19	1.17	1.16	1.15	1.13	1.13	1.13	4.30	5.89	4.31	4.95	5.09	5.02	4.82	3.41	3.38	3.02	2.90	2.68	2.71	2.60
MSN2	0.14	0.15	0.14	0.14	0.13	0.12	0.12	97.71	97.99	95.13	96.08	97.85	98.55	98.14	1.21	1.22	1.20	1.21	1.21	1.21	1.21
2SM2	1.07	1.06	1.05	1.03	1.01	1.01	1.01	-9.43	-6.45	-8.11	-7.44	-7.42	-7.62	-7.73	0.12	0.08	0.10	0.09	0.08	0.09	0.09
NO3																					
2MK3																					
MK3	1.10	1.15	1.21	1.21	1.20	1.21	1.20	-34.36	-30.50	-29.09	-28.33	-28.33	-28.02	-27.99	0.64	0.59	0.60	0.58	0.58	0.58	0.57
2MNS4																					
3MS4	0.78	0.74	0.72	0.72	0.72	0.71	0.71	5.57	10.83	9.07	9.31	9.63	9.76	9.45	0.29	0.37	0.37	0.38	0.38	0.39	0.39
MN4	2.00	1.93	1.87	1.84	1.83	1.82	1.81	-1.49	3.69	1.82	3.05	3.33	4.09	3.71	1.43	1.34	1.24	1.20	1.20	1.18	1.17
M4	1.19	1.14	1.10	1.09	1.09	1.07	1.07	-3.62	1.35	-0.77	-0.10	0.43	0.97	0.69	1.17	0.82	0.59	0.50	0.51	0.44	0.42
3MN4	1.02	0.98	0.94	0.94	0.94	0.93	0.92	-26.34	-21.18	-23.87	-23.93	-23.19	-23.00	-23.07	0.55	0.43	0.48	0.49	0.47	0.47	0.47
MS4	1.56	1.49	1.45	1.45	1.45	1.43	1.42	-19.57	-15.38	-17.87	-16.94	-16.24	-16.10	-16.27	1.53	1.30	1.28	1.26	1.23	1.19	1.18
2MSN4	0.71	0.67	0.65	0.66	0.65	0.63	0.63	11.56	16.85	12.40	11.23	12.13	13.38	12.45	0.16	0.19	0.19	0.18	0.19	0.20	0.19
3MNS6																					
2NM6																					
2MN6	1.82	1.70	1.68	1.76	1.76	1.76	1.76	-14.76	-8.53	-12.79	-11.94	-12.85	-13.32	-13.96	1.21	0.98	0.97	1.09	1.10	1.11	1.11
M6	0.76	0.70	0.70	0.73	0.73	0.74	0.73	-8.34	-2.23	-6.07	-5.52	-6.60	-7.19	-7.72	1.19	1.32	1.39	1.23	1.26	1.26	1.28
MSN6	0.58	0.55	0.52	0.52	0.52	0.53	0.52	90.58	102.86	96.12	94.20	94.18	92.47	92.13	1.51	1.61	1.53	1.51	1.51	1.50	1.49
2MS6	1.38	1.28	1.26	1.33	1.33	1.33	1.32	-29.96	-24.01	-27.88	-27.27	-28.31	-28.56	-29.14	1.43	1.09	1.19	1.26	1.30	1.31	1.32
3MSN6																					
2SM6	1.57	1.43	1.45	1.57	1.56	1.56	1.59	-5.73	-3.30	-6.38	-2.20	-4.60	-3.34	-4.04	0.12	0.09	0.10	0.12	0.12	0.12	0.12
2(MN)8																					
3MN8	1.18	1.14	1.07	1.05	1.04	1.01	1.02	2.98	13.12	4.48	6.60	6.91	6.69	6.62	0.14	0.20	0.08	0.09	0.09	0.08	0.08
M8	0.57	0.54	0.52	0.51	0.51	0.50	0.50	20.93	30.22	21.97	23.76	24.02	23.61	23.55	0.72	0.85	0.79	0.81	0.82	0.83	0.82
2MSN8	0.53	0.50	0.48	0.49	0.49	0.47	0.47	51.16	61.49	55.47	59.34	58.67	58.19	58.09	0.56	0.62	0.59	0.61	0.61	0.60	0.60
3MS8	1.00	0.96	0.92	0.92	0.90	0.88	0.88	-20.63	-12.06	-19.11	-16.15	-15.79	-16.72	-16.71	0.35	0.21	0.32	0.28	0.28	0.29	0.29
2(MS)8	1.80	1.75	1.63	1.61	1.61	1.51	1.50	-35.06	-27.21	-33.73	-30.68	-30.07	-32.17	-31.95	0.15	0.13	0.13	0.12	0.12	0.11	0.11
4MS10																					

CD09

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.21	7.61	0.20	5.20	0.20	4.96	0.20	2.01	0.20	359.47	0.20	358.29	0.20	357.08
Q1				1.60	92.72	1.60	92.90	1.60	93.16	1.59	93.68	1.59	93.67	1.60	93.66	1.60	93.73
O1	13.943036	4	148.6	5.28	153.08	5.28	153.20	5.28	153.45	5.24	153.87	5.26	153.85	5.30	153.81	5.30	153.89
K1	15.041069	3.3	306.5	5.54	309.70	5.54	309.82	5.53	310.05	5.49	310.31	5.51	310.32	5.56	310.35	5.55	310.43
3MS2	26.952313	0.3	34.9	0.16	73.69	0.16	73.63	0.15	72.30	0.14	72.73	0.15	76.18	0.14	76.00	0.14	75.80
MNS2	27.423834	0		0.44	254.65	0.43	254.75	0.42	249.72	0.40	248.82	0.38	250.80	0.37	247.93	0.37	247.67
MU2	27.968208	0.4	85.2	1.36	291.50	1.34	291.24	1.32	287.03	1.29	285.85	1.22	287.20	1.21	284.60	1.21	284.26
N2	28.43973	5.9	114.3	6.08	121.66	6.04	121.24	6.14	119.82	6.10	119.95	6.01	119.59	6.03	118.90	6.03	118.78
M2	28.984104	31.7	140.4	34.18	150.61	34.05	150.28	34.80	148.58	34.75	148.58	34.11	147.91	34.43	147.09	34.45	146.97
2MN2				1.67	15.40	1.68	15.37	1.72	12.14	1.72	11.37	1.66	10.66	1.68	9.02	1.68	8.86
S2	30	8.3	187.6	10.03	199.48	9.99	199.30	10.31	198.39	10.32	198.85	10.25	197.85	10.38	197.52	10.38	197.44
MSN2	30.544375	0		0.38	129.29	0.38	128.85	0.38	128.13	0.37	128.14	0.37	128.60	0.36	128.21	0.36	127.99
2SM2	31.015896	0.2	49.8	0.43	116.99	0.43	117.91	0.44	116.07	0.44	116.15	0.43	115.37	0.44	114.66	0.44	114.58
NO3				0.18	236.12	0.17	240.51	0.19	241.44	0.19	242.29	0.19	242.36	0.19	243.15	0.19	243.67
2MK3				0.28	293.34	0.28	298.90	0.31	299.58	0.31	300.20	0.31	299.72	0.32	300.37	0.32	300.55
MK3	44.025173	0.2	17.1	0.22	22.44	0.21	28.51	0.23	37.03	0.23	31.98	0.23	31.19	0.24	34.23	0.24	33.85
2MNS4				0.53	24.18	0.52	32.34	0.53	32.99	0.55	35.88	0.55	34.79	0.56	36.83	0.55	36.45
3MS4	56.952313	0.8	94.6	0.90	65.32	0.91	73.40	0.93	75.59	0.97	78.62	0.97	76.84	0.98	79.08	0.97	78.56
MN4	57.423834	2.2	299.2	2.12	297.30	2.08	305.16	2.05	306.35	2.15	308.60	2.18	307.33	2.18	309.52	2.18	308.85
M4	57.968208	4.5	339.6	5.82	344.41	5.83	352.41	5.78	354.54	6.01	357.04	6.10	355.56	6.11	357.70	6.10	357.19
3MN4	58.512583	0		1.05	179.43	1.06	189.77	1.06	193.24	1.09	196.93	1.11	195.39	1.11	197.70	1.11	197.39
MS4	58.984104	1.3	58.2	2.18	67.22	2.22	77.87	2.15	81.84	2.19	84.85	2.23	82.90	2.27	86.05	2.25	85.51
2MSN4	59.528479	0.0		0.42	273.09	0.42	282.28	0.42	285.39	0.42	289.84	0.44	288.71	0.44	290.38	0.43	290.69
3MNS6				0.43	116.72	0.43	123.78	0.41	116.83	0.44	119.47	0.45	118.96	0.45	118.87	0.45	118.17
2NM6				0.33	59.06	0.30	63.60	0.33	60.33	0.35	62.24	0.35	61.12	0.36	62.18	0.36	61.46
2MN6	86.407938	1.4	6.9	1.33	359.58	1.28	4.54	1.26	359.40	1.39	1.76	1.42	1.45	1.41	2.91	1.43	2.07
M6	86.952313	1.8	38.5	2.06	58.09	2.00	63.23	1.95	60.56	2.11	61.28	2.14	60.52	2.14	62.04	2.16	60.84
MSN6	87.423834	1.2	283.3	0.37	152.20	0.30	160.04	0.37	156.13	0.40	157.45	0.40	155.96	0.39	156.85	0.40	154.92
2MS6	87.968208	0.9	97.6	1.50	116.96	1.44	122.89	1.40	119.74	1.49	119.79	1.51	119.04	1.52	120.48	1.54	119.13
3MSN6				0.46	340.87	0.46	347.94	0.44	343.79	0.45	345.43	0.46	344.45	0.44	346.18	0.45	345.05
2SM6	88.984104	0.1	96.6	0.27	179.76	0.26	182.30	0.26	184.68	0.26	183.52	0.27	182.77	0.27	183.28	0.27	182.15
2(MN)8			0	0.16	48.88	0.17	62.07	0.17	63.42	0.17	67.37	0.16	67.12	0.17	67.14	0.16	65.87
3MN8	115.39204	0		0.41	324.19	0.42	352.10	0.38	359.05	0.35	4.84	0.35	2.11	0.37	2.89	0.34	0.32
M8	115.93642	0.2	301.8	0.39	42.39	0.46	66.92	0.44	71.13	0.40	80.46	0.39	79.34	0.41	78.07	0.38	77.46
2MSN8	116.40794	0.1	226.1	0.20	136.69	0.22	157.64	0.22	155.39	0.21	165.34	0.21	168.20	0.21	165.75	0.20	164.99
3MS8	116.95231	0.2	12.5	0.41	75.84	0.42	105.08	0.42	108.70	0.34	117.43	0.33	115.60	0.37	114.64	0.34	112.67
2(MS)8	117.96821	0.1	73.9	0.12	118.78	0.10	144.13	0.10	149.22	0.07	152.42	0.07	146.62	0.08	151.36	0.07	145.81
4MS10				0.29	221.69	0.33	230.39	0.29	231.43	0.30	238.12	0.29	238.76	0.28	235.47	0.29	235.73

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
O1	1.32	1.32	1.32	1.31	1.31	1.33	1.32	4.48	4.60	4.85	5.27	5.25	5.21	5.29	1.33	1.33	1.33	1.31	1.33	1.37	1.37
K1	1.68	1.68	1.68	1.66	1.67	1.68	1.68	3.20	3.32	3.55	3.81	3.82	3.85	3.93	2.25	2.26	2.25	2.21	2.23	2.28	2.27
3MS2	0.53	0.52	0.49	0.48	0.49	0.47	0.46	38.79	38.73	37.40	37.83	41.28	41.10	40.90	0.20	0.20	0.20	0.21	0.21	0.22	0.22
MU2	3.39	3.35	3.29	3.22	3.06	3.02	3.03	-153.70	-153.96	-158.17	-159.35	-158.00	-160.60	-160.94	1.72	1.71	1.69	1.67	1.60	1.59	1.59
N2	1.03	1.02	1.04	1.03	1.02	1.02	1.02	7.36	6.94	5.52	5.65	5.29	4.60	4.48	0.79	0.74	0.63	0.62	0.56	0.50	0.48
M2	1.08	1.07	1.10	1.10	1.08	1.09	1.09	10.21	9.88	8.18	8.18	7.51	6.69	6.57	6.38	6.13	5.66	5.63	4.94	4.72	4.68
S2	1.21	1.20	1.24	1.24	1.23	1.25	1.25	11.88	11.70	10.79	11.25	10.25	9.92	9.84	2.56	2.51	2.65	2.72	2.55	2.63	2.62
2SM2	2.17	2.17	2.20	2.20	2.16	2.19	2.19	67.19	68.11	66.27	66.35	65.57	64.86	64.78	0.40	0.40	0.40	0.40	0.39	0.40	0.40
MK3	1.11	1.03	1.14	1.15	1.17	1.21	1.22	5.34	11.41	19.93	14.88	14.09	17.13	16.75	0.03	0.04	0.08	0.06	0.06	0.08	0.08
3MS4	1.12	1.14	1.16	1.21	1.21	1.23	1.22	-29.28	-21.20	-19.01	-15.98	-17.76	-15.52	-16.04	0.44	0.33	0.31	0.29	0.32	0.30	0.30
MN4	0.96	0.94	0.93	0.98	0.99	0.99	0.99	-1.90	5.96	7.15	9.40	8.13	10.32	9.65	0.11	0.25	0.31	0.36	0.31	0.39	0.37
M4	1.29	1.29	1.29	1.33	1.35	1.36	1.36	4.81	12.81	14.94	17.44	15.96	18.10	17.59	1.39	1.75	1.85	2.18	2.16	2.31	2.27
MS4	1.67	1.71	1.65	1.68	1.72	1.74	1.73	9.02	19.67	23.64	26.65	24.70	27.85	27.31	0.92	1.09	1.09	1.18	1.18	1.27	1.25
2MN6	0.95	0.91	0.90	0.99	1.01	1.01	1.02	-7.34	-2.36	-7.50	-5.14	-5.45	-3.99	-4.83	0.19	0.14	0.23	0.13	0.13	0.10	0.12
M6	1.14	1.11	1.08	1.17	1.19	1.19	1.20	19.59	24.73	22.06	22.78	22.02	23.54	22.34	0.70	0.84	0.73	0.83	0.82	0.87	0.85
MSN6	0.31	0.25	0.31	0.33	0.33	0.33	0.33	-131.10	-123.26	-127.17	-125.85	-127.34	-126.45	-128.38	1.47	1.39	1.45	1.47	1.48	1.47	1.48
2MS6	1.67	1.60	1.55	1.66	1.68	1.69	1.71	19.36	25.29	22.14	22.19	21.44	22.88	21.53	0.72	0.74	0.66	0.74	0.75	0.77	0.78
2SM6	2.73	2.60	2.57	2.60	2.69	2.65	2.67	83.16	85.70	88.08	86.92	86.17	86.68	85.55	0.28	0.27	0.27	0.27	0.28	0.28	0.28
M8	1.96	2.29	2.19	2.00	1.96	2.06	1.90	100.59	125.12	129.33	138.66	137.54	136.27	135.66	0.47	0.59	0.59	0.56	0.56	0.57	0.54
2MSN8	2.01	2.23	2.24	2.13	2.06	2.13	2.02	-89.41	-68.46	-70.71	-60.76	-59.90	-60.35	-61.11	0.22	0.21	0.21	0.19	0.18	0.19	0.18
3MS8	2.04	2.11	2.08	1.70	1.67	1.85	1.68	63.34	92.58	96.20	104.93	103.10	102.14	100.17	0.36	0.48	0.48	0.44	0.43	0.46	0.42
2(MS)8	1.19	1.01	1.04	0.66	0.68	0.77	0.71	44.88	70.23	75.32	78.52	72.72	77.46	71.91	0.09	0.12	0.12	0.11	0.10	0.11	0.10

CD12

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.84	62.01	0.82	62.35	0.80	63.43	0.80	63.00	0.77	62.44	0.76	62.21	0.76	62.03
Q1	13.398661	1.9	142	1.88	127.17	1.87	127.85	1.86	128.51	1.82	129.38	1.82	129.11	1.83	128.93	1.84	128.93
O1	13.943036	5.9	209.1	6.23	194.89	6.20	195.54	6.16	196.34	6.00	197.19	6.01	196.79	6.07	196.47	6.08	196.51
K1	15.041069	4.9	0.6	6.16	357.23	6.12	357.83	6.07	358.78	5.88	359.07	5.90	358.63	5.98	358.33	5.99	358.42
3MS2	26.952313	1.1	95.9	0.30	77.57	0.30	80.91	0.29	79.19	0.29	80.61	0.29	83.49	0.29	82.99	0.28	82.61
MNS2	27.423834	0		1.37	303.23	1.32	306.46	1.28	305.10	1.25	306.69	1.24	308.37	1.22	308.27	1.21	308.09
MU2	27.968208	3.7	21.8	3.49	339.00	3.38	342.07	3.30	340.53	3.21	341.83	3.18	343.59	3.12	343.21	3.10	342.95
N2	28.43973	5.7	237.2	7.69	203.90	7.40	205.59	7.18	204.05	6.99	205.33	6.88	206.51	6.76	206.74	6.73	206.39
M2	28.984104	34.4	243.4	50.65	235.86	48.74	237.75	47.33	236.19	46.05	237.36	45.21	238.55	44.38	238.51	44.20	238.13
2MN2				3.59	83.22	3.48	85.59	3.38	84.00	3.29	84.89	3.23	86.17	3.16	85.57	3.15	85.14
S2	30	9.6	297.6	13.11	302.10	12.55	303.65	12.17	301.82	11.83	303.05	11.54	304.00	11.35	303.93	11.31	303.49
MSN2	30.544375	0		0.33	158.28	0.33	159.97	0.32	157.97	0.31	158.78	0.30	159.41	0.29	158.37	0.29	158.13
2SM2	31.015896	0.5	77.7	0.66	184.14	0.63	186.22	0.62	184.90	0.60	186.03	0.58	186.74	0.58	186.56	0.57	186.11
NO3				0.25	310.58	0.25	311.94	0.27	310.19	0.27	309.65	0.27	309.53	0.28	308.35	0.28	308.69
2MK3				0.40	349.80	0.40	351.36	0.44	350.03	0.45	349.42	0.45	348.83	0.47	348.13	0.47	348.19
MK3	44.025173	0.3	214.8	0.39	79.66	0.40	82.92	0.44	86.27	0.46	85.02	0.45	84.23	0.47	84.75	0.47	84.85
2MNS4				0.38	10.78	0.37	16.54	0.38	12.95	0.37	12.84	0.35	11.35	0.35	10.94	0.35	9.76
3MS4	56.952313	0.7	78.4	0.65	26.03	0.62	31.98	0.64	30.03	0.65	29.89	0.62	27.48	0.63	27.43	0.64	26.57
MN4	57.423834	1.9	324.7	1.85	280.33	1.78	285.40	1.81	281.87	1.80	282.36	1.74	280.57	1.76	280.64	1.77	279.76
M4	57.968208	4.3	312.7	4.78	311.60	4.57	316.93	4.67	314.23	4.69	314.48	4.57	312.49	4.64	312.77	4.65	311.99
3MN4	58.512583	0		1.06	137.16	1.03	143.13	1.04	141.67	1.05	142.04	1.02	140.27	1.04	140.70	1.04	140.19
MS4	58.984104	2.9	10.8	2.62	18.38	2.50	23.19	2.53	21.10	2.56	21.93	2.52	20.25	2.54	20.67	2.55	20.00
2MSN4	59.528479	0		0.36	228.13	0.35	233.95	0.35	231.88	0.36	231.84	0.35	230.14	0.35	231.48	0.36	230.64
3MNS6				0.40	162.56	0.40	168.39	0.38	161.51	0.38	163.95	0.38	166.10	0.37	165.34	0.37	164.08
2NM6				0.35	108.02	0.34	112.75	0.36	109.88	0.37	110.24	0.36	110.94	0.37	109.78	0.37	108.04
2MN6	86.407938	1.2	56.5	1.51	53.29	1.53	58.18	1.44	54.62	1.46	58.05	1.45	59.05	1.44	57.87	1.42	57.15
M6	86.952313	1.2	72	2.35	97.44	2.38	102.79	2.29	100.86	2.34	103.93	2.32	104.48	2.31	103.65	2.29	103.02
MSN6	87.423834	0.8	108.5	0.68	188.15	0.65	194.62	0.69	191.88	0.71	193.54	0.68	193.53	0.70	193.24	0.70	192.28
2MS6	87.968208	1.6	102.3	1.92	155.42	1.96	161.22	1.88	159.76	1.90	162.93	1.88	163.32	1.86	163.03	1.85	162.24
3MSN6				0.47	8.15	0.49	15.06	0.46	13.41	0.46	16.23	0.46	17.33	0.46	17.17	0.45	16.01
2SM6	88.984104	0.6	104.3	0.38	222.73	0.38	227.03	0.38	227.04	0.39	229.84	0.38	229.15	0.38	230.15	0.39	229.70
2(MN)8				0.14	222.48	0.14	233.69	0.14	230.67	0.13	236.31	0.13	237.37	0.13	234.96	0.13	234.43
3MN8	115.39204	0		0.89	178.42	0.90	190.24	0.88	188.24	0.82	192.58	0.82	191.57	0.84	191.73	0.82	191.40
M8	115.93642	0.5	169	0.83	227.72	0.82	239.79	0.82	237.17	0.75	242.12	0.75	241.51	0.77	240.97	0.74	240.16
2MSN8	116.40794	0.5	269.8	0.34	294.81	0.31	305.74	0.34	301.33	0.31	307.24	0.30	306.53	0.30	306.21	0.30	304.67
3MS8	116.95231	0.5	223.4	0.99	276.14	0.98	287.64	0.97	285.12	0.87	288.47	0.86	287.88	0.89	287.17	0.87	286.36
2(MS)8	117.96821	0.2	236.8	0.31	327.95	0.30	336.67	0.31	335.33	0.28	336.00	0.27	333.86	0.28	334.84	0.28	333.34
4MS10				0.39	39.07	0.45	46.84	0.47	51.64	0.45	57.38	0.43	55.67	0.43	57.42	0.42	56.84

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
Q1	0.99	0.98	0.98	0.96	0.96	0.96	0.97	-14.83	-14.15	-13.49	-12.62	-12.89	-13.07	-13.07	0.49	0.47	0.44	0.42	0.43	0.43	0.43
O1	1.06	1.05	1.04	1.02	1.02	1.03	1.03	-14.21	-13.56	-12.76	-11.91	-12.31	-12.63	-12.59	1.54	1.46	1.36	1.24	1.28	1.33	1.32
K1	1.26	1.25	1.24	1.20	1.20	1.22	1.22	-3.37	-2.77	-1.82	-1.53	-1.97	-2.27	-2.18	1.30	1.25	1.19	0.99	1.02	1.10	1.11
3MS2	0.28	0.27	0.27	0.26	0.27	0.26	0.26	-18.33	-14.99	-16.71	-15.29	-12.41	-12.91	-13.29	0.82	0.82	0.82	0.82	0.82	0.82	0.83
MU2	0.94	0.91	0.89	0.87	0.86	0.84	0.84	-42.80	-39.73	-41.27	-39.97	-38.21	-38.59	-38.85	2.63	2.42	2.49	2.41	2.31	2.32	2.33
N2	1.35	1.30	1.26	1.23	1.21	1.19	1.18	-33.30	-31.61	-33.15	-31.87	-30.69	-30.46	-30.81	4.28	3.92	3.94	3.70	3.52	3.43	3.45
M2	1.47	1.42	1.38	1.34	1.31	1.29	1.28	-7.54	-5.65	-7.21	-6.04	-4.85	-4.89	-5.27	17.15	14.89	13.89	12.38	11.31	10.52	10.43
S2	1.37	1.31	1.27	1.23	1.20	1.18	1.18	4.50	6.05	4.22	5.45	6.40	6.33	5.89	3.62	3.17	2.69	2.45	2.27	2.10	2.02
2SM2	1.31	1.26	1.23	1.19	1.17	1.15	1.15	106.44	108.52	107.20	108.33	109.04	108.86	108.41	0.93	0.92	0.90	0.89	0.88	0.88	0.87
MK3	1.30	1.34	1.48	1.53	1.50	1.57	1.57	-135.14	-131.88	-128.53	-129.78	-130.57	-130.05	-129.95	0.64	0.64	0.67	0.69	0.69	0.70	0.70
3MS4	0.93	0.89	0.92	0.92	0.89	0.90	0.91	-52.37	-46.42	-48.37	-48.51	-50.92	-50.97	-51.83	0.60	0.53	0.55	0.55	0.57	0.58	0.59
MN4	0.98	0.94	0.95	0.94	0.91	0.93	0.93	-44.37	-39.30	-42.83	-42.34	-44.13	-44.06	-44.94	1.42	1.24	1.36	1.34	1.37	1.38	1.41
M4	1.11	1.06	1.09	1.09	1.06	1.08	1.08	-1.10	4.23	1.53	1.78	-0.21	0.07	-0.71	0.49	0.43	0.39	0.41	0.27	0.34	0.36
MS4	0.90	0.86	0.87	0.88	0.87	0.87	0.88	7.58	12.39	10.30	11.13	9.45	9.87	9.20	0.46	0.70	0.61	0.63	0.59	0.59	0.56
2MN6	1.26	1.28	1.20	1.22	1.21	1.20	1.19	-3.21	1.68	-1.88	1.55	2.55	1.37	0.65	0.32	0.33	0.24	0.26	0.25	0.24	0.22
M6	1.96	1.99	1.91	1.95	1.93	1.92	1.91	25.44	30.79	28.86	31.93	32.48	31.65	31.02	1.37	1.49	1.37	1.46	1.45	1.43	1.40
MSN6	0.85	0.82	0.86	0.88	0.85	0.87	0.87	79.65	86.12	83.38	85.04	85.03	84.74	83.78	0.95	1.00	0.99	1.02	1.00	1.01	1.00
2MS6	1.20	1.22	1.17	1.19	1.18	1.16	1.16	53.12	58.92	57.46	60.63	61.02	60.73	59.94	1.60	1.78	1.69	1.78	1.78	1.77	1.74
2SM6	0.64	0.64	0.64	0.64	0.64	0.64	0.64	118.43	122.73	122.74	125.54	124.85	125.85	125.40	0.85	0.87	0.87	0.88	0.88	0.88	0.88
M8	1.67	1.65	1.63	1.50	1.49	1.53	1.48	58.72	70.79	68.17	73.12	72.51	71.97	71.16	0.72	0.81	0.78	0.77	0.76	0.78	0.75
2MSN8	0.68	0.62	0.67	0.62	0.61	0.61	0.59	25.01	35.94	31.53	37.44	36.73	36.41	34.87	0.24	0.31	0.28	0.32	0.31	0.31	0.31
3MS8	1.97	1.95	1.93	1.73	1.72	1.79	1.73	52.74	64.24	61.72	65.07	64.48	63.77	62.96	0.79	0.88	0.85	0.80	0.79	0.81	0.78
2(MS)8	1.54	1.49	1.56	1.38	1.37	1.41	1.38	91.15	99.87	98.53	99.20	97.06	98.04	96.54	0.37	0.39	0.39	0.36	0.36	0.37	0.36

CD14

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.18	345.68	0.18	338.90	0.17	340.26	0.17	339.08	0.18	337.27	0.18	335.35	0.18	335.06
Q1	13.398661	3.2	79.1	2.08	88.25	2.09	88.54	2.08	88.95	2.07	89.93	2.07	89.97	2.08	89.87	2.08	89.98
O1	13.943036	6.1	163	7.40	149.99	7.41	150.26	7.39	150.67	7.34	151.63	7.35	151.63	7.40	151.50	7.38	151.61
K1	15.041069	8.2	294	8.24	310.03	8.25	310.27	8.22	310.62	8.14	311.44	8.16	311.43	8.21	311.32	8.20	311.44
3MS2	26.952313	0.9	27.6	0.09	120.35	0.09	116.54	0.07	121.18	0.06	126.35	0.07	129.59	0.07	136.57	0.07	137.12
MNS2	27.423834	0		0.69	225.17	0.70	226.47	0.70	222.16	0.70	221.57	0.68	221.57	0.68	219.23	0.68	219.34
MU2	27.968208	3.2	237.7	1.70	268.63	1.77	269.60	1.78	264.91	1.78	263.76	1.70	263.69	1.72	261.06	1.73	261.09
N2	28.43973	10.5	133.2	10.56	137.64	10.58	138.16	10.56	137.03	10.51	137.73	10.41	137.76	10.45	137.44	10.43	137.38
M2	28.984104	60.6	157.7	61.97	161.95	62.21	162.72	62.52	161.41	62.47	162.02	61.74	161.84	62.18	161.44	62.07	161.40
2MN2				2.66	4.51	2.73	6.17	2.77	3.70	2.78	3.75	2.73	3.07	2.76	2.20	2.76	2.25
S2	30	17.8	205.6	20.24	217.10	20.17	218.01	20.35	217.18	20.36	218.18	20.24	217.86	20.42	217.78	20.37	217.74
MSN2	30.544375	0		0.38	168.40	0.39	167.09	0.37	167.64	0.37	168.43	0.36	169.77	0.36	170.52	0.36	169.99
2SM2	31.015896	1	56.4	0.62	118.52	0.62	120.79	0.63	119.30	0.63	120.06	0.62	119.47	0.63	119.13	0.63	119.17
NO3				0.60	218.59	0.59	220.33	0.60	219.97	0.60	220.80	0.60	221.19	0.60	220.91	0.59	221.01
2MK3				0.99	269.03	0.97	271.23	0.98	270.98	0.98	271.57	0.98	271.95	0.97	271.76	0.97	271.70
MK3	44.025173	1.1	64.2	1.02	28.57	1.00	30.82	1.02	31.37	1.02	31.32	1.01	31.57	1.00	31.47	1.00	31.28
2MNS4				0.41	8.93	0.41	18.87	0.39	19.59	0.39	24.78	0.40	23.67	0.41	25.58	0.40	25.09
3MS4	56.952313	1.1	54.5	0.55	50.86	0.57	63.03	0.55	66.43	0.54	73.35	0.56	71.08	0.57	74.42	0.56	74.03
MN4	57.423834	0.7	247.6	1.79	265.07	1.69	272.67	1.59	273.07	1.57	276.65	1.61	277.43	1.57	279.72	1.56	278.82
M4	57.968208	3	302	3.84	313.10	3.68	322.98	3.37	325.14	3.26	330.01	3.40	330.42	3.31	333.75	3.29	332.75
3MN4	58.512583	0		0.58	156.78	0.57	171.45	0.52	176.26	0.49	185.35	0.52	183.92	0.51	188.06	0.50	187.51
MS4	58.984104	1.1	348.4	1.06	15.55	0.93	30.19	0.73	32.17	0.61	36.34	0.68	40.09	0.63	47.41	0.62	44.88
2MSN4	59.528479	0		0.28	259.80	0.28	269.93	0.26	272.88	0.25	281.89	0.26	280.82	0.25	283.27	0.25	283.91
3MNS6				0.41	125.24	0.37	137.83	0.32	130.56	0.32	139.52	0.34	139.28	0.33	144.39	0.34	143.42
2NM6				0.50	121.87	0.48	128.54	0.47	127.05	0.48	129.62	0.48	129.40	0.48	130.45	0.48	129.15
2MN6	86.407938	0.2	98.6	0.74	37.94	0.70	56.32	0.55	57.75	0.65	66.47	0.69	61.64	0.73	67.51	0.74	65.76
M6	86.952313	1	152.6	1.26	123.29	1.39	135.54	1.26	141.95	1.39	144.41	1.38	140.68	1.48	142.36	1.48	141.12
MSN6	87.423834	0.3	210.8	0.70	212.59	0.67	219.06	0.67	217.53	0.68	220.33	0.69	219.81	0.69	222.07	0.68	221.15
2MS6	87.968208	1.2	201.5	1.02	190.83	1.14	201.55	1.05	208.24	1.14	211.26	1.13	207.77	1.20	209.54	1.19	208.40
3MSN6				0.29	32.98	0.30	44.14	0.27	49.59	0.28	54.58	0.29	52.15	0.31	55.86	0.31	54.56
2SM6	88.984104	0.2	185.6	0.35	269.60	0.36	273.97	0.36	278.06	0.38	282.17	0.37	280.11	0.38	281.71	0.38	280.72
2(MN)8				0.23	252.19	0.24	265.50	0.25	261.86	0.24	264.59	0.23	264.69	0.24	264.53	0.23	265.56
3MN8	115.39204	0		0.21	199.61	0.34	229.86	0.33	237.03	0.29	228.59	0.28	231.54	0.27	227.16	0.23	224.43
M8	115.93642	0.2	268	0.60	274.68	0.75	286.93	0.73	288.64	0.69	289.04	0.67	291.06	0.66	289.93	0.63	289.41
2MSN8	116.40794	0.4	297.8	0.56	2.69	0.62	12.89	0.61	11.37	0.58	15.13	0.57	16.38	0.57	13.93	0.56	13.73
3MS8	116.95231	0.8	338.8	0.41	337.01	0.62	351.25	0.59	353.73	0.52	353.69	0.51	357.38	0.50	354.81	0.46	355.46
2(MS)8	117.96821	0.2	33.7	0.11	85.53	0.17	84.44	0.17	88.08	0.15	92.19	0.15	96.79	0.14	92.11	0.14	95.11
4MS10				0.27	48.90	0.35	73.89	0.31	75.85	0.34	70.57	0.32	71.75	0.30	69.53	0.29	66.28

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM																					
Q1	0.65	0.65	0.65	0.65	0.65	0.65	0.65	9.15	9.44	9.85	10.83	10.87	10.77	10.88	1.19	1.19	1.20	1.23	1.23	1.22	1.22
O1	1.21	1.21	1.21	1.20	1.20	1.21	1.21	-13.01	-12.74	-12.33	-11.37	-11.37	-11.50	-11.39	2.00	1.98	1.93	1.81	1.82	1.87	1.85
K1	1.01	1.01	1.00	0.99	1.00	1.00	1.00	16.03	16.27	16.62	17.44	17.43	17.32	17.44	2.29	2.33	2.37	2.48	2.48	2.47	2.49
3MS2	0.10	0.10	0.08	0.07	0.08	0.07	0.07	92.75	88.94	93.58	98.75	101.99	108.97	109.52	0.91	0.90	0.91	0.91	0.92	0.92	0.92
MNS2																					
MU2	0.53	0.55	0.56	0.56	0.53	0.54	0.54	30.93	31.90	27.21	26.06	25.99	23.36	23.39	1.95	1.94	1.81	1.78	1.83	1.76	1.76
N2	1.01	1.01	1.01	1.00	0.99	1.00	0.99	4.44	4.96	3.83	4.53	4.56	4.24	4.18	0.82	0.91	0.71	0.83	0.84	0.78	0.77
M2	1.02	1.03	1.03	1.03	1.02	1.03	1.02	4.25	5.02	3.71	4.32	4.14	3.74	3.70	4.75	5.61	4.43	5.00	4.56	4.31	4.22
2MN2																					
S2	1.14	1.13	1.14	1.14	1.14	1.15	1.14	11.50	12.41	11.58	12.58	12.26	12.18	12.14	4.52	4.73	4.61	4.89	4.73	4.82	4.78
MSN2								0.00	0.00	0.00	0.00	0.00	0.00	0.00							
2SM2	0.62	0.62	0.63	0.63	0.62	0.63	0.63	62.12	64.39	62.90	63.66	63.07	62.73	62.77	0.90	0.92	0.91	0.91	0.91	0.90	0.91
NO3																					
2MK3																					
MK3	0.93	0.91	0.92	0.92	0.92	0.91	0.91	-35.63	-33.38	-32.83	-32.88	-32.63	-32.73	-32.92	0.65	0.61	0.60	0.60	0.60	0.60	0.60
2MNS4																					
3MS4	0.50	0.51	0.50	0.49	0.51	0.51	0.51	-3.64	8.53	11.93	18.85	16.58	19.92	19.53	0.56	0.55	0.58	0.62	0.59	0.60	0.60
MN4	2.56	2.42	2.27	2.24	2.30	2.24	2.23	17.47	25.07	25.47	29.05	29.83	32.12	31.22	1.14	1.10	1.00	1.01	1.06	1.04	1.03
M4	1.28	1.23	1.12	1.09	1.13	1.10	1.10	11.10	20.98	23.14	28.01	28.42	31.75	30.75	1.06	1.39	1.33	1.54	1.62	1.75	1.69
3MN4																					
MS4	0.97	0.84	0.66	0.55	0.62	0.57	0.56	27.15	41.79	43.77	47.94	51.69	59.01	56.48	0.51	0.74	0.76	0.83	0.86	0.95	0.92
2MSN4																					
3MNS6																					
2NM6																					
2MN6	3.69	3.52	2.75	3.23	3.43	3.66	3.71	-60.66	-42.28	-40.85	-32.13	-36.96	-31.09	-32.84	0.66	0.57	0.42	0.49	0.54	0.57	0.58
M6	1.26	1.39	1.26	1.39	1.38	1.48	1.48	-29.31	-17.06	-10.65	-8.19	-11.92	-10.24	-11.48	0.62	0.52	0.33	0.42	0.45	0.52	0.53
MSN6	2.33	2.24	2.24	2.27	2.29	2.30	2.28	1.79	8.26	6.73	9.53	9.01	11.27	10.35	0.40	0.38	0.38	0.39	0.39	0.40	0.39
2MS6	0.85	0.95	0.87	0.95	0.94	1.00	0.99	-10.67	0.05	6.74	9.76	6.27	8.04	6.90	0.27	0.06	0.20	0.21	0.14	0.17	0.14
3MSN6																					
2SM6	1.74	1.81	1.81	1.89	1.85	1.90	1.91	84.00	88.37	92.46	96.57	94.51	96.11	95.12	0.38	0.41	0.42	0.45	0.43	0.45	0.45
2(MN)8																					
3MN8																					
M8	2.99	3.74	3.65	3.44	3.37	3.30	3.15	6.68	18.93	20.64	21.04	23.06	21.93	21.41	0.40	0.56	0.55	0.51	0.50	0.48	0.45
2MSN8	1.39	1.54	1.53	1.46	1.44	1.44	1.40	64.89	75.09	73.57	77.33	78.58	76.13	75.93	0.53	0.64	0.63	0.63	0.63	0.62	0.60
3MS8	0.51	0.78	0.74	0.65	0.64	0.62	0.58	-1.79	12.45	14.93	14.89	18.58	16.01	16.66	0.40	0.24	0.28	0.32	0.35	0.35	0.38
2(MS)8	0.56	0.87	0.87	0.74	0.75	0.72	0.68	51.83	50.74	54.38	58.49	63.09	58.41	61.41	0.16	0.16	0.17	0.18	0.19	0.17	0.18
4MS10																					

CALAIS

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.16	136.66	0.20	121.99	0.24	111.52	0.25	108.28	0.24	109.88	0.24	112.73	0.23	115.20
Q1	13.398661	2.1	94.40134	1.82	61.65	1.82	62.47	1.84	63.26	1.78	64.05	1.77	63.97	1.78	63.25	1.77	63.41
O1	13.943036	5.1	147.057	5.29	137.29	5.32	138.28	5.45	138.85	5.17	140.35	5.16	140.20	5.13	139.37	5.12	139.59
K1	15.041069	2	58.35893	2.79	12.46	2.75	12.67	2.83	8.42	2.78	16.38	2.74	16.67	2.67	17.04	2.68	17.37
3MS2	26.952312	2.2	195.2477	0.36	127.82	0.38	139.55	0.43	142.73	0.41	141.63	0.39	143.51	0.41	139.21	0.40	140.03
MNS2				5.06	35.42	5.03	38.32	5.01	38.00	4.93	38.05	4.87	38.51	4.87	37.27	4.87	37.51
MU2	27.968208	10.7	62.73179	11.14	67.46	11.23	70.77	11.33	70.39	11.14	70.40	10.99	70.79	11.00	69.24	11.01	69.56
N2	28.43973	43.6	320.0603	40.49	315.97	39.84	317.68	39.22	316.92	38.73	317.15	38.37	317.25	38.41	316.67	38.40	316.74
M2	28.984104	243.8	343.0159	262.28	340.75	258.82	342.68	255.45	342.03	252.47	342.16	250.05	342.22	250.54	341.53	250.48	341.62
2MN2				15.38	172.42	15.35	175.02	15.28	174.71	15.09	174.63	14.94	174.65	14.98	173.65	14.98	173.83
S2	30	76.4	35.1	84.24	42.46	82.45	44.32	81.06	43.75	80.20	43.87	79.48	43.82	79.79	43.24	79.73	43.30
MSN2	30.544374	3.8	222.2556	0.16	333.68	0.19	323.30	0.19	317.28	0.18	317.28	0.17	318.26	0.16	322.27	0.17	320.25
2SM2	31.015896	3.7	232.8841	2.65	265.88	2.59	269.20	2.57	269.60	2.53	269.53	2.51	269.41	2.52	268.54	2.52	268.67
NO3				0.41	5.52	0.48	8.73	0.54	9.16	0.51	10.49	0.50	11.64	0.48	10.92	0.48	10.87
2MK3				0.63	18.29	0.73	27.39	0.84	31.27	0.77	31.68	0.76	32.82	0.72	31.07	0.72	30.62
MK3	44.025173	0.4	84.17483	1.18	55.22	1.08	64.27	1.01	73.31	0.99	67.41	0.98	66.55	0.96	62.69	0.97	62.89
2MNS4				1.03	304.26	1.09	310.72	1.11	313.30	1.08	312.83	1.06	313.06	1.03	311.05	1.03	311.27
3MS4	56.952312	2.6	315.8477	1.66	316.19	1.75	324.40	1.77	328.95	1.70	327.82	1.68	328.19	1.62	326.04	1.63	326.48
MN4	57.423836	8.8	219.4762	9.09	222.91	9.08	226.92	8.84	227.56	8.74	226.85	8.60	226.71	8.50	225.26	8.50	225.26
M4	57.968208	24.5	244.5318	22.42	249.10	22.41	253.51	21.87	254.63	21.52	253.69	21.20	253.50	20.88	251.86	20.91	251.93
3MN4	58.512585	2.9	67.88742	3.03	53.18	3.10	59.90	3.07	63.16	2.98	61.59	2.93	61.77	2.85	59.40	2.85	59.76
MS4	58.984104	14.9	304.6159	11.63	305.29	11.49	309.95	11.06	311.07	10.93	309.71	10.74	309.54	10.62	307.56	10.62	307.64
2MSN4				1.12	144.43	1.14	149.92	1.12	152.01	1.08	150.44	1.07	150.31	1.03	147.82	1.04	148.21
3MNS6				1.28	158.19	1.19	163.90	1.12	165.57	1.14	164.86	1.12	164.28	1.13	160.47	1.13	161.57
2NM6	85.863564	0.9	90.23644	1.10	150.93	1.05	159.01	1.02	163.31	0.99	160.70	0.97	160.25	0.95	156.03	0.95	157.12
2MN6	86.407936	3	110.9921	3.23	66.56	2.95	72.33	2.69	75.58	2.86	72.15	2.82	71.10	2.84	67.05	2.87	67.62
M6	86.952316	5.6	135.5477	4.98	111.12	4.61	117.55	4.26	121.33	4.43	116.94	4.35	115.90	4.38	111.41	4.40	111.92
MSN6	87.423836	1.4	185.3762	2.14	233.31	2.06	241.02	1.99	245.22	1.93	241.76	1.88	241.32	1.86	236.13	1.85	236.94
2MS6	87.968208	5.5	190.5318	4.37	151.38	4.05	156.83	3.70	159.77	3.92	155.79	3.86	154.42	3.94	150.45	3.95	150.88
3MSN6	88.512581	1.3	16.68742	1.28	340.03	1.22	345.06	1.13	347.32	1.17	345.30	1.15	344.33	1.18	340.58	1.17	341.10
2SM6	88.9841	2.5	241.4159	0.53	215.37	0.47	220.09	0.41	222.19	0.46	215.43	0.45	212.79	0.49	209.58	0.49	209.15
2(MN)8	114.84766	0.5	13.75234	0.42	51.81	0.43	63.77	0.44	68.02	0.42	65.21	0.41	65.05	0.39	61.08	0.39	61.69
3MN8	115.39204	1.2	37.30796	1.77	0.40	1.78	12.18	1.74	14.98	1.72	11.52	1.69	11.00	1.65	7.25	1.66	7.74
M8	115.93642	1.7	68.06358	2.00	45.45	2.02	56.98	1.99	59.83	1.95	56.16	1.91	55.51	1.87	51.32	1.87	51.79
2MSN8	116.40794	1.2	102.0921	0.98	121.33	1.00	133.76	1.01	137.52	0.96	134.05	0.94	133.57	0.90	128.86	0.90	129.62
3MS8	116.95232	2.7	119.8477	2.19	86.87	2.21	98.72	2.18	102.08	2.12	98.48	2.09	97.95	2.03	93.65	2.03	94.16
2(MS)8	117.96821	1.3	167.8118	0.68	143.13	0.68	154.20	0.67	157.36	0.65	153.61	0.64	153.02	0.62	148.76	0.62	149.33
4MS10				0.80	23.94	0.86	35.26	0.87	35.68	0.87	35.42	0.86	35.49	0.85	32.15	0.85	32.10

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM																					
Q1	0.87	0.87	0.88	0.85	0.84	0.85	0.84	-32.75	-31.93	-31.14	-30.35	-30.43	-31.15	-30.99	1.14	1.11	1.09	1.06	1.06	1.09	1.08
O1	1.04	1.04	1.07	1.01	1.01	1.01	1.00	-9.77	-8.78	-8.21	-6.71	-6.86	-7.69	-7.47	0.90	0.83	0.83	0.60	0.62	0.69	0.67
K1	1.40	1.37	1.42	1.39	1.37	1.33	1.34	-45.90	-45.69	-49.94	-41.98	-41.69	-41.32	-40.99	2.01	1.97	2.18	1.86	1.82	1.76	1.76
3MS2	0.16	0.17	0.20	0.19	0.18	0.18	0.18	-67.43	-55.70	-52.52	-53.62	-51.74	-56.04	-55.22	2.09	2.01	1.97	1.98	1.98	2.00	2.00
MNS2																					
MU2	1.04	1.05	1.06	1.04	1.03	1.03	1.03	4.73	8.04	7.66	7.67	8.06	6.51	6.83	1.00	1.62	1.60	1.52	1.55	1.27	1.33
N2	0.93	0.91	0.90	0.89	0.88	0.88	0.88	-4.09	-2.38	-3.14	-2.91	-2.81	-3.39	-3.32	4.32	4.14	4.93	5.30	5.60	5.73	5.71
M2	1.08	1.06	1.05	1.04	1.03	1.03	1.03	-2.27	-0.34	-0.99	-0.86	-0.80	-1.49	-1.40	21.01	15.10	12.42	9.43	7.13	9.30	8.99
2MN2																					
S2	1.10	1.08	1.06	1.05	1.04	1.04	1.04	7.36	9.22	8.65	8.77	8.72	8.14	8.20	12.94	14.12	12.75	12.56	12.24	11.59	11.65
MSN2	0.04	0.05	0.05	0.05	0.05	0.04	0.04	111.42	101.04	95.02	95.02	96.00	100.01	97.99	3.86	3.84	3.82	3.82	3.82	3.83	3.83
2SM2	0.72	0.70	0.69	0.68	0.68	0.68	0.68	33.00	36.32	36.72	36.65	36.53	35.66	35.79	2.06	2.23	2.25	2.25	2.25	2.21	2.22
NO3																					
2MK3																					
MK3	2.95	2.69	2.51	2.47	2.41	2.41	2.43	-28.95	-19.90	-10.86	-16.76	-17.62	-21.48	-21.28	0.85	0.71	0.62	0.61	0.59	0.61	0.61
2MNS4																					
3MS4	0.64	0.67	0.68	0.65	0.65	0.62	0.63	0.34	8.55	13.10	11.97	12.34	10.19	10.63	0.94	0.91	0.97	1.00	1.02	1.04	1.05
MN4	1.03	1.03	1.01	0.99	0.98	0.97	0.97	3.43	7.44	8.08	7.37	7.23	5.78	5.78	0.61	1.19	1.24	1.13	1.12	0.92	0.92
M4	0.91	0.91	0.89	0.88	0.87	0.85	0.85	4.57	8.98	10.10	9.16	8.97	7.33	7.40	2.80	4.22	4.85	4.72	4.86	4.63	4.63
3MN4	1.05	1.07	1.06	1.03	1.01	0.98	0.98	-14.71	-7.99	-4.73	-6.30	-6.12	-8.49	-8.13	0.77	0.47	0.30	0.33	0.31	0.43	0.41
MS4	0.78	0.77	0.74	0.73	0.72	0.71	0.71	0.67	5.33	6.45	5.09	4.92	2.94	3.02	3.27	3.63	4.10	4.13	4.30	4.33	4.33
2MSN4																					
3MNS6																					
2NM6	1.22	1.17	1.14	1.10	1.08	1.05	1.05	60.69	68.77	73.07	70.46	70.01	65.79	66.88	1.03	1.11	1.15	1.09	1.07	1.00	1.02
2MN6	1.08	0.98	0.90	0.95	0.94	0.95	0.96	-44.43	-38.66	-35.41	-38.84	-39.89	-43.94	-43.37	2.37	1.97	1.76	1.95	1.99	2.19	2.17
M6	0.89	0.82	0.76	0.79	0.78	0.78	0.79	-24.43	-18.00	-14.22	-18.61	-19.65	-24.14	-23.63	2.32	1.87	1.80	1.99	2.10	2.41	2.36
MSN6	1.53	1.47	1.42	1.38	1.35	1.33	1.32	47.93	55.64	59.84	56.38	55.94	50.75	51.56	1.59	1.72	1.76	1.64	1.60	1.46	1.47
2MS6	0.79	0.74	0.67	0.71	0.70	0.72	0.72	-39.15	-33.70	-30.76	-34.74	-36.11	-40.08	-39.65	3.47	3.10	3.00	3.19	3.29	3.55	3.52
3MSN6	0.98	0.93	0.87	0.90	0.89	0.91	0.90	-36.66	-31.63	-29.37	-31.39	-32.36	-36.11	-35.59	0.81	0.69	0.64	0.68	0.70	0.78	0.76
2SM6	0.21	0.19	0.16	0.18	0.18	0.20	0.20	-26.05	-21.33	-19.23	-25.99	-28.63	-31.84	-32.27	2.03	2.07	2.12	2.10	2.12	2.10	2.10
2(MN)8	0.83	0.87	0.89	0.83	0.81	0.78	0.78	38.06	50.02	54.27	51.46	51.30	47.33	47.94	0.31	0.40	0.43	0.40	0.40	0.37	0.38
3MN8	1.47	1.49	1.45	1.43	1.41	1.37	1.38	-36.91	-25.13	-22.33	-25.79	-26.31	-30.06	-29.57	1.08	0.86	0.78	0.82	0.81	0.86	0.85
M8	1.18	1.19	1.17	1.15	1.13	1.10	1.10	-22.61	-11.08	-8.23	-11.90	-12.55	-16.74	-16.27	0.78	0.48	0.40	0.45	0.45	0.55	0.53
2MSN8	0.82	0.83	0.84	0.80	0.78	0.75	0.75	19.24	31.67	35.43	31.96	31.48	26.77	27.53	0.42	0.63	0.70	0.64	0.63	0.57	0.58
3MS8	0.81	0.82	0.81	0.79	0.77	0.75	0.75	-32.98	-21.13	-17.77	-21.37	-21.90	-26.20	-25.69	1.47	1.02	0.91	1.06	1.09	1.25	1.24
2(MS)8	0.52	0.52	0.51	0.50	0.49	0.48	0.48	-24.68	-13.61	-10.45	-14.20	-14.79	-19.05	-18.48	0.74	0.66	0.65	0.69	0.70	0.74	0.74
4MS10																					

AUK ALPHA

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.15	326.87	0.16	323.25	0.16	323.33	0.17	318.57	0.17	317.53	0.17	317.28	0.17	316.91
Q1	13.398661	1.213	41.48134	1.42	48.73	1.41	48.75	1.41	48.78	1.41	48.93	1.41	48.95	1.41	48.95	1.41	48.93
O1	13.943036	4.552	96.05696	4.82	104.16	4.82	104.16	4.81	104.16	4.81	104.32	4.81	104.34	4.81	104.34	4.81	104.33
K1	15.041069	4.6	253.6889	5.61	257.06	5.60	257.07	5.59	257.06	5.59	257.22	5.59	257.26	5.59	257.27	5.59	257.26
3MS2	26.952312	0.469	18.68769	0.28	44.79	0.28	44.57	0.27	44.21	0.27	44.22	0.27	44.84	0.27	44.65	0.27	44.63
MNS2	27.423834	0.177	274.8662	0.26	212.27	0.26	211.66	0.26	208.63	0.27	207.32	0.26	207.28	0.26	205.64	0.26	205.50
MU2	27.968208	0.449	327.5018	1.20	261.86	1.21	261.44	1.21	259.62	1.21	258.70	1.19	258.81	1.19	257.76	1.19	257.63
N2	28.43973	8.775	53.55027	8.21	54.94	8.22	54.90	8.28	54.87	8.27	55.17	8.27	54.97	8.29	54.89	8.29	54.91
M2	28.984104	45.019	78.7959	43.21	81.37	43.27	81.44	43.68	81.48	43.73	81.87	43.75	81.57	43.94	81.55	43.96	81.59
2MN2				1.49	321.52	1.51	321.99	1.54	321.24	1.56	321.36	1.55	320.66	1.56	320.41	1.57	320.47
S2	30	14.028	117.15	14.34	126.22	14.33	126.27	14.41	126.58	14.38	127.15	14.42	126.99	14.46	127.10	14.46	127.14
MSN2	30.544374	0.116	314.3756	0.64	80.36	0.64	80.31	0.64	80.12	0.64	80.15	0.63	80.15	0.63	80.05	0.63	80.05
2SM2	31.015896	0.187	346.8841	0.44	54.81	0.44	55.37	0.44	55.12	0.44	55.68	0.44	55.16	0.45	55.27	0.45	55.36
NO3				0.08	339.02	0.08	340.04	0.08	336.33	0.09	338.39	0.08	339.49	0.08	336.48	0.08	336.65
2MK3	42.927139	0.422	45.62286	0.22	24.80	0.24	27.25	0.23	24.64	0.24	27.19	0.24	27.44	0.23	25.66	0.23	26.21
MK3	44.025173	0.174	180.9248	0.28	160.71	0.30	163.27	0.30	160.82	0.31	165.79	0.31	165.69	0.30	163.92	0.30	164.42
2MNS4				0.08	49.92	0.07	59.76	0.07	59.82	0.08	53.44	0.08	51.33	0.09	55.83	0.09	55.50
3MS4	56.952312	0.398	147.9277	0.25	92.39	0.23	97.31	0.25	98.59	0.26	95.74	0.26	94.14	0.26	96.57	0.26	96.05
MN4	57.423836	0.205	37.56616	0.40	339.58	0.37	346.71	0.40	347.72	0.40	339.63	0.41	337.22	0.40	340.32	0.41	338.48
M4	57.968208	0.997	68.46179	1.56	17.01	1.49	22.23	1.56	23.38	1.59	19.88	1.59	17.98	1.58	19.89	1.60	19.03
3MN4	58.512585	0.489	278.3474	0.40	225.77	0.40	231.11	0.41	231.86	0.42	230.09	0.42	228.96	0.42	229.87	0.42	229.30
MS4	58.984104	1.108	167.9159	0.96	120.69	0.97	125.66	1.00	126.46	0.99	125.97	0.98	124.60	1.00	126.05	1.00	125.52
2MSN4				0.13	316.57	0.13	323.28	0.14	323.68	0.14	322.34	0.14	320.34	0.14	319.92	0.14	320.26
3MNS8				0.12	313.22	0.11	312.15	0.12	285.58	0.12	302.78	0.12	307.62	0.13	312.51	0.13	311.52
2NM6	85.863564	0.055	299.4764	0.11	289.06	0.11	287.43	0.11	286.16	0.15	290.75	0.15	289.95	0.15	293.22	0.15	291.72
2MN6	86.407938	0.209	200.7821	0.52	205.81	0.52	205.60	0.44	194.47	0.48	209.93	0.49	211.67	0.49	212.06	0.51	211.57
M6	86.952316	0.428	254.1477	0.50	253.74	0.50	255.56	0.38	247.13	0.45	264.76	0.48	265.21	0.46	265.44	0.48	265.17
MSN6	87.423836	0.012	15.27618	0.19	329.72	0.19	336.61	0.21	345.95	0.21	358.55	0.21	352.36	0.22	359.03	0.23	359.10
2MS6	87.968208	0.300	321.3918	0.45	306.23	0.43	308.73	0.34	297.07	0.37	313.71	0.39	314.92	0.37	316.28	0.38	315.67
3MSN6	88.512581	0.098	110.7574	0.08	184.48	0.08	187.07	0.06	170.66	0.07	183.71	0.08	188.44	0.08	187.44	0.07	186.34
2SM6	88.9841	0.075	85.5259	0.07	50.26	0.07	57.44	0.06	77.34	0.07	82.91	0.08	78.78	0.08	83.56	0.08	79.67
2(MN)8	114.84766	0.144	258.9123	0.08	255.10	0.09	270.41	0.08	268.82	0.08	277.83	0.08	279.33	0.08	277.86	0.08	277.87
3MN8	115.39204	0.5	293.808	0.38	157.43	0.36	175.44	0.33	175.34	0.29	178.83	0.28	178.14	0.29	175.60	0.28	175.08
M8	115.93642	0.7	324.0636	0.37	212.76	0.35	231.51	0.32	229.79	0.28	237.03	0.28	237.01	0.28	233.24	0.27	232.88
2MSN8	116.40794	0.4	348.1921	0.11	301.02	0.10	334.67	0.08	333.66	0.09	356.21	0.09	358.99	0.08	354.41	0.08	355.54
3MS8	116.95232	1.1	13.34768	0.52	259.33	0.48	274.35	0.45	272.29	0.40	277.32	0.39	277.30	0.40	274.23	0.38	273.71
2(MS)8	117.98821	0.4	64.01179	0.15	304.40	0.13	315.18	0.12	310.42	0.09	312.49	0.09	312.77	0.10	311.29	0.10	309.71
4MS10				0.34	162.97	0.38	182.15	0.31	189.62	0.27	201.52	0.28	201.48	0.26	199.85	0.26	200.37

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM																					
Q1	1.17	1.17	1.16	1.16	1.16	1.16	1.16	7.25	7.27	7.30	7.45	7.47	7.47	7.45	0.26	0.26	0.26	0.26	0.26	0.26	0.26
O1	1.06	1.06	1.06	1.06	1.06	1.06	1.06	8.10	8.10	8.10	8.26	8.28	8.28	8.27	0.72	0.71	0.71	0.72	0.72	0.72	0.72
K1	1.22	1.22	1.22	1.21	1.22	1.22	1.22	3.37	3.38	3.37	3.53	3.57	3.58	3.57	1.05	1.05	1.04	1.04	1.04	1.04	1.04
3MS2	0.59	0.59	0.58	0.57	0.57	0.57	0.57	26.10	25.88	25.52	25.53	26.15	25.96	25.94	0.25	0.25	0.25	0.25	0.26	0.26	0.26
MNS2	1.47	1.47	1.49	1.50	1.45	1.45	1.46	-62.60	-63.21	-66.24	-67.55	-67.59	-69.23	-69.37	0.24	0.24	0.25	0.26	0.25	0.26	0.26
MU2	2.68	2.70	2.69	2.69	2.64	2.64	2.64	-65.64	-66.06	-67.88	-68.80	-68.69	-69.74	-69.87	1.10	1.11	1.12	1.13	1.10	1.11	1.12
N2	0.94	0.94	0.94	0.94	0.94	0.94	0.95	1.39	1.35	1.32	1.62	1.42	1.34	1.36	0.60	0.59	0.54	0.56	0.55	0.52	0.52
M2	0.96	0.96	0.97	0.97	0.97	0.98	0.98	2.57	2.64	2.68	3.07	2.77	2.75	2.79	2.68	2.69	2.47	2.71	2.50	2.39	2.41
2MN2																					
S2	1.02	1.02	1.03	1.02	1.03	1.03	1.03	9.07	9.12	9.43	10.00	9.84	9.95	9.99	2.26	2.27	2.37	2.50	2.47	2.51	2.52
MSN2	5.48	5.52	5.49	5.47	5.46	5.46	5.46	125.98	125.93	125.74	125.77	125.77	125.67	125.67	0.71	0.71	0.71	0.71	0.71	0.71	0.71
2SM2	2.34	2.33	2.35	2.37	2.37	2.39	2.39	67.93	68.49	68.24	68.80	68.28	68.39	68.48	0.41	0.41	0.41	0.41	0.41	0.42	0.42
NO3																					
2MK3	0.52	0.56	0.55	0.57	0.56	0.55	0.55	-20.82	-18.37	-20.98	-18.43	-18.18	-19.96	-19.41	0.23	0.21	0.22	0.21	0.21	0.22	0.22
MK3	1.63	1.75	1.75	1.78	1.75	1.74	1.74	-20.21	-17.65	-20.10	-15.13	-15.23	-17.00	-16.50	0.13	0.15	0.15	0.15	0.14	0.15	0.14
2MNS4																					
3MS4	0.62	0.59	0.63	0.65	0.66	0.66	0.66	-55.54	-50.62	-49.34	-52.19	-53.79	-51.36	-51.88	0.33	0.31	0.30	0.31	0.32	0.31	0.31
MN4	1.97	1.82	1.93	1.96	1.98	1.95	1.98	-57.99	-50.86	-49.85	-57.94	-60.35	-57.25	-59.09	0.34	0.29	0.31	0.34	0.35	0.34	0.35
M4	1.56	1.49	1.56	1.59	1.60	1.58	1.61	-51.45	-46.23	-45.08	-48.58	-50.48	-48.57	-49.43	1.22	1.08	1.11	1.19	1.23	1.19	1.22
3MN4	0.81	0.81	0.85	0.86	0.85	0.86	0.86	-52.58	-47.24	-46.49	-48.26	-49.39	-48.48	-49.05	0.40	0.36	0.36	0.38	0.38	0.38	0.38
MS4	0.86	0.88	0.90	0.90	0.89	0.90	0.90	-47.23	-42.26	-41.46	-41.95	-43.32	-41.87	-42.40	0.84	0.78	0.75	0.76	0.78	0.76	0.77
2MSN4																					
3MNS8																					
2NM6	2.04	2.07	2.49	2.65	2.64	2.71	2.67	-10.42	-12.05	-13.32	-8.73	-9.53	-8.26	-7.76	0.06	0.06	0.08	0.09	0.09	0.09	0.09
2MN6	2.49	2.48	2.12	2.29	2.35	2.34	2.42	4.85	4.84	-6.29	9.17	10.91	11.30	10.81	0.31	0.31	0.24	0.27	0.29	0.29	0.30
M6	1.17	1.16	0.89	1.06	1.12	1.08	1.13	-0.41	1.41	-7.02	10.61	11.06	11.29	11.02	0.07	0.07	0.07	0.08	0.10	0.09	0.10
MSN6	15.42	15.67	17.50	17.83	17.83	18.67	18.75	-45.58	-38.67	-29.33	-18.73	-22.92	-16.25	-16.18	0.18	0.18	0.20	0.20	0.20	0.21	0.21
2MS6	1.45	1.40	1.09	1.19	1.27	1.20	1.24	-15.16	-12.66	-24.32	-7.68	-6.47	-5.11	-5.72	0.17	0.15	0.14	0.08	0.09	0.07	0.08
3MSN6	0.82	0.78	0.59	0.67	0.72	0.79	0.76	73.72	76.31	59.90	72.95	77.68	76.68	75.58	0.11	0.11	0.09	0.10	0.11	0.11	0.11
2SM6	0.99	0.97	0.75	0.95	0.91	1.03	1.03	-35.27	-28.09	-8.19	-2.62	-6.75	-1.97	-5.86	0.05	0.04	0.02	0.01	0.01	0.00	0.01
2(MN)8	0.58	0.60	0.58	0.57	0.58	0.57	0.54	-1.81	13.50	11.91	20.92	22.42	20.95	20.96	0.06	0.06	0.06	0.07	0.07	0.07	0.08
3MN8	0.75	0.73	0.65	0.58	0.56	0.59	0.57	-136.38	-118.37	-118.47	-114.98	-115.67	-118.21	-118.73	0.81	0.75	0.71	0.67	0.67	0.69	0.68
M8	0.53	0.50	0.46	0.40	0.39	0.40	0.39	-111.30	-92.55	-94.27	-87.03	-87.05	-90.82	-91.18	0.90	0.80	0.79	0.74	0.74	0.76	0.76
2MSN8	0.27	0.24	0.21	0.21	0.21	0.21	0.20	-47.17	-13.52	-14.53	8.02	10.80	6.22	7.35	0.34	0.31	0.32	0.32	0.32	0.32	0.32
3MS8	0.47	0.44	0.41	0.36	0.35	0.36	0.35	-114.02	-99.00	-101.06	-96.03	-96.05	-99.12	-99.64	1.40	1.27	1.26	1.21	1.20	1.23	1.22
2(MS)8	0.38	0.32	0.29	0.23	0.23	0.24	0.24	-119.61	-108.83	-113.59	-111.52	-111.24	-112.72	-114.30	0.49	0.46	0.46	0.44	0.44	0.45	0.45
4MS10																					

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Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				0.79	71.04	0.79	70.92	0.78	70.65	0.77	71.48	0.75	71.69	0.74	72.27	0.72	72.48
Q1	13.398661	1.1	68.50134	1.82	18.35	1.80	19.65	1.78	20.71	1.76	20.00	1.74	20.23	1.75	19.99	1.74	19.97
O1	13.943036	2.3	87.55696	4.59	69.48	4.51	71.13	4.48	72.56	4.40	70.86	4.36	71.14	4.35	70.79	4.34	70.73
K1	15.041069	3.8	113.9589	5.96	125.29	5.93	125.58	5.80	125.64	6.00	125.70	5.98	125.63	5.98	125.46	6.00	125.46
3MS2	26.952312	1.6	160.9477	1.12	25.34	0.97	29.87	0.89	36.20	0.91	35.05	0.89	34.52	0.91	34.03	0.90	34.02
MNS2	27.423834	2.7	24.17617	4.81	355.39	4.77	0.59	4.86	2.41	4.78	1.78	4.71	2.27	4.70	0.87	4.69	1.25
MU2	27.968208	10.6	21.33179	9.12	16.89	9.09	24.20	9.47	27.09	9.29	26.17	9.15	26.65	9.16	25.04	9.14	25.52
N2	28.43973	51.4	297.8603	47.00	297.92	46.33	300.11	45.99	300.44	45.42	300.25	44.91	300.35	44.77	299.61	44.69	299.73
M2	28.984104	279.9	320.0159	300.03	319.26	296.48	321.75	295.27	322.21	291.71	321.96	288.58	322.03	287.74	321.24	287.26	321.37
2MN2				15.79	139.04	15.74	142.90	15.88	144.02	15.68	143.52	15.53	143.61	15.48	142.59	15.45	142.80
S2	30	90.8	11.7	103.88	20.53	101.30	22.85	100.01	23.47	98.94	23.18	97.85	23.18	97.74	22.42	97.49	22.51
MSN2	30.544374	3.7	192.9556	0.88	26.31	0.82	24.03	0.77	24.34	0.77	24.10	0.75	24.06	0.76	24.68	0.76	24.41
2SM2	31.015896	5.3	209.4841	2.71	226.37	2.59	230.65	2.56	232.75	2.53	232.04	2.50	232.19	2.50	231.17	2.49	231.35
NO3				0.50	234.22	0.46	238.40	0.44	238.86	0.43	238.70	0.43	237.46	0.43	234.73	0.43	234.94
2MK3	42.927139	0.4	296.1729	1.01	275.80	0.96	279.87	0.93	280.52	0.91	280.25	0.90	279.42	0.91	277.08	0.90	277.31
MK3	44.025173	1.1	16.87483	2.35	20.67	2.28	23.55	2.24	23.91	2.22	23.25	2.21	23.03	2.22	21.64	2.21	21.68
2MNS4				1.26	279.54	1.33	284.11	1.33	285.57	1.31	285.38	1.29	285.83	1.26	284.60	1.27	284.95
3MS4	56.952312	2.7	274.5477	2.47	287.42	2.57	292.46	2.56	294.33	2.52	293.86	2.50	294.38	2.44	292.97	2.45	293.37
MN4	57.423836	8.9	180.9762	11.84	195.34	11.85	198.60	11.61	199.07	11.43	198.69	11.25	198.63	11.12	197.36	11.11	197.53
M4	57.968208	26.1	205.6318	29.34	217.87	29.39	221.40	28.79	221.99	28.36	221.41	27.93	221.29	27.61	219.86	27.59	220.06
3MN4	58.512585	2.7	33.58742	4.30	22.58	4.41	27.51	4.34	29.13	4.29	28.42	4.23	28.66	4.16	27.00	4.16	27.34
MS4	58.984104	16.9	260.2159	15.47	275.72	15.40	279.62	15.01	280.23	14.81	279.63	14.56	279.50	14.41	277.94	14.39	278.16
2MSN4	59.528481	2	91.07152	1.45	108.80	1.48	113.41	1.46	114.60	1.44	113.60	1.42	113.58	1.40	111.79	1.40	112.04
3MNS8				0.17	89.04	0.21	96.98	0.20	95.52	0.20	97.85	0.20	100.62	0.18	100.96	0.18	99.36
2NM6	85.863564	0.5	26.73644	0.31	31.76	0.32	39.58	0.31	37.31	0.31	37.59	0.30	37.35	0.30	34.57	0.30	34.39
2MN6	86.407936	1.6	50.09206	1.34	7.71	1.41	9.34	1.40	8.23	1.40	9.65	1.43	10.13	1.44	9.96	1.43	9.39
M6	86.952316	2.7	77.74768	2.21	40.04	2.29	42.64	2.27	41.65	2.27	42.66	2.30	42.93	2.31	42.30	2.31	41.84
MSN6	87.423836	0.7	98.67616	0.76	110.98	0.75	118.85	0.74	117.89	0.74	117.78	0.74	117.41	0.73	114.61	0.74	114.52
2MS6	87.968208	2.6	124.5318	1.87	81.23	1.94	84.56	1.94	83.61	1.93	84.33	1.95	84.54	1.94	83.54	1.94	83.13
3MSN6	88.512581	0.4	329.2874	0.30	263.93	0.32	271.61	0.32	271.21	0.31	271.60	0.31	272.51	0.30	270.97	0.30	270.47
2SM6	88.9841	0.7	170.3159	0.40	136.15	0.39	138.57	0.39	137.39	0.39	137.58	0.40	137.31	0.40	135.90	0.40	135.83
2(MN)8	114.84766	0.2	274.5523	0.17	283.68	0.18	291.93	0.17	291.03	0.18	291.90	0.18	291.55	0.18	288.16	0.18	288.96
3MN8	115.39204	0.5	293.808	0.83	264.18	0.86	270.84	0.87	270.95	0.86	270.59	0.86	270.43	0.85	267.06	0.85	267.49
M8	115.93642	0.7	324.0636	0.88	298.79	0.90	306.37	0.90	306.44	0.90	306.02	0.90	305.72	0.89	302.24	0.89	302.86
2MSN8	116.40794	0.4	348.1921	0.39	357.98	0.39	7.13	0.38	6.70	0.39	6.92	0.39	6.53	0.39	3.08	0.39	3.83
3MS8	116.95232	1.1	13.34768	0.99	341.25	1.02	349.24	1.01	349.16	1.02	349.10	1.02	348.88	1.01	345.49	1.01	346.07
2(MS)8	117.98821	0.4	64.01179	0.31	35.52	0.32	43.20	0.31	43.03	0.32	43.14	0.32	42.72	0.32	39.75	0.32	40.19
4MS10				0.49	309.99	0.47	317.69	0.43	319.37	0.45	315.94	0.44	314.89	0.44	310.13	0.44	310.25

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM																					
Q1	1.65	1.63	1.62	1.60	1.59	1.59	1.58	-50.15	-48.85	-47.79	-48.50	-48.27	-48.51	-48.53	1.40	1.35	1.32	1.32	1.30	1.31	1.30
O1	2.00	1.96	1.95	1.91	1.90	1.89	1.89	-18.08	-16.43	-15.00	-16.70	-16.42	-16.77	-16.83	2.51	2.40	2.34	2.29	2.25	2.25	2.24
K1	1.57	1.56	1.53	1.58	1.57	1.57	1.58	11.33	11.62	11.68	11.74	11.67	11.50	11.50	2.35	2.33	2.22	2.41	2.39	2.38	2.40
3MS2	0.70	0.61	0.56	0.57	0.55	0.57	0.56	-135.61	-131.08	-124.75	-125.90	-126.43	-126.92	-126.93	2.52	2.35	2.23	2.26	2.24	2.27	2.26
MNS2	1.78	1.77	1.80	1.77	1.74	1.74	1.74	-28.79	-23.59	-21.77	-22.40	-21.91	-23.31	-22.93	2.77	2.54	2.55	2.50	2.42	2.46	2.44
MU2	0.86	0.86	0.89	0.88	0.86	0.86	0.86	-4.44	2.87	5.76	4.84	5.32	3.71	4.19	1.67	1.59	1.52	1.55	1.71	1.57	1.63
N2	0.91	0.90	0.89	0.88	0.87	0.87	0.87	0.06	2.25	2.58	2.39	2.49	1.75	1.87	4.40	5.42	5.83	6.31	6.81	6.79	6.89
M2	1.07	1.06	1.05	1.04	1.03	1.03	1.03	-0.76	1.73	2.19	1.94	2.01	1.22	1.35	20.49	18.74	18.91	15.28	13.24	9.91	9.95
2MN2																					
S2	1.14	1.12	1.10	1.09	1.08	1.08	1.07	8.83	11.15	11.77	11.48	11.48	10.72	10.81	19.87	21.39	21.60	20.63	20.13	18.92	18.95
MSN2	0.24	0.22	0.21	0.21	0.20	0.21	0.20	-166.65	-168.93	-168.62	-168.86	-168.90	-168.28	-168.55	4.56	4.51	4.45	4.46	4.44	4.45	4.44
2SM2	0.51	0.49	0.48	0.48	0.47	0.47	0.47	16.89	21.17	23.27	22.56	22.71	21.69	21.87	2.82	3.03	3.12	3.12	3.14	3.12	3.13
NO3																					
2MK3	2.51	2.39	2.32	2.27	2.26	2.27	2.25	-20.37	-18.30	-15.65	-15.92	-16.75	-19.09	-18.86	0.65	0.58	0.55	0.53	0.53	0.55	0.54
MK3	2.13	2.07	2.04	2.02	2.01	2.02	2.01	3.80	6.68	7.04	6.38	6.16	4.77	4.81	1.25	1.20	1.16	1.13	1.12	1.13	1.12
2MNS4																					
3MS4	0.92	0.95	0.95	0.93	0.92	0.90	0.91	12.87	17.91	19.78	19.31	19.83	18.42	18.82	0.62	0.83	0.91	0.89	0.92	0.86	0.88
MN4	1.33	1.33	1.30	1.28	1.26	1.25	1.25	14.36	17.62	18.09	17.71	17.65	16.38	16.55	3.90	4.31	4.19	4.00	3.87	3.60	3.62
M4	1.12	1.13	1.10	1.09	1.07	1.06	1.06	12.24	15.77	16.36	15.78	15.66	14.23	14.43	6.73	8.28	8.25	7.80	7.58	6.82	6.90
3MN4	1.59	1.63	1.61	1.59	1.57	1.54	1.54	-11.03	-6.08	-4.46	-5.17	-4.93	-6.59	-6.25	1.73	1.74	1.67	1.61	1.55	1.51	1.50
MS4	0.92	0.91	0.89	0.88	0.86	0.85	0.85	15.50	19.40	20.01	19.41	19.28	17.72	17.94	4.59	5.64	5.85	5.73	5.75	5.41	5.47
2MSN4	0.73	0.74	0.73	0.72	0.71	0.70	0.70	17.73	22.34	23.53	22.53	22.51	20.72	20.97	0.76	0.84	0.88	0.87	0.88	0.85	0.86
3MNS8																					
2NM6	0.62	0.63	0.62	0.61	0.61	0.60	0.61	5.02	12.84	10.57	10.85	10.61	7.83	7.65	0.19	0.21	0.20	0.21	0.21	0.21	0.20
2MN6	0.83	0.88	0.87	0.88	0.89	0.90	0.90	-42.38	-40.75	-41.86	-40.44	-39.96	-40.13	-40.70	1.09	1.06	1.09	1.05	1.05	1.05	1.07
M6	0.82	0.85	0.84	0.84	0.85	0.85	0.85	-37.71	-35.11	-36.10	-35.09	-34.82	-35.45	-35.91	1.65	1.55	1.59	1.55	1.54	1.57	1.59
MSN6	1.09	1.07	1.06	1.06	1.05	1.05	1.05	12.30	20.17	19.21	19.10	18.73	15.93	15.84	0.17	0.26	0.24	0.24	0.24	0.20	0.20
2MS6	0.72	0.75	0.74	0.74	0.75	0.75	0.75	-43.30	-39.97	-40.92	-40.20	-39.99	-40.99	-41.40	1.78	1.67	1.70	1.68	1.67	1.71	1.72
3MSN6	0.74	0.81	0.81	0.78	0.78	0.74	0.75	-65.36	-57.68	-58.08	-57.69	-56.78	-58.32	-58.82	0.39	0.36	0.36	0.35	0.35	0.35	0.35
2SM6	0.57	0.56	0.56	0.56	0.57	0.58	0.57	-34.17	-31.75	-32.93	-32.74	-33.01	-34.42	-34.49	0.43	0.42	0.43	0.43	0.43	0.43	0.43
2(MN)8	0.87	0.88	0.87	0.89	0.89	0.90	0.89	9.13	17.38	16.48	17.35	17.00	13.61	14.41	0.04	0.06	0.06	0.06	0.06	0.05	0.05
3MN8	1.65	1.72	1.73	1.72	1.72	1.71	1.70	-29.63	-22.97	-22.86	-23.22	-23.38	-26.75	-26.32	0.46	0.45	0.45	0.45	0.45	0.46	0.46
M8	1.26	1.29	1.28	1.28	1.28	1.27	1.27	-25.27	-17.69	-17.62	-18.04	-18.34	-21.82	-21.20	0.39	0.32	0.31	0.32	0.32	0.36	0.35
2MSN8	0.98	0.98	0.95	0.97	0.97	0.98	0.98	9.79	18.94	18.51	18.73	18.34	14.89	15.64	0.07	0.13	0.13	0.13	0.13	0.10	0.11
3MS8	0.90	0.92	0.91	0.92	0.93	0.92	0.92	-32.10	-24.11	-24.19	-24.25	-24.47	-27.86	-27.28	0.59	0.45	0.45	0.45	0.46	0.52	0.51
2(MS)8	0.78	0.80	0.79	0.79	0.79	0.79	0.79	-28.49	-20.81	-20.98	-20.87	-21.29	-24.26	-23.82	0.19	0.15	0.16	0.15	0.16	0.17	0.17
4MS10																					

WESTHINDER

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM				1.81	63.47	1.84	64.14	1.83	64.73	1.83	64.68	1.80	64.81	1.79	65.01	1.77	65.01
Q1	13.398661	3.3	115.2	2.35	91.57	2.36	92.47	2.39	92.87	2.32	94.25	2.31	94.08	2.31	93.39	2.31	93.63
O1	13.943036	9.3	165.3	9.17	166.17	9.20	167.22	9.32	167.28	9.04	169.01	9.00	168.85	8.96	168.26	8.97	168.47
K1	15.041069	6.1	353.6	8.58	346.92	8.61	347.48	8.83	346.72	8.49	349.50	8.41	349.42	8.31	349.02	8.34	349.24
3MS2	26.952312	2.3	223.7	0.77	198.89	0.78	202.10	0.78	201.38	0.76	201.18	0.76	202.30	0.76	199.86	0.75	200.70
MNS2	27.968208	8	102	4.43	63.89	4.31	65.95	4.20	64.68	4.16	64.66	4.13	65.17	4.14	64.23	4.14	64.34
MU2				11.18	98.23	11.00	100.44	10.78	99.26	10.66	99.10	10.57	99.53	10.59	98.20	10.59	98.40
N2	28.43973	28.4	329.2	28.48	327.93	27.70	329.04	26.97	326.76	26.83	327.49	26.64	327.72	26.78	327.48	26.79	327.44
M2	28.984104	165.3	354.4	188.36	356.84	183.61	358.20	178.79	356.16	178.06	356.63	176.66	356.79	177.96	356.37	177.93	356.36
2MN2				12.85	198.44	12.66	200.37	12.38	199.03	12.30	198.96	12.18	199.04	12.27	198.15	12.27	198.26
S2	30	48.6	47.2	55.58	58.48	53.91	59.64	52.40	57.37	52.38	57.98	52.03	57.98	52.57	57.78	52.54	57.72
MSN2	30.544374	2.4	252	0.62	270.88	0.64	272.44	0.65	271.44	0.63	270.77	0.61	270.66	0.60	269.94	0.61	270.08
2SM2	31.015896	3.4	270.6	2.36	295.69	2.29	297.81	2.23	296.61	2.22	296.76	2.20	296.59	2.23	295.80	2.23	295.78
NO3				1.47	36.95	1.51	39.33	1.54	38.99	1.51	39.12	1.50	39.39	1.49	38.45	1.49	38.48
2MK3				2.52	77.18	2.61	80.19	2.67	80.14	2.61	80.22	2.60	80.47	2.58	79.45	2.57	79.41
MK3	44.025173	1.8	231.5	2.59	191.30	2.70	195.02	2.78	195.57	2.68	195.87	2.66	196.19	2.64	195.24	2.64	195.18
2MNS4				0.65	16.34	0.67	22.08	0.65	22.87	0.64	21.20	0.63	21.80	0.62	20.38	0.61	20.49
3MS4	56.952312	1.8	30	1.32	46.40	1.39	52.59	1.40	54.10	1.36	53.66	1.34	53.92	1.31	52.67	1.31	53.07
MN4	57.423836	2.9	276.4	3.63	299.75	3.56	305.79	3.34	306.62	3.29	303.50	3.24	303.22	3.24	301.72	3.21	301.61
M4	57.968208	8.6	304.4	10.58	327.21	10.49	333.15	10.03	333.92	9.86	331.88	9.71	331.59	9.67	330.24	9.60	330.22
3MN4	58.512585	0.9	160.7	2.07	139.27	2.12	146.08	2.08	147.61	2.01	147.18	1.98	147.22	1.95	146.17	1.94	146.45
MS4	58.984104	5.4	11	5.20	30.73	5.11	37.86	4.85	39.62	4.67	37.29	4.60	36.95	4.56	35.29	4.51	35.33
2MSN4				0.72	214.84	0.71	221.31	0.68	221.98	0.66	221.87	0.65	221.80	0.64	220.91	0.64	220.87
3MNS6				0.41	297.12	0.46	316.68	0.46	324.60	0.44	321.22	0.42	321.82	0.39	317.86	0.40	317.14
2NM6	85.863564	0.7	230.3	0.97	250.78	0.94	260.69	0.90	262.09	0.88	261.59	0.86	261.01	0.86	258.16	0.87	258.54
2MN6	86.407936	2.1	242.6	2.83	229.23	3.08	236.41	3.14	237.78	2.96	237.45	2.91	237.50	2.85	235.72	2.83	235.70
M6	86.952316	1.1	267.3	4.97	255.42	5.20	263.25	5.21	264.71	4.96	264.33	4.88	264.20	4.81	262.38	4.78	262.31
MSN6	87.423836	1.1	308.7	1.92	331.27	1.84	340.93	1.76	342.37	1.71	341.71	1.69	341.14	1.67	338.12	1.68	338.45
2MS6	87.968208	4	316.6	4.07	306.24	4.25	314.07	4.27	315.27	4.02	315.05	3.95	314.99	3.86	312.99	3.85	312.92
3MSN6				0.69	129.24	0.72	142.26	0.72	145.81	0.67	144.55	0.65	144.66	0.61	141.91	0.62	141.74
2SM6	88.9841	0.9	16.8	0.82	14.30	0.83	20.20	0.82	20.05	0.78	20.59	0.77	20.29	0.75	18.13	0.75	18.30
2(MN)8	114.84766	0.7	132.2	0.47	164.82	0.46	176.10	0.45	175.42	0.44	173.68	0.44	173.29	0.44	169.51	0.43	170.62
3MN8	115.39204	1.5	150.9	2.02	137.25	2.10	145.85	2.11	145.70	2.05	143.87	2.01	143.34	1.97	140.17	1.96	140.94
M8	115.93642	2	180.8	2.22	176.96	2.28	186.33	2.25	186.50	2.20	184.53	2.16	183.99	2.12	180.71	2.12	181.39
2MSN8	116.40794	1.2	206.1	1.08	244.37	1.07	255.80	1.03	256.21	1.01	253.92	0.99	253.40	0.99	249.23	0.98	250.04
3MS8	116.95232	3	228.3	2.47	217.07	2.52	226.98	2.49	227.37	2.44	225.12	2.40	224.54	2.36	221.05	2.36	221.71
2(MS)8	117.98821	1.1	277.4	0.71	269.99	0.71	279.59	0.70	279.86	0.69	277.48	0.68	276.68	0.67	273.15	0.67	273.59
4MS10				0.82	150.33	0.78	165.90	0.71	173.67	0.72	168.36	0.71	167.37	0.70	161.13	0.71	161.81

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM																					
Q1	0.71	0.71	0.72	0.70	0.70	0.70	0.70	-23.63	-22.73	-22.33	-20.95	-21.12	-21.81	-21.57	1.48	1.45	1.42	1.41	1.42	1.44	1.43
O1	0.99	0.99	1.00	0.97	0.97	0.96	0.96	0.87	1.92	1.98	3.71	3.55	2.96	3.17	0.19	0.32	0.32	0.65	0.64	0.58	0.60
K1	1.41	1.41	1.45	1.39	1.38	1.36	1.37	-6.68	-6.12	-6.88	-4.10	-4.18	-4.58	-4.36	2.62	2.62	2.87	2.44	2.37	2.28	2.30
3MS2	0.34	0.34	0.34	0.33	0.33	0.33	0.33	-24.81	-21.60	-22.32	-22.52	-21.40	-23.84	-23.00	1.63	1.60	1.61	1.62	1.62	1.64	1.64
MNS2	0.55	0.54	0.53	0.52	0.52	0.52	0.52	-38.11	-36.05	-37.32	-37.34	-36.83	-37.77	-37.66	5.28	5.18	5.31	5.33	5.31	5.36	5.36
MU2																					
N2	1.00	0.98	0.95	0.94	0.94	0.94	0.94	-1.27	-0.16	-2.44	-1.71	-1.48	-1.72	-1.76	0.63	0.71	1.85	1.78	1.90	1.82	1.82
M2	1.14	1.11	1.08	1.08	1.07	1.08	1.08	2.44	3.80	1.76	2.23	2.39	1.97	1.96	24.25	21.65	14.48	14.40	13.41	13.97	13.92
2MN2																					
S2	1.14	1.11	1.08	1.08	1.07	1.08	1.08	11.28	12.44	10.17	10.78	10.78	10.58	10.52	12.37	12.29	9.72	10.20	10.05	10.13	10.07
MSN2	0.26	0.27	0.27	0.26	0.25	0.25	0.25	18.88	20.44	19.44	18.77	18.66	17.94	18.08	1.82	1.81	1.80	1.82	1.83	1.84	1.83
2SM2	0.69	0.67	0.66	0.65	0.65	0.66	0.66	25.09	27.21	26.01	26.16	25.99	25.20	25.18	1.61	1.72	1.70	1.71	1.72	1.68	1.68
NO3																					
2MK3																					
MK3	1.44	1.50	1.54	1.49	1.48	1.46	1.46	-40.20	-36.48	-35.93	-35.63	-35.31	-36.26	-36.32	1.68	1.65	1.69	1.61	1.58	1.59	1.59
2MNS4																					
3MS4	0.73	0.77	0.78	0.75	0.74	0.73	0.73	16.40	22.59	24.10	23.66	23.92	22.67	23.07	0.65	0.74	0.78	0.78	0.79	0.78	0.79
MN4	1.25	1.23	1.15	1.14	1.12	1.12	1.11	23.35	29.39	30.22	27.10	26.82	25.32	25.21	1.50	1.76	1.68	1.50	1.46	1.39	1.37
M4	1.23	1.22	1.17	1.15	1.13	1.12	1.12	22.81	28.75	29.52	27.48	27.19	25.84	25.82	4.26	5.08	4.94	4.55	4.43	4.22	4.18
3MN4	2.30	2.35	2.31	2.24	2.20	2.16	2.16	-21.43	-14.62	-13.09	-13.52	-13.48	-14.53	-14.25	1.28	1.27	1.22	1.16	1.12	1.10	1.09
MS4	0.96	0.95	0.90	0.87	0.85	0.84	0.84	19.73	26.88	28.62	26.29	25.95	24.29	24.33	1.83	2.46	2.59	2.40	2.38	2.25	2.26
2MSN4																					
3MNS6																					
2NM6	1.38	1.34	1.28	1.26	1.23	1.23	1.24	20.48	30.39	31.79	31.29	30.71	27.86	28.24	0.40	0.49	0.48	0.46	0.44	0.41	0.41
2MN6	1.35	1.47	1.49	1.41	1.38	1.36	1.35	-13.37	-6.19	-4.82	-5.15	-5.10	-6.88	-6.90	0.92	1.02	1.06	0.89	0.84	0.81	0.79
M6	4.52	4.73	4.73	4.51	4.43	4.37	4.35	-11.88	-4.05	-2.59	-2.97	-3.10	-4.92	-4.99	3.90	4.11	4.11	3.86	3.78	3.71	3.69
MSN6	1.75	1.67	1.60	1.56	1.53	1.52	1.52	22.57	32.23	33.67	33.01	32.44	29.42	29.75	1.00	1.08	1.04	0.99	0.96	0.90	0.90
2MS6	1.02	1.06	1.07	1.01	0.99	0.97	0.96	-10.36	-2.53	-1.33	-1.55	-1.61	-3.61	-3.68	0.73	0.31	0.29	0.11	0.12	0.28	0.29
3MSN6																					
2SM6	0.91	0.92	0.91	0.86	0.85	0.84	0.83	-2.50	3.40	3.25	3.79	3.49	1.33	1.50	0.09	0.09	0.09	0.14	0.14	0.15	0.15
2(MN)8	0.67	0.66	0.64	0.63	0.62	0.62	0.62	32.62	43.90	43.22	41.48	41.09	37.31	38.42	0.40	0.49	0.48	0.47	0.47	0.44	0.45
3MN8	1.34	1.40	1.40	1.37	1.34	1.31	1.31	-13.65	-5.05	-5.20	-7.03	-7.56	-10.73	-9.96	0.66	0.62	0.63	0.59	0.56	0.57	0.55
M8	1.11	1.14	1.13	1.10	1.08	1.06	1.06	-3.84	5.53	5.70	3.73	3.19	-0.09	0.59	0.26	0.35	0.33	0.24	0.20	0.12	0.12
2MSN8	0.90	0.89	0.86	0.84	0.83	0.82	0.82	38.27	49.70	50.11	47.82	47.30	43.13	43.94	0.76	0.96	0.96	0.91	0.90	0.83	0.84
3MS8	0.82	0.84	0.83	0.81	0.80	0.79	0.79	-11.23	-1.32	-0.93	-3.18	-3.76	-7.25	-6.59	0.75	0.48	0.52	0.58	0.63	0.72	0.71
2(MS)8	0.65	0.65	0.63	0.63	0.61	0.61	0.61	-7.41	2.19	2.46	0.08	-0.72	-4.25	-3.81	0.40	0.39	0.40	0.41	0.42	0.43	0.43
4MS10																					

DEN HELDER

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.06	43.5841	1.59	59.24	1.57	60.19	1.55	60.43	1.60	60.57	1.59	60.63	1.63	60.85	1.61	60.77
Q1	13.398661	3.631	140.1413	2.57	115.51	2.57	116.17	2.57	116.48	2.51	118.14	2.51	118.12	2.51	118.01	2.51	118.17
O1	13.943036	9.857	187.167	9.52	187.98	9.49	188.67	9.55	189.04	9.32	190.97	9.30	190.91	9.31	190.71	9.31	190.82
K1	15.041069	7.072	351.2089	9.72	354.20	9.74	354.84	9.81	355.37	9.41	357.12	9.39	356.99	9.41	356.68	9.42	356.86
3MS2	26.952313	1.764	11.02769	0.61	334.75	0.60	338.50	0.62	335.13	0.61	335.06	0.60	335.57	0.61	334.61	0.61	335.09
MNS2	27.423834	1.84	231.3662	2.53	208.77	2.45	212.85	2.43	209.72	2.40	209.56	2.37	210.03	2.37	209.82	2.36	210.07
MU2	27.968208	7.917	251.7818	6.62	241.99	6.43	246.16	6.41	243.03	6.33	242.80	6.26	243.22	6.27	242.87	6.24	243.07
N2	28.43973	9.925	144.7203	9.27	137.74	9.06	142.11	8.62	138.62	8.57	137.23	8.45	137.96	8.39	138.51	8.31	138.41
M2	28.984104	65.082	162.3959	73.06	160.46	71.34	164.63	68.94	161.37	68.45	160.29	67.53	160.80	67.10	161.04	66.60	161.00
2MN2	29.528479	6.332	348.6615	6.54	344.97	6.36	348.90	6.30	345.91	6.25	345.37	6.18	345.60	6.16	345.33	6.12	345.37
S2	30	18.165	228.06	21.08	234.57	20.51	238.51	19.64	235.70	19.39	234.39	19.13	234.89	19.07	235.39	18.89	235.32
MSN2	30.544375	1.454	47.00563	0.58	354.79	0.55	357.11	0.57	354.98	0.56	355.67	0.56	355.66	0.56	354.86	0.56	355.01
2SM2	31.015896	2.234	70.5041	0.84	83.96	0.78	88.62	0.76	85.51	0.76	84.31	0.75	84.16	0.75	84.08	0.74	83.85
NO3	42.382765	0.355	261.5272	0.31	236.49	0.35	241.74	0.37	236.85	0.35	233.90	0.36	233.75	0.35	232.05	0.35	231.75
2MK3	42.92714	0.805	290.2329	0.71	265.14	0.79	273.99	0.83	270.78	0.81	268.02	0.82	268.26	0.82	267.10	0.81	267.18
MK3	44.025173	0.376	173.4748	0.82	313.27	0.75	324.09	0.77	328.16	0.79	327.59	0.79	328.63	0.79	328.80	0.78	328.49
2MNS4	56.407938	0.677	234.4321	1.04	237.02	1.06	242.86	1.02	239.23	1.02	240.53	1.01	241.78	1.01	241.12	1.00	241.19
3MS4	56.952313	1.553	249.1077	1.65	260.59	1.70	268.28	1.65	265.64	1.64	267.23	1.62	268.16	1.63	268.01	1.61	268.11
MN4	57.423834	3.612	135.5062	5.48	150.20	5.41	155.47	5.17	151.77	5.15	152.24	5.09	153.18	5.09	153.59	5.02	153.26
M4	57.968208	10.65	163.7118	13.76	183.68	13.65	189.35	13.14	186.03	13.07	186.57	12.90	187.39	12.91	187.72	12.73	187.38
3MN4	58.512583	1.142	350.7074	2.42	359.27	2.44	6.57	2.37	4.09	2.35	5.23	2.32	6.01	2.31	6.03	2.28	5.98
MS4	58.984104	6.248	225.9159	6.68	247.30	6.53	253.52	6.23	250.41	6.15	250.86	6.08	251.58	6.10	251.84	6.01	251.50
2MSN4	59.528479	0.694	56.92152	0.93	90.31	0.93	96.96	0.90	93.51	0.89	94.83	0.88	95.58	0.87	95.25	0.86	95.41
3MNS6	85.392042	0.788	338.268	1.70	316.32	1.72	325.84	1.58	320.82	1.53	321.16	1.52	322.62	1.51	321.84	1.50	322.03
2NM6	85.863563	0.864	211.0264	1.61	284.89	1.59	293.95	1.51	290.11	1.50	290.17	1.47	291.30	1.48	290.65	1.47	290.43
2MN6	86.407938	3.047	233.2621	5.78	215.47	5.79	223.12	5.38	218.95	5.24	219.89	5.22	220.60	5.21	219.91	5.17	220.02
M6	86.952313	5.865	260.4977	8.15	257.09	8.12	265.20	7.56	261.06	7.35	261.68	7.32	262.37	7.29	261.76	7.23	261.88
MSN6	87.423834	1.243	299.3662	2.86	9.07	2.81	19.16	2.68	15.19	2.65	15.30	2.61	15.77	2.60	15.63	2.58	15.32
2MS6	87.968208	5.774	312.7818	6.52	308.57	6.45	316.69	6.01	312.12	5.83	312.45	5.78	313.08	5.74	312.15	5.69	312.25
3MSN6	88.512583	1.277	154.9874	1.56	151.02	1.58	160.75	1.45	155.53	1.40	155.14	1.37	156.02	1.36	155.34	1.35	155.45
2SM6	88.984104	1.125	14.7959	0.93	24.64	0.91	32.19	0.83	27.93	0.79	28.73	0.79	28.78	0.77	27.90	0.76	28.48
2(MN)8	114.84767	0.559	238.6223	0.65	305.12	0.63	316.69	0.59	311.57	0.61	311.68	0.60	312.56	0.60	311.87	0.59	310.87
3MN8	115.39204	1.57	263.558	2.67	249.48	2.63	260.69	2.45	253.49	2.56	252.51	2.53	253.26	2.51	252.66	2.49	252.36
M8	115.93642	2.273	295.2036	2.83	302.35	2.77	313.60	2.61	306.66	2.70	305.88	2.65	306.54	2.65	305.61	2.62	305.24
2MSN8	116.40794	1.233	331.4921	1.46	26.16	1.44	37.66	1.36	32.00	1.40	32.20	1.37	32.92	1.36	32.53	1.35	32.05
3MS8	116.95231	3.214	349.4677	3.22	345.08	3.16	356.56	2.98	349.95	3.07	349.61	3.03	350.10	3.01	349.19	2.98	348.93
2(MS)8	117.96821	1.154	56.30179	0.84	49.72	0.82	61.57	0.77	54.38	0.78	53.79	0.77	54.17	0.75	53.79	0.75	53.68
4MS10	145.93642	1.387	61.22358	2.12	55.15	2.08	67.46	1.98	61.67	2.01	62.86	1.97	63.01	1.96	60.71	1.94	60.37

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.77	0.76	0.75	0.78	0.77	0.79	0.78	15.66	16.61	16.85	16.99	17.05	17.27	17.19	0.68	0.71	0.73	0.71	0.71	0.70	0.71
Q1	0.71	0.71	0.71	0.69	0.69	0.69	0.69	-24.63	-23.97	-23.66	-22.00	-22.02	-22.13	-21.97	1.68	1.65	1.64	1.61	1.61	1.61	1.61
O1	0.97	0.96	0.97	0.95	0.94	0.94	0.94	0.81	1.50	1.87	3.80	3.74	3.54	3.65	0.37	0.44	0.44	0.83	0.84	0.81	0.82
K1	1.37	1.38	1.39	1.33	1.33	1.33	1.33	2.99	3.63	4.16	5.91	5.78	5.47	5.65	2.69	2.71	2.80	2.49	2.46	2.47	2.48
3MS2	0.35	0.34	0.35	0.35	0.34	0.35	0.35	-36.28	-32.53	-35.90	-35.97	-35.46	-36.42	-35.94	1.32	1.30	1.31	1.32	1.32	1.32	1.32
MNS2	1.37	1.33	1.32	1.30	1.29	1.29	1.28	-22.60	-18.52	-21.65	-21.81	-21.34	-21.55	-21.30	1.09	0.92	0.99	0.97	0.93	0.94	0.93
MU2	0.84	0.81	0.81	0.80	0.79	0.79	0.79	-9.79	-5.62	-8.75	-8.98	-8.56	-8.91	-8.71	1.79	1.65	1.86	1.94	1.96	1.98	1.99
N2	0.93	0.91	0.87	0.86	0.85	0.84	0.84	-6.98	-2.61	-6.10	-7.49	-6.76	-6.21	-6.31	1.34	0.96	1.63	1.81	1.83	1.83	1.90
M2	1.12	1.10	1.06	1.05	1.04	1.03	1.02	-1.94	2.23	-1.03	-2.11	-1.60	-1.36	-1.40	8.31	6.80	4.04	4.17	3.06	2.55	2.21
2MN2	1.03	1.00	0.99	0.99	0.98	0.97	0.97	-3.69	0.24	-2.75	-3.29	-3.06	-3.33	-3.29	0.46	0.04	0.30	0.37	0.37	0.40	0.41
S2	1.16	1.13	1.08	1.07	1.05	1.05	1.04	6.51	10.45	7.64	6.33	6.83	7.33	7.26	3.66	4.23	2.92	2.41	2.42	2.54	2.45
MSN2	0.40	0.38	0.39	0.38	0.38	0.39	0.39	-52.22	-49.90	-52.03	-51.34	-51.35	-52.15	-52.00	1.19	1.18	1.19	1.19	1.19	1.19	1.19
2SM2	0.37	0.35	0.34	0.34	0.34	0.33	0.33	13.46	18.12	15.01	13.81	13.66	13.58	13.35	1.43	1.52	1.51	1.50	1.51	1.52	1.53
NO3	0.86	0.98	1.03	1.00	1.01	0.99	0.99	-25.04	-19.79	-24.68	-27.63	-27.78	-29.48	-29.78	0.15	0.12	0.15	0.17	0.17	0.18	0.18
2MK3	0.88	0.98	1.03	1.01	1.01	1.01	1.01	-25.09	-16.24	-19.45	-22.21	-21.97	-23.13	-23.05	0.34	0.23	0.28	0.31	0.31	0.33	0.32
MK3	2.19	1.99	2.06	2.11	2.10	2.10	2.06	139.80	150.62	154.69	154.12	155.16	155.33	155.02	1.14	1.09	1.13	1.14	1.14	1.14	1.13
2MNS4	1.53	1.56	1.50	1.51	1.49	1.49	1.48	2.59	8.43	4.80	6.10	7.35	6.69	6.76	0.36	0.40	0.35	0.36	0.35	0.34	0.34
3MS4	1.06	1.09	1.06	1.05	1.04	1.05	1.03	11.48	19.17	16.53	18.12	19.05	18.90	19.00	0.33	0.56	0.47	0.51	0.53	0.53	0.52
MN4	1.52	1.50	1.43	1.42	1.41	1.41	1.39	14.69	19.96	16.26	16.73	17.67	18.08	17.75	2.19	2.36	1.98	1.98	1.98	2.00	1.93
M4	1.29	1.28	1.23	1.23	1.21	1.21	1.20	19.97	25.64	22.32	22.86	23.68	24.01	23.67	5.23	6.13	5.21	5.27	5.31	5.37	5.21
3MN4	2.12	2.13	2.08	2.06	2.03	2.03	1.99	8.56	15.86	13.38	14.52	15.30	15.32	15.27	1.31	1.37	1.29	1.28	1.25	1.25	1.21
MS4	1.07	1.05	1.00	0.98	0.97	0.98	0.96	21.38	27.60	24.49	24.94	25.66	25.92	25.58	2.44	3.06	2.65	2.68	2.74	2.77	2.72
2MSN4	1.34	1.34	1.30	1.29	1.27	1.25	1.23	33.39	40.04	36.59	37.91	38.66	38.33	38.49	0.52	0.60	0.54	0.55	0.55	0.54	0.53
3MNS6	2.16	2.19	2.00	1.94	1.93	1.92	1.90	-21.95	-12.43	-17.45	-17.11	-15.65	-16.43	-16.24	1.01	0.97	0.86	0.81	0.79	0.79	0.77
2NM6	1.87	1.83	1.75	1.73	1.71	1.71	1.70	73.86	82.92	79.08	79.14	80.27	79.62	79.40	1.60	1.71	1.59	1.58	1.58	1.57	1.56
2MN6	1.90	1.90	1.77	1.72	1.71	1.71	1.70	-17.79	-10.14	-14.31	-13.37	-12.66	-13.35	-13.24	3.02	2.84	2.54	2.38	2.35	2.35	2.31
M6	1.39	1.38	1.29	1.25	1.25	1.24	1.23	-3.41	4.70	0.56	1.18	1.87	1.26	1.38	2.32	2.32	1.69	1.50	1.47	1.43	1.37
MSN6	2.30	2.26	2.16	2.13	2.10	2.09	2.07	69.70	79.79	75.82	75.93	76.40	76.26	75.95	2.70	2.86	2.67	2.64	2.62	2.60	2.57
2MS6	1.13	1.12	1.04	1.01	1.00	0.99	0.99	-4.21	3.91	-0.66	-0.33	0.30	-0.63	-0.53	0.87	0.79	0.25	0.06	0.03	0.07	0.10
3MSN6	1.22	1.24	1.14	1.09	1.08	1.06	1.06	-3.97	5.76	0.54	0.15	1.03	0.35	0.46	0.30	0.33	0.17	0.12	0.10	0.08	0.07
2SM6	0.83	0.80	0.74	0.70	0.70	0.68	0.68	9.84	17.39	13.13	13.93	13.98	13.10	13.68	0.26	0.38	0.37	0.40	0.40	0.42	0.42
2(MN)8	1.15	1.12	1.06	1.09	1.08	1.07	1.06	66.50	78.07	72.95	73.06	73.94	73.25	72.25	0.66	0.75	0.69	0.70	0.70	0.69	0.68
3MN8	1.70	1.67	1.56	1.63	1.61	1.60	1.59	-14.08	-2.87	-10.07	-11.05	-10.30	-10.90	-11.20	1.21	1.06	0.95	1.06	1.02	1.02	1.00
M8	1.24	1.22	1.15	1.19	1.17	1.17	1.15	7.15	18.40	11.46	10.68	11.34	10.41	10.04	0.64	0.94	0.59	0.63	0.62	0.58	0.55
2MSN8	1.18	1.16	1.10	1.13	1.11	1.10	1.09	54.67	66.17	60.51	60.71	61.43	61.04	60.56	1.25	1.47	1.31	1.34	1.34	1.32	1.30
3MS8	1.00	0.98	0.93	0.96	0.94	0.94	0.93	-4.39	7.09	0.48	0.14	0.63	-0.28	-0.54	0.25	0.40	0.23	0.14	0.19	0.20	0.23
2(MS)8	0.72	0.71	0.66	0.68	0.67	0.65	0.65	-6.58	5.27	-1.92	-2.51	-2.13	-2.51	-2.62	0.34	0.35	0.39	0.37	0.38	0.40	0.41
4MS10	1.53	1.50	1.43	1.45	1.42	1.41	1.40	-6.07	6.24	0.45	1.64	1.79	-0.51	-0.85	0.75	0.72	0.60	0.63	0.59	0.57	0.55

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Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	4.2	48.2841	2.97	61.78	2.95	62.31	2.87	62.09	2.89	62.07	2.85	62.31	2.89	62.20	2.81	62.25
Q1	13.398661	3.458	169.3413	2.50	145.13	2.52	146.66	2.52	147.58	2.45	150.38	2.45	150.24	2.46	150.21	2.46	150.10
O1	13.943036	9.69	219.287	9.40	217.42	9.37	218.85	9.41	220.43	9.14	222.69	9.10	222.73	9.10	222.99	9.11	222.68
K1	15.041069	7.305	20.58893	9.29	25.72	9.24	26.93	9.24	29.00	8.84	31.02	8.83	30.96	8.86	30.98	8.90	30.87
3MS2	26.952313	2.736	87.45769	1.47	60.78	1.43	65.98	1.39	64.24	1.35	66.02	1.34	67.07	1.33	66.46	1.34	65.90
MNS2	27.423834	2.713	317.8162	3.63	296.89	3.52	300.92	3.42	299.74	3.33	301.05	3.30	302.00	3.27	301.82	3.30	301.16
MU2	27.968208	10.929	334.7318	10.37	329.75	10.08	334.37	9.79	333.16	9.54	334.46	9.43	335.02	9.38	334.90	9.41	333.95
N2	28.43973	12.356	232.2203	13.15	219.27	12.88	222.82	12.22	222.19	11.93	223.04	11.79	223.69	11.66	224.13	11.66	223.51
M2	28.984104	82.984	249.6459	100.56	246.40	98.45	250.11	93.95	249.44	91.59	250.34	90.52	250.83	89.71	251.10	89.79	250.41
2MN2	29.528479	8.361	76.01152	8.65	78.84	8.47	82.86	8.18	81.86	7.98	82.90	7.88	83.26	7.82	83.06	7.84	82.28
S2	30	21.152	320.12	26.44	323.51	25.75	326.80	24.51	326.53	23.79	327.36	23.53	327.68	23.35	328.19	23.39	327.68
MSN2	30.544375	1.409	137.3956	0.45	120.59	0.45	128.53	0.43	123.91	0.42	125.53	0.42	123.80	0.42	122.82	0.42	121.33
2SM2	31.015896	2.507	176.8741	1.24	199.69	1.18	203.88	1.12	203.20	1.09	203.36	1.08	204.03	1.06	203.78	1.06	203.10
NO3	42.382765	1.303	358.7072	1.09	326.31	1.14	332.75	1.11	332.16	1.04	334.75	1.05	336.41	1.02	335.60	1.00	335.02
2MK3	42.92714	2.529	32.91286	2.18	22.98	2.25	28.27	2.18	28.68	2.06	32.11	2.05	32.73	2.04	32.57	1.99	31.86
MK3	44.025173	1.355	204.4048	3.15	174.30	3.21	179.85	3.14	181.02	2.93	184.15	2.91	184.46	2.89	184.51	2.86	183.54
2MNS4	56.407938	1.297	109.6821	2.10	85.14	2.02	92.10	1.97	90.06	1.93	92.04	1.89	93.13	1.86	92.82	1.86	91.81
3MS4	56.952313	3.048	123.3277	3.66	115.12	3.52	122.77	3.44	120.74	3.37	122.90	3.32	123.75	3.27	123.50	3.27	122.06
MN4	57.423834	3.054	20.77617	6.39	359.43	6.11	7.02	5.83	4.93	5.75	6.29	5.60	7.09	5.50	7.63	5.47	5.96
M4	57.968208	10.671	42.10179	17.38	35.39	16.66	42.81	15.98	41.19	15.75	42.63	15.40	43.33	15.15	43.78	15.11	42.11
3MN4	58.512583	2.107	230.1874	4.50	216.92	4.37	224.28	4.23	222.77	4.17	224.91	4.08	225.61	4.04	225.51	4.03	224.00
MS4	58.984104	6.201	114.7759	7.78	106.51	7.47	114.12	7.13	112.94	6.99	114.33	6.85	114.95	6.75	115.61	6.71	114.00
2MSN4	59.528479	1.194	308.2015	1.27	297.98	1.20	305.92	1.16	303.97	1.15	306.61	1.12	306.46	1.10	306.95	1.10	305.20
3MNS6	85.392042	0.771	215.508	1.36	208.19	1.32	217.53	1.23	215.28	1.21	218.59	1.19	219.05	1.19	217.96	1.17	216.58
2NM6	85.863563	0.547	82.75644	1.00	198.04	0.94	208.78	0.91	205.82	0.88	207.91	0.88	208.80	0.87	206.85	0.87	205.12
2MN6	86.407938	1.926	110.3221	3.45	98.77	3.26	106.75	3.08	105.86	3.04	109.30	3.01	109.05	2.97	108.37	3.00	106.61
M6	86.952313	3.858	140.4677	4.69	148.27	4.44	156.19	4.20	155.97	4.16	159.04	4.09	158.70	4.05	158.15	4.11	156.39
MSN6	87.423834	0.496	200.4862	1.46	291.39	1.40	303.83	1.32	300.25	1.30	302.97	1.26	302.84	1.26	301.37	1.27	298.71
2MS6	87.968208	3.401	200.4618	3.48	205.50	3.23	213.78	3.05	213.63	3.01	216.58	2.98	216.21	2.93	215.56	2.97	213.73
3MSN6	88.512583	0.882	40.98742	1.12	60.53	1.05	69.78	1.00	69.24	0.97	72.28	0.96	71.91	0.93	71.38	0.94	69.27
2SM6	88.984104	0.429	276.6459	0.31	271.38	0.26	278.49	0.25	281.03	0.25	285.55	0.24	280.69	0.25	284.92	0.25	279.74
2(MN)8	114.84767	0.25	237.9023	0.27	297.91	0.25	308.13	0.26	302.08	0.26	299.77	0.26	302.18	0.28	302.31	0.28	300.67
3MN8	115.39204	0.686	264.668	0.88	236.30	0.86	248.41	0.77	242.92	0.74	239.71	0.76	239.91	0.78	238.35	0.77	238.12
M8	115.93642	1.019	295.0036	0.94	293.93	0.94	306.27	0.85	302.03	0.83	300.17	0.84	299.97	0.85	300.05	0.85	299.04
2MSN8	116.40794	0.549	333.6321	0.56	10.85	0.50	26.43	0.53	18.81	0.52	18.31	0.54	17.27	0.57	18.93	0.57	17.24
3MS8	116.95231	1.467	343.0877	0.98	333.91	0.94	345.88	0.85	339.79	0.85	335.90	0.85	338.00	0.88	336.73	0.87	335.75
2(MS)8	117.96821	0.547	52.23179	0.26	40.18	0.23	50.85	0.22	46.47	0.20	47.21	0.21	45.30	0.21	51.11	0.21	45.19
4MS10	145.93642	0.477	79.38358	0.28	54.17	0.25	71.30	0.31	67.74	0.38	72.87	0.36	73.94	0.38	75.57	0.37	71.94

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.71	0.70	0.68	0.69	0.68	0.69	0.67	13.50	14.03	13.81	13.79	14.03	13.92	13.97	1.49	1.52	1.57	1.55	1.59	1.56	1.63
Q1	0.72	0.73	0.73	0.71	0.71	0.71	0.71	-24.21	-22.68	-21.76	-18.96	-19.10	-19.13	-19.24	1.56	1.49	1.46	1.39	1.40	1.39	1.39
O1	0.97	0.97	0.97	0.94	0.94	0.94	0.94	-1.87	-0.44	1.14	3.40	3.44	3.70	3.39	0.42	0.33	0.34	0.78	0.82	0.84	0.80
K1	1.27	1.27	1.26	1.21	1.21	1.21	1.22	5.13	6.34	8.41	10.43	10.37	10.39	10.28	2.12	2.14	2.28	2.12	2.10	2.13	2.15
3MS2	0.54	0.52	0.51	0.49	0.49	0.49	0.49	-26.68	-21.48	-23.22	-21.44	-20.39	-21.00	-21.56	1.57	1.50	1.56	1.56	1.55	1.57	1.57
MNS2	1.34	1.30	1.26	1.23	1.21	1.21	1.21	-20.93	-16.90	-18.08	-16.77	-15.82	-16.00	-16.66	1.46	1.22	1.19	1.07	1.01	1.00	1.04
MU2	0.95	0.92	0.90	0.87	0.86	0.86	0.86	-4.98	-0.36	-1.57	-0.27	0.29	0.17	-0.78	1.08	0.85	1.17	1.39	1.50	1.55	1.52
N2	1.06	1.04	0.99	0.97	0.95	0.94	0.94	-12.95	-9.40	-10.03	-9.18	-8.53	-8.09	-8.71	2.98	2.13	2.15	1.99	1.88	1.83	1.95
M2	1.21	1.19	1.13	1.10	1.09	1.08	1.08	-3.25	0.46	-0.21	0.69	1.18	1.45	0.76	18.32	15.48	10.97	8.67	7.74	7.07	6.90
2MN2	1.04	1.01	0.98	0.95	0.94	0.94	0.94	2.83	6.85	5.85	6.89	7.25	7.05	6.27	0.51	1.01	0.86	1.05	1.13	1.13	1.03
S2	1.25	1.22	1.16	1.12	1.11	1.10	1.11	3.39	6.68	6.41	7.24	7.56	8.07	7.56	5.47	5.34	4.21	3.87	3.78	3.82	3.69
MSN2	0.32	0.32	0.31	0.30	0.30	0.29	0.30	-16.81	-8.87	-13.49	-11.87	-13.60	-14.58	-16.07	0.99	0.97	0.99	1.00	1.01	1.01	1.01
2SM2	0.49	0.47	0.45	0.43	0.43	0.42	0.42	22.82	27.01	26.33	26.49	27.16	26.91	26.23	1.45	1.55	1.58	1.61	1.62	1.64	1.62
NO3	0.84	0.87	0.85	0.80	0.81	0.79	0.77	-32.40	-25.96	-26.55	-23.96	-22.30	-23.11	-23.69	0.70	0.57	0.59	0.55	0.52	0.54	0.58
2MK3	0.86	0.89	0.86	0.81	0.81	0.81	0.79	-9.93	-4.64	-4.23	-0.80	-0.18	-0.34	-1.05	0.54	0.34	0.39	0.47	0.48	0.49	0.54
MK3	2.32	2.37	2.32	2.16	2.14	2.13	2.11	-30.10	-24.55	-23.38	-20.25	-19.94	-19.89	-20.86	2.09	2.06	1.97	1.73	1.70	1.68	1.67
2MNS4	1.62	1.56	1.52	1.49	1.46	1.44	1.43	-24.54	-17.58	-19.62	-17.64	-16.55	-16.86	-17.87	1.07	0.88	0.86	0.80	0.74	0.73	0.74
3MS4	1.20	1.15	1.13	1.10	1.09	1.07	1.07	-8.21	-0.58	-2.59	-0.43	0.42	0.17	-1.27	0.78	0.47	0.41	0.32	0.27	0.22	0.23
MN4	2.09	2.00	1.91	1.88	1.83	1.80	1.79	-21.35	-13.76	-15.85	-14.49	-13.69	-13.15	-14.82	3.71	3.23	3.01	2.89	2.73	2.62	2.64
M4	1.63	1.56	1.50	1.48	1.44	1.42	1.42	-6.71	0.71	-0.91	0.53	1.23	1.68	0.01	6.90	5.99	5.32	5.08	4.73	4.50	4.44
3MN4	2.13	2.07	2.01	1.98	1.94	1.92	1.91	-13.27	-5.91	-7.42	-5.28	-4.58	-4.68	-6.19	2.49	2.28	2.15	2.08	1.99	1.95	1.95
MS4	1.25	1.20	1.15	1.13	1.10	1.09	1.08	-8.27	-0.66	-1.84	-0.45	0.17	0.83	-0.78	1.87	1.27	0.96	0.79	0.65	0.55	0.52
2MSN4	1.06	1.01	0.97	0.96	0.94	0.92	0.92	-10.22	-2.28	-4.23	-1.59	-1.74	-1.25	-3.00	0.23	0.05	0.09	0.06	0.08	0.10	0.11
3MNS6	1.76	1.71	1.60	1.57	1.54	1.54	1.52	-7.32	2.02	-0.23	3.08	3.54	2.45	1.05	0.60	0.55	0.46	0.44	0.42	0.42	0.40
2NM6	1.82	1.71	1.66	1.61	1.60	1.59	1.59	115.28	126.02	123.06	125.15	126.04	124.09	122.36	1.32	1.33	1.29	1.27	1.28	1.26	1.25
2MN6	1.79	1.69	1.60	1.58	1.56	1.54	1.56	-11.55	-3.57	-4.46	-1.02	-1.27	-1.95	-3.71	1.61	1.35	1.17	1.11	1.08	1.05	1.09
M6	1.22	1.15	1.09	1.08	1.06	1.05	1.06	7.80	15.72	15.50	18.57	18.23	17.68	15.92	1.01	1.27	1.14	1.33	1.28	1.23	1.13
MSN6	2.94	2.82	2.67	2.62	2.54	2.54	2.55	90.90	103.34	99.76	102.48	102.35	100.88	98.22	1.55	1.59	1.49	1.49	1.45	1.44	1.43
2MS6	1.02	0.95	0.90	0.88	0.88	0.86	0.87	5.04	13.32	13.17	16.12	15.75	15.10	13.27	0.31	0.79	0.82	0.98	0.97	0.96	0.85
3MSN6	1.27	1.19	1.13	1.09	1.09	1.05	1.06	19.54	28.79	28.25	31.29	30.92	30.39	28.28	0.41	0.51	0.47	0.50	0.50	0.48	0.45
2SM6	0.73	0.60	0.57	0.59	0.56	0.58	0.58	-5.27	1.84	4.38	8.90	4.04	8.27	3.09	0.12	0.17	0.18	0.18	0.19	0.19	0.18
2(MN)8	1.06	1.01	1.02	1.05	1.05	1.12	1.11	60.01	70.23	64.18	61.87	64.28	64.41	62.77	0.26	0.29	0.27	0.26	0.27	0.28	0.28
3MN8	1.28	1.25	1.12	1.08	1.10	1.13	1.13	-28.37	-16.26	-21.75	-24.96	-24.76	-26.32	-26.55	0.42	0.28	0.28	0.31	0.32	0.35	0.35
M8	0.92	0.92	0.83	0.81	0.82	0.84	0.83	-1.07	11.27	7.03	5.17	4.97	5.05	4.04	0.08	0.21	0.21	0.21	0.20	0.19	0.18
2MSN8	1.01	0.91	0.96	0.95	0.98	1.03	1.04	37.22	52.80	45.18	44.68	43.64	45.30	43.61	0.35	0.47	0.41	0.41	0.40	0.43	0.42
3MS8	0.66	0.64	0.58	0.58	0.58	0.60	0.59	-9.18	2.79	-3.30	-7.19	-5.09	-6.36	-7.34	0.53	0.53	0.62	0.64	0.62	0.60	0.61
2(MS)8	0.47	0.42	0.40	0.37	0.38	0.38	0.39	-12.05	-1.38	-5.76	-5.02	-6.93	-1.12	-7.04	0.30	0.32	0.33	0.35	0.34	0.34	0.34
4MS10	0.59	0.53	0.64	0.79	0.76	0.80	0.78	-25.21	-8.08	-11.64	-6.51	-5.44	-3.81	-7.44	0.25	0.23	0.19	0.11	0.12	0.10	0.12

DELFZIJL

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	3.35	52.3841	2.12	68.58	1.95	69.42	1.93	69.10	1.86	69.84	1.76	69.83	1.77	69.69	1.76	69.57
Q1	13.398661	3.466	176.2813	2.52	154.29	2.55	155.10	2.56	156.65	2.51	157.25	2.50	155.92	2.53	155.03	2.52	154.51
O1	13.943036	9.183	229.957	8.86	225.32	8.82	225.95	8.78	227.51	8.51	228.22	8.51	226.39	8.58	225.38	8.58	225.18
K1	15.041069	7.324	26.36893	8.70	31.56	8.65	32.22	8.55	34.20	8.23	34.30	8.29	32.35	8.40	31.34	8.41	31.22
3MS2	26.952313	3.834	144.0177	2.00	115.00	1.94	119.49	1.95	120.60	1.92	122.41	1.93	120.51	1.93	120.23	1.92	119.64
MNS2	27.423834	3.292	10.09617	5.25	351.74	5.11	355.32	5.03	356.34	4.97	357.75	5.00	356.39	5.02	356.46	5.02	356.08
MU2	27.968208	14.755	33.62179	14.48	28.63	14.02	32.57	13.79	33.61	13.64	35.10	13.70	33.54	13.75	33.40	13.75	32.95
N2	28.43973	21.028	282.5303	20.62	268.59	20.16	271.58	19.67	272.15	19.46	273.84	19.70	272.51	19.69	272.92	19.70	272.31
M2	28.984104	134.715	305.0359	150.56	301.04	146.77	304.22	143.28	304.93	141.68	306.50	143.27	305.05	143.34	305.23	143.47	304.64
2MN2	29.528479	12.384	139.0515	12.82	143.05	12.49	146.56	12.22	147.41	12.06	148.71	12.16	147.19	12.18	146.97	12.18	146.40
S2	30	33.652	14.92	37.64	18.24	36.54	20.94	35.57	21.52	35.17	23.14	35.66	21.59	35.73	21.87	35.77	21.20
MSN2	30.544375	2.446	221.1156	1.03	200.59	0.97	205.12	0.95	206.19	0.92	207.26	0.94	205.52	0.95	204.92	0.96	204.57
2SM2	31.015896	3.415	241.1441	2.07	264.11	1.97	267.25	1.93	268.22	1.88	270.07	1.93	267.77	1.95	268.04	1.93	267.28
NO3	42.382765	0.474	42.01724	0.85	41.12	0.85	43.06	0.87	43.32	0.87	46.42	0.88	47.58	0.93	47.71	0.93	48.29
2MK3	42.92714	1.407	77.49286	1.65	85.65	1.65	89.46	1.65	90.84	1.66	94.50	1.66	94.47	1.75	95.19	1.76	95.10
MK3	44.025173	0.728	227.5748	2.71	215.25	2.69	219.14	2.70	222.27	2.67	224.63	2.65	222.37	2.76	223.33	2.77	223.05
2MNS4	56.407938	1.589	144.8821	1.34	155.69	1.29	159.69	1.30	160.38	1.28	161.11	1.23	156.70	1.24	156.45	1.27	154.55
3MS4	56.952313	4.008	166.7277	2.56	175.75	2.39	180.17	2.39	182.09	2.41	182.93	2.37	177.79	2.45	177.43	2.46	176.36
MN4	57.423834	5.261	63.89617	4.75	81.08	4.64	85.71	4.66	85.38	4.59	87.02	4.44	82.88	4.44	82.57	4.45	80.84
M4	57.968208	16.636	90.31179	12.82	111.41	12.39	115.91	12.54	116.48	12.46	117.98	12.21	113.15	12.37	112.77	12.49	111.27
3MN4	58.512583	2.659	278.4774	3.49	290.98	3.35	296.02	3.34	297.64	3.34	299.04	3.32	294.51	3.42	294.52	3.44	293.28
MS4	58.984104	10.399	166.9159	6.93	185.96	6.76	189.72	6.80	190.70	6.82	192.88	6.79	188.66	6.87	188.76	6.93	187.55
2MSN4	59.528479	1.773	11.74152	1.10	21.38	1.07	27.76	1.08	29.17	1.07	31.04	1.08	26.42	1.10	26.16	1.12	24.87
3MNS6	85.392042	1.32	328.728	1.94	311.28	1.83	320.25	1.83	321.97	1.84	325.66	1.79	322.32	1.82	323.26	1.83	321.67
2NM6	85.863563	0.981	215.4664	1.52	305.44	1.37	314.68	1.34	316.84	1.36	320.67	1.32	316.83	1.37	316.85	1.35	315.61
2MN6	86.407938	3.618	239.6921	3.99	210.41	3.89	219.83	3.97	220.54	4.03	224.59	3.96	221.22	3.97	222.37	3.95	220.43
M6	86.952313	7.033	269.6177	5.40	261.53	5.17	269.61	5.28	270.25	5.33	274.02	5.26	270.06	5.30	271.28	5.30	269.42
MSN6	87.423834	1.346	334.8862	2.63	53.91	2.45	63.09	2.37	64.71	2.38	68.33	2.35	65.02	2.38	65.73	2.36	64.08
2MS6	87.968208	6.868	335.7618	4.39	323.35	4.22	330.66	4.29	331.71	4.35	335.88	4.34	331.90	4.38	333.04	4.37	331.48
3MSN6	88.512583	1.81	171.7174	1.59	173.39	1.50	182.71	1.50	184.27	1.52	188.24	1.52	183.93	1.54	184.81	1.54	183.42
2SM6	88.984104	1.282	67.8059	0.21	69.87	0.20	71.53	0.21	64.21	0.22	66.77	0.22	64.59	0.20	68.68	0.21	63.88
2(MN)8	114.84767	0.328	40.33233	0.33	120.94	0.23	136.92	0.21	134.03	0.21	135.20	0.19	129.68	0.21	129.70	0.19	127.00
3MN8	115.39204	0.905	69.23796	1.39	58.53	1.32	67.57	1.36	64.27	1.39	66.91	1.31	65.10	1.28	66.84	1.23	63.23
M8	115.93642	1.389	104.4536	1.20	119.64	1.04	127.82	1.06	122.96	1.08	123.16	1.00	121.36	0.98	123.36	0.96	119.96
2MSN8	116.40794	0.828	145.5021	0.79	231.11	0.64	244.86	0.56	243.26	0.53	243.77	0.51	242.69	0.53	241.88	0.52	238.82
3MS8	116.95231	2.148	161.0877	1.44	155.56	1.30	162.33	1.38	159.62	1.46	162.13	1.36	158.75	1.34	159.94	1.32	157.01
2(MS)8	117.96821	0.899	241.2918	0.28	216.55	0.26	216.25	0.29	212.11	0.33	214.42	0.30	213.26	0.28	213.61	0.29	209.96
4MS10	145.93642	1.315	318.0436	0.37	306.78	0.25	295.04	0.35	283.11	0.43	296.91	0.38	294.94	0.38	298.58	0.38	298.71

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.63	0.58	0.58	0.55	0.52	0.53	0.52	16.20	17.04	16.72	17.46	17.45	17.31	17.19	1.44	1.59	1.60	1.67	1.76	1.74	1.75
Q1	0.73	0.74	0.74	0.72	0.72	0.73	0.73	-21.99	-21.18	-19.63	-19.03	-20.36	-21.25	-21.77	1.47	1.42	1.36	1.37	1.42	1.44	1.46
O1	0.96	0.96	0.96	0.93	0.93	0.93	0.93	-4.64	-4.01	-2.45	-1.74	-3.57	-4.58	-4.78	0.80	0.73	0.56	0.72	0.87	0.93	0.95
K1	1.19	1.18	1.17	1.12	1.13	1.15	1.15	5.19	5.85	7.83	7.93	5.98	4.97	4.85	1.55	1.56	1.64	1.41	1.26	1.27	1.27
3MS2	0.52	0.51	0.51	0.50	0.50	0.50	0.50	-29.02	-24.53	-23.42	-21.61	-23.51	-23.79	-24.38	2.30	2.22	2.19	2.17	2.21	2.21	2.23
MNS2	1.60	1.55	1.53	1.51	1.52	1.52	1.52	-18.36	-14.78	-13.76	-12.35	-13.71	-13.64	-14.02	2.37	2.10	1.99	1.89	1.96	1.97	1.99
MU2	0.98	0.95	0.93	0.92	0.93	0.93	0.93	-4.99	-1.05	-0.01	1.48	-0.08	-0.22	-0.67	1.30	0.78	0.97	1.18	1.05	1.01	1.02
N2	0.98	0.96	0.94	0.93	0.94	0.94	0.94	-13.94	-10.95	-10.38	-8.69	-10.02	-9.61	-10.22	5.07	4.02	3.92	3.44	3.79	3.66	3.86
M2	1.12	1.09	1.06	1.05	1.06	1.06	1.07	-4.00	-0.82	-0.11	1.46	0.01	0.19	-0.40	18.70	12.22	8.57	7.81	8.56	8.64	8.81
2MN2	1.04	1.01	0.99	0.97	0.98	0.98	0.98	4.00	7.51	8.36	9.66	8.14	7.92	7.35	0.98	1.63	1.80	2.08	1.78	1.71	1.59
S2	1.12	1.09	1.06	1.04	1.06	1.06	1.06	3.32	6.02	6.60	8.22	6.67	6.95	6.28	4.49	4.68	4.42	5.16	4.50	4.69	4.35
MSN2	0.42	0.40	0.39	0.38	0.39	0.39	0.39	-20.53	-16.00	-14.93	-13.86	-15.60	-16.20	-16.55	1.52	1.53	1.54	1.57	1.56	1.56	1.55
2SM2	0.61	0.58	0.56	0.55	0.56	0.57	0.57	22.97	26.11	27.08	28.93	26.63	26.90	26.14	1.71	1.86	1.91	1.99	1.90	1.90	1.88
NO3	1.79	1.80	1.84	1.83	1.86	1.97	1.95	-0.90	1.04	1.30	4.40	5.56	5.69	6.27	0.38	0.38	0.40	0.40	0.41	0.46	0.46
2MK3	1.18	1.17	1.17	1.18	1.18	1.24	1.25	8.16	11.97	13.35	17.01	16.98	17.70	17.61	0.33	0.40	0.43	0.51	0.51	0.59	0.60
MK3	3.72	3.70	3.71	3.68	3.64	3.79	3.81	-12.32	-8.43	-5.30	-2.94	-5.20	-4.24	-4.52	2.00	1.97	1.98	1.94	1.93	2.03	2.05
2MNS4	0.85	0.81	0.82	0.80	0.77	0.78	0.80	10.81	14.81	15.50	16.23	11.82	11.57	9.67	0.37	0.47	0.48	0.51	0.46	0.45	0.40
3MS4	0.64	0.60	0.60	0.60	0.59	0.61	0.61	9.02	13.44	15.36	16.20	11.06	10.70	9.63	1.53	1.78	1.82	1.82	1.74	1.67	1.64
MN4	0.90	0.88	0.89	0.87	0.84	0.84	0.85	17.18	21.81	21.48	23.12	18.98	18.67	16.94	1.58	1.97	1.94	2.08	1.79	1.77	1.64
M4	0.77	0.74	0.75	0.75	0.73	0.74	0.75	21.10	25.60	26.17	27.67	22.84	22.46	20.96	6.57	7.65	7.72	8.05	7.17	7.03	6.69
3MN4	1.31	1.26	1.26	1.26	1.25	1.29	1.29	12.50	17.54	19.16	20.56	16.03	16.04	14.80	1.06	1.14	1.20	1.26	1.06	1.13	1.10
MS4	0.67	0.65	0.65	0.66	0.65	0.66	0.67	19.04	22.80	23.78	25.96	21.74	21.84	20.63	4.46	4.92	5.00	5.21	4.80	4.76	4.61
2MSN4	0.62	0.60	0.61	0.61	0.61	0.62	0.63	9.64	16.02	17.43	19.30	14.68	14.42	13.13	0.71	0.80	0.81	0.84	0.78	0.76	0.72
3MNS6	1.47	1.39	1.38	1.39	1.36	1.38	1.38	-17.45	-8.48	-6.76	-3.07	-6.41	-5.47	-7.06	0.79	0.56	0.54	0.53	0.50	0.52	0.54
2NM6	1.55	1.40	1.37	1.38	1.34	1.39	1.37	89.97	99.21	101.37	105.20	101.36	101.38	100.14	1.81	1.81	1.81	1.87	1.79	1.83	1.80
2MN6	1.10	1.07	1.10	1.11	1.10	1.10	1.09	-29.28	-19.86	-19.15	-15.10	-18.47	-17.32	-19.26	1.96	1.32	1.31	1.08	1.26	1.20	1.31
M6	0.77	0.74	0.75	0.76	0.75	0.75	0.75	-8.09	-0.01	0.63	4.40	0.44	1.66	-0.20	1.85	1.86	1.75	1.76	1.77	1.74	1.73
MSN6	1.96	1.82	1.76	1.77	1.74	1.77	1.76	79.02	88.20	89.82	93.44	90.13	90.84	89.19	2.72	2.76	2.73	2.81	2.71	2.75	2.70
2MS6	0.64	0.62	0.63	0.63	0.63	0.64	0.64	-12.41	-5.10	-4.05	0.12	-3.86	-2.72	-4.28	2.75	2.69	2.60	2.52	2.56	2.51	2.54
3MSN6	0.88	0.83	0.83	0.84	0.84	0.85	0.85	1.67	10.99	12.55	16.52	12.21	13.09	11.70	0.23	0.44	0.47	0.56	0.46	0.47	0.44
2SM6	0.17	0.15	0.17	0.17	0.17	0.16	0.16	2.06	3.72	-3.60	-1.04	-3.22	0.87	-3.93	1.07	1.09	1.07	1.07	1.06	1.08	1.07
2(MN)8	1.00	0.71	0.65	0.63	0.58	0.63	0.58	80.61	96.59	93.70	94.87	89.35	89.37	86.67	0.42	0.42	0.40	0.40	0.38	0.39	0.37
3MN8	1.53	1.45	1.50	1.54	1.45	1.41	1.36	-12.71	-1.67	-4.97	-2.33	-4.14	-2.40	-6.01	0.54	0.41	0.46	0.49	0.41	0.37	0.34
M8	0.86	0.75	0.76	0.78	0.72	0.71	0.69	15.19	23.37	18.51	18.71	16.91	18.91	15.51	0.39	0.60	0.51	0.50	0.52	0.56	0.53
2MSN8	0.96	0.77	0.68	0.64	0.62	0.64	0.63	85.61	99.36	97.76	98.27	97.19	96.38	93.32	1.10	1.13	1.06	1.05	1.03	1.03	1.00
3MS8	0.67	0.60	0.64	0.68	0.63	0.62	0.62	-5.53	1.24	-1.47	1.04	-2.34	-1.15	-4.08	0.72	0.85	0.77	0.69	0.79	0.81	0.83
2(MS)8	0.31	0.29	0.33	0.37	0.34	0.32	0.32	-24.74	-25.04	-29.18	-26.87	-28.03	-27.68	-31.33	0.66	0.67	0.68	0.62	0.65	0.66	0.67
4MS10	0.28	0.19	0.27	0.33	0.29	0.29	0.29	-11.26	-23.00	-34.93	-21.13	-23.10	-19.46	-19.33	0.95	1.09	1.05	0.93	0.98	0.97	0.96

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Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.93	30.9841	1.95	59.69	1.93	60.30	1.87	60.89	1.91	60.88	1.88	60.89	1.91	61.02	1.89	60.98
Q1	13.398661	3.465	117.3413	2.78	100.87	2.78	101.60	2.79	101.45	2.72	102.88	2.71	102.88	2.72	102.51	2.72	102.67
O1	13.943036	10.642	177.477	10.74	173.22	10.75	174.02	10.78	173.76	10.50	175.54	10.48	175.50	10.49	175.18	10.49	175.29
K1	15.041069	7.656	343.7189	10.85	342.57	10.89	343.12	10.99	342.87	10.55	344.92	10.51	344.83	10.51	344.40	10.52	344.56
3MS2	26.952312	2.014	285.0577	0.98	259.33	0.96	263.14	0.95	261.25	0.94	261.00	0.94	261.53	0.95	260.81	0.95	261.36
MNS2	27.423834	1.602	154.1362	3.48	129.21	3.31	132.49	3.23	130.10	3.21	129.66	3.21	130.18	3.23	130.09	3.21	130.11
MU2	27.968208	8.233	171.8818	9.55	161.17	9.17	164.45	8.97	162.23	8.91	161.76	8.88	162.27	8.92	161.89	8.87	161.96
N2	28.43973	11.816	30.59027	10.85	21.44	9.89	23.33	9.67	18.68	10.15	19.31	10.03	19.70	9.98	19.78	9.96	19.38
M2	28.984104	79.295	56.8459	88.46	58.28	82.17	61.00	79.67	57.32	82.30	56.99	81.39	57.42	81.36	57.32	81.03	57.06
2MN2	29.528479	7.447	260.2715	9.53	260.84	9.12	263.65	8.90	261.27	8.92	260.76	8.85	261.12	8.88	260.71	8.84	260.67
S2	30	19.243	117.04	20.66	128.62	18.76	131.46	17.95	126.73	18.97	125.50	18.68	125.79	18.66	126.01	18.57	125.52
MSN2	30.544374	1.76	324.6856	1.13	299.00	1.11	300.16	1.09	298.81	1.06	299.15	1.05	299.37	1.06	299.09	1.06	299.00
2SM2	31.015896	2.376	353.7341	1.57	351.57	1.46	353.23	1.42	350.68	1.44	350.50	1.43	350.65	1.44	350.01	1.43	349.71
NO3	42.382767	0.29	129.7872	1.04	87.35	0.99	92.34	0.99	91.25	1.00	89.57	0.99	89.65	1.00	88.40	1.00	88.29
2MK3	42.927139	0.728	147.7329	1.78	139.34	1.68	145.09	1.69	144.03	1.70	141.33	1.69	141.52	1.71	140.27	1.70	140.14
MK3	44.025173	0.908	244.1648	2.08	239.86	1.92	243.21	1.89	242.59	1.97	239.93	1.96	240.16	1.98	239.10	1.98	238.76
2MNS4	56.407936	0.935	168.0021	1.49	182.29	1.51	187.89	1.44	184.53	1.39	185.08	1.37	185.33	1.39	184.39	1.38	184.62
3MS4	56.952312	1.748	178.0777	2.09	198.41	2.09	205.76	2.01	203.07	1.93	202.42	1.92	202.63	1.93	202.16	1.92	202.41
MN4	57.423836	5.93	80.04616	9.41	81.00	9.20	84.88	8.78	81.62	8.63	82.02	8.54	82.35	8.58	82.16	8.54	82.05
M4	57.968208	16.633	106.7118	21.77	111.91	21.25	116.40	20.29	113.20	19.88	113.08	19.67	113.32	19.69	113.06	19.63	112.95
3MN4	58.512585	1.803	297.4374	3.19	291.65	3.13	298.42	3.00	295.68	2.88	294.36	2.86	294.63	2.85	293.74	2.84	293.79
MS4	58.984104	10.516	162.9859	10.76	169.28	10.36	173.55	9.84	170.20	9.73	169.64	9.62	169.89	9.66	169.48	9.63	169.37
2MSN4	59.528481	1.157	355.3115	1.22	29.66	1.21	35.34	1.16	32.05	1.09	31.49	1.08	31.56	1.07	30.31	1.06	30.59
3MNS6	85.392044	1.004	132.608	2.37	108.06	2.15	113.47	1.97	105.92	2.08	108.04	2.11	108.66	2.14	109.15	2.13	108.98
2NM6	85.863564	0.632	334.9864	1.63	108.32	1.51	116.34	1.43	112.31	1.45	109.49	1.46	110.03	1.48	109.33	1.45	109.09
2MN6	86.407936	2.367	8.792064	5.23	347.03	4.54	350.78	4.04	340.69	4.61	344.69	4.66	345.21	4.71	345.12	4.73	345.03
M6	86.952316	4.721	40.87768	6.32	49.74	5.50	57.70	4.63	51.63	5.31	50.19	5.35	50.08	5.41	49.11	5.45	49.08
MSN6	87.423836	0.388	85.08616	3.06	198.58	2.92	206.36	2.78	202.98	2.78	200.21	2.75	200.89	2.80	199.38	2.77	199.44
2MS6	87.968208	4.041	99.62179	4.71	101.98	4.03	110.75	3.33	103.73	3.84	100.46	3.85	100.10	3.88	99.29	3.91	99.29
3MSN6	88.512581	1.127	312.5674	1.94	313.53	1.78	319.87	1.62	314.56	1.66	313.60	1.66	314.17	1.68	313.17	1.67	313.12
2SM6	88.9841	0.484	151.0759	0.46	195.18	0.41	211.60	0.32	217.49	0.33	203.79	0.31	201.60	0.33	204.39	0.35	201.75
2(MN)8	114.84766	0.604	58.61234	0.77	118.94	0.73	129.60	0.69	121.42	0.72	120.20	0.71	120.86	0.71	119.50	0.70	120.01
3MN8	115.39204	1.708	84.01796	2.96	78.80	3.03	87.92	2.85	82.30	2.73	77.62	2.68	77.77	2.67	76.12	2.66	76.82
M8	115.93642	2.375	114.0036	3.33	119.45	3.31	128.68	3.17	121.84	3.17	118.42	3.12	118.72	3.10	117.44	3.08	118.01
2MSN8	116.40794	1.489	148.1421	1.77	196.05	1.70	206.32	1.64	198.42	1.70	197.61	1.68	198.20	1.67	197.22	1.66	197.52
3MS8	116.95232	3.561	164.3577	4.03	165.84	4.07	175.29	3.89	168.57	3.86	166.36	3.79	166.75	3.74	165.34	3.73	165.78
2(MS)8	117.96821	1.38	228.2818	1.04	226.89	1.05	235.66	1.01	229.27	1.00	227.48	0.98	227.86	0.97	226.14	0.97	226.27
4MS10	145.93642	1.298	153.3836	1.21	139.89	1.10	157.21	0.89	153.66	0.86	150.78	0.85	148.74	0.85	143.39	0.86	144.67

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.67	0.66	0.64	0.65	0.64	0.65	0.65	28.71	29.32	29.91	29.90	29.91	30.04	30.00	1.54	1.57	1.61	1.59	1.60	1.60	1.60
Q1	0.80	0.80	0.81	0.78	0.78	0.78	0.78	-16.47	-15.74	-15.89	-14.46	-14.46	-14.83	-14.67	1.12	1.09	1.09	1.08	1.08	1.09	1.08
O1	1.01	1.01	1.01	0.99	0.98	0.99	0.99	-4.26	-3.46	-3.72	-1.94	-1.98	-2.30	-2.19	0.80	0.65	0.71	0.38	0.40	0.45	0.43
K1	1.42	1.42	1.44	1.38	1.37	1.37	1.37	-1.15	-0.60	-0.85	1.20	1.11	0.68	0.84	3.20	3.23	3.33	2.90	2.86	2.86	2.87
3MS2	0.48	0.48	0.47	0.47	0.47	0.47	0.47	-25.73	-21.92	-23.81	-24.06	-23.53	-24.25	-23.70	1.21	1.18	1.21	1.22	1.21	1.21	1.21
MNS2	2.17	2.07	2.01	2.01	2.00	2.01	2.00	-24.93	-21.65	-24.04	-24.48	-23.96	-24.05	-24.03	2.13	1.92	1.88	1.88	1.86	1.88	1.86
MU2	1.16	1.11	1.09	1.08	1.08	1.08	1.08	-10.71	-7.43	-9.65	-10.12	-9.61	-9.99	-9.92	2.12	1.46	1.62	1.66	1.57	1.64	1.61
N2	0.92	0.84	0.82	0.86	0.85	0.84	0.84	-9.15	-7.26	-11.91	-11.28	-10.89	-10.81	-11.21	2.05	2.36	3.09	2.72	2.73	2.75	2.82
M2	1.12	1.04	1.00	1.04	1.03	1.03	1.02	1.43	4.15	0.47	0.14	0.57	0.47	0.21	9.40	6.52	0.76	3.01	2.25	2.17	1.76
2MN2	1.28	1.23	1.20	1.20	1.19	1.19	1.19	0.57	3.38	1.00	0.49	0.85	0.44	0.40	2.08	1.75	1.46	1.47	1.41	1.43	1.40
S2	1.07	0.97	0.93	0.99	0.97	0.97	0.97	11.58	14.42	9.69	8.46	8.75	8.97	8.48	4.27	4.79	3.40	2.83	2.95	3.02	2.87
MSN2	0.64	0.63	0.62	0.60	0.60	0.60	0.60	-25.69	-24.53	-25.88	-25.54	-25.32	-25.60	-25.69	0.89	0.88	0.91	0.93	0.93	0.92	0.93
2SM2	0.66	0.61	0.60	0.61	0.60	0.61	0.60	-2.16	-0.50	-3.05	-3.23	-3.08	-3.72	-4.02	0.81	0.92	0.96	0.94	0.95	0.94	0.95
NO3	3.58	3.40	3.40	3.43	3.43	3.46	3.44	-42.44	-37.45	-38.54	-40.22	-40.14	-41.39	-41.50	0.85	0.78	0.78	0.80	0.79	0.81	0.80
2MK3	2.45	2.31	2.32	2.33	2.33	2.34	2.33	-8.39	-2.64	-3.70	-6.40	-6.21	-7.46	-7.59	1.07	0.96	0.96	0.98	0.97	0.99	0.98
MK3	2.29	2.11	2.08	2.17	2.16	2.18	2.18	-4.30	-0.95	-1.57	-4.23	-4.00	-5.06	-5.40	1.18	1.01	0.99	1.07	1.06	1.08	1.08
2MNS4	1.59	1.61	1.54	1.48	1.47	1.49	1.48	14.29	19.89	16.53	17.08	17.33	16.39	16.62	0.63	0.70	0.60	0.56	0.56	0.56	0.58
3MS4	1.19	1.20	1.15	1.10	1.10	1.10	1.10	20.33	27.68	24.99	24.34	24.55	24.08	24.33	0.75	0.98	0.85	0.80	0.80	0.79	0.79
MN4	1.59	1.55	1.48	1.45	1.44	1.45	1.44	0.95	4.83	1.57	1.97	2.30	2.11	2.00	3.48	3.33	2.85	2.71	2.62	2.66	2.62
M4	1.31	1.28	1.22	1.20	1.18	1.18	1.18	5.20	9.69	6.49	6.37	6.61	6.35	6.24	5.42	5.61	4.21	3.82	3.68	3.65	3.59
3MN4	1.77	1.74	1.66	1.60	1.59	1.58	1.57	-5.79	0.98	-1.76	-3.08	-2.81	-3.70	-3.65	1.41	1.33	1.19	1.09	1.06	1.05	1.04
MS4	1.02	0.98	0.94	0.93	0.91	0.92	0.92	6.29	10.56	7.21	6.65	6.90	6.49	6.38	1.19	1.93	1.45	1.41	1.51	1.43	1.43
2MSN4	1.06	1.05	1.00	0.94	0.93	0.92	0.92	34.35	40.03	36.74	36.18	36.25	35.00	35.28	0.71	0.81	0.73	0.70	0.70	0.67	0.68
3MNS6	2.36	2.15	1.96	2.08	2.10	2.13	2.12	-24.55	-19.14	-26.69	-24.57	-23.95	-23.46	-23.63	1.52	1.25	1.17	1.24	1.26	1.28	1.28
2NM6	2.57	2.39	2.27	2.30	2.30	2.34	2.29	133.33	141.35	137.32	134.50	135.04	134.34	134.10	2.11	2.04	1.95	1.95	1.95	1.97	1.94
2MN6	2.21	1.92	1.71	1.95	1.97	1.99	2.00	-21.76	-18.01	-28.10	-24.10	-23.58	-23.67	-23.76	3.16	2.41	2.25	2.63	2.67	2.71	2.74
M6	1.34	1.16	0.98	1.12	1.13	1.15	1.15	8.86	16.82	10.75	9.31	9.20	8.23	8.20	1.81	1.68	0.88	1.00	1.02	1.00	1.03
MSN6	7.89	7.53	7.16	7.17	7.07	7.22	7.14	113.49	121.27	117.89	115.12	115.80	114.29	114.35	3.24	3.14	2.98	2.97	2.93	2.98	2.95
2MS6	1.17	1.00	0.82	0.95	0.95	0.96	0.97	2.36	11.13	4.11	0.84	0.48	-0.33	-0.33	0.69	0.78	0.76	0.21	0.19	0.17	0.13
3MSN6	1.72	1.58	1.43	1.47	1.47	1.49	1.48	0.96	7.30	1.99	1.03	1.60	0.60	0.55	0.82	0.68	0.49	0.53	0.53	0.55	0.54
2SM6	0.94	0.85	0.65	0.67	0.65	0.69	0.72	44.10	60.52	66.41	52.71	50.52	53.31	50.67	0.35	0.46	0.46	0.39	0.37	0.39	0.38
2(MN)8	1.27	1.20	1.14	1.19	1.18	1.18	1.16	60.33	70.99	62.81	61.59	62.25	60.89	61.40	0.70	0.78	0.68	0.68	0.69	0.67	0.67
3MN8	1.74	1.77	1.67	1.60	1.57	1.56	1.56	-5.22	3.90	-1.72	-6.40	-6.25	-7.90	-7.20	1.27	1.33	1.15	1.05	0.99	1.00	0.99
M8	1.40	1.39	1.33	1.34	1.31	1.30	1.30	5.45	14.68	7.84	4.42	4.72	3.44	4.01	0.99	1.18	0.88	0.83	0.78	0.74	0.73
2MSN8	1.19	1.14	1.10	1.14	1.13	1.12	1.11	47.91	58.18	50.28	49.47	50.06	49.08	49.38	1.35	1.56	1.34	1.35	1.35	1.32	1.32
3MS8	1.13	1.14	1.09	1.08	1.06	1.05	1.05	1.48	10.93	4.21	2.00	2.39	0.98	1.42	0.48	0.89	0.42	0.32	0.28	0.19	0.19
2(MS)8	0.76	0.76	0.73	0.73	0.71	0.70	0.70	-1.39	7.38	0.99	-0.80	-0.42	-2.14	-2.01	0.34	0.37	0.37	0.38	0.40	0.41	0.41
4MS10	0.94	0.85	0.68	0.66	0.65	0.65	0.67	-13.49	3.83	0.28	-2.60	-4.64	-9.99	-8.71	0.31	0.21	0.41	0.44	0.46	0.49	0.46

ABERDEEN

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	0.376	201.83	0.14	48.66	0.14	49.13	0.14	49.03	0.14	49.03	0.14	48.75	0.14	48.93	0.14	48.89
Q1	13.398661	4.429	351.12	3.20	354.55	3.20	354.56	3.20	354.55	3.21	354.54	3.21	354.54	3.21	354.53	3.21	354.53
O1	13.943036	12.59	49.84	11.87	52.22	11.87	52.23	11.87	52.22	11.88	52.21	11.88	52.21	11.88	52.21	11.88	52.20
K1	15.041069	10.92	203.78	14.51	210.69	14.52	210.70	14.52	210.69	14.53	210.69	14.53	210.68	14.53	210.68	14.53	210.68
3MS2	26.952313	0.812	316.17	0.73	16.78	0.73	16.79	0.73	16.92	0.73	16.94	0.73	16.93	0.73	17.00	0.73	17.01
MNS2	27.423834	0.543	263.82	0.40	158.86	0.40	158.64	0.40	158.64	0.39	158.07	0.39	158.40	0.39	158.43	0.39	158.35
MU2	27.968208	2.464	301.84	1.87	229.33	1.86	229.15	1.85	229.32	1.84	229.14	1.85	229.35	1.84	229.43	1.84	229.41
N2	28.43973	25.895	1.38	23.43	5.07	23.43	5.07	23.43	5.05	23.45	4.98	23.45	4.98	23.44	4.98	23.44	4.97
M2	28.984104	131.096	25.12	127.22	28.69	127.26	28.70	127.27	28.65	127.44	28.57	127.39	28.57	127.38	28.56	127.40	28.55
2MN2	29.528479	4.241	239.49	3.59	257.41	3.60	257.36	3.59	257.20	3.60	256.99	3.59	257.01	3.59	256.95	3.59	256.92
S2	30	44.325	62.79	45.45	75.84	45.45	75.86	45.48	75.83	45.55	75.79	45.55	75.77	45.55	75.78	45.56	75.77
MSN2	30.544375	0.366	266.71	1.67	34.79	1.67	34.74	1.67	34.78	1.67	34.74	1.67	34.77	1.67	34.79	1.67	34.77
2SM2	31.015896	0.448	266.41	1.20	346.76	1.20	346.83	1.21	346.75	1.21	346.64	1.21	346.60	1.21	346.58	1.21	346.56
NO3	42.382765	0.291	320.39	0.09	48.46	0.08	45.90	0.08	46.52	0.08	44.32	0.08	44.19	0.08	44.50	0.08	44.46
2MK3	42.92714	0.61	5.45	0.03	274.15	0.04	292.50	0.04	289.35	0.04	298.01	0.04	297.86	0.04	296.87	0.04	298.12
MK3	44.025173	0.617	135.22	0.36	115.27	0.37	115.79	0.37	115.47	0.39	115.84	0.39	115.62	0.39	115.52	0.39	115.62
2MNS4	56.407938	0.327	217.51	0.41	204.60	0.42	205.14	0.42	205.48	0.43	206.90	0.43	206.82	0.43	206.69	0.43	206.74
3MS4	56.952313	0.647	227.67	0.89	228.44	0.92	229.33	0.92	229.52	0.94	231.00	0.94	230.84	0.94	230.85	0.94	230.91
MN4	57.423834	0.926	156.37	1.66	134.01	1.73	134.35	1.72	134.79	1.77	136.31	1.77	136.13	1.79	136.06	1.79	136.28
M4	57.968208	3.326	169.64	5.34	163.55	5.52	164.26	5.50	164.65	5.64	166.10	5.65	165.95	5.69	166.06	5.68	166.18
3MN4	58.512583	0.458	359.87	0.60	357.49	0.64	358.76	0.63	359.77	0.67	2.08	0.67	1.62	0.68	2.20	0.68	2.42
MS4	58.984104	3.111	244.3	3.00	245.80	3.08	246.43	3.08	247.03	3.16	248.45	3.17	248.30	3.18	248.38	3.18	248.51
2MSN4	59.528479	0.543	64.64	0.32	56.69	0.33	59.15	0.33	59.72	0.33	62.85	0.33	62.64	0.33	63.53	0.33	63.69
3MNS6	85.392042	0.214	216.43	0.24	201.88	0.25	202.13	0.25	203.29	0.25	202.70	0.25	202.93	0.25	203.14	0.25	203.07
2NM6	85.863563	0.124	40.19	0.30	50.54	0.29	51.64	0.29	51.13	0.29	51.29	0.29	50.93	0.29	50.92	0.29	50.90
2MN6	86.407938	0.398	91.33	1.12	88.68	1.14	89.58	1.15	89.95	1.14	90.26	1.14	90.18	1.14	90.21	1.14	90.23
M6	86.952313	0.724	115.16	2.28	116.49	2.30	117.42	2.31	117.68	2.31	117.89	2.31	117.82	2.31	117.88	2.31	117.83
MSN6	87.423834	0.048	224.16	0.51	150.26	0.49	151.30	0.49	151.12	0.49	150.88	0.49	150.63	0.49	150.57	0.49	150.30
2MS6	87.968208	0.608	172.83	2.03	177.39	2.05	178.21	2.05	178.40	2.05	178.67	2.05	178.63	2.05	178.64	2.05	178.60
3MSN6	88.512583	0.265	13.19	0.48	27.94	0.49	28.72	0.49	29.16	0.49	29.25	0.49	29.29	0.49	29.59	0.49	29.42
2SM6	88.984104	0.057	82.55	0.41	220.23	0.41	220.81	0.42	220.95	0.41	221.19	0.41	221.02	0.41	221.04	0.41	221.07
2(MN)8	114.84767	0.159	342.4	0.21	355.58	0.19	2.06	0.19	359.39	0.19	0.98	0.19	0.40	0.19	0.30	0.19	0.91
3MN8	115.39204	0.36	28.3	0.58	340.99	0.64	350.60	0.60	349.91	0.61	352.71	0.61	353.23	0.59	352.78	0.58	352.38
M8	115.93642	0.477	55.74	0.86	31.01	0.89	38.10	0.86	37.11	0.86	39.12	0.85	39.42	0.84	39.36	0.83	38.80
2MSN8	116.40794	0.329	108.77	0.42	94.64	0.40	102.12	0.39	100.09	0.37	101.28	0.37	101.07	0.37	99.81	0.37	99.36
3MS8	116.95231	0.652	124.01	1.11	94.97	1.17	100.74	1.13	100.16	1.15	101.36	1.14	101.74	1.12	101.68	1.12	101.25
2(MS)8	117.96821	0.259	198.34	0.36	168.57	0.38	172.82	0.37	172.91	0.37	173.66	0.37	174.02	0.36	173.71	0.36	173.59
4MS10	145.93642	0.316	91.63	0.52	90.59	0.51	89.97	0.52	88.46	0.52	87.64	0.52	87.85	0.52	87.88	0.52	88.34

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.36	0.38	0.37	0.37	0.36	0.36	0.36	-153.17	-152.70	-152.80	-152.80	-153.08	-152.90	-152.94	0.50	0.51	0.50	0.50	0.50	0.50	0.50
Q1	0.72	0.72	0.72	0.72	0.72	0.72	0.72	3.43	3.44	3.43	3.42	3.42	3.41	3.41	1.25	1.25	1.25	1.24	1.24	1.24	1.24
O1	0.94	0.94	0.94	0.94	0.94	0.94	0.94	2.38	2.39	2.38	2.37	2.37	2.37	2.36	0.88	0.88	0.88	0.87	0.87	0.87	0.87
K1	1.33	1.33	1.33	1.33	1.33	1.33	1.33	6.91	6.92	6.91	6.91	6.90	6.90	6.90	3.90	3.90	3.90	3.91	3.91	3.91	3.91
3MS2	0.90	0.89	0.89	0.89	0.90	0.90	0.90	60.61	60.62	60.75	60.77	60.76	60.83	60.84	0.78	0.78	0.78	0.78	0.78	0.78	0.78
MNS2	0.74	0.74	0.73	0.73	0.73	0.72	0.72	-104.96	-105.18	-105.18	-105.75	-105.42	-105.39	-105.47	0.75	0.75	0.75	0.75	0.75	0.75	0.75
MU2	0.76	0.76	0.75	0.75	0.75	0.75	0.75	-72.51	-72.69	-72.52	-72.70	-72.49	-72.41	-72.43	2.61	2.61	2.60	2.60	2.60	2.59	2.59
N2	0.90	0.90	0.90	0.91	0.91	0.91	0.91	3.69	3.69	3.67	3.60	3.60	3.60	3.59	2.93	2.93	2.93	2.89	2.90	2.90	2.90
M2	0.97	0.97	0.97	0.97	0.97	0.97	0.97	3.57	3.58	3.53	3.45	3.45	3.44	3.43	8.93	8.93	8.83	8.60	8.62	8.60	8.57
2MN2	0.85	0.85	0.85	0.85	0.85	0.85	0.85	17.92	17.87	17.71	17.50	17.52	17.46	17.43	1.38	1.37	1.37	1.35	1.35	1.35	1.35
S2	1.03	1.03	1.03	1.03	1.03	1.03	1.03	13.05	13.07	13.04	13.00	12.98	12.99	12.98	10.26	10.28	10.26	10.25	10.23	10.24	10.23
MSN2	4.56	4.56	4.55	4.55	4.55	4.55	4.55	128.08	128.03	128.07	128.03	128.06	128.08	128.06	1.92	1.92	1.91	1.91	1.91	1.91	1.91
2SM2	2.68	2.69	2.69	2.69	2.69	2.70	2.70	80.35	80.42	80.34	80.23	80.19	80.17	80.15	1.21	1.21	1.21	1.21	1.21	1.21	1.21
NO3	0.30	0.29	0.29	0.28	0.28	0.28	0.28	88.07	85.51	86.13	83.93	83.80	84.11	84.07	0.30	0.30	0.30	0.29	0.29	0.29	0.29
2MK3	0.05	0.06	0.06	0.07	0.07	0.07	0.07	-91.30	-72.95	-76.10	-67.44	-67.59	-68.58	-67.33	0.61	0.60	0.60	0.59	0.59	0.60	0.59
MK3	0.58	0.61	0.61	0.64	0.63	0.63	0.63	-19.95	-19.43	-19.75	-19.38	-19.60	-19.70	-19.60	0.31	0.29	0.29	0.28	0.28	0.28	0.28
2MNS4	1.24	1.29	1.28	1.31	1.31	1.31	1.31	-12.91	-12.37	-12.03	-10.61	-10.69	-10.82	-10.77	0.11	0.13	0.12	0.12	0.12	0.12	0.12
3MS4	1.38	1.43	1.42	1.45	1.45	1.46	1.46	0.77	1.66	1.85	3.33	3.17	3.18	3.24	0.25	0.28	0.27	0.30	0.30	0.30	0.30
MN4	1.79	1.87	1.86	1.92	1.92	1.93	1.93	-22.36	-22.02	-21.58	-20.06	-20.24	-20.31	-20.09	0.88	0.94	0.92	0.96	0.96	0.97	0.97
M4	1.61	1.66	1.65	1.70	1.70	1.71	1.71	-6.09	-5.38	-4.99	-3.54	-3.69	-3.58	-3.46	2.06	2.23	2.20	2.33	2.34	2.37	2.37
3MN4	1.30	1.40	1.38	1.46	1.46	1.48	1.48	-2.38	-1.11	-0.10	2.21	1.75	2.33	2.55	0.14	0.18	0.18	0.21	0.21	0.22	0.22
MS4	0.96	0.99	0.99	1.02	1.02	1.02	1.02	1.50	2.13	2.73	4.15	4.00	4.08	4.21	0.14	0.12	0.15	0.23	0.23	0.23	0.24
2MSN4	0.59	0.61	0.60	0.61	0.61	0.61	0.61	-7.95	-5.49	-4.92	-1.79	-2.00	-1.11	-0.95	0.23	0.21	0.22	0.21	0.21	0.21	0.21
3MNS6	1.11	1.16	1.17	1.18	1.17	1.16	1.16	-14.55	-14.30	-13.14	-13.73	-13.50	-13.29	-13.36	0.06	0.07	0.06	0.07	0.07	0.06	0.06
2NM6	2.38	2.31	2.31	2.31	2.31	2.31	2.32	10.35	11.45	10.94	11.10	10.74	10.73	10.71	0.17	0.17	0.17	0.17	0.17	0.17	0.17
2MN6	2.80	2.85	2.88	2.87	2.86	2.86	2.86	-2.65	-1.75	-1.38	-1.07	-1.15	-1.12	-1.10	0.72	0.74	0.75	0.75	0.74	0.74	0.74
M6	3.15	3.18	3.19	3.19	3.19	3.19	3.19	1.33	2.26	2.52	2.73	2.66	2.72	2.67	1.56	1.58	1.59	1.59	1.58	1.58	1.58
MSN6	10.60	10.29	10.25	10.25	10.27	10.21	10.23	-73.90	-72.86	-73.04	-73.28	-73.53	-73.59	-73.86	0.50	0.48	0.48	0.48	0.48	0.48	0.48
2MS6	3.34	3.36	3.38	3.38	3.38	3.37	3.37	4.56	5.38	5.57	5.84	5.80	5.81	5.77	1.43	1.44	1.45	1.45	1.45	1.44	1.45
3MSN6	1.82	1.84	1.84	1.85	1.84	1.84	1.84	14.75	15.53	15.97	16.06	16.10	16.40	16.23	0.24	0.24	0.24	0.25	0.24	0.24	0.25
2SM6	7.26	7.23	7.28	7.23	7.25	7.21	7.21	137.68	138.26	138.40	138.64	138.47	138.49	138.52	0.46	0.46	0.46	0.46	0.46	0.46	0.46
2(MN)8	1.30	1.22	1.22	1.19	1.18	1.18	1.18	13.18	19.66	16.99	18.58	18.00	17.90	18.51	0.06	0.07	0.06	0.06	0.06	0.06	0.06
3MN8	1.62	1.77	1.67	1.70	1.69	1.64	1.62	-47.31	-37.70	-38.39	-35.59	-35.07	-35.52	-35.92	0.43	0.41	0.39	0.38	0.38	0.36	0.36
M8	1.81	1.87	1.80	1.79	1.78	1.75	1.74	-24.73	-17.64	-18.63	-16.62	-16.32	-16.38	-16.94	0.47	0.46	0.44	0.42	0.41	0.40	0.40
2MSN8	1.28	1.20	1.19	1.13	1.12	1.11	1.12	-14.13	-6.65	-8.68	-7.49	-7.70	-8.96	-9.41	0.13	0.08	0.08	0.06	0.06	0.07	0.07
3MS8	1.71	1.79	1.73	1.76	1.75	1.72	1.71	-29.04	-23.27	-23.85	-22.65	-22.27	-22.33	-22.76	0.63	0.62	0.59	0.60	0.59	0.57	0.57
2(MS)8	1.41	1.46	1.42	1.42	1.42	1.39	1.39	-29.77	-25.52	-25.43	-24.68	-24.32	-24.63	-24.75	0.19	0.18	0.17	0.17	0.17	0.16	0.16
4MS10	1.64	1.62	1.65	1.66	1.65	1.66	1.66	-1.04	-1.66	-3.17	-3.99	-3.78	-3.75	-3.29	0.20	0.20	0.21	0.21	0.21	0.21	0.21

DOVER

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	0.745	288.28	0.20	204.67	0.15	184.23	0.14	174.28	0.13	164.61	0.13	163.48	0.14	161.12	0.14	164.51
Q1	13.398661	2.173	117.28	1.65	74.13	1.66	74.79	1.69	75.15	1.62	76.08	1.62	76.08	1.62	75.55	1.62	75.69
O1	13.943036	5.478	173.96	4.62	153.20	4.68	153.64	4.81	153.12	4.53	155.24	4.52	155.22	4.50	154.84	4.49	155.01
K1	15.041069	5.049	40.15	4.96	34.49	4.89	34.95	4.86	32.61	4.88	37.35	4.84	37.56	4.81	37.74	4.82	37.94
3MS2	26.952313	2.016	195.5	0.29	61.78	0.25	81.78	0.28	96.79	0.28	92.21	0.26	92.15	0.27	89.18	0.27	88.86
MNS2	27.423834	2.767	42.29	4.48	21.91	4.51	25.18	4.59	24.93	4.49	24.78	4.43	25.31	4.41	24.13	4.41	24.43
MU2	27.968208	8.694	50.93	9.02	52.54	9.29	56.55	9.64	56.17	9.41	55.98	9.27	56.43	9.27	55.02	9.27	55.41
N2	28.43973	40.774	309.26	39.22	308.34	38.77	310.07	38.56	309.37	37.97	309.56	37.59	309.67	37.53	309.11	37.53	309.23
M2	28.984104	225.323	331.94	247.85	331.95	245.93	333.92	245.50	333.32	241.90	333.42	239.43	333.48	239.27	332.85	239.29	332.99
2MN2	29.528479	13.287	154.37	13.33	160.66	13.43	163.49	13.58	163.16	13.37	163.03	13.23	163.06	13.23	162.21	13.23	162.43
S2	30	70.884	23.3	81.86	33.45	80.36	35.44	79.79	35.09	78.73	35.17	77.98	35.13	78.05	34.57	78.01	34.67
MSN2	30.544375	3.154	207.21	0.34	14.79	0.32	8.09	0.29	7.16	0.29	7.01	0.28	7.65	0.29	10.37	0.29	8.78
2SM2	31.015896	4.588	223.9	2.19	251.21	2.14	255.29	2.16	256.11	2.11	255.93	2.10	255.91	2.10	255.25	2.10	255.47
NO3	42.382765	0.121	11.5	0.31	154.15	0.26	154.00	0.21	153.22	0.24	150.06	0.24	148.26	0.26	147.05	0.26	147.15
2MK3	42.92714	0.138	261.28	0.79	229.58	0.69	234.60	0.62	239.63	0.64	234.50	0.63	232.74	0.66	229.50	0.66	229.92
MK3	44.025173	1.596	8.63	2.33	6.87	2.20	10.80	2.09	13.07	2.11	10.90	2.09	10.29	2.11	8.15	2.10	8.41
2MNS4	56.407938	1.456	283.27	1.17	281.08	1.23	287.90	1.24	290.69	1.21	290.15	1.19	290.45	1.15	288.53	1.16	288.84
3MS4	56.952313	2.546	289.92	2.08	287.21	2.14	295.08	2.12	299.10	2.06	297.70	2.03	298.23	1.97	295.98	1.98	296.43
MN4	57.423834	9.419	196.68	10.67	204.76	10.68	208.72	10.45	209.49	10.31	208.95	10.14	208.86	10.00	207.41	10.01	207.53
M4	57.968208	26.653	220.91	26.15	229.08	26.18	233.41	25.59	234.54	25.21	233.68	24.81	233.56	24.43	231.88	24.47	232.06
3MN4				3.72	28.46	3.79	34.94	3.72	37.90	3.65	36.33	3.59	36.61	3.51	34.19	3.51	34.60
MS4				13.95	285.95	13.83	290.47	13.39	291.50	13.25	290.43	13.01	290.30	12.86	288.40	12.87	288.59
2MSN4	59.528479	2.153	100.82	1.27	120.98	1.29	126.64	1.27	128.89	1.24	127.06	1.22	127.03	1.19	124.44	1.20	124.86
3MNS6	85.392042	0.879	182.1	1.33	137.08	1.30	142.00	1.25	143.74	1.26	143.49	1.24	143.29	1.24	140.29	1.23	140.98
2NM6	85.863563	0.963	64.85	0.96	110.41	0.94	117.67	0.89	121.68	0.88	118.57	0.87	118.30	0.86	113.76	0.85	114.35
2MN6	86.407938	3.757	80.01	4.29	39.08	4.15	42.97	3.93	44.51	4.09	43.50	4.07	42.89	4.09	39.93	4.09	40.42
M6	86.952313	6.904	104.52	6.38	77.33	6.16	81.81	5.83	83.48	6.06	81.85	6.00	81.12	6.05	77.97	6.05	78.34
MSN6	87.423834	1.55	138.02	1.86	191.65	1.83	199.29	1.74	202.81	1.74	199.08	1.71	198.54	1.72	193.74	1.70	194.07
2MS6	87.968208	6.687	150.31	5.70	120.69	5.55	125.01	5.24	126.02	5.46	124.90	5.42	124.00	5.48	121.29	5.47	121.52
3MSN6	88.512583	1.438	336.08	1.43	314.83	1.42	319.89	1.35	321.30	1.38	320.67	1.36	320.16	1.38	317.57	1.36	317.54
2SM6	88.984104	1.533	208.64	0.88	178.03	0.82	181.21	0.77	180.48	0.83	179.84	0.82	178.11	0.85	176.65	0.85	176.62
2(MN)8	114.84767	0.463	325.43	0.37	354.99	0.37	8.30	0.36	13.67	0.36	7.43	0.35	7.15	0.34	1.88	0.35	2.73
3MN8	115.39204	1.371	343.07	2.15	317.88	2.14	326.75	2.09	327.51	2.11	325.38	2.08	325.02	2.03	321.60	2.04	322.18
M8	115.93642	1.922	14.31	2.27	0.21	2.26	9.76	2.22	11.56	2.23	8.51	2.20	8.00	2.16	4.20	2.16	4.60
2MSN8	116.40794	1.037	38.69	0.96	71.28	0.96	83.68	0.94	87.99	0.94	82.91	0.92	82.43	0.90	76.86	0.90	77.45
3MS8	116.95231	2.536	60.51	2.46	40.92	2.45	50.86	2.39	53.21	2.41	49.77	2.38	49.34	2.33	45.26	2.34	45.66
2(MS)8	117.96821	0.987	114.53	0.76	96.57	0.75	106.11	0.73	108.55	0.74	104.97	0.72	104.47	0.71	100.33	0.71	100.66
4MS10	145.93642	0.278	345.75	0.58	346.45	0.60	1.44	0.64	4.60	0.61	1.46	0.61	0.79	0.59	356.36	0.59	356.61

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.27	0.20	0.18	0.18	0.18	0.19	0.19	-83.61	-104.05	-114.00	-123.67	-124.80	-127.16	-123.77	0.75	0.79	0.81	0.83	0.83	0.84	0.83
Q1	0.76	0.77	0.78	0.75	0.75	0.74	0.74	-43.15	-42.49	-42.13	-41.20	-41.20	-41.73	-41.59	1.49	1.47	1.46	1.43	1.43	1.45	1.44
O1	0.84	0.85	0.88	0.83	0.83	0.82	0.82	-20.76	-20.32	-20.84	-18.72	-18.74	-19.12	-18.95	2.01	1.96	1.97	1.88	1.88	1.92	1.91
K1	0.98	0.97	0.96	0.97	0.96	0.95	0.96	-5.66	-5.20	-7.54	-2.80	-2.59	-2.41	-2.21	0.50	0.48	0.68	0.30	0.30	0.32	0.30
3MS2	0.14	0.12	0.14	0.14	0.13	0.14	0.13	-133.72	-113.72	-98.71	-103.29	-103.35	-106.32	-106.64	2.23	2.13	2.08	2.10	2.09	2.11	2.11
MNS2	1.62	1.63	1.66	1.62	1.60	1.59	1.60	-20.38	-17.11	-17.36	-17.51	-16.98	-18.16	-17.86	2.12	2.04	2.11	2.03	1.95	1.98	1.97
MU2	1.04	1.07	1.11	1.08	1.07	1.07	1.07	1.61	5.62	5.24	5.05	5.50	4.09	4.48	0.41	1.06	1.27	1.07	1.03	0.86	0.91
N2	0.96	0.95	0.95	0.93	0.92	0.92	0.92	-0.92	0.81	0.11	0.30	0.41	-0.15	-0.03	1.68	2.08	2.21	2.81	3.20	3.25	3.24
M2	1.10	1.09	1.09	1.07	1.06	1.06	1.06	0.01	1.98	1.38	1.48	1.54	0.91	1.05	22.53	22.16	20.95	17.64	15.43	14.42	14.60
2MN2	1.00	1.01	1.02	1.01	1.00	1.00	1.00	6.29	9.12	8.79	8.66	8.69	7.84	8.06	1.46	2.13	2.08	2.01	2.01	1.81	1.86
S2	1.15	1.13	1.13	1.11	1.10	1.10	1.10	10.15	12.14	11.79	11.87	11.83	11.27	11.37	17.38	18.56	17.83	17.33	16.89	16.27	16.36
MSN2	0.11	0.10	0.09	0.09	0.09	0.09	0.09	167.58	160.88	159.95	159.80	160.44	163.16	161.57	3.48	3.45	3.43	3.43	3.42	3.43	3.43
2SM2	0.48	0.47	0.47	0.46	0.46	0.46	0.46	27.31	31.39	32.21	32.03	32.01	31.35	31.57	2.83	2.98	2.99	3.01	3.02	3.00	3.01
NO3	2.59	2.16	1.77	1.96	2.02	2.17	2.16	142.65	142.50	141.72	138.56	136.76	135.55	135.65	0.42	0.36	0.32	0.34	0.34	0.36	0.36
2MK3	5.73	5.02	4.51	4.60	4.59	4.75	4.75	-31.70	-26.68	-21.65	-26.78	-28.54	-31.78	-31.36	0.68	0.57	0.50	0.52	0.52	0.54	0.54
MK3	1.46	1.38	1.31	1.32	1.31	1.32	1.32	-1.76	2.17	4.44	2.27	1.66	-0.48	-0.22	0.74	0.61	0.51	0.52	0.49	0.51	0.51
2MNS4	0.80	0.85	0.85	0.83	0.82	0.79	0.80	-2.19	4.63	7.42	6.88	7.18	5.26	5.57	0.29	0.25	0.28	0.30	0.32	0.33	0.32
3MS4	0.82	0.84	0.83	0.81	0.80	0.77	0.78	-2.71	5.16	9.18	7.78	8.31	6.06	6.51	0.48	0.46	0.57	0.58	0.61	0.62	0.62
MN4	1.13	1.13	1.11	1.09	1.08	1.06	1.06	8.08	12.04	12.81	12.27	12.18	10.73	10.85	1.89	2.45	2.44	2.29	2.19	1.91	1.93
M4	0.98	0.98	0.96	0.95	0.93	0.92	0.92	8.17	12.50	13.63	12.77	12.65	10.97	11.15	3.79	5.77	6.29	5.94	5.96	5.36	5.42
3MN4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2MSN4	0.59	0.60	0.59	0.58	0.57	0.55	0.56	20.16	25.82	28.07	26.24	26.21	23.62	24.04	1.06	1.14	1.19	1.18	1.19	1.16	1.17
3MNS6	1.51	1.48	1.42	1.43	1.42	1.41	1.40	-45.02	-40.10	-38.36	-38.61	-38.81	-41.81	-41.12	0.94	0.85	0.78	0.79	0.78	0.83	0.81
2NM6	1.00	0.97	0.93	0.92	0.90	0.89	0.88	45.56	52.82	56.83	53.72	53.45	48.91	49.50	0.74	0.84	0.88	0.84	0.83	0.76	0.77
2MN6	1.14	1.11	1.05	1.09	1.08	1.09	1.09	-40.93	-37.04	-35.50	-36.51	-37.12	-40.08	-39.59	2.86	2.54	2.35	2.48	2.51	2.70	2.68
M6	0.92	0.89	0.84	0.88	0.87	0.88	0.88	-27.19	-22.71	-21.04	-22.67	-23.40	-26.55	-26.18	3.16	2.67	2.55	2.68	2.76	3.09	3.05
MSN6	1.20	1.18	1.12	1.12	1.10	1.11	1.09	53.63	61.27	64.79	61.06	60.52	55.72	56.05	1.56	1.74	1.77	1.68	1.65	1.53	1.53
2MS6	0.85	0.83	0.78	0.82	0.81	0.82	0.82	-29.62	-25.30	-24.29	-25.41	-26.31	-29.02	-28.79	3.31	2.90	2.88	2.93	3.02	3.27	3.24
3MSN6	1.00	0.99	0.94	0.96	0.95	0.96	0.95	-21.25	-16.19	-14.78	-15.41	-15.92	-18.51	-18.54	0.53	0.40	0.37	0.38	0.39	0.46	0.46
2SM6	0.57	0.54	0.50	0.54	0.54	0.55	0.56	-30.61	-27.43	-28.16	-28.80	-30.53	-31.99	-32.02	0.90	0.89	0.93	0.90	0.92	0.93	0.93
2(MN)8	0.80	0.80	0.78	0.78	0.76	0.74	0.75	29.56	42.87	48.24	42.00	41.72	36.45	37.30	0.23	0.32	0.35	0.31	0.31	0.28	0.28
3MN8	1.57	1.56	1.53	1.54	1.52	1.48	1.49	-25.19	-16.32	-15.56	-17.69	-18.05	-21.47	-20.89	1.08	0.91	0.86	0.91	0.89	0.90	0.90
M8	1.18	1.17	1.15	1.16	1.15	1.12	1.13	-14.10	-4.55	-2.75	-5.80	-6.31	-10.11	-9.71	0.62	0.37	0.31	0.38	0.36	0.43	0.42
2MSN8	0.93	0.92	0.91	0.90	0.89	0.87	0.87	32.59	44.99	49.30	44.22	43.74	38.17	38.76	0.57	0.77	0.83	0.75	0.74	0.65	0.66
3MS8	0.97	0.97	0.94	0.95	0.94	0.92	0.92	-19.59	-9.65	-7.30	-10.74	-11.17	-15.25	-14.85	0.85	0.43	0.34	0.48	0.50	0.68	0.66
2(MS)8	0.77	0.76	0.74	0.75	0.73	0.72	0.72	-17.96	-8.42	-5.98	-9.56	-10.06	-14.20	-13.87	0.35	0.27	0.27	0.29	0.30	0.34	0.34
4MS10	2.10	2.16	2.30	2.21	2.19	2.13	2.13	0.70	15.69	18.85	15.71	15.04	10.61	10.86	0.31	0.34	0.39	0.35	0.35	0.32	0.32

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Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	7.183	0.854104	2.25	75.37	2.17	75.77	2.09	76.37	2.04	76.41	1.95	76.35	1.97	76.16	2.01	76.19
Q1	13.398661	3.304	198.0613	2.50	174.11	2.50	175.44	2.50	175.35	2.47	175.35	2.50	173.10	2.53	172.52	2.55	172.75
O1	13.943036	9.855	251.717	8.82	246.54	8.77	247.35	8.79	247.68	8.57	247.51	8.65	244.77	8.80	244.07	8.85	244.25
K1	15.041069	7.357	40.19893	8.47	52.14	8.43	52.96	8.43	53.81	8.15	53.02	8.28	50.08	8.45	49.35	8.48	49.59
3MS2	26.952313	3.102	181.5777	1.71	163.54	1.67	168.42	1.68	167.37	1.69	168.38	1.72	165.30	1.74	166.11	1.76	166.29
MNS2	27.423834	2.835	59.39617	4.89	35.11	4.76	39.44	4.73	38.89	4.75	39.79	4.89	37.38	4.95	38.22	4.97	38.55
MU2	27.968208	13.632	71.18179	13.50	73.00	13.16	77.46	13.13	76.92	13.16	77.61	13.52	75.33	13.67	76.08	13.72	76.39
N2	28.43973	22.436	320.6503	19.65	310.94	19.19	314.18	19.03	313.72	19.12	314.76	19.77	312.61	19.99	313.81	20.09	313.94
M2	28.984104	139.501	344.2759	142.52	344.62	139.05	348.10	138.11	347.75	138.76	348.67	143.37	346.46	145.05	347.51	145.70	347.70
2MN2	29.528479	12.757	181.6815	11.98	187.70	11.70	191.74	11.67	191.43	11.69	192.10	12.05	189.84	12.17	190.66	12.22	190.92
S2	30	37.337	53.11	35.74	62.49	34.69	65.54	34.40	65.25	34.66	66.30	35.92	64.06	36.41	65.22	36.58	65.35
MSN2	30.544375	2.879	253.9856	0.90	245.53	0.86	250.68	0.86	250.51	0.86	251.36	0.90	248.62	0.89	249.65	0.89	249.42
2SM2	31.015896	3.378	264.0541	1.73	306.88	1.66	311.06	1.65	310.49	1.66	311.50	1.73	309.24	1.76	310.35	1.77	310.62
NO3	42.382765	0.409	112.0272	0.40	113.36	0.40	119.79	0.42	122.05	0.45	126.21	0.49	130.67	0.52	132.85	0.52	136.40
2MK3	42.92714	1.398	153.8729	0.64	159.79	0.67	165.96	0.69	169.07	0.71	175.04	0.77	180.66	0.82	183.45	0.82	184.67
MK3	44.025173	0.636	283.2048	1.04	248.16	1.03	253.97	1.02	258.36	0.99	261.18	0.90	262.55	0.91	265.81	0.92	265.81
2MNS4	56.407938	0.967	272.3021	0.81	243.71	0.77	251.24	0.74	249.46	0.69	249.66	0.62	245.05	0.61	244.52	0.62	243.89
3MS4	56.952313	2.132	282.9177	1.15	264.08	1.04	271.75	1.00	267.76	0.95	267.39	0.85	259.61	0.86	257.95	0.89	258.43
MN4	57.423834	3.846	191.6762	3.18	166.86	3.02	173.82	2.84	170.95	2.70	173.05	2.50	169.26	2.48	169.65	2.51	169.23
M4	57.968208	10.634	210.1818	7.21	201.72	6.79	208.84	6.39	205.23	6.09	206.04	5.59	200.90	5.58	200.87	5.67	200.31
3MN4	58.512583	1.458	34.07742	1.64	11.30	1.53	17.18	1.49	13.38	1.46	12.35	1.37	4.68	1.40	3.86	1.42	4.04
MS4	58.984104	7.356	274.0059	3.70	263.82	3.47	269.34	3.40	265.71	3.34	266.20	3.20	260.11	3.21	260.06	3.26	259.72
2MSN4	59.528479	1.514	95.45152	0.53	100.99	0.51	104.14	0.50	100.53	0.50	99.90	0.47	93.21	0.48	90.55	0.50	91.65
3MNS6	85.392042	1.429	139.888	0.57	81.93	0.56	93.49	0.52	95.24	0.52	106.63	0.50	113.66	0.53	119.15	0.51	118.85
2NM6	85.863563	1.084	333.7964	0.49	54.07	0.47	62.78	0.46	67.40	0.43	73.31	0.39	79.71	0.39	82.51	0.39	82.52
2MN6	86.407938	3.877	32.67206	2.03	343.65	2.02	353.80	1.92	354.58	1.94	2.81	1.85	6.56	1.92	10.50	1.92	10.04
M6	86.952313	7.093	58.59769	2.83	31.70	2.78	42.06	2.64	43.38	2.68	50.77	2.56	54.30	2.62	57.48	2.63	57.40
MSN6	87.423834	1.399	120.7562	0.99	143.55	0.94	154.47	0.91	154.79	0.86	159.44	0.74	160.25	0.73	164.24	0.74	164.00
2MS6	87.968208	7.118	122.5718	2.50	89.87	2.46	99.51	2.33	100.63	2.36	107.84	2.23	109.81	2.30	113.18	2.32	112.93
3MSN6	88.512583	2.147	318.8674	0.63	296.40	0.63	310.29	0.59	310.61	0.57	318.04	0.51	320.38	0.56	326.02	0.56	326.12
2SM6	88.984104	1.222	212.2059	0.44	165.20	0.44	170.50	0.42	172.47	0.44	176.08	0.42	177.31	0.43	179.81	0.44	179.43
2(MN)8	114.84767	0.334	220.7523	0.18	279.33	0.18	293.77	0.16	295.25	0.17	296.10	0.17	294.17	0.18	295.81	0.17	297.17
3MN8	115.39204	0.861	278.978	0.97	224.77	0.97	238.94	0.91	238.39	0.93	242.43	0.90	237.56	0.89	239.60	0.89	239.00
M8	115.93642	1.18	295.7936	0.98	285.39	0.96	297.65	0.91	297.80	0.94	302.09	0.93	298.03	0.93	299.22	0.91	299.50
2MSN8	116.40794	0.78	338.7321	0.40	0.32	0.37	15.09	0.35	14.13	0.37	16.74	0.35	15.29	0.38	15.42	0.36	15.35
3MS8	116.95231	1.721	350.5577	0.91	334.25	0.92	348.66	0.85	346.66	0.85	349.81	0.82	346.60	0.81	348.05	0.79	349.06
2(MS)8	117.96821	0.721	59.59179	0.23	31.29	0.25	51.16	0.23	43.42	0.23	48.36	0.20	39.65	0.21	47.01	0.21	46.54
4MS10	145.93642	0.658	193.2036	0.26	147.71	0.25	165.60	0.25	178.41	0.27	190.14	0.34	200.49	0.36	203.54	0.34	202.74

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.31	0.30	0.29	0.28	0.27	0.27	0.28	74.52	74.92	75.52	75.56	75.50	75.31	75.34	6.93	6.94	6.96	6.96	6.96	6.95	6.95
Q1	0.76	0.76	0.76	0.75	0.76	0.77	0.77	-23.95	-22.62	-22.71	-22.71	-24.96	-25.54	-25.31	1.44	1.39	1.39	1.40	1.48	1.49	1.48
O1	0.90	0.89	0.89	0.87	0.88	0.89	0.90	-5.18	-4.37	-4.04	-4.21	-6.95	-7.65	-7.47	1.33	1.30	1.25	1.45	1.64	1.63	1.58
K1	1.15	1.15	1.15	1.11	1.12	1.15	1.15	11.94	12.76	13.61	12.82	9.88	9.15	9.39	1.99	2.05	2.15	1.90	1.63	1.67	1.71
3MS2	0.55	0.54	0.54	0.54	0.56	0.56	0.57	-18.04	-13.16	-14.21	-13.20	-16.28	-15.47	-15.29	1.57	1.52	1.53	1.51	1.53	1.50	1.48
MNS2	1.73	1.68	1.67	1.67	1.72	1.74	1.75	-24.29	-19.96	-20.51	-19.61	-22.02	-21.18	-20.85	2.59	2.31	2.30	2.28	2.50	2.52	2.53
MU2	0.99	0.97	0.96	0.97	0.99	1.00	1.01	1.82	6.28	5.74	6.43	4.15	4.90	5.21	0.45	1.54	1.43	1.57	0.99	1.17	1.25
N2	0.88	0.86	0.85	0.85	0.88	0.89	0.90	-9.71	-6.47	-6.93	-5.89	-8.04	-6.84	-6.71	4.52	4.00	4.22	3.94	3.98	3.51	3.42
M2	1.02	1.00	0.99	0.99	1.03	1.04	1.04	0.34	3.82	3.47	4.39	2.18	3.23	3.42	3.14	9.30	8.53	10.69	6.63	9.76	10.54
2MN2	0.94	0.92	0.91	0.92	0.94	0.95	0.96	6.02	10.06	9.75	10.42	8.16	8.98	9.24	1.51	2.39	2.34	2.46	1.90	2.04	2.08
S2	0.96	0.93	0.92	0.93	0.96	0.98	0.98	9.38	12.43	12.14	13.19	10.95	12.11	12.24	6.18	8.23	8.13	8.69	7.13	7.83	7.92
MSN2	0.31	0.30	0.30	0.30	0.31	0.31	0.31	-8.46	-3.31	-3.48	-2.63	-5.37	-4.34	-4.57	2.00	2.02	2.02	2.02	1.99	1.99	1.99
2SM2	0.51	0.49	0.49	0.49	0.51	0.52	0.52	42.83	47.01	46.44	47.45	45.19	46.30	46.57	2.41	2.55	2.54	2.56	2.48	2.51	2.51
NO3	0.98	0.98	1.04	1.10	1.19	1.27	1.28	1.33	7.76	10.02	14.18	18.64	20.82	24.37	0.01	0.06	0.07	0.11	0.16	0.20	0.23
2MK3	0.46	0.48	0.49	0.51	0.55	0.59	0.59	5.92	12.09	15.20	21.17	26.79	29.58	30.80	0.77	0.76	0.75	0.78	0.79	0.80	0.81
MK3	1.64	1.62	1.60	1.55	1.42	1.43	1.44	-35.04	-29.23	-24.84	-22.02	-20.65	-17.39	-17.39	0.64	0.57	0.51	0.46	0.38	0.36	0.36
2MNS4	0.83	0.79	0.76	0.71	0.64	0.63	0.65	-28.59	-21.06	-22.84	-22.64	-27.25	-27.78	-28.41	0.46	0.37	0.41	0.42	0.50	0.51	0.51
3MS4	0.54	0.49	0.47	0.45	0.40	0.40	0.42	-18.84	-11.17	-15.16	-15.53	-23.31	-24.97	-24.49	1.11	1.13	1.20	1.24	1.39	1.40	1.37
MN4	0.83	0.79	0.74	0.70	0.65	0.64	0.65	-24.82	-17.86	-20.73	-18.63	-22.42	-22.03	-22.45	1.64	1.34	1.56	1.55	1.81	1.81	1.80
M4	0.68	0.64	0.60	0.57	0.53	0.52	0.53	-8.46	-1.34	-4.95	-4.14	-9.28	-9.31	-9.87	3.66	3.85	4.30	4.58	5.19	5.21	5.14
3MN4	1.12	1.05	1.02	1.00	0.94	0.96	0.98	-22.78	-16.90	-20.70	-21.73	-29.40	-30.22	-30.04	0.64	0.44	0.53	0.55	0.72	0.75	0.75
MS4	0.50	0.47	0.46	0.45	0.43	0.44	0.44	-10.19	-4.67	-8.30	-7.81	-13.90	-13.95	-14.29	3.77	3.91	4.02	4.07	4.32	4.31	4.28
2MSN4	0.35	0.34	0.33	0.33	0.31	0.31	0.33	5.54	8.69	5.08	4.45	-2.24	-4.90	-3.80	0.99	1.01	1.01	1.02	1.04	1.04	1.01
3MNS6	0.40	0.39	0.36	0.36	0.35	0.37	0.36	-57.96	-46.40	-44.65	-33.26	-26.23	-20.74	-21.04	1.23	1.12	1.12	1.03	1.01	0.96	0.97
2NM6	0.45	0.44	0.42	0.39	0.36	0.36	0.36	80.27	88.98	93.60	99.51	105.91	108.71	108.72	1.11	1.18	1.20	1.23	1.25	1.27	1.26
2MN6	0.52	0.52	0.49	0.50	0.48	0.50	0.49	-49.02	-38.87	-38.09	-29.86	-26.11	-22.17	-22.63	2.97	2.63	2.65	2.40	2.36	2.22	2.23
M6	0.40	0.39	0.37	0.38	0.36	0.37	0.37	-26.90	-16.54	-15.22	-7.83	-4.30	-1.12	-1.20	4.75	4.50	4.60	4.45	4.55	4.48	4.47
MSN6	0.70	0.67	0.65	0.61	0.53	0.52	0.53	22.79	33.71	34.03	38.68	39.49	43.48	43.24	0.62	0.81	0.82	0.91	0.95	1.00	1.00
2MS6	0.35	0.35	0.33	0.33	0.31	0.32	0.33	-32.70	-23.06	-21.94	-14.73	-12.76	-9.39	-9.64	5.19	4.95	5.03	4.87	4.97	4.87	4.84
3MSN6	0.29	0.29	0.27	0.27	0.24	0.26	0.26	-22.47	-8.58	-8.26	-0.83	1.51	7.15	7.25	1.59	1.53	1.57	1.57	1.64	1.59	1.59
2SM6	0.36	0.36	0.35	0.36	0.35	0.35	0.36	-47.01	-41.71	-39.74	-36.13	-34.90	-32.40	-32.78	0.98	0.94	0.94	0.90	0.91	0.89	0.89
2(MN)8	0.55	0.55	0.46	0.51	0.51	0.54	0.52	58.58	73.02	74.50	75.35	73.42	75.06	76.42	0.29	0.33	0.33	0.33	0.33	0.34	0.34
3MN8	1.13	1.13	1.06	1.08	1.04	1.03	1.04	-54.21	-40.04	-40.59	-36.55	-41.42	-39.38	-39.98	0.84	0.63	0.62	0.56	0.62	0.59	0.60
M8	0.83	0.82	0.77	0.79	0.79	0.79	0.77	-10.40	1.86	2.01	6.30	2.24	3.43	3.71	0.28	0.22	0.27	0.27	0.25	0.26	0.28
2MSN8	0.51	0.47	0.44	0.48	0.45	0.49	0.46	21.59	36.36	35.40	38.01	36.56	36.69	36.62	0.44	0.53	0.54	0.54	0.54	0.52	0.54
3MS8	0.53	0.53	0.49	0.49	0.48	0.47	0.46	-16.31	-1.90	-3.90	-0.75	-3.96	-2.51	-1.50	0.89	0.81	0.88	0.87	0.90	0.91	0.93
2(MS)8	0.32	0.34	0.31	0.31	0.28	0.29	0.29	-28.30	-8.43	-16.17	-11.23	-19.94	-12.58	-13.05	0.53	0.48	0.51	0.50	0.54	0.52	0.52
4MS10	0.39	0.39	0.38	0.41	0.51	0.54	0.52	-45.49	-27.60	-14.79	-3.06	7.29	10.34	9.54	0.51	0.45	0.42	0.39	0.33	0.31	0.33

LIMUIDEN

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.5	45.7841	1.92	60.18	1.88	60.74	1.82	61.20	1.85	61.18	1.83	61.21	1.85	61.31	1.83	61.25
Q1	13.398661	3.94	129.6213	2.79	104.30	2.78	105.10	2.79	104.99	2.72	106.34	2.72	106.33	2.73	105.97	2.72	106.12
O1	13.943036	11.034	174.817	10.64	176.16	10.64	176.95	10.68	176.83	10.40	178.51	10.38	178.46	10.40	178.11	10.40	178.23
K1	15.041069	7.883	342.2889	10.73	343.51	10.76	344.08	10.85	344.09	10.42	345.88	10.39	345.74	10.42	345.29	10.42	345.46
3MS2	26.952313	2.164	318.0877	0.84	281.09	0.83	285.09	0.84	283.03	0.83	283.15	0.83	283.61	0.84	282.97	0.84	283.41
MNS2	27.423834	1.904	185.1162	3.12	158.69	3.00	162.49	2.96	159.93	2.94	159.72	2.93	160.15	2.95	160.04	2.93	160.07
MU2	27.968208	8.838	204.4918	8.38	190.25	8.08	194.11	8.01	191.72	7.96	191.50	7.92	191.92	7.97	191.62	7.93	191.68
N2	28.43973	9.614	79.78027	8.70	75.81	8.13	81.03	7.76	76.40	8.04	74.70	7.93	75.37	7.89	75.90	7.82	75.47
M2	28.984104	67.5	100.3459	77.42	103.40	73.47	107.94	70.99	104.46	72.23	103.20	71.44	103.73	71.32	103.88	70.83	103.64
2MN2	29.528479	7.098	294.4915	8.36	292.76	8.04	296.35	7.92	293.89	7.92	293.44	7.86	293.75	7.88	293.44	7.84	293.38
S2	30	17.446	167.6	20.67	181.26	19.57	186.21	18.54	182.83	18.77	180.49	18.53	181.08	18.54	181.64	18.36	181.29
MSN2	30.544375	1.851	354.2756	0.96	315.36	0.93	316.70	0.93	315.29	0.90	315.88	0.90	315.96	0.92	315.50	0.91	315.41
2SM2	31.015896	2.766	20.5041	1.22	25.20	1.12	28.10	1.10	25.53	1.12	24.88	1.11	25.02	1.11	24.55	1.10	24.25
NO3	42.382765	0.513	192.2472	0.61	146.75	0.61	157.76	0.62	155.91	0.60	152.69	0.60	153.01	0.60	151.08	0.59	151.09
2MK3	42.92714	0.939	214.5029	1.29	202.34	1.31	212.73	1.32	210.95	1.26	208.13	1.26	208.46	1.25	207.13	1.23	207.04
MK3	44.025173	0.268	240.7448	1.07	292.07	0.94	303.79	0.94	303.93	0.93	295.72	0.92	295.91	0.91	294.51	0.91	293.41
2MNS4	56.407938	1.174	199.4521	1.70	213.86	1.72	219.03	1.64	215.29	1.62	215.94	1.60	216.56	1.61	215.55	1.59	215.74
3MS4	56.952313	2.797	217.2277	2.50	238.29	2.55	245.10	2.46	242.06	2.41	242.54	2.38	243.05	2.40	242.52	2.38	242.74
MN4	57.423834	8.525	96.83617	9.19	112.21	8.91	116.58	8.54	112.55	8.52	112.95	8.41	113.37	8.44	113.31	8.38	113.12
M4	57.968208	19.708	125.3718	22.27	146.52	21.67	151.59	20.81	147.87	20.67	148.07	20.38	148.40	20.42	148.35	20.28	148.10
3MN4	58.512583	2.244	318.2374	3.77	331.30	3.75	338.48	3.60	335.52	3.51	335.61	3.47	335.94	3.45	335.58	3.42	335.49
MS4	58.984104	11.675	184.1559	10.50	206.56	10.03	211.99	9.54	208.21	9.47	207.82	9.33	208.14	9.37	207.92	9.30	207.62
2MSN4	59.528479	1.267	19.06152	1.56	60.43	1.54	66.20	1.47	62.96	1.43	63.87	1.41	63.96	1.39	63.38	1.38	63.58
3MNS6	85.392042	0.546	239.688	0.83	229.03	0.81	250.16	0.67	246.97	0.64	231.89	0.62	230.95	0.65	224.99	0.64	226.37
2NM6	85.863563	0.771	172.0464	1.44	215.45	1.41	227.15	1.29	222.82	1.24	220.86	1.22	220.80	1.23	218.84	1.23	220.21
2MN6	86.407938	2.337	184.9021	3.34	170.09	3.73	181.27	3.51	181.40	2.86	178.33	2.79	178.98	2.76	176.29	2.72	177.29
M6	86.952313	4.43	204.3877	5.69	196.62	5.94	207.87	5.59	205.69	4.91	200.88	4.78	201.38	4.77	199.18	4.70	199.78
MSN6	87.423834	1.351	258.6662	2.89	295.47	2.76	306.02	2.56	301.52	2.47	299.30	2.45	299.40	2.43	296.99	2.42	297.70
2MS6	87.968208	5.027	254.0718	4.91	244.04	5.06	254.65	4.79	252.34	4.27	247.38	4.16	247.70	4.20	245.05	4.13	245.63
3MSN6	88.512583	1.102	77.82742	1.14	55.91	1.07	70.33	1.00	64.91	1.00	56.98	0.98	55.75	0.99	52.47	0.98	53.63
2SM6	88.984104	1.267	327.9459	0.72	319.20	0.73	326.85	0.71	322.66	0.62	318.44	0.61	319.76	0.62	314.42	0.60	314.96
2(MN)8	114.84767	0.825	157.7423	0.81	230.75	0.81	244.48	0.76	238.60	0.74	238.78	0.72	239.28	0.72	237.58	0.72	237.80
3MN8	115.39204	1.991	182.278	4.16	165.43	4.11	177.44	3.85	171.90	3.85	172.18	3.82	172.27	3.78	170.71	3.74	170.79
M8	115.93642	2.774	215.0936	4.16	221.59	4.11	233.93	3.88	228.49	3.79	228.65	3.73	228.65	3.70	227.40	3.68	227.17
2MSN8	116.40794	1.445	241.9021	1.82	313.84	1.80	328.69	1.70	323.09	1.61	323.27	1.56	323.60	1.52	321.71	1.52	321.52
3MS8	116.95231	3.736	263.7977	4.53	263.49	4.37	276.74	4.10	271.02	3.97	269.96	3.91	269.90	3.89	268.17	3.86	268.12
2(MS)8	117.96821	1.247	323.3018	1.14	316.28	1.06	329.08	1.00	323.86	0.97	321.54	0.96	321.08	0.95	318.33	0.94	318.63
4MS10	145.93642	1.605	306.2436	1.48	312.85	1.54	328.85	1.37	324.79	1.20	315.34	1.18	315.42	1.19	312.29	1.16	313.65

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.77	0.75	0.73	0.74	0.73	0.74	0.73	14.40	14.96	15.42	15.40	15.43	15.53	15.47	0.80	0.84	0.89	0.87	0.89	0.88	0.88
Q1	0.71	0.71	0.71	0.69	0.69	0.69	0.69	-25.32	-24.52	-24.63	-23.28	-23.29	-23.65	-23.50	1.85	1.82	1.82	1.80	1.80	1.81	1.81
O1	0.96	0.96	0.97	0.94	0.94	0.94	0.94	1.34	2.13	2.01	3.69	3.64	3.29	3.41	0.47	0.57	0.52	0.94	0.95	0.89	0.90
K1	1.36	1.36	1.38	1.32	1.32	1.32	1.32	1.22	1.79	1.80	3.59	3.45	3.00	3.17	2.85	2.89	2.98	2.60	2.57	2.58	2.58
3MS2	0.39	0.38	0.39	0.38	0.38	0.39	0.39	-37.00	-33.00	-35.06	-34.94	-34.48	-35.12	-34.68	1.58	1.54	1.55	1.56	1.56	1.55	1.55
MNS2	1.64	1.58	1.55	1.54	1.54	1.55	1.54	-26.43	-22.63	-25.19	-25.40	-24.97	-25.08	-25.05	1.65	1.44	1.47	1.47	1.44	1.47	1.45
MU2	0.95	0.91	0.91	0.90	0.90	0.90	0.90	-14.24	-10.38	-12.77	-12.99	-12.57	-12.87	-12.81	2.18	1.71	2.05	2.09	2.05	2.07	2.08
N2	0.90	0.85	0.81	0.84	0.82	0.82	0.81	-3.97	1.25	-3.38	-5.08	-4.41	-3.88	-4.31	1.11	1.49	1.92	1.76	1.81	1.83	1.91
M2	1.15	1.09	1.05	1.07	1.06	1.06	1.05	3.05	7.59	4.11	2.85	3.38	3.53	3.29	10.64	11.07	6.07	5.87	5.68	5.74	5.19
2MN2	1.18	1.13	1.12	1.12	1.11	1.11	1.10	-1.73	1.86	-0.60	-1.05	-0.74	-1.05	-1.11	1.28	0.98	0.82	0.83	0.76	0.79	0.75
S2	1.19	1.12	1.06	1.08	1.06	1.06	1.05	13.66	18.61	15.23	12.89	13.48	14.04	13.69	5.55	6.34	4.89	4.27	4.36	4.53	4.38
MSN2	0.52	0.50	0.50	0.49	0.49	0.50	0.49	-38.92	-37.58	-38.99	-38.40	-38.32	-38.78	-38.87	1.26	1.25	1.27	1.27	1.27	1.27	1.28
2SM2	0.44	0.41	0.40	0.40	0.40	0.40	0.40	4.70	7.60	5.03	4.38	4.52	4.05	3.75	1.55	1.66	1.67	1.66	1.67	1.66	1.67
NO3	1.20	1.19	1.21	1.18	1.17	1.16	1.15	-45.50	-34.49	-36.34	-39.56	-39.24	-41.17	-41.16	0.45	0.35	0.37	0.39	0.38	0.40	0.39
2MK3	1.38	1.40	1.41	1.34	1.34	1.33	1.31	-12.16	-1.77	-3.55	-6.37	-6.04	-7.37	-7.46	0.42	0.37	0.39	0.34	0.34	0.34	0.33
MK3	3.98	3.51	3.51	3.47	3.44	3.41	3.38	51.33	63.05	63.19	54.98	55.17	53.77	52.67	0.92	0.85	0.85	0.81	0.80	0.79	0.77
2MNS4	1.45	1.46	1.40	1.38	1.36	1.37	1.36	14.41	19.58	15.84	16.49	17.11	16.10	16.29	0.63	0.73	0.61	0.60	0.59	0.58	0.57
3MS4	0.89	0.91	0.88	0.86	0.85	0.86	0.85	21.06	27.87	24.83	25.31	25.82	25.29	25.51	1.01	1.31	1.18	1.20	1.23	1.20	1.21
MN4	1.41	1.36	1.31	1.31	1.29	1.29	1.28	15.37	19.74	15.71	16.11	16.53	16.47	16.28	3.37	3.54	2.87	2.89	2.84	2.86	2.79
M4	1.13	1.10	1.06	1.05	1.03	1.04	1.03	21.15	26.22	22.50	22.70	23.03	22.98	22.73	8.10	9.58	7.98	8.00	8.03	8.02	7.90
3MN4	1.68	1.67	1.61	1.56	1.55	1.54	1.53	13.06	20.24	17.28	17.37	17.70	17.34	17.25	1.66	1.82	1.60	1.52	1.49	1.47	1.44
MS4	0.90	0.86	0.82	0.81	0.80	0.80	0.80	22.40	27.83	24.05	23.66	23.98	23.76	23.46	4.46	5.46	4.89	4.84	4.93	4.88	4.86
2MSN4	1.23	1.21	1.16	1.13	1.11	1.09	1.09	41.37	47.14	43.90	44.81	44.90	44.32	44.52	1.03	1.15	1.04	1.04	1.03	1.01	1.01
3MNS6	1.51	1.47	1.23	1.18	1.13	1.19	1.17	-10.66	10.47	7.28	-7.80	-8.74	-14.70	-13.32	0.31	0.29	0.15	0.13	0.11	0.18	0.16
2NM6	1.87	1.83	1.67	1.60	1.58	1.59	1.59	43.40	55.10	50.77	48.81	48.75	46.79	48.16	1.03	1.16	1.00	0.93	0.92	0.90	0.92
2MN6	1.43	1.60	1.50	1.22	1.19	1.18	1.16	-14.81	-3.63	-3.50	-6.57	-5.92	-8.61	-7.61	1.24	1.41	1.19	0.60	0.52	0.57	0.51
M6	1.28	1.34	1.26	1.11	1.08	1.08	1.06	-7.77	3.48	1.30	-3.51	-3.01	-5.21	-4.61	1.43	1.54	1.17	0.55	0.43	0.54	0.46
MSN6	2.14	2.04	1.90	1.83	1.81	1.79	1.79	38.80	49.35	44.85	42.63	42.73	40.32	41.03	2.02	2.14	1.87	1.73	1.72	1.65	1.65
2MS6	0.98	1.01	0.95	0.85	0.83	0.83	0.82	-10.03	0.58	-1.73	-6.69	-6.37	-9.02	-8.44	0.88	0.06	0.28	0.93	1.00	1.10	1.12
3MSN6	1.04	0.97	0.91	0.90	0.89	0.90	0.89	-21.92	-7.50	-12.92	-20.85	-22.08	-25.36	-24.20	0.43	0.15	0.26	0.39	0.42	0.47	0.45
2SM6	0.57	0.57	0.56	0.49	0.48	0.49	0.47	-8.75	-1.10	-5.29	-9.51	-8.19	-13.53	-12.99	0.57	0.54	0.57	0.66	0.67	0.68	0.70
2(MN)8	0.99	0.98	0.92	0.90	0.87	0.87	0.87	73.01	86.74	80.86	81.04	81.54	79.84	80.06	0.97	1.12	1.03	1.02	1.01	0.99	1.00
3MN8	2.09	2.06	1.93	1.93	1.92	1.90	1.88	-16.85	-4.84	-10.38	-10.10	-10.01	-11.57	-11.49	2.33	2.13	1.93	1.92	1.89	1.88	1.83
M8	1.50	1.48	1.40	1.37	1.35	1.33	1.33	6.50	18.84	13.40	13.56	13.56	12.31	12.08	1.44	1.74	1.35	1.27	1.22	1.15	1.13
2MSN8	1.26	1.25	1.18	1.11	1.08	1.05	1.05	71.94	86.79	81.19	81.37	81.70	79.81	79.62	1.94	2.24	2.06	1.99	1.97	1.90	1.90
3MS8	1.21	1.17	1.10	1.06	1.05	1.04	1.03	-0.31	12.94	7.22	6.16	6.10	4.37	4.32	0.79	1.11	0.62	0.48	0.44	0.33	0.31
2(MS)8	0.92	0.85	0.80	0.78	0.77	0.76	0.75	-7.02	5.78	0.56	-1.76	-2.22	-4.97	-4.67	0.18	0.22	0.24	0.28	0.29	0.32	0.32
4MS10	0.92	0.96	0.85	0.75	0.73	0.74	0.73	6.61	22.61	18.55	9.10	9.18	6.05	7.41	0.22	0.62	0.53	0.46	0.48	0.44	0.48

NORTHSHIELDS

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	0.485	219.15	0.23	36.92	0.23	37.78	0.23	37.77	0.24	37.89	0.23	37.43	0.23	37.46	0.23	37.44
Q1	13.398661	4.453	27.15	3.43	19.96	3.43	20.01	3.43	20.05	3.43	20.40	3.43	20.36	3.43	20.31	3.43	20.36
O1	13.943036	13.725	79.3	12.69	80.49	12.69	80.55	12.69	80.60	12.69	80.99	12.69	80.96	12.69	80.90	12.69	80.96
K1	15.041069	12.048	242	15.58	241.44	15.57	241.49	15.58	241.56	15.57	241.96	15.58	241.94	15.58	241.89	15.58	241.95
3MS2	26.952313	0.933	11	0.71	72.16	0.70	71.81	0.69	72.64	0.68	73.51	0.69	73.87	0.68	74.33	0.68	74.45
MNS2	27.423834	0.276	258.24	0.76	194.76	0.77	194.25	0.76	191.63	0.79	189.97	0.77	190.59	0.76	189.23	0.77	188.97
MU2	27.968208	1.851	32.68	2.55	261.05	2.58	259.69	2.50	257.83	2.52	255.77	2.47	256.74	2.43	255.56	2.43	255.24
N2	28.43973	31.128	65.25	27.30	64.74	27.32	64.79	27.35	64.60	27.55	65.12	27.51	65.06	27.51	64.90	27.53	64.95
M2	28.984104	160.549	89.22	150.14	89.87	150.47	90.02	151.00	89.77	152.54	90.32	152.26	90.17	152.46	90.00	152.63	90.06
2MN2	29.528479	4.783	284.78	4.80	316.39	4.89	316.71	4.92	315.64	5.03	315.59	4.99	315.24	5.01	314.80	5.03	314.82
S2	30	53.911	130.47	52.52	139.22	52.45	139.42	52.66	139.42	53.10	140.23	53.15	140.09	53.19	140.05	53.25	140.12
MSN2	30.544375	0.81	343.13	1.83	93.25	1.84	92.84	1.83	92.98	1.82	93.15	1.82	93.37	1.81	93.30	1.82	93.30
2SM2	31.015896	1.134	340.99	1.52	51.34	1.53	52.11	1.54	51.79	1.56	52.20	1.56	51.82	1.57	51.71	1.57	51.77
NO3	42.382765	0.511	38.79	0.06	98.89	0.06	65.78	0.06	71.19	0.09	55.39	0.09	56.23	0.09	57.33	0.09	58.03
2MK3	42.92714	1.088	59.55	0.30	9.66	0.36	18.80	0.35	19.56	0.40	28.55	0.40	29.08	0.39	29.01	0.39	30.81
MK3	44.025173	1.055	236.34	0.86	168.90	0.95	171.90	0.96	172.07	1.06	177.28	1.06	176.85	1.05	176.47	1.06	177.28
2MNS4	56.407938	0.234	305.63	0.32	211.81	0.35	222.03	0.34	221.62	0.34	228.66	0.34	227.86	0.34	227.72	0.34	227.66
3MS4	56.952313	0.525	350.24	0.41	255.36	0.47	267.99	0.46	268.96	0.47	279.21	0.47	277.85	0.49	278.53	0.48	278.86
MN4	57.423834	1.303	82.32	2.11	68.93	1.95	74.53	1.92	73.01	1.80	75.30	1.83	75.25	1.80	76.91	1.80	76.23
M4	57.968208	2.348	108.46	3.33	108.88	2.89	118.36	2.78	116.55	2.41	120.24	2.48	120.21	2.40	123.65	2.39	122.09
3MN4	58.512583	0.421	83.87	0.57	327.50	0.54	343.35	0.50	343.82	0.44	354.88	0.46	354.03	0.45	358.08	0.44	357.70
MS4	58.984104	1.675	84.92	1.12	132.12	0.82	127.05	0.85	119.35	0.82	106.83	0.81	109.00	0.75	105.82	0.78	105.47
2MSN4	59.528479	0.328	221.23	0.47	106.87	0.49	112.67	0.48	114.05	0.48	119.85	0.48	119.29	0.48	120.91	0.48	121.29
3MNS6	85.392042	0.311	47.65	0.16	306.79	0.10	325.41	0.07	330.87	0.08	325.47	0.08	313.07	0.08	309.47	0.08	309.87
2NM6	85.863563	0.143	6.36	0.28	8.37	0.29	24.09	0.26	30.06	0.27	40.26	0.26	37.45	0.26	38.82	0.26	38.70
2MN6	86.407938	0.39	2.19	1.02	357.99	1.21	2.12	1.24	3.39	1.20	11.06	1.18	10.93	1.20	10.18	1.20	10.88
M6	86.952313	0.733	18.45	1.48	18.07	1.64	27.97	1.59	29.98	1.48	37.95	1.47	37.31	1.50	37.15	1.47	37.41
MSN6	87.423834	0.294	109.45	0.77	111.15	0.75	124.03	0.71	128.77	0.68	138.08	0.69	135.26	0.68	138.49	0.66	138.38
2MS6	87.968208	0.777	82.78	1.43	75.75	1.52	84.94	1.44	85.39	1.30	91.20	1.30	90.89	1.29	90.47	1.27	90.30
3MSN6	88.512583	0.349	245.56	0.22	238.57	0.20	259.92	0.17	258.43	0.14	258.56	0.13	255.57	0.12	261.90	0.13	257.15
2SM6	88.984104	0.189	193.11	0.26	160.87	0.26	168.96	0.23	170.41	0.19	180.01	0.20	176.46	0.19	181.10	0.18	181.11
2(MN)8	114.84767	0.018	253.87	0.31	257.25	0.33	264.33	0.30	261.94	0.31	267.64	0.30	268.26	0.30	267.40	0.31	268.59
3MN8	115.39204	0.129	233.43	0.44	232.81	0.59	241.55	0.50	242.17	0.54	253.11	0.56	255.92	0.53	258.48	0.53	259.05
M8	115.93642	0.154	270.33	0.97	289.75	1.10	294.99	1.02	294.97	1.04	302.03	1.05	303.85	1.04	304.28	1.03	304.29
2MSN8	116.40794	0.073	294.27	0.75	351.49	0.78	358.30	0.75	356.57	0.74	2.23	0.72	2.55	0.70	2.36	0.70	2.03
3MS8	116.95231	0.185	314.51	1.02	1.97	1.19	5.05	1.10	7.11	1.15	13.05	1.17	14.73	1.15	15.47	1.15	15.71
2(MS)8	117.96821	0.043	351.89	0.34	85.40	0.37	86.92	0.36	88.25	0.36	94.31	0.36	95.78	0.36	97.91	0.36	97.89
4MS10	145.93642	0.03	130.27	0.29	111.44	0.23	124.54	0.16	120.76	0.13	110.50	0.13	111.48	0.13	105.31	0.13	103.44

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.46	0.48	0.48	0.48	0.48	0.48	0.48	177.77	178.63	178.62	178.74	178.28	178.31	178.29	0.71	0.72	0.72	0.72	0.72	0.72	0.72
Q1	0.77	0.77	0.77	0.77	0.77	0.77	0.77	-7.19	-7.14	-7.10	-6.75	-6.79	-6.84	-6.79	1.13	1.13	1.13	1.12	1.12	1.12	1.12
O1	0.92	0.92	0.92	0.92	0.92	0.92	0.92	1.19	1.25	1.30	1.69	1.66	1.60	1.66	1.07	1.08	1.08	1.11	1.10	1.09	1.10
K1	1.29	1.29	1.29	1.29	1.29	1.29	1.29	-0.56	-0.51	-0.44	-0.04	-0.06	-0.11	-0.05	3.53	3.53	3.53	3.52	3.53	3.53	3.53
3MS2	0.76	0.75	0.74	0.73	0.74	0.73	0.73	61.16	60.81	61.64	62.51	62.87	63.33	63.45	0.86	0.85	0.86	0.86	0.87	0.87	0.88
MNS2	2.76	2.80	2.76	2.87	2.80	2.77	2.78	-63.48	-63.99	-66.61	-68.27	-67.65	-69.01	-69.27	0.68	0.70	0.70	0.74	0.72	0.71	0.72
MU2	1.37	1.39	1.35	1.36	1.33	1.31	1.31	-131.63	-132.99	-134.85	-136.91	-135.94	-137.12	-137.44	4.02	4.07	4.02	4.07	4.01	3.99	4.00
N2	0.88	0.88	0.88	0.88	0.88	0.88	0.88	-0.51	-0.46	-0.65	-0.13	-0.19	-0.35	-0.30	3.83	3.82	3.79	3.58	3.62	3.63	3.60
M2	0.94	0.94	0.94	0.95	0.95	0.95	0.95	0.65	0.80	0.55	1.10	0.95	0.78	0.84	10.55	10.31	9.68	8.56	8.69	8.37	8.25
2MN2	1.00	1.02	1.03	1.05	1.04	1.05	1.05	31.61	31.93	30.86	30.81	30.46	30.02	30.04	2.61	2.66	2.58	2.62	2.57	2.55	2.55
S2	0.97	0.97	0.98	0.98	0.99	0.99	0.99	8.75	8.95	8.95	9.76	9.62	9.58	9.65	8.24	8.43	8.41	9.14	9.01	8.97	9.04
MSN2	2.26	2.27	2.26	2.25	2.24	2.24	2.24	110.12	109.71	109.85	110.02	110.24	110.17	110.17	2.25	2.25	2.24	2.23	2.23	2.23	2.23
2SM2	1.34	1.35	1.36	1.38	1.37	1.38	1.39	70.35	71.12	70.80	71.21	70.83	70.72	70.78	1.56	1.58	1.58	1.61	1.60	1.60	1.61
NO3	0.12	0.12	0.12	0.17	0.18	0.18	0.18	60.10	26.99	32.40	16.60	17.44	18.54	19.24	0.48	0.46	0.46	0.43	0.42	0.43	0.42
2MK3	0.28	0.33	0.32	0.37	0.37	0.36	0.36	-49.89	-40.75	-39.99	-31.00	-30.47	-30.54	-28.74	0.92	0.85	0.85	0.77	0.77	0.78	0.77
MK3	0.82	0.90	0.91	1.00	1.00	1.00	1.00	-67.44	-64.44	-64.27	-59.06	-59.49	-59.87	-59.06	1.08	1.07	1.07	1.04	1.05	1.05	1.04
2MNS4	1.38	1.51	1.46	1.45	1.44	1.46	1.45	-93.82	-83.60	-84.01	-76.97	-77.77	-77.91	-77.97	0.41	0.40	0.39	0.37	0.37	0.37	0.37
3MS4	0.77	0.90	0.88	0.89	0.89	0.92	0.91	-94.88	-82.25	-81.28	-71.03	-72.39	-71.71	-71.38	0.69	0.66	0.64	0.58	0.59	0.59	0.59
MN4	1.62	1.49	1.48	1.38	1.40	1.38	1.38	-13.39	-7.79	-9.31	-7.02	-7.07	-5.41	-6.09	0.90	0.68	0.67	0.53	0.56	0.51	0.52
M4	1.42	1.23	1.18	1.03	1.06	1.02	1.02	0.42	9.90	8.09	11.78	11.75	15.19	13.63	0.98	0.70	0.56	0.49	0.51	0.63	0.56
3MN4	1.36	1.28	1.19	1.05	1.09	1.07	1.05	-116.37	-100.52	-100.05	-88.99	-89.84	-85.79	-86.17	0.85	0.74	0.71	0.60	0.62	0.59	0.59
MS4	0.67	0.49	0.51	0.49	0.48	0.45	0.47	47.20	42.13	34.43	21.91	24.08	20.90	20.55	1.23	1.20	1.09	0.96	0.99	1.01	0.98
2MSN4	1.44	1.51	1.47	1.45	1.46	1.47	1.46	-114.36	-108.56	-107.18	-101.38	-101.94	-100.32	-99.94	0.68	0.67	0.66	0.63	0.63	0.63	0.62
3MNS6	0.52	0.33	0.23	0.24	0.26	0.24	0.26	-100.86	-82.24	-76.78	-82.18	-94.58	-98.18	-97.78	0.38	0.31	0.30	0.31	0.33	0.33	0.33
2NM6	1.94	2.01	1.85	1.85	1.80	1.81	1.81	2.01	17.73	23.70	33.90	31.09	32.46	32.34	0.13	0.16	0.14	0.17	0.15	0.16	0.16
2MN6	2.61	3.09	3.17	3.07	3.01	3.08	3.07	-4.20	-0.07	1.20	8.87	8.74	7.99	8.69	0.63	0.82	0.85	0.82	0.79	0.82	0.81
M6	2.01	2.24	2.17	2.01	2.00	2.04	2.00	-0.38	9.52	11.53	19.50	18.86	18.70	18.96	0.74	0.93	0.89	0.82	0.81	0.84	0.81
MSN6	2.62	2.55	2.42	2.32	2.34	2.30	2.25	1.70	14.58	19.32	28.63	25.81	29.04	28.93	0.48	0.47	0.44	0.45	0.44	0.44	0.43
2MS6	1.84	1.95	1.85	1.67	1.67	1.66	1.64	-7.03	2.16	2.61	8.42	8.11	7.69	7.52	0.67	0.74	0.66	0.54	0.54	0.53	0.51
3MSN6	0.63	0.57	0.48	0.40	0.38	0.34	0.36	-6.99	14.36	12.87	13.00	10.01	16.34	11.59	0.13	0.16	0.19	0.21	0.22	0.24	0.23
2SM6	1.39	1.36	1.23	1.02	1.04	0.98	0.97	-32.24	-24.15	-22.70	-13.10	-18.65	-12.01	-12.00	0.14	0.11	0.09	0.04	0.06	0.04	0.04
2(MN)8	17.00	18.06	16.78	17.22	16.72	16.89	17.33	3.38	10.46	8.07	13.77	14.39	13.53	14.72	0.29	0.31	0.28	0.29	0.28	0.29	0.29
3MN8	3.44	4.58	3.90	4.19	4.37	4.14	4.07	-0.62	8.12	8.74	19.68	22.49	25.05	25.62	0.32	0.46	0.38	0.42	0.45	0.42	0.41
M8	6.31	7.17	6.62	6.75	6.83	6.75	6.67	19.42	24.66	24.64	31.70	33.52	33.95	33.96	0.83	0.97	0.88	0.91	0.93	0.92	0.90
2MSN8	10.25	10.67	10.33	10.07	9.88	9.59	9.62	57.22	64.03	62.30	67.96	68.28	68.09	67.76	0.71	0.75	0.72	0.71	0.70	0.68	0.68
3MS8	5.53	6.45	5.96	6.21	6.32	6.24	6.19	47.46	50.54	52.60	58.54	60.22	60.96	61.20	0.91	1.08	1.00	1.06	1.09	1.08	1.07
2(MS)8	7.79	8.70	8.33	8.44	8.47	8.35	8.33	93.51	95.03	96.36	102.42	103.89	106.02	106.00	0.34	0.38	0.37	0.37	0.38	0.37	0.37
4MS10	9.57	7.73	5.27	4.23	4.27	4.17	4.37	-18.83	-5.73	-9.51	-19.77	-18.79	-24.96	-26.83	0.26	0.20	0.13	0.10	0.10	0.10	0.11

LOWESTOFT

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.545	358.1	0.90	65.62	0.95	66.36	0.92	66.88	1.01	66.54	1.00	66.49	1.00	67.00	0.98	66.97
Q1	13.398661	4.243	102.05	3.27	92.33	3.28	92.65	3.27	92.41	3.20	94.12	3.19	94.14	3.20	93.82	3.20	93.90
O1	13.943036	13.645	155.04	13.08	159.43	13.11	159.82	13.07	159.57	12.77	161.53	12.74	161.54	12.77	161.24	12.78	161.29
K1	15.041069	11.357	331.85	15.22	327.85	15.27	328.09	15.25	327.80	14.81	329.82	14.78	329.84	14.81	329.55	14.83	329.62
3MS2	26.952313	1.355	204.06	0.75	197.59	0.72	198.73	0.69	198.79	0.68	198.44	0.69	199.12	0.68	198.83	0.68	199.40
MNS2	27.423834	0.661	43.83	1.57	31.09	1.46	28.19	1.42	26.27	1.43	26.37	1.43	27.49	1.41	26.96	1.41	26.54
MU2	27.968208	2.764	101.96	4.89	72.02	4.59	70.02	4.43	68.38	4.43	68.13	4.40	69.09	4.35	68.09	4.35	67.85
N2	28.43973	13.464	230.27	13.05	235.03	13.26	233.18	13.38	231.80	12.93	234.33	12.82	234.36	12.87	233.64	12.96	233.76
M2	28.984104	70.361	259.9	67.79	267.46	69.21	264.74	70.17	262.91	68.40	265.76	67.68	265.63	68.25	264.81	68.81	264.92
2MN2	29.528479	2.942	121.53	3.93	156.62	3.79	152.97	3.72	150.19	3.77	151.18	3.70	151.34	3.72	149.99	3.74	149.83
S2	30	21.263	298.49	20.86	310.26	21.65	308.98	22.15	308.06	21.30	311.32	21.23	311.00	21.43	310.51	21.60	310.77
MSN2	30.544375	0.35	125.38	0.88	231.89	0.87	231.09	0.86	230.74	0.82	229.90	0.81	230.18	0.81	230.04	0.82	229.96
2SM2	31.015896	0.439	157.29	0.75	245.55	0.76	242.07	0.76	239.21	0.76	241.69	0.75	241.13	0.77	239.67	0.78	239.36
NO3	42.382765	0.389	303.38	1.02	350.76	1.00	349.16	0.99	347.61	1.00	348.77	1.01	348.99	1.01	348.65	1.01	348.57
2MK3	42.92714	0.961	359.08	1.56	35.23	1.53	33.22	1.51	31.69	1.56	32.98	1.56	33.22	1.56	32.95	1.56	32.82
MK3	44.025173	1.073	179.25	1.68	145.49	1.69	143.59	1.68	142.81	1.75	145.61	1.75	145.71	1.74	144.90	1.75	144.94
2MNS4	56.407938	0.134	25.53	0.33	81.65	0.33	83.23	0.29	83.86	0.28	84.39	0.29	84.88	0.30	81.47	0.30	82.38
3MS4	56.952313	0.571	15.82	0.42	63.08	0.42	63.78	0.38	60.13	0.40	58.27	0.40	60.92	0.42	59.00	0.41	59.18
MN4	57.423834	1.621	319.3	3.04	332.22	3.04	333.12	2.80	332.80	2.76	334.53	2.77	335.13	2.82	333.40	2.81	333.78
M4	57.968208	4.895	333.61	6.60	353.10	6.65	353.82	6.11	352.48	6.12	353.54	6.09	354.24	6.24	352.46	6.20	352.78
3MN4	58.512583	0.528	138.03	0.82	154.94	0.86	156.73	0.80	154.83	0.84	154.99	0.83	155.87	0.87	154.09	0.85	154.10
MS4	58.984104	4.094	24.83	3.94	45.55	4.00	46.97	3.74	45.67	3.78	47.86	3.75	48.09	3.86	46.73	3.84	46.94
2MSN4	59.528479	0.618	196.47	0.33	241.57	0.35	244.24	0.32	241.59	0.33	242.50	0.33	242.63	0.35	240.48	0.34	240.99
3MNS6	85.392042	0.23	245.6	1.00	253.57	1.01	247.73	0.96	243.27	0.96	250.49	0.97	251.98	0.97	253.74	0.96	253.50
2NM6	85.863563	0.757	63.13	0.41	51.90	0.41	66.02	0.43	63.21	0.39	68.21	0.37	65.90	0.38	64.62	0.40	65.83
2MN6	86.407938	2.234	91.88	4.61	100.85	4.88	99.49	4.77	94.19	4.61	101.61	4.58	102.51	4.56	102.12	4.55	102.53
M6	86.952313	3.967	117.16	5.32	126.82	5.72	126.44	5.65	121.26	5.38	128.77	5.36	129.50	5.35	129.37	5.32	129.60
MSN6	87.423834	1.146	136.03	0.95	128.13	0.88	137.78	0.92	136.76	0.82	139.89	0.83	139.02	0.78	136.62	0.80	137.04
2MS6	87.968208	4.078	163.79	4.60	178.59	4.88	178.26	4.82	172.90	4.62	180.52	4.61	181.14	4.56	180.85	4.56	181.00
3MSN6	88.512583	0.591	7.14	0.82	71.38	0.88	66.63	0.82	62.28	0.82	69.51	0.82	70.82	0.83	72.60	0.82	71.21
2SM6	88.984104	1.012	212.67	0.92	221.19	0.94	221.57	0.95	217.35	0.89	223.78	0.90	223.92	0.87	222.93	0.86	223.90
2(MN)8	114.84767	0.221	253.84	0.38	247.33	0.37	253.27	0.35	251.19	0.38	258.05	0.38	258.73	0.39	256.30	0.38	255.66
3MN8	115.39204	0.537	269.12	0.73	242.22	0.83	243.67	0.75	253.07	0.85	248.59	0.85	248.34	0.88	242.91	0.86	243.76
M8	115.93642	0.75	293.26	1.15	272.42	1.23	278.30	1.09	280.71	1.23	282.58	1.22	282.79	1.25	279.21	1.23	279.62
2MSN8	116.40794	0.504	327.26	0.73	340.87	0.74	350.25	0.67	347.94	0.74	352.92	0.73	353.42	0.74	351.89	0.74	351.57
3MS8	116.95231	1.191	343.82	1.38	310.97	1.47	319.22	1.29	320.44	1.45	323.73	1.45	323.72	1.48	320.34	1.46	320.80
2(MS)8	117.96821	0.476	48.7	0.39	8.43	0.40	18.56	0.36	18.72	0.40	22.31	0.39	21.35	0.40	19.16	0.40	19.26
4MS10	145.93642	0.407	72.74	1.48	50.80	1.55	59.78	1.45	51.65	1.33	56.36	1.31	56.54	1.32	54.26	1.34	54.85

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.35	0.37	0.36	0.39	0.39	0.39	0.39	67.52	68.26	68.78	68.44	68.39	68.90	68.87	2.35	2.36	2.37	2.37	2.37	2.38	2.37
Q1	0.77	0.77	0.77	0.75	0.75	0.75	0.75	-9.72	-9.40	-9.64	-7.93	-7.91	-8.23	-8.15	1.16	1.14	1.16	1.16	1.17	1.17	1.17
O1	0.96	0.96	0.96	0.94	0.93	0.94	0.94	4.39	4.78	4.53	6.49	6.50	6.20	6.25	1.17	1.24	1.20	1.73	1.75	1.67	1.68
K1	1.34	1.34	1.34	1.30	1.30	1.30	1.31	-4.00	-3.76	-4.05	-2.03	-2.01	-2.30	-2.23	3.97	4.00	4.00	3.49	3.45	3.49	3.51
3MS2	0.55	0.53	0.51	0.50	0.51	0.50	0.50	-6.47	-5.33	-5.27	-5.62	-4.94	-5.23	-4.66	0.61	0.64	0.67	0.68	0.67	0.68	0.68
MNS2	2.37	2.21	2.15	2.16	2.16	2.13	2.13	-12.74	-15.64	-17.56	-17.46	-16.34	-16.87	-17.29	0.94	0.85	0.81	0.82	0.81	0.80	0.80
MU2	1.77	1.66	1.60	1.60	1.59	1.57	1.58	-29.94	-31.94	-33.58	-33.83	-32.87	-33.87	-34.11	2.85	2.68	2.62	2.63	2.56	2.57	2.58
N2	0.97	0.98	0.99	0.96	0.95	0.96	0.96	4.76	2.91	1.53	4.06	4.09	3.37	3.49	1.18	0.71	0.37	1.08	1.14	0.97	0.95
M2	0.96	0.98	1.00	0.97	0.96	0.97	0.98	7.56	4.84	3.01	5.86	5.73	4.91	5.02	9.46	6.00	3.70	7.36	7.40	6.30	6.29
2MN2	1.34	1.29	1.26	1.28	1.26	1.26	1.27	35.09	31.44	28.66	29.65	29.81	28.46	28.30	2.28	2.00	1.81	1.89	1.86	1.80	1.81
S2	0.98	1.02	1.04	1.00	1.00	1.01	1.02	11.77	10.49	9.57	12.83	12.51	12.02	12.28	4.34	3.94	3.73	4.76	4.63	4.47	4.60
MSN2	2.50	2.48	2.45	2.34	2.31	2.32	2.34	106.51	105.71	105.36	104.52	104.80	104.66	104.58	1.03	1.02	1.01	0.97	0.96	0.96	0.97
2SM2	1.72	1.72	1.74	1.74	1.72	1.75	1.78	88.26	84.78	81.92	84.40	83.84	82.38	82.07	0.86	0.84	0.83	0.84	0.83	0.83	0.84
NO3	2.62	2.57	2.54	2.58	2.59	2.59	2.59	47.38	45.78	44.23	45.39	45.61	45.27	45.19	0.81	0.78	0.78	0.78	0.78	0.78	0.78
2MK3	1.62	1.59	1.57	1.62	1.62	1.62	1.62	36.15	34.14	32.61	33.90	34.14	33.87	33.74	0.97	0.91	0.87	0.93	0.93	0.93	0.93
MK3	1.57	1.57	1.56	1.63	1.63	1.62	1.63	-33.76	-35.66	-36.44	-33.64	-33.54	-34.35	-34.31	0.99	1.03	1.03	1.04	1.04	1.05	1.05
2MNS4	2.44	2.45	2.18	2.10	2.17	2.25	2.24	56.12	57.70	58.33	58.86	59.35	55.94	56.85	0.28	0.28	0.25	0.24	0.25	0.25	0.25
3MS4	0.73	0.74	0.66	0.70	0.69	0.73	0.71	47.26	47.96	44.31	42.45	45.10	43.18	43.36	0.42	0.43	0.40	0.39	0.40	0.39	0.39
MN4	1.88	1.87	1.73	1.70	1.71	1.74	1.73	12.92	13.82	13.50	15.23	15.83	14.10	14.48	1.51	1.51	1.28	1.27	1.28	1.31	1.30
M4	1.35	1.36	1.25	1.25	1.24	1.28	1.27	19.49	20.21	18.87	19.93	20.63	18.85	19.17	2.57	2.66	2.17	2.26	2.29	2.26	2.25
3MN4	1.56	1.63	1.52	1.59	1.58	1.64	1.62	16.91	18.70	18.80	16.96	17.84	16.06	16.07	0.35	0.40	0.33	0.37	0.37	0.39	0.38
MS4	0.96	0.98	0.91	0.92	0.92	0.94	0.94	20.72	22.14	20.84	23.03	23.26	21.90	22.11	1.45	1.56	1.46	1.60	1.62	1.53	1.54
2MSN4	0.53	0.56	0.52	0.54	0.54	0.57	0.56	45.10	47.77	45.12	46.03	46.16	44.01	44.52	0.45	0.46	0.45	0.45	0.46	0.44	0.44
3MNS6	4.33	4.39	4.17	4.16	4.23	4.20	4.17	7.97	2.13	-2.33	4.89	6.38	8.14	7.90	0.77	0.78	0.73	0.73	0.75	0.74	0.73
2NM6	0.55	0.54	0.57	0.51	0.49	0.50	0.52	-11.23	2.89	0.08	5.08	2.77	1.49	2.70	0.36	0.35	0.33	0.37	0.38	0.38	0.36
2MN6	2.06	2.18	2.14	2.06	2.05	2.04	2.04	8.97	7.61	2.31	9.73	10.63	10.24	10.65	2.43	2.68	2.54	2.43	2.42	2.40	2.39
M6	1.34	1.44	1.42	1.36	1.35	1.35	1.34	9.66	9.28	4.10	11.61	12.34	12.21	12.44	1.56	1.91	1.72	1.69	1.71	1.70	1.68
MSN6	0.83	0.77	0.80	0.71	0.72	0.68	0.69	-7.90	1.75	0.73	3.86	2.99	0.59	1.01	0.24	0.27	0.23	0.34	0.32	0.37	0.35
2MS6	1.13	1.20	1.18	1.13	1.13	1.12	1.12	14.80	14.47	9.11	16.73	17.35	17.06	17.21	1.23	1.38	1.03	1.37	1.41	1.37	1.38
3MSN6	1.39	1.48	1.38	1.39	1.39	1.41	1.39	64.24	59.49	55.14	62.37	63.68	65.46	64.07	0.77	0.77	0.68	0.76	0.77	0.80	0.78
2SM6	0.91	0.93	0.94	0.88	0.89	0.85	0.85	8.52	8.90	4.68	11.11	11.25	10.26	11.23	0.17	0.17	0.10	0.22	0.22	0.22	0.24
2(MN)8	1.72	1.69	1.60	1.73	1.71	1.74	1.72	-6.51	-0.57	-2.65	4.21	4.89	2.46	1.82	0.16	0.15	0.13	0.18	0.16	0.16	0.16
3MN8	1.36	1.54	1.39	1.58	1.58	1.64	1.60	-26.90	-25.45	-16.05	-20.53	-20.78	-26.21	-25.36	0.35	0.41	0.27	0.39	0.40	0.46	0.44
M8	1.54	1.64	1.45	1.64	1.63	1.67	1.64	-20.84	-14.96	-12.55	-10.68	-10.47	-14.05	-13.64	0.52	0.54	0.39	0.51	0.51	0.58	0.53
2MSN8	1.45	1.47	1.34	1.47	1.44	1.48	1.46	13.61	22.99	20.68	25.66	26.16	24.63	24.31	0.27	0.34	0.27	0.36	0.35	0.35	0.35
3MS8	1.16	1.23	1.09	1.22	1.21	1.24	1.23	-32.85	-24.60	-23.38	-20.09	-20.10	-23.48	-23.02	0.75	0.63	0.51	0.53	0.52	0.61	0.59
2(MS)8	0.83	0.84	0.75	0.83	0.82	0.84	0.83	-40.27	-30.14	-29.98	-26.39	-27.35	-29.54	-29.44	0.31	0.24	0.24	0.21	0.22	0.24	0.23
4MS10	3.64	3.82	3.57	3.27	3.23	3.24	3.28	-21.94	-12.96	-21.09	-16.38	-16.20	-18.48	-17.89	1.11	1.16	1.08	0.95	0.93	0.94	0.96

NEWHAVEN

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	1.244	58.33	1.11	69.05	1.13	68.84	1.12	68.44	1.10	69.12	1.07	69.28	1.05	69.78	1.04	69.82
Q1	13.398661	0.123	61.86	1.44	9.39	1.41	10.80	1.37	12.37	1.36	11.26	1.34	11.63	1.34	11.43	1.34	11.37
O1	13.943036	0.881	345.86	3.41	48.50	3.30	50.01	3.18	52.01	3.18	49.51	3.13	49.77	3.12	49.34	3.12	49.25
K1	15.041069	7.346	101.66	7.76	115.39	7.73	115.63	7.61	115.06	7.75	115.78	7.72	115.60	7.72	115.41	7.73	115.49
3MS2	26.952313	1.137	163.44	1.08	4.65	0.94	5.79	0.83	9.53	0.85	9.73	0.84	9.44	0.85	9.51	0.85	9.47
MNS2	27.423834	1.706	30.31	2.95	349.98	2.91	357.44	3.03	1.22	3.00	0.13	2.96	0.69	2.97	358.85	2.95	359.38
MU2	27.968208	8.819	20.61	4.86	5.70	4.74	17.76	5.13	24.52	5.07	22.74	5.03	23.30	5.06	21.04	5.03	21.75
N2	28.43973	42.56	299.57	37.61	295.07	37.06	297.55	36.98	298.38	36.52	298.09	36.15	298.24	36.04	297.44	35.94	297.60
M2	28.984104	225.732	321.42	235.67	316.11	232.66	318.94	232.97	319.95	230.26	319.60	228.04	319.70	227.44	318.84	226.80	319.01
2MN2	29.528479	12.118	142	11.24	135.14	11.18	139.84	11.40	141.85	11.28	141.12	11.21	141.22	11.17	140.04	11.13	140.29
S2	30	72.873	10.78	81.59	15.56	79.29	18.13	78.46	19.31	77.67	18.95	76.88	19.04	76.84	18.21	76.55	18.34
MSN2	30.544375	3.411	196.63	0.98	359.06	0.94	357.01	0.87	356.49	0.87	356.92	0.85	356.92	0.85	357.64	0.85	357.43
2SM2	31.015896	4.764	213.5	1.93	223.22	1.83	227.98	1.81	230.99	1.79	229.92	1.78	230.11	1.78	228.85	1.77	229.09
NO3	42.382765	0.262	254.04	0.79	241.85	0.76	245.42	0.74	246.12	0.73	245.33	0.73	244.76	0.73	242.72	0.73	242.94
2MK3	42.92714	0.888	279.41	1.50	289.19	1.45	292.85	1.43	293.83	1.42	292.93	1.41	292.49	1.42	290.55	1.41	290.81
MK3	44.025173	1.408	48.62	2.27	41.23	2.22	44.15	2.19	44.12	2.18	43.65	2.18	43.44	2.20	42.00	2.19	42.14
2MNS4	56.407938	0.592	319.51	0.57	324.47	0.58	329.00	0.58	329.06	0.57	328.00	0.57	327.63	0.56	325.79	0.56	326.27
3MS4	56.952313	0.97	323.79	1.04	325.18	1.04	330.06	1.04	330.12	1.04	329.00	1.04	328.78	1.04	326.78	1.04	327.23
MN4	57.423834	3.165	224.6	4.18	222.23	4.09	226.33	4.08	226.67	4.03	226.00	4.00	225.76	4.00	224.01	3.98	224.43
M4	57.968208	9.046	249.63	9.62	245.41	9.41	249.75	9.36	250.01	9.30	249.15	9.24	248.82	9.27	246.87	9.22	247.31
3MN4				1.59	59.81	1.58	64.94	1.57	65.23	1.57	64.33	1.56	64.03	1.57	61.98	1.56	62.45
MS4				4.76	305.98	4.64	310.62	4.62	310.79	4.60	310.20	4.57	309.83	4.58	307.91	4.56	308.39
2MSN4				0.51	145.66	0.50	150.40	0.49	150.37	0.50	149.19	0.49	148.60	0.50	146.48	0.50	146.84
3MNS6	85.392042	0.214	260.56	0.55	207.16	0.61	217.87	0.59	218.64	0.57	218.30	0.57	218.83	0.55	215.63	0.55	215.32
2NM6	85.863563	0.302	123.35	0.45	163.03	0.46	175.59	0.45	176.08	0.45	174.95	0.44	175.08	0.44	171.00	0.44	170.79
2MN6	86.407938	1.154	145.79	1.92	96.09	2.07	104.27	2.01	104.71	1.96	105.22	1.95	105.62	1.91	103.09	1.89	103.18
M6	86.952313	2.146	168	2.90	129.11	3.05	137.74	2.96	138.33	2.91	138.68	2.89	138.93	2.84	136.45	2.82	136.52
MSN6	87.423834	0.527	195.89	0.67	230.93	0.64	246.51	0.62	247.49	0.62	246.60	0.62	246.14	0.62	242.09	0.63	242.03
2MS6	87.968208	2.404	212.38	2.55	175.57	2.63	184.32	2.57	184.87	2.50	185.14	2.49	185.36	2.44	182.76	2.42	182.84
3MSN6	88.512583	0.524	34.66	0.61	15.33	0.63	27.16	0.61	27.75	0.59	27.02	0.58	27.08	0.56	23.68	0.56	23.39
2SM6	88.984104	0.587	266.89	0.47	219.11	0.46	223.33	0.46	223.27	0.44	223.75	0.44	223.98	0.43	222.35	0.43	222.66
2(MN)8	114.84767	0.298	345.93	0.07	6.88	0.11	359.04	0.12	356.76	0.11	0.14	0.12	2.11	0.11	6.22	0.11	6.88
3MN8	115.39204	0.704	4.87	0.27	69.67	0.15	38.11	0.12	17.95	0.14	36.21	0.16	38.66	0.21	53.27	0.22	52.08
M8	115.93642	1.016	34.61	0.34	67.32	0.34	41.89	0.35	31.65	0.34	38.55	0.35	40.55	0.35	50.40	0.36	50.68
2MSN8	116.40794	0.563	56.32	0.21	75.90	0.27	72.16	0.30	69.35	0.29	71.47	0.29	72.71	0.27	75.27	0.27	76.07
3MS8	116.95231	1.409	76.89	0.49	146.25	0.37	128.04	0.34	117.11	0.38	124.79	0.40	125.20	0.45	132.25	0.46	132.13
2(MS)8	117.96821	0.667	120.87	0.07	184.84	0.07	134.06	0.09	122.88	0.08	137.65	0.08	143.24	0.09	162.03	0.09	162.75
4MS10	145.93642	0.477	333.98	1.29	247.51	1.22	259.18	1.20	261.09	1.20	259.87	1.19	259.71	1.20	255.27	1.19	255.28

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.89	0.91	0.90	0.88	0.86	0.84	0.83	10.72	10.51	10.11	10.79	10.95	11.45	11.49	0.26	0.25	0.24	0.26	0.28	0.30	0.31
Q1	11.68	11.43	11.17	11.05	10.91	10.92	10.89	-52.47	-51.06	-49.49	-50.60	-50.23	-50.43	-50.49	1.37	1.33	1.30	1.28	1.27	1.27	1.27
O1	3.87	3.74	3.60	3.61	3.55	3.54	3.54	62.64	64.15	66.15	63.65	63.91	63.48	63.39	3.11	3.02	2.93	2.90	2.85	2.84	2.83
K1	1.06	1.05	1.04	1.05	1.05	1.05	1.05	13.73	13.97	13.40	14.12	13.94	13.75	13.83	1.85	1.87	1.76	1.90	1.87	1.84	1.85
3MS2	0.95	0.82	0.73	0.75	0.74	0.75	0.75	-158.79	-157.65	-153.91	-153.71	-154.00	-153.93	-153.97	2.18	2.04	1.92	1.93	1.92	1.94	1.94
MNS2	1.73	1.71	1.78	1.76	1.74	1.74	1.73	-40.33	-32.87	-29.09	-30.18	-29.62	-31.46	-30.93	1.98	1.74	1.75	1.75	1.70	1.75	1.73
MU2	0.71	0.69	0.75	0.74	0.74	0.74	0.74	-14.91	-2.85	3.91	2.13	2.69	0.43	1.14	2.46	2.10	1.74	1.76	1.81	1.76	1.80
N2	0.88	0.87	0.87	0.86	0.85	0.85	0.84	-4.50	-2.02	-1.19	-1.48	-1.33	-2.13	-1.97	5.86	5.68	5.64	6.12	6.48	6.68	6.75
M2	1.04	1.03	1.03	1.02	1.01	1.01	1.00	-5.31	-2.48	-1.47	-1.82	-1.72	-2.58	-2.41	23.56	12.10	9.33	8.54	7.19	10.34	9.58
2MN2	0.93	0.92	0.94	0.93	0.92	0.92	0.92	-6.86	-2.16	-0.15	-0.88	-0.78	-1.96	-1.71	1.65	1.03	0.72	0.86	0.93	1.03	1.04
S2	1.12	1.09	1.08	1.07	1.05	1.05	1.05	4.78	7.35	8.53	8.17	8.26	7.43	7.56	10.83	11.67	12.56	11.74	11.50	10.48	10.51
MSN2	0.29	0.27	0.26	0.26	0.25	0.25	0.25	162.43	160.38	159.86	160.29	160.29	161.01	160.80	4.35	4.30	4.24	4.24	4.22	4.22	4.22
2SM2	0.41	0.38	0.38	0.38	0.37	0.37	0.37	9.72	14.48	17.49	16.42	16.61	15.35	15.59	2.88	3.03	3.09	3.09	3.10	3.09	3.10
NO3	3.03	2.90	2.81	2.79	2.78	2.80	2.78	-12.19	-8.62	-7.92	-8.71	-9.28	-11.32	-11.10	0.54	0.50	0.48	0.47	0.47	0.48	0.47
2MK3	1.69	1.64	1.61	1.59	1.59	1.60	1.59	9.78	13.44	14.42	13.52	13.08	11.14	11.40	0.64	0.63	0.61	0.59	0.58	0.57	0.57
MK3	1.61	1.58	1.56	1.55	1.55	1.56	1.55	-7.39	-4.47	-4.50	-4.97	-5.18	-6.62	-6.48	0.89	0.82	0.79	0.79	0.79	0.81	0.80
2MNS4	0.97	0.98	0.98	0.96	0.96	0.95	0.95	4.96	9.49	9.55	8.49	8.12	6.28	6.76	0.05	0.10	0.10	0.09	0.09	0.07	0.07
3MS4	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.39	6.27	6.33	5.21	4.99	2.99	3.44	0.08	0.13	0.13	0.12	0.11	0.09	0.09
MN4	1.32	1.29	1.29	1.27	1.26	1.26	1.26	-2.37	1.73	2.07	1.40	1.16	-0.59	-0.17	1.02	0.93	0.93	0.87	0.84	0.84	0.82
M4	1.06	1.04	1.03	1.03	1.02	1.02	1.02	-4.22	0.12	0.38	-0.48	-0.81	-2.76	-2.32	0.89	0.36	0.32	0.27	0.23	0.50	0.41
3MN4																					
MS4																					
2MSN4																					
3MNS6	2.57	2.84	2.76	2.68	2.66	2.57	2.56	-53.40	-42.69	-41.92	-42.26	-41.73	-44.93	-45.24	0.46	0.47	0.45	0.44	0.43	0.43	0.42
2NM6	1.50	1.53	1.49	1.48	1.46	1.46	1.46	39.68	52.24	52.73	51.60	51.73	47.65	47.44	0.29	0.37	0.36	0.35	0.35	0.33	0.32
2MN6	1.66	1.79	1.74	1.70	1.69	1.65	1.63	-49.70	-41.52	-41.08	-40.57	-40.17	-42.70	-42.61	1.46	1.43	1.37	1.32	1.30	1.32	1.30
M6	1.35	1.42	1.38	1.36	1.35	1.32	1.31	-38.89	-30.26	-29.67	-29.32	-29.07	-31.55	-31.48	1.83	1.61	1.53	1.48	1.46	1.51	1.49
MSN6	1.26	1.21	1.17	1.18	1.17	1.18	1.19	35.04	50.62	51.60	50.71	50.25	46.20	46.14	0.38	0.51	0.50	0.50	0.49	0.46	0.46
2MS6	1.06	1.09	1.07	1.04	1.04	1.01	1.01	-36.81	-28.06	-27.51	-27.24	-27.02	-29.62	-29.54	1.57	1.24	1.19	1.16	1.15	1.24	1.23
3MSN6	1.16	1.20	1.16	1.12	1.10	1.06	1.07	-19.33	-7.50	-6.91	-7.64	-7.58	-10.98	-11.27	0.21	0.13	0.11	0.10	0.09	0.11	0.11
2SM6	0.79	0.79	0.78	0.75	0.75	0.74	0.73	-47.78	-43.56	-43.62	-43.14	-42.91	-44.54	-44.23	0.44	0.41	0.41	0.40	0.40	0.41	0.41
2(MN)8	0.24	0.35	0.41	0.38	0.39	0.36	0.36	20.95	13.11	10.83	14.21	16.18	20.29	20.95	0.23	0.20	0.18	0.19	0.19	0.20	0.20
3MN8	0.39	0.21	0.17	0.20	0.22	0.30	0.31	64.80	33.24	13.08	31.34	33.79	48.40	47.21	0.64	0.59	0.59	0.59	0.58	0.58	0.58
M8	0.33	0.33	0.35	0.34	0.35	0.35	0.35	32.71	7.28	-2.96	3.94	5.94	15.79	16.07	0.76	0.68	0.66	0.67	0.67	0.68	0.68
2MSN8	0.37	0.48	0.54	0.51	0.52	0.48	0.48	19.58	15.84	13.03	15.15	16.39	18.95	19.75	0.38	0.31	0.28	0.29	0.30	0.32	0.32
3MS8	0.35	0.26	0.24	0.27	0.28	0.32	0.33	69.36	51.15	40.22	47.90	48.31	55.36	55.24	1.32	1.21	1.17	1.19	1.18	1.21	1.21
2(MS)8	0.10	0.11	0.13	0.12	0.12	0.13	0.13	63.97	13.19	2.01	16.78	22.37	41.16	41.88	0.64	0.60	0.58	0.59	0.59	0.60	0.60
4MS10	2.70	2.56	2.52	2.52	2.49	2.51	2.48	-86.47	-74.80	-72.89	-74.11	-74.27	-78.71	-78.70	1.34	1.19	1.15	1.17	1.15	1.20	1.19

SCHIERMONNIKOOG

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.69	16.0841	0.88	68.33	0.83	70.52	0.80	69.92	0.79	70.37	0.79	71.17	0.77	70.86	0.76	70.55
Q1	13.398661	2.702	150.3613	2.43	133.15	2.43	133.96	2.41	135.93	2.36	136.89	2.36	136.45	2.38	135.68	2.36	135.66
O1	13.943036	8.711	213.587	8.19	205.39	8.14	206.48	8.10	208.16	7.88	209.33	7.87	208.66	7.90	208.06	7.90	207.71
K1	15.041069	6.959	8.248931	8.34	8.61	8.31	9.56	8.25	11.72	7.95	12.37	7.96	11.57	8.06	10.88	8.06	10.68
3MS2	26.952312	2.268	100.3777	0.99	62.07	0.98	65.97	1.00	65.59	1.00	67.28	0.97	67.82	0.99	67.56	0.97	67.53
MNS2	27.423834	2.058	324.3362	3.57	300.58	3.47	304.47	3.41	305.11	3.36	306.73	3.33	307.13	3.33	307.37	3.29	306.62
MU2	27.968208	9.489	342.5218	9.24	336.04	9.01	340.20	9.00	339.78	8.90	341.52	8.78	342.23	8.75	342.01	8.69	341.35
N2	28.43973	17.217	235.2203	17.07	216.27	16.63	218.87	16.26	219.08	16.03	220.93	15.92	221.19	15.81	221.67	15.75	220.96
M2	28.984104	106.165	258.0659	119.28	246.35	116.35	249.09	114.29	249.30	112.68	251.08	111.58	251.32	110.92	251.52	110.59	250.86
2MN2	29.528479	8.751	92.14152	9.10	87.47	8.91	90.77	8.80	90.66	8.67	92.35	8.57	92.64	8.52	92.27	8.48	91.69
S2	30	28.348	323.7	32.38	317.44	31.35	319.68	30.73	320.13	30.25	322.02	29.89	322.02	29.78	322.35	29.72	321.67
MSN2	30.544374	1.669	153.1356	0.72	143.28	0.71	145.06	0.73	147.85	0.72	148.52	0.72	147.35	0.70	146.93	0.70	147.28
2SM2	31.015896	2.574	183.8441	1.58	197.88	1.52	200.61	1.48	200.92	1.46	203.23	1.46	202.86	1.44	202.66	1.45	202.70
NO3	42.382767	0.382	20.49723	0.57	1.31	0.56	2.27	0.57	359.93	0.61	357.61	0.61	0.05	0.63	359.14	0.64	358.04
2MK3	42.927139	0.717	37.00286	0.88	35.43	0.91	35.61	0.98	34.66	1.01	35.34	1.03	36.02	1.11	35.81	1.08	35.13
MK3	44.025173	0.521	231.5048	0.90	97.56	0.93	104.39	1.09	112.16	1.16	117.31	1.09	116.71	1.14	119.30	1.08	118.67
2MNS4	56.407936	1.006	36.14206	1.09	352.73	1.10	358.85	1.22	2.48	1.26	4.87	1.22	2.48	1.27	1.84	1.27	1.12
3MS4	56.952312	2.574	49.56769	2.40	24.87	2.38	30.10	2.49	33.89	2.64	37.57	2.56	34.40	2.63	34.89	2.60	33.30
MN4	57.423836	3.885	308.5362	4.12	285.48	4.13	290.22	4.37	292.53	4.43	294.97	4.32	291.17	4.43	292.06	4.42	290.72
M4	57.968208	11.541	335.7518	12.51	319.94	12.29	325.06	12.91	328.15	13.22	331.03	13.00	327.83	13.25	328.67	13.18	327.14
3MN4	58.512585	1.863	167.6474	2.99	145.62	2.99	152.48	3.15	156.63	3.26	159.60	3.21	156.58	3.27	157.83	3.25	156.27
MS4	58.984104	7.057	57.3459	6.64	41.15	6.54	46.59	6.76	49.88	6.90	53.62	6.80	50.83	6.90	51.95	6.88	50.31
2MSN4	59.528481	1.031	258.4515	0.92	235.01	0.92	241.33	0.97	244.34	1.01	247.18	1.00	245.79	1.02	246.38	1.01	244.70
3MNS6	85.392044	0.324	171.978	0.83	146.30	0.70	154.25	0.79	146.66	0.93	152.64	0.87	155.52	0.92	154.84	0.89	152.01
2NM6	85.863564	0.356	43.20644	0.17	90.64	0.12	60.19	0.31	86.97	0.37	107.24	0.29	98.60	0.32	99.50	0.33	96.80
2MN6	86.407936	1.381	81.60206	2.65	26.57	2.36	29.12	2.69	29.66	3.01	37.16	2.97	36.37	3.05	37.24	3.07	33.66
M6	86.952316	2.446	108.7277	3.42	62.36	3.15	63.02	3.72	67.63	4.14	75.08	4.01	73.34	4.16	74.09	4.21	71.14
MSN6	87.423836	0.624	168.6362	0.23	318.76	0.20	352.18	0.09	225.27	0.27	228.43	0.17	241.55	0.25	230.83	0.24	229.32
2MS6	87.968208	2.417	174.7518	3.51	120.69	3.29	122.97	3.68	127.46	4.00	135.33	3.92	133.29	4.04	133.72	4.06	131.61
3MSN6	88.512581	0.621	9.877419	1.04	339.75	0.99	342.67	1.13	347.33	1.23	353.36	1.19	351.19	1.25	352.88	1.25	349.76
2SM6	88.9841	0.554	261.4659	0.58	162.54	0.55	160.18	0.55	171.45	0.58	183.25	0.57	177.82	0.55	179.75	0.59	176.32
2(MN)8	114.84766	0.207	292.3223	0.26	135.74	0.29	136.21	0.28	147.63	0.28	161.74	0.28	155.00	0.30	159.11	0.30	149.80
3MN8	115.39204	0.57	321.658	0.54	57.18	0.62	63.44	0.61	82.59	0.61	101.47	0.59	92.15	0.61	98.00	0.62	94.74
M8	115.93642	0.829	0.543583	0.62	117.10	0.64	121.72	0.66	139.35	0.65	157.39	0.64	149.38	0.70	153.81	0.69	148.42
2MSN8	116.40794	0.382	26.89206	0.47	195.54	0.43	204.50	0.46	216.06	0.44	233.49	0.44	225.33	0.42	230.11	0.45	224.67
3MS8	116.95232	0.978	57.95768	0.95	190.64	0.93	193.59	1.04	209.78	1.06	224.87	1.03	217.90	1.10	221.40	1.09	216.86
2(MS)8	117.96821	0.303	112.2018	0.25	251.29	0.26	253.25	0.32	270.88	0.29	281.78	0.28	269.94	0.29	278.08	0.31	274.76
4MS10	145.93642	0.793	136.7236	0.43	222.98	0.46	252.39	0.34	290.90	0.32	314.16	0.29	303.49	0.30	311.48	0.27	300.28

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.33	0.31	0.30	0.29	0.29	0.28	0.28	52.25	54.44	53.84	54.29	55.09	54.78	54.47	2.26	2.31	2.31	2.32	2.33	2.33	2.33
Q1	0.90	0.90	0.89	0.87	0.87	0.88	0.87	-17.21	-16.40	-14.43	-13.47	-13.91	-14.68	-14.70	0.81	0.78	0.70	0.68	0.70	0.72	0.73
O1	0.94	0.93	0.93	0.90	0.90	0.91	0.91	-8.20	-7.11	-5.43	-4.26	-4.93	-5.53	-5.88	1.32	1.19	1.00	1.03	1.11	1.14	1.18
K1	1.20	1.19	1.19	1.14	1.14	1.16	1.16	0.36	1.31	3.47	4.12	3.32	2.63	2.43	1.38	1.36	1.37	1.13	1.09	1.16	1.14
3MS2	0.44	0.43	0.44	0.44	0.43	0.44	0.43	-38.31	-34.41	-34.79	-33.10	-32.56	-32.82	-32.85	1.61	1.56	1.55	1.53	1.54	1.53	1.55
MNS2	1.73	1.69	1.66	1.63	1.62	1.62	1.60	-23.76	-19.87	-19.23	-17.61	-17.21	-16.97	-17.72	1.88	1.69	1.61	1.53	1.49	1.49	1.47
MU2	0.97	0.95	0.95	0.94	0.93	0.92	0.92	-6.48	-2.32	-2.74	-1.00	-0.29	-0.51	-1.17	1.09	0.61	0.66	0.62	0.71	0.74	0.82
N2	0.99	0.97	0.94	0.93	0.92	0.92	0.91	-18.95	-16.35	-16.14	-14.29	-14.03	-13.55	-14.26	5.65	4.85	4.79	4.30	4.25	4.14	4.34
M2	1.12	1.10	1.08	1.06	1.05	1.04	1.04	-11.72	-8.98	-8.77	-6.99	-6.75	-6.55	-7.21	26.45	20.15	18.69	14.83	13.90	13.27	14.32
2MN2	1.04	1.02	1.01	0.99	0.98	0.97	0.97	-4.67	-1.37	-1.48	0.21	0.50	0.13	-0.45	0.80	0.27	0.23	0.09	0.19	0.24	0.28
S2	1.14	1.11	1.08	1.07	1.05	1.05	1.05	-6.26	-4.02	-3.57	-1.68	-1.68	-1.35	-2.03	5.22	3.66	3.01	2.09	1.76	1.59	1.71
MSN2	0.43	0.43	0.44	0.43	0.43	0.42	0.42	-9.86	-8.08	-5.29	-4.62	-5.79	-6.21	-5.86	0.97	0.97	0.95	0.95	0.95	0.98	0.97
2SM2	0.61	0.59	0.58	0.57	0.57	0.56	0.56	14.04	16.77	17.08	19.39	19.02	18.82	18.86	1.11	1.20	1.24	1.29	1.29	1.30	1.29
NO3	1.50	1.48	1.48	1.59	1.60	1.64	1.67	-19.19	-18.23	-20.57	-22.89	-20.45	-21.38	-22.46	0.25	0.23	0.25	0.30	0.29	0.31	0.32
2MK3	1.23	1.27	1.36	1.40	1.44	1.54	1.50	-1.57	-1.39	-2.34	-1.66	-0.98	-1.19	-1.87	0.16	0.19	0.26	0.29	0.32	0.39	0.36
MK3	1.72	1.79	2.09	2.23	2.08	2.18	2.08	-133.94	-127.11	-119.34	-114.19	-114.79	-112.20	-112.83	1.31	1.31	1.42	1.46	1.39	1.42	1.37
2MNS4	1.08	1.10	1.21	1.26	1.21	1.26	1.26	-43.41	-37.29	-33.66	-31.27	-33.66	-34.30	-35.02	0.78	0.68	0.68	0.66	0.68	0.71	0.73
3MS4	0.93	0.92	0.97	1.02	0.99	1.02	1.01	-24.70	-19.47	-15.68	-12.00	-15.17	-14.68	-16.27	1.08	0.86	0.70	0.55	0.68	0.67	0.73
MN4	1.06	1.06	1.12	1.14	1.11	1.14	1.14	-23.06	-18.32	-16.01	-13.57	-17.37	-16.48	-17.82	1.61	1.30	1.24	1.12	1.31	1.31	1.39
M4	1.08	1.06	1.12	1.15	1.13	1.15	1.14	-15.81	-10.69	-7.60	-4.72	-7.92	-7.08	-8.61	3.44	2.34	2.12	1.96	2.23	2.29	2.47
3MN4	1.60	1.61	1.69	1.75	1.72	1.75	1.74	-22.03	-15.17	-11.02	-8.05	-11.07	-9.82	-11.38	1.44	1.29	1.37	1.44	1.42	1.46	1.47
MS4	0.94	0.93	0.96	0.98	0.96	0.98	0.98	-16.20	-10.76	-7.47	-3.73	-6.52	-5.40	-7.04	1.97	1.37	0.95	0.48	0.83	0.68	0.87
2MSN4	0.90	0.89	0.94	0.98	0.97	0.99	0.98	-23.44	-17.12	-14.11	-11.27	-12.66	-12.07	-13.75	0.41	0.31	0.25	0.20	0.23	0.22	0.25
3MNS6	2.57	2.15	2.42	2.86	2.67	2.85	2.75	-25.68	-17.73	-25.32	-19.34	-16.46	-17.14	-19.97	0.56	0.40	0.51	0.63	0.56	0.62	0.60
2NM6	0.48	0.33	0.87	1.03	0.80	0.90	0.94	47.43	16.98	43.76	64.03	55.39	56.29	53.59	0.27	0.25	0.25	0.38	0.30	0.32	0.31
2MN6	1.92	1.71	1.95	2.18	2.15	2.20	2.22	-55.03	-52.48	-51.94	-44.44	-45.23	-44.36	-47.94	2.18	1.88	2.14	2.25	2.23	2.27	2.38
M6	1.40	1.29	1.52	1.69	1.64	1.70	1.72	-46.37	-45.71	-41.10	-33.65	-35.39	-34.64	-37.59	2.48	2.27	2.47	2.50	2.47	2.56	2.71
MSN6	0.36	0.33	0.14	0.44	0.28	0.40	0.39	150.12	-176.46	56.63	59.79	72.91	62.19	60.68	0.83	0.83	0.58	0.54	0.60	0.55	0.55
2MS6	1.45	1.36	1.52	1.65	1.62	1.67	1.68	-54.06	-51.78	-47.29	-39.42	-41.46	-41.03	-43.14	2.86	2.62	2.70	2.63	2.65	2.72	2.83
3MSN6	1.67	1.59	1.82	1.98	1.91	2.01	2.01	-30.13	-27.21	-22.55	-16.52	-18.69	-17.00	-20.12	0.59	0.52	0.60	0.66	0.63	0.68	0.70
2SM6	1.04	1.00	1.00	1.04	1.03	0.99	1.07	-98.93	-101.29	-90.02	-78.22	-83.65	-81.72	-85.15	0.86	0.86	0.78	0.71	0.75	0.72	0.78
2(MN)8	1.24	1.39	1.34	1.34	1.33	1.43	1.47	-156.58	-156.11	-144.69	-130.58	-137.32	-133.21	-142.52	0.45	0.48	0.46	0.44	0.45	0.46	0.48
3MN8	0.94	1.08	1.06	1.06	1.04	1.06	1.09	95.52	101.78	120.93	139.81	130.49	136.34	133.08	0.82	0.92	1.02	1.10	1.05	1.09	1.09
M8	0.75	0.78	0.79	0.78	0.77	0.85	0.83	116.56	121.18	138.81	156.85	148.84	153.27	147.88	1.24	1.29	1.39	1.45	1.41	1.49	1.46
2MSN8	1.22	1.12	1.19	1.15	1.14	1.10	1.17	168.65	177.61	-170.83	-153.40	-161.56	-156.78	-162.22	0.84	0.81	0.83	0.80	0.81	0.79	0.82
3MS8	0.97	0.95	1.07	1.08	1.05	1.13	1.12	132.68	135.63	151.82	166.91	159.94	163.44	158.90	1.77	1.76	1.96	2.03	1.98	2.06	2.03
2(MS)8	0.82	0.85	1.06	0.97	0.92	0.94	1.01	139.09	141.05	158.68	169.58	157.74	165.88	162.56	0.52	0.53	0.61	0.59	0.57	0.58	0.60
4MS10	0.54	0.58	0.43	0.41	0.37	0.37	0.34	86.26	115.67	154.18	177.44	166.77	174.76	163.56	0.88	1.07	1.11	1.11	1.08	1.09	1.05

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Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	3.24	28.6841	2.07	60.09	2.04	60.67	1.97	61.15	2.01	61.16	1.98	61.17	2.00	61.29	1.99	61.23
Q1	13.398661	3.665	116.7513	2.81	101.78	2.80	102.53	2.81	102.41	2.74	103.80	2.73	103.79	2.74	103.43	2.74	103.59
O1	13.943036	11.432	176.777	10.78	174.01	10.78	174.81	10.82	174.58	10.54	176.32	10.51	176.29	10.53	175.96	10.53	176.07
K1	15.041069	8.283	341.9089	10.88	342.61	10.92	343.17	11.01	343.00	10.57	344.96	10.53	344.85	10.55	344.41	10.55	344.58
3MS2	26.952312	1.954	293.6077	0.93	266.02	0.92	269.90	0.92	268.00	0.90	267.88	0.90	268.38	0.91	267.71	0.91	268.22
MNS2	27.423834	1.668	161.9262	3.34	138.73	3.19	142.22	3.12	139.78	3.10	139.41	3.10	139.89	3.12	139.82	3.10	139.85
MU2	27.968208	8.519	180.0718	9.12	170.45	8.76	173.96	8.60	171.68	8.55	171.28	8.52	171.77	8.56	171.44	8.51	171.51
N2	28.43973	11.161	43.23027	9.50	37.80	8.63	40.90	8.37	35.89	8.84	35.73	8.72	36.19	8.67	36.40	8.64	35.94
M2	28.984104	76.316	68.3759	81.84	72.71	76.13	76.20	73.69	72.48	76.02	71.72	75.19	72.18	75.11	72.16	74.73	71.89
2MN2	29.528479	7.547	269.1315	9.08	271.04	8.69	274.14	8.51	271.73	8.52	271.23	8.45	271.58	8.48	271.21	8.44	271.16
S2	30	18.605	131.54	19.58	146.81	17.89	150.87	16.97	146.41	17.77	144.28	17.50	144.70	17.48	145.06	17.38	144.57
MSN2	30.544374	1.82	332.3858	1.09	303.92	1.07	305.12	1.05	303.73	1.02	304.18	1.01	304.37	1.03	304.05	1.03	303.96
2SM2	31.015896	2.504	2.524104	1.45	1.76	1.34	3.73	1.30	1.17	1.32	0.83	1.31	0.98	1.32	0.37	1.31	0.07
NO3	42.382767	0.356	131.7872	0.86	101.51	0.81	108.24	0.81	107.07	0.82	104.60	0.82	104.65	0.83	103.13	0.82	103.03
2MK3	42.927139	0.927	158.9729	1.53	156.40	1.44	164.14	1.45	162.90	1.44	159.41	1.44	159.61	1.45	158.17	1.44	158.00
MK3	44.025173	0.984	254.1248	1.70	251.49	1.52	256.09	1.50	255.55	1.58	251.48	1.57	251.69	1.58	250.47	1.58	249.96
2MNS4	56.407936	1.241	173.3621	1.63	193.79	1.65	199.20	1.57	195.63	1.53	196.30	1.51	196.66	1.53	195.66	1.52	195.87
3MS4	56.952312	2.395	188.9577	2.29	213.77	2.31	221.03	2.23	218.11	2.15	218.07	2.13	218.35	2.14	217.86	2.13	218.07
MN4	57.423836	7.296	81.57616	9.73	91.03	9.47	95.03	9.05	91.47	8.95	91.93	8.85	92.28	8.89	92.13	8.84	91.98
M4	57.968208	20.716	108.7918	22.75	123.49	22.14	128.17	21.18	124.75	20.86	124.80	20.61	125.05	20.64	124.87	20.56	124.70
3MN4	58.512585	2.394	301.0674	3.48	306.44	3.43	313.45	3.28	310.59	3.16	309.87	3.13	310.13	3.12	309.46	3.10	309.42
MS4	58.984104	12.709	166.1459	11.01	181.33	10.53	185.92	10.01	182.37	9.92	181.84	9.80	182.11	9.84	181.75	9.80	181.57
2MSN4	59.528481	1.515	0.341519	1.41	41.18	1.39	46.86	1.32	43.54	1.26	43.68	1.24	43.75	1.23	42.76	1.22	43.03
3MNS6	85.392044	0.859	153.908	1.65	126.19	1.42	132.28	1.29	123.39	1.45	125.16	1.48	125.19	1.53	126.12	1.51	125.82
2NM6	85.863564	0.22	5.126436	1.31	139.01	1.19	148.96	1.13	143.55	1.13	139.43	1.14	139.53	1.17	138.43	1.13	138.99
2MN6	86.407936	1.009	45.38206	2.53	5.35	1.85	9.73	1.50	352.68	2.20	358.83	2.27	358.95	2.33	0.08	2.35	359.23
M6	86.952316	2.366	76.79768	3.92	86.58	3.32	100.76	2.68	99.93	3.24	88.23	3.26	86.92	3.35	85.89	3.35	85.10
MSN6	87.423836	0.436	215.1362	2.68	228.03	2.51	236.58	2.39	232.09	2.38	228.58	2.36	229.22	2.41	226.96	2.38	227.34
2MS6	87.968208	2.221	151.2918	3.16	144.87	2.76	160.49	2.23	160.84	2.52	147.05	2.51	145.62	2.59	145.15	2.58	144.20
3MSN6	88.512581	0.916	351.2474	1.57	338.05	1.40	345.84	1.27	341.19	1.35	339.09	1.36	339.19	1.39	338.13	1.37	338.05
2SM6	88.9841	0.25	277.7559	0.44	241.21	0.45	255.69	0.42	261.47	0.39	250.14	0.37	249.79	0.41	248.36	0.40	245.12
2(MN)8	114.84766	0.687	93.18234	0.53	159.49	0.49	173.70	0.46	167.31	0.46	162.41	0.45	161.89	0.45	160.06	0.45	161.08
3MN8	115.39204	1.899	117.258	3.16	111.89	3.06	122.26	2.85	116.84	2.71	114.82	2.67	115.20	2.65	113.10	2.66	113.26
M8	115.93642	2.61	145.7536	2.88	158.20	2.73	169.18	2.56	162.92	2.45	159.00	2.42	159.09	2.39	157.18	2.40	157.67
2MSN8	116.40794	1.528	175.4821	1.15	234.08	1.03	247.06	0.98	240.02	0.98	233.70	0.97	233.31	0.97	230.42	0.97	231.49
3MS8	116.95232	3.79	193.6577	3.38	197.81	3.18	207.68	3.00	201.57	2.95	197.67	2.91	197.73	2.88	195.68	2.90	196.21
2(MS)8	117.96821	1.46	253.4018	0.95	252.09	0.89	260.19	0.83	254.69	0.83	250.94	0.82	251.28	0.83	248.52	0.82	249.09
4MS10	145.93642	0.875	218.1136	1.35	175.02	1.33	193.23	1.14	193.61	1.21	194.17	1.17	192.79	1.15	189.03	1.16	188.23

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.64	0.63	0.61	0.62	0.61	0.62	0.61	31.41	31.99	32.47	32.48	32.49	32.61	32.55	1.82	1.86	1.90	1.89	1.90	1.89	1.90
Q1	0.77	0.77	0.77	0.75	0.75	0.75	0.75	-14.97	-14.22	-14.34	-12.95	-12.96	-13.32	-13.16	1.20	1.17	1.17	1.17	1.17	1.18	1.18
O1	0.94	0.94	0.95	0.92	0.92	0.92	0.92	-2.77	-1.97	-2.20	-0.46	-0.49	-0.82	-0.71	0.85	0.76	0.75	0.90	0.93	0.92	0.91
K1	1.31	1.32	1.33	1.28	1.27	1.27	1.27	0.70	1.26	1.09	3.05	2.94	2.50	2.67	2.60	2.64	2.74	2.34	2.30	2.30	2.31
3MS2	0.48	0.47	0.47	0.46	0.46	0.47	0.47	-27.59	-23.71	-25.61	-25.73	-25.23	-25.90	-25.39	1.21	1.17	1.19	1.21	1.20	1.20	1.20
MNS2	2.00	1.91	1.87	1.86	1.86	1.87	1.86	-23.20	-19.71	-22.15	-22.52	-22.04	-22.11	-22.08	1.92	1.71	1.69	1.69	1.67	1.70	1.68
MU2	1.07	1.03	1.01	1.00	1.00	1.01	1.00	-9.62	-6.11	-8.39	-8.79	-8.30	-8.63	-8.56	1.59	0.95	1.26	1.31	1.23	1.29	1.27
N2	0.85	0.77	0.75	0.79	0.78	0.78	0.77	-5.43	-2.33	-7.34	-7.50	-7.04	-6.83	-7.29	1.92	2.57	3.05	2.66	2.72	2.75	2.81
M2	1.07	1.00	0.97	1.00	0.99	0.98	0.98	4.33	7.82	4.10	3.34	3.80	3.78	3.51	8.14	10.40	5.98	4.45	5.15	5.14	4.90
2MN2	1.20	1.15	1.13	1.13	1.12	1.12	1.12	1.91	5.01	2.60	2.10	2.45	2.08	2.03	1.55	1.35	1.02	1.02	0.97	0.98	0.94
S2	1.05	0.96	0.91	0.96	0.94	0.94	0.93	15.27	19.33	14.87	12.74	13.16	13.52	13.03	5.16	6.17	4.88	4.12	4.28	4.39	4.26
MSN2	0.60	0.59	0.58	0.56	0.56	0.57	0.56	-28.47	-27.27	-28.66	-28.21	-28.02	-28.34	-28.43	1.01	1.00	1.03	1.04	1.04	1.04	1.04
2SM2	0.58	0.53	0.52	0.53	0.52	0.53	0.52	-0.76	1.21	-1.35	-1.69	-1.54	-2.15	-2.45	1.06	1.17	1.20	1.18	1.19	1.19	1.20
NO3	2.42	2.28	2.28	2.31	2.30	2.32	2.30	-30.28	-23.55	-24.72	-27.19	-27.14	-28.66	-28.76	0.58	0.50	0.51	0.53	0.53	0.54	0.54
2MK3	1.65	1.56	1.57	1.56	1.55	1.56	1.55	-2.57	5.17	3.93	0.44	0.64	-0.80	-0.97	0.60	0.53	0.53	0.52	0.51	0.52	0.51
MK3	1.73	1.54	1.53	1.61	1.60	1.61	1.61	-2.63	1.97	1.43	-2.64	-2.43	-3.65	-4.16	0.72	0.54	0.52	0.60	0.59	0.61	0.61
2MNS4	1.31	1.33	1.27	1.23	1.22	1.23	1.22	20.43	25.84	22.27	22.94	23.30	22.30	22.51	0.64	0.76	0.63	0.62	0.62	0.61	0.60
3MS4	0.95	0.96	0.93	0.90	0.89	0.89	0.89	24.81	32.07	29.15	29.11	29.39	28.90	29.11	1.01	1.30	1.17	1.17	1.18	1.16	1.17
MN4	1.33	1.30	1.24	1.23	1.21	1.22	1.21	9.45	13.45	9.89	10.35	10.70	10.55	10.40	2.80	2.92	2.25	2.21	2.16	2.18	2.12
M4	1.10	1.07	1.02	1.01	1.00	1.00	0.99	14.70	19.38	15.96	16.01	16.26	16.08	15.91	5.91	7.35	5.83	5.79	5.84	5.78	5.71
3MN4	1.45	1.43	1.37	1.32	1.31	1.30	1.30	5.37	12.38	9.52	8.80	9.06	8.39	8.35	1.12	1.21	1.00	0.88	0.86	0.83	0.81
MS4	0.87	0.83	0.79	0.78	0.77	0.77	0.77	15.18	19.77	16.22	15.69	15.96	15.60	15.42	3.56	4.53	4.17	4.15	4.25	4.18	4.18
2MSN4	0.93	0.92	0.87	0.83	0.82	0.81	0.81	40.84	46.52	43.20	43.34	43.41	42.42	42.69	1.02	1.15	1.06	1.05	1.05	1.03	1.03
3MNS6	1.92	1.65	1.50	1.69	1.72	1.78	1.76	-27.72	-21.63	-30.52	-28.75	-28.72	-27.79	-28.09	0.98	0.70	0.70	0.81	0.83	0.87	0.86
2NM6	5.94	5.42	5.13	5.15	5.17	5.30	5.15	133.88	143.83	138.42	134.30	134.40	133.30	133.86	1.47	1.38	1.30	1.30	1.30	1.33	1.30
2MN6	2.51	1.83	1.48	2.18	2.25	2.31	2.32	-40.03	-35.65	-52.70	-46.55	-46.43	-45.30	-46.15	1.87	1.18	1.20	1.67	1.73	1.77	1.80
M6	1.66	1.40	1.13	1.37	1.38	1.42	1.41	9.78	23.96	23.13	11.43	10.12	9.09	8.30	1.63	1.50	1.06	1.04	1.02	1.08	1.06
MSN6	6.14	5.75	5.48	5.46	5.41	5.53	5.45	12.89	21.44	16.95	13.44	14.08	11.82	12.20	2.25	2.11	1.98	1.96	1.94	1.99	1.95
2MS6	1.42	1.24	1.00	1.14	1.13	1.17	1.16	-6.42	9.20	9.55	-4.24	-5.67	-6.14	-7.09	0.98	0.67	0.37	0.35	0.37	0.45	0.47
3MSN6	1.72	1.53	1.39	1.48	1.49	1.52	1.50	-13.20	-5.41	-10.06	-12.16	-12.06	-13.12	-13.20	0.71	0.50	0.41	0.50	0.50	0.54	0.52
2SM6	1.76	1.78	1.66	1.56	1.48	1.64	1.61	-36.55	-22.07	-16.29	-27.62	-27.97	-29.40	-32.64	0.28	0.23	0.19	0.20	0.19	0.23	0.23
2(MN)8	0.78	0.71	0.67	0.67	0.66	0.65	0.65	66.31	80.52	74.13	69.23	68.71	66.88	67.90	0.68	0.78	0.72	0.68	0.67	0.66	0.66
3MN8	1.66	1.61	1.50	1.43	1.41	1.40	1.40	-5.37	5.00	-0.42	-2.44	-2.06	-4.16	-4.00	1.28	1.18	0.96	0.82	0.78	0.77	0.78
M8	1.10	1.04	0.98	0.94	0.93	0.91	0.92	12.45	23.43	17.17	13.25	13.34	11.43	11.92	0.65	1.09	0.77	0.60	0.61	0.55	0.58
2MSN8	0.75	0.68	0.64	0.64	0.63	0.63	0.63	58.60	71.58	64.54	58.22	57.83	54.94	56.01	1.35	1.55	1.42	1.31	1.30	1.25	1.27
3MS8	0.89	0.84	0.79	0.78	0.77	0.76	0.76	4.15	14.00	7.91	4.01	4.07	2.02	2.55	0.49	1.04	0.91	0.87	0.91	0.92	0.91
2(MS)8	0.65	0.61	0.57	0.57	0.56	0.57	0.56	-1.31	6.79	1.29	-2.46	-2.12	-4.88	-4.31	0.51	0.59	0.63	0.63	0.64	0.64	0.64
4MS10	1.54	1.52	1.30	1.38	1.33	1.32	1.32	-43.09	-24.88	-24.50	-23.94	-25.32	-29.08	-29.88	0.93	0.65	0.50	0.54	0.53	0.57	0.59

PETTEN ZUID

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.62	7.884104	1.89	60.24	1.85	60.79	1.79	61.23	1.82	61.21	1.79	61.25	1.81	61.35	1.80	61.28
Q1	13.398661	3.561	121.2813	2.75	106.01	2.75	106.75	2.75	106.69	2.69	108.04	2.68	108.02	2.69	107.68	2.69	107.81
O1	13.943036	10.896	180.567	10.45	177.41	10.44	178.19	10.48	178.17	10.21	179.81	10.19	179.74	10.21	179.38	10.21	179.50
K1	15.041069	8.135	342.8489	10.51	343.86	10.53	344.45	10.62	344.62	10.20	346.27	10.17	346.11	10.21	345.65	10.21	345.82
3MS2	26.952312	1.727	330.6977	0.73	293.47	0.72	297.61	0.74	295.29	0.73	295.56	0.73	296.02	0.74	295.31	0.74	295.70
MNS2	27.423834	1.74	202.5162	2.93	174.08	2.83	178.00	2.80	175.33	2.79	175.25	2.77	175.65	2.79	175.47	2.77	175.51
MU2	27.968208	8.621	216.4218	7.72	205.89	7.49	209.93	7.47	207.41	7.42	207.29	7.37	207.66	7.42	207.32	7.38	207.37
N2	28.43973	10.282	111.4903	9.50	101.08	9.16	106.16	8.73	102.41	8.84	100.78	8.73	101.52	8.71	102.09	8.63	101.79
M2	28.984104	69.204	128.9859	79.77	124.71	77.10	129.23	74.66	126.08	75.08	124.95	74.26	125.49	74.18	125.69	73.63	125.50
2MN2	29.528479	7.207	316.1215	7.82	309.87	7.57	313.71	7.49	311.18	7.47	310.78	7.41	311.04	7.43	310.75	7.39	310.68
S2	30	19.327	197.72	22.97	201.06	22.18	205.55	21.20	202.76	21.15	201.13	20.90	201.70	20.95	202.24	20.75	202.01
MSN2	30.544374	1.819	13.63563	0.80	325.79	0.77	327.39	0.78	325.94	0.76	326.59	0.76	326.55	0.78	325.91	0.77	325.82
2SM2	31.015896	2.542	42.2041	1.09	45.21	1.01	48.98	0.99	46.40	1.00	45.57	0.99	45.70	0.99	45.38	0.98	45.11
NO3	42.382767	0.523	223.2072	0.62	187.22	0.67	196.05	0.68	193.80	0.65	192.46	0.65	193.08	0.64	191.86	0.63	192.01
2MK3	42.927139	1.175	254.7129	1.40	235.27	1.49	243.55	1.50	241.67	1.43	240.71	1.42	241.13	1.41	240.39	1.40	240.40
MK3	44.025173	0.323	109.1148	0.95	335.39	0.95	349.53	0.97	349.79	0.89	344.88	0.88	345.16	0.86	344.83	0.85	344.13
2MNS4	56.407936	1.083	218.5321	1.55	229.04	1.56	233.97	1.50	230.11	1.49	230.63	1.46	231.45	1.47	230.45	1.45	230.61
3MS4	56.952312	2.173	232.6377	2.34	255.01	2.39	261.33	2.32	258.19	2.30	258.77	2.27	259.46	2.28	258.85	2.26	259.09
MN4	57.423836	5.502	116.1862	7.90	128.89	7.64	133.57	7.35	129.25	7.36	129.47	7.25	129.98	7.27	129.95	7.20	129.74
M4	57.968208	16.122	145.5218	19.64	163.76	19.14	169.00	18.46	165.11	18.43	165.27	18.15	165.69	18.17	165.68	18.02	165.41
3MN4	58.512585	2.106	344.8974	3.49	348.50	3.48	355.51	3.37	352.44	3.32	352.81	3.27	353.24	3.26	352.97	3.23	352.91
MS4	58.984104	9.258	207.3659	9.21	225.46	8.83	231.35	8.43	227.57	8.37	227.35	8.25	227.74	8.27	227.56	8.20	227.25
2MSN4	59.528481	1.158	47.58152	1.44	73.71	1.42	79.46	1.37	76.18	1.35	77.30	1.32	77.44	1.30	77.02	1.30	77.20
3MNS6	85.392044	0.908	295.568	1.65	288.74	1.70	299.44	1.55	295.38	1.45	293.71	1.43	295.08	1.41	293.08	1.41	293.34
2NM6	85.863564	1.139	175.7564	1.78	253.45	1.76	262.90	1.66	259.49	1.62	259.23	1.60	259.69	1.60	258.47	1.61	258.60
2MN6	86.407936	4.073	202.6021	6.47	190.44	6.62	198.15	6.20	194.86	5.79	195.25	5.74	195.83	5.71	194.52	5.68	194.85
M6	86.952316	7.588	229.2277	9.05	228.26	9.13	236.46	8.54	232.64	8.02	232.44	7.94	233.07	7.89	231.79	7.85	232.14
MSN6	87.423836	1.688	271.2962	3.23	333.98	3.14	343.89	2.97	340.21	2.91	339.65	2.87	339.73	2.83	338.67	2.83	338.80
2MS6	87.968208	7.587	281.8518	7.26	277.10	7.25	285.17	6.82	280.89	6.40	280.17	6.32	280.71	6.27	278.90	6.23	279.33
3MSN6	88.512581	1.643	118.0874	1.51	115.71	1.53	126.54	1.41	120.82	1.32	117.81	1.29	118.24	1.26	116.25	1.27	116.85
2SM6	88.9841	1.579	344.7959	1.01	351.07	0.99	358.07	0.92	353.25	0.85	352.81	0.82	353.27	0.82	350.41	0.81	351.56
2(MN)8	114.84766	0.759	198.8923	0.72	264.53	0.71	276.05	0.68	270.44	0.69	270.64	0.67	271.50	0.67	269.70	0.67	269.67
3MN8	115.39204	2.084	229.498	3.40	202.49	3.35	213.57	3.17	207.07	3.32	206.42	3.27	206.43	3.25	205.13	3.22	205.44
M8	115.93642	2.886	262.1636	3.65	256.06	3.60	266.96	3.46	260.83	3.55	260.73	3.48	260.78	3.46	259.48	3.43	259.48
2MSN8	116.40794	1.532	299.4021	1.75	346.08	1.73	358.40	1.66	352.71	1.67	353.31	1.63	353.81	1.60	352.68	1.59	352.56
3MS8	116.95232	4.04	319.1477	4.11	300.37	4.04	312.29	3.84	306.32	3.90	306.06	3.82	306.08	3.80	304.44	3.77	304.59
2(MS)8	117.96821	1.385	23.98179	1.01	358.49	0.98	11.54	0.93	4.89	0.93	4.26	0.91	3.80	0.89	2.03	0.89	2.46
4MS10	145.93642	1.639	17.57358	2.53	1.05	2.57	14.37	2.37	11.04	2.25	12.49	2.20	12.09	2.20	9.07	2.19	9.11

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.72	0.70	0.68	0.70	0.68	0.69	0.69	52.36	52.91	53.35	53.33	53.37	53.47	53.40	2.09	2.11	2.11	2.12	2.12	2.12	2.12
Q1	0.77	0.77	0.77	0.75	0.75	0.76	0.76	-15.27	-14.53	-14.59	-13.24	-13.26	-13.60	-13.47	1.16	1.14	1.13	1.13	1.13	1.14	1.13
O1	0.96	0.96	0.96	0.94	0.94	0.94	0.94	-3.16	-2.38	-2.40	-0.76	-0.83	-1.19	-1.07	0.74	0.64	0.61	0.70	0.72	0.72	0.72
K1	1.29	1.29	1.31	1.25	1.25	1.25	1.25	1.01	1.60	1.77	3.42	3.26	2.80	2.97	2.38	2.41	2.50	2.13	2.10	2.12	2.13
3MS2	0.43	0.42	0.43	0.43	0.42	0.43	0.43	-37.23	-33.09	-35.41	-35.14	-34.68	-35.39	-35.00	1.23	1.19	1.20	1.20	1.20	1.20	1.20
MNS2	1.68	1.63	1.61	1.60	1.59	1.61	1.59	-28.44	-24.52	-27.19	-27.27	-26.87	-27.05	-27.01	1.63	1.44	1.49	1.47	1.45	1.47	1.46
MU2	0.90	0.87	0.87	0.86	0.86	0.86	0.86	-10.53	-6.49	-9.01	-9.13	-8.76	-9.10	-9.05	1.75	1.45	1.71	1.75	1.75	1.74	1.77
N2	0.92	0.89	0.85	0.86	0.85	0.85	0.84	-10.41	-5.33	-9.08	-10.71	-9.97	-9.40	-9.70	1.96	1.44	2.16	2.29	2.26	2.21	2.29
M2	1.15	1.11	1.08	1.08	1.07	1.07	1.06	-4.28	0.24	-2.91	-4.04	-3.50	-3.30	-3.49	11.93	7.90	6.56	7.77	6.68	6.46	6.20
2MN2	1.08	1.05	1.04	1.04	1.03	1.03	1.02	-6.25	-2.41	-4.94	-5.34	-5.08	-5.37	-5.44	1.02	0.47	0.69	0.73	0.68	0.72	0.72
S2	1.19	1.15	1.10	1.09	1.08	1.08	1.07	3.34	7.83	5.04	3.41	3.98	4.52	4.29	3.85	4.01	2.58	2.18	2.11	2.27	2.07
MSN2	0.44	0.42	0.43	0.42	0.42	0.43	0.42	-47.85	-46.25	-47.70	-47.05	-47.09	-47.73	-47.82	1.41	1.40	1.42	1.41	1.42	1.42	1.42
2SM2	0.43	0.40	0.39	0.39	0.39	0.39	0.38	3.01	6.78	4.20	3.37	3.50	3.18	2.91	1.45	1.55	1.56	1.55	1.56	1.56	1.57
NO3	1.19	1.28	1.30	1.24	1.23	1.22	1.20	-35.99	-27.16	-29.41	-30.75	-30.13	-31.35	-31.20	0.37	0.31	0.34	0.33	0.33	0.33	0.33
2MK3	1.19	1.26	1.28	1.22	1.21	1.20	1.19	-19.44	-11.16	-13.04	-14.00	-13.58	-14.32	-14.31	0.49	0.40	0.44	0.41	0.39	0.40	0.39
MK3	2.95	2.95	3.01	2.74	2.72	2.67	2.62	-133.72	-119.58	-119.32	-124.23	-123.95	-124.28	-124.98	1.20	1.15	1.17	1.10	1.09	1.08	1.07
2MNS4	1.43	1.44	1.38	1.37	1.35	1.35	1.34	10.51	15.44	11.58	12.10	12.92	11.92	12.08	0.52	0.59	0.49	0.48	0.47	0.46	0.46
3MS4	1.08	1.10	1.07	1.06	1.04	1.05	1.04	22.37	28.69	25.55	26.13	26.82	26.21	26.45	0.89	1.15	1.00	1.02	1.03	1.01	1.02
MN4	1.43	1.39	1.33	1.34	1.32	1.32	1.31	12.70	17.38	13.06	13.28	13.79	13.76	13.55	2.80	2.90	2.34	2.37	2.32	2.33	2.26
M4	1.22	1.19	1.15	1.14	1.13	1.13	1.12	18.24	23.48	19.59	19.75	20.17	20.16	19.89	6.65	7.76	6.32	6.35	6.32	6.33	6.18
3MN4	1.66	1.65	1.60	1.58	1.55	1.55	1.53	3.60	10.61	7.54	7.91	8.34	8.07	8.01	1.39	1.47	1.32	1.27	1.23	1.21	1.18
MS4	0.99	0.95	0.91	0.90	0.89	0.89	0.89	18.09	23.98	20.20	19.98	20.37	20.19	19.88	2.90	3.78	3.21	3.18	3.25	3.22	3.19
2MSN4	1.24	1.22	1.18	1.16	1.14	1.13	1.12	26.13	31.88	28.60	29.72	29.86	29.44	29.62	0.65	0.75	0.66	0.67	0.66	0.64	0.64
3MNS6	1.82	1.88	1.71	1.60	1.58	1.55	1.55	-6.83	3.87	-0.19	-1.88	-0.49	-2.49	-2.23	0.76	0.80	0.65	0.54	0.52	0.50	0.50
2NM6	1.56	1.54	1.45	1.42	1.40	1.40	1.41	77.69	87.14	83.73	83.47	83.93	82.71	82.84	1.89	2.04	1.90	1.87	1.86	1.84	1.85
2MN6	1.59	1.63	1.52	1.42	1.41	1.40	1.39	-12.16	-4.45	-7.74	-7.35	-6.77	-8.08	-7.75	2.63	2.58	2.23	1.83	1.76	1.77	1.73
M6	1.19	1.20	1.13	1.06	1.05	1.04	1.03	-0.97	7.23	3.41	3.21	3.84	2.56	2.91	1.47	1.86	1.07	0.62	0.63	0.48	0.47
MSN6	1.91	1.86	1.76	1.72	1.70	1.68	1.67	62.68	72.59	68.91	68.35	68.43	67.37	67.50	2.88	3.09	2.84	2.77	2.74	2.68	2.68
2MS6	0.96	0.96	0.90	0.84	0.83	0.83	0.82	-4.75	3.32	-0.96	-1.68	-1.14	-2.95	-2.52	0.70	0.55	0.78	1.21	1.28	1.36	1.39
3MSN6	0.92	0.93	0.86	0.81	0.78	0.77	0.77	-2.38	8.45	2.73	-0.28	0.15	-1.84	-1.24	0.15	0.26	0.24	0.32	0.36	0.38	0.38
2SM6	0.64	0.63	0.58	0.54	0.54	0.52	0.51	6.27	13.27	8.45	8.01	8.47	5.61	6.76	0.58	0.65	0.68	0.75	0.75	0.77	0.78
2(MN)8	0.95	0.94	0.89	0.91	0.89	0.88	0.88	65.64	77.16	71.55	71.75	72.61	70.81	70.78	0.80	0.92	0.84	0.85	0.85	0.83	0.83
3MN8	1.63	1.61	1.52	1.59	1.57	1.56	1.55	-27.01	-15.93	-22.43	-23.08	-23.07	-24.37	-24.06	1.81	1.47	1.48	1.62	1.58	1.60	1.57
M8	1.27	1.25	1.20	1.23	1.21	1.20	1.19	-6.10	4.80	-1.33	-1.43	-1.38	-2.68	-2.70	0.84	0.77	0.58	0.67	0.60	0.59	0.57
2MSN8	1.14	1.13	1.08	1.09	1.06	1.04	1.04	46.68	59.00	53.31	53.91	54.41	53.28	53.16	1.31	1.62	1.44	1.46	1.45	1.41	1.40
3MS8	1.02	1.00	0.95	0.97	0.95	0.94	0.93	-18.78	-6.86	-12.83	-13.09	-13.07	-14.71	-14.56	1.33	0.48	0.90	0.92	0.92	1.03	1.03
2(MS)8	0.73	0.70	0.67	0.67	0.66	0.64	0.64	-25.49	-12.44	-19.09	-19.72	-20.18	-21.95	-21.52	0.64	0.48	0.59	0.60	0.62	0.65	0.65
4MS10	1.54	1.57	1.45	1.37	1.34	1.34	1.34	-16.52	-3.20	-6.53	-5.08	-5.48	-8.50	-8.46	1.07	0.94	0.76	0.63	0.59	0.62	0.62

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Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	3.4	28.9841	1.94	60.73	1.96	61.43	1.92	62.14	1.92	62.26	1.89	62.29	1.91	62.46	1.89	62.40
Q1	13.398661	3.984	117.0713	2.60	99.21	2.60	100.10	2.62	99.92	2.55	101.31	2.54	101.26	2.55	100.82	2.54	100.99
O1	13.943036	10.929	177.657	10.29	172.99	10.32	173.98	10.39	173.52	10.10	175.22	10.07	175.17	10.05	174.82	10.06	174.96
K1	15.041069	7.394	344.2089	10.04	346.24	10.09	346.81	10.25	346.08	9.82	348.43	9.75	348.38	9.71	348.03	9.73	348.18
3MS2	26.952312	2.41	256.1377	1.07	235.45	1.05	239.06	1.03	237.36	1.01	236.67	1.01	237.43	1.02	236.27	1.01	236.95
MNS2	27.423834	1.935	124.3562	4.32	101.93	4.14	104.57	4.00	102.41	3.98	101.89	3.97	102.46	3.99	102.08	3.98	102.13
MU2	27.968208	9.436	140.2918	11.67	135.20	11.29	137.92	10.94	135.95	10.86	135.34	10.81	135.86	10.85	135.14	10.82	135.28
N2	28.43973	21.664	2.56027	20.57	356.76	19.57	357.85	18.99	354.35	19.30	355.24	19.17	355.61	19.26	355.63	19.23	355.46
M2	28.984104	133.201	27.7859	145.04	29.74	138.38	31.34	133.88	28.23	135.84	28.51	134.83	28.83	135.73	28.64	135.45	28.53
2MN2	29.528479	9.99	229.0815	12.18	234.85	11.80	237.15	11.45	234.98	11.45	234.48	11.36	234.74	11.43	234.17	11.41	234.21
S2	30	36.126	83.14	38.37	93.25	36.27	94.39	35.06	90.68	36.00	91.09	35.73	91.21	36.05	91.25	35.98	91.04
MSN2	30.544374	2.314	292.2056	1.02	289.67	1.02	291.38	1.01	289.93	0.97	289.49	0.95	289.63	0.95	289.24	0.96	289.27
2SM2	31.015896	3.017	319.1341	2.20	330.23	2.10	332.03	2.03	329.71	2.04	329.58	2.02	329.63	2.05	329.06	2.04	328.90
NO3	42.382767	0.92	70.94723	1.59	65.04	1.58	68.22	1.58	67.43	1.57	66.84	1.56	67.07	1.57	66.14	1.56	66.12
2MK3	42.927139	2.147	106.9629	2.77	111.04	2.75	114.64	2.74	113.89	2.73	112.99	2.72	113.21	2.73	112.25	2.72	112.21
MK3	44.025173	2.079	247.7748	3.23	223.68	3.19	226.95	3.18	226.22	3.17	225.38	3.15	225.69	3.16	224.90	3.16	224.80
2MNS4	56.407936	0.741	114.7521	0.84	131.90	0.86	138.18	0.83	137.67	0.78	136.48	0.78	136.47	0.79	135.43	0.78	135.95
3MS4	56.952312	1.48	119.7977	1.58	136.41	1.59	142.51	1.54	142.68	1.49	140.48	1.49	140.78	1.49	139.57	1.49	140.09
MN4	57.423836	4.603	36.15616	6.57	43.62	6.58	48.29	6.27	47.37	6.01	46.46	5.94	46.52	5.94	45.60	5.92	45.86
M4	57.968208	13.121	60.19179	15.99	66.70	15.95	71.62	15.22	70.56	14.70	69.07	14.53	69.07	14.53	68.00	14.49	68.30
3MN4	58.512585	1.48	249.0474	2.51	229.05	2.51	235.15	2.40	234.91	2.35	232.85	2.34	233.09	2.35	231.59	2.34	232.07
MS4	58.984104	9.181	118.6259	8.57	125.66	8.52	130.72	8.11	129.68	7.89	128.49	7.78	128.50	7.80	127.45	7.77	127.77
2MSN4	59.528481	1.165	302.5315	0.71	319.64	0.71	326.43	0.68	326.20	0.66	323.01	0.66	323.07	0.66	321.07	0.66	321.37
3MNS6	85.392044	1.009	75.92796	2.00	58.10	1.95	64.09	1.82	60.24	1.76	60.21	1.75	61.14	1.72	59.56	1.73	59.98
2NM6	85.863564	1.282	298.9364	1.40	32.20	1.35	41.12	1.22	39.89	1.21	36.97	1.19	37.45	1.18	34.70	1.19	35.28
2MN6	86.407936	4.328	328.6121	6.63	309.73	6.37	313.95	5.95	308.76	5.95	309.91	5.89	310.30	5.90	308.93	5.91	309.43
M6	86.952316	8.125	354.9677	8.58	349.26	8.13	354.26	7.52	349.28	7.59	349.27	7.50	349.43	7.57	347.56	7.56	348.24
MSN6	87.423836	1.635	37.31616	2.47	117.65	2.39	127.31	2.17	126.28	2.14	122.75	2.09	122.56	2.08	119.64	2.09	120.45
2MS6	87.968208	8.024	46.87179	7.18	36.28	6.81	40.83	6.36	35.54	6.46	35.24	6.39	35.11	6.46	33.36	6.44	33.92
3MSN6	88.512581	1.792	242.5874	1.78	242.88	1.73	248.81	1.63	244.82	1.61	242.90	1.58	242.75	1.59	240.71	1.58	241.13
2SM6	88.9841	1.613	108.4759	0.84	95.81	0.75	98.12	0.70	89.35	0.75	89.15	0.75	88.42	0.76	87.24	0.76	87.93
2(MN)8	114.84766	0.523	299.6923	0.62	6.06	0.63	18.64	0.60	17.32	0.55	14.55	0.54	14.68	0.54	12.27	0.54	12.90
3MN8	115.39204	1.438	327.738	2.29	300.69	2.26	314.89	2.08	312.69	2.00	308.79	1.98	308.75	1.97	306.06	1.97	306.38
M8	115.93642	1.971	357.6736	2.47	355.22	2.45	8.91	2.28	6.67	2.13	2.43	2.10	2.20	2.08	359.39	2.09	359.82
2MSN8	116.40794	1.082	34.93206	1.25	81.33	1.24	95.29	1.16	93.49	1.06	89.19	1.03	89.13	1.03	85.90	1.03	86.74
3MS8	116.95232	2.754	49.80768	2.74	34.72	2.68	48.69	2.49	46.17	2.35	41.08	2.31	40.93	2.30	38.08	2.30	38.55
2(MS)8	117.96821	1.006	110.0718	0.74	94.99	0.73	107.92	0.67	105.45	0.63	100.23	0.62	99.92	0.62	97.51	0.62	97.91
4MS10	145.93642	2.083	39.36358	1.81	16.03	1.89	26.57	1.81	24.81	1.76	25.50	1.71	25.66	1.69	22.51	1.69	22.86

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.57	0.58	0.56	0.57	0.56	0.56	0.56	31.75	32.45	33.16	33.28	33.31	33.48	33.42	2.03	2.04	2.08	2.08	2.10	2.09	2.10
Q1	0.65	0.65	0.66	0.64	0.64	0.64	0.64	-17.86	-16.97	-17.15	-15.76	-15.81	-16.25	-16.08	1.71	1.68	1.67	1.68	1.69	1.70	1.69
O1	0.94	0.94	0.95	0.92	0.92	0.92	0.92	-4.67	-3.68	-4.14	-2.44	-2.49	-2.84	-2.70	1.07	0.92	0.94	0.94	0.98	1.02	1.00
K1	1.36	1.36	1.39	1.33	1.32	1.31	1.32	2.03	2.60	1.87	4.22	4.17	3.82	3.97	2.66	2.72	2.87	2.50	2.44	2.38	2.40
3MS2	0.44	0.44	0.43	0.42	0.42	0.42	0.42	-20.69	-17.08	-18.78	-19.47	-18.71	-19.87	-19.19	1.46	1.44	1.47	1.50	1.49	1.49	1.49
MNS2	2.23	2.14	2.06	2.06	2.05	2.06	2.05	-22.43	-19.79	-21.95	-22.47	-21.90	-22.28	-22.23	2.64	2.41	2.32	2.31	2.29	2.32	2.30
MU2	1.24	1.20	1.16	1.15	1.15	1.15	1.15	-5.09	-2.37	-4.34	-4.95	-4.43	-5.15	-5.01	2.42	1.90	1.68	1.67	1.58	1.68	1.64
N2	0.95	0.90	0.88	0.89	0.88	0.89	0.89	-5.80	-4.71	-8.21	-7.32	-6.95	-6.93	-7.10	2.40	2.70	3.95	3.52	3.51	3.45	3.51
M2	1.09	1.04	1.01	1.02	1.01	1.02	1.02	1.95	3.55	0.44	0.72	1.04	0.85	0.74	12.76	9.89	1.24	3.14	2.93	3.23	2.85
2MN2	1.22	1.18	1.15	1.15	1.14	1.14	1.14	5.77	8.07	5.90	5.40	5.66	5.09	5.13	2.45	2.37	1.83	1.77	1.73	1.73	1.71
S2	1.06	1.00	0.97	1.00	0.99	1.00	1.00	10.11	11.25	7.54	7.95	8.07	8.11	7.90	6.93	7.10	4.80	5.00	5.07	5.10	4.97
MSN2	0.44	0.44	0.43	0.42	0.41	0.41	0.41	-2.54	-0.83	-2.28	-2.72	-2.58	-2.97	-2.94	1.29	1.29	1.31	1.35	1.36	1.36	1.36
2SM2	0.73	0.70	0.67	0.68	0.67	0.68	0.68	11.10	12.90	10.58	10.45	10.50	9.93	9.77	0.96	1.08	1.09	1.08	1.09	1.06	1.06
NO3	1.73	1.72	1.71	1.70	1.70	1.70	1.70	-5.91	-2.73	-3.52	-4.11	-3.88	-4.81	-4.83	0.68	0.66	0.66	0.65	0.65	0.66	0.65
2MK3	1.29	1.28	1.28	1.27	1.27	1.27	1.27	4.08	7.68	6.93	6.03	6.25	5.29	5.25	0.65	0.68	0.66	0.63	0.63	0.62	0.62
MK3	1.55	1.54	1.53	1.52	1.52	1.52	1.52	-24.09	-20.82	-21.55	-22.39	-22.08	-22.87	-22.97	1.58	1.45	1.46	1.48	1.45	1.49	1.49
2MNS4	1.14	1.16	1.12	1.06	1.06	1.06	1.06	17.15	23.43	22.92	21.73	21.72	20.68	21.20	0.26	0.35	0.33	0.29	0.29	0.28	0.28
3MS4	1.06	1.08	1.04	1.01	1.01	1.01	1.00	16.61	22.71	22.88	20.68	20.98	19.77	20.29	0.45	0.61	0.60	0.53	0.54	0.51	0.52
MN4	1.43	1.43	1.36	1.31	1.29	1.29	1.29	7.46	12.13	11.21	10.30	10.36	9.44	9.70	2.10	2.29	1.97	1.70	1.64	1.59	1.59
M4	1.22	1.22	1.16	1.12	1.11	1.11	1.10	6.51	11.43	10.37	8.88	8.88	7.81	8.11	3.31	4.04	3.30	2.66	2.56	2.35	2.38
3MN4	1.69	1.70	1.62	1.59	1.58	1.58	1.58	-20.00	-13.90	-14.14	-16.20	-15.96	-17.46	-16.98	1.23	1.13	1.03	1.02	1.00	1.03	1.02
MS4	0.93	0.93	0.88	0.86	0.85	0.85	0.85	7.03	12.09	11.05	9.86	9.87	8.82	9.14	1.25	1.98	1.98	1.95	2.02	1.90	1.95
2MSN4	0.61	0.61	0.58	0.57	0.56	0.57	0.56	17.11	23.90	23.67	20.48	20.54	18.54	18.84	0.53	0.59	0.61	0.59	0.60	0.58	0.58
3MNS6	1.98	1.94	1.80	1.75	1.73	1.71	1.72	-17.83	-11.84	-15.69	-15.72	-14.79	-16.37	-15.95	1.08	0.99	0.89	0.84	0.81	0.80	0.81
2NM6	1.09	1.05	0.95	0.94	0.93	0.92	0.93	93.26	102.18	100.95	98.03	98.51	95.76	96.34	1.95	2.04	1.93	1.88	1.87	1.83	1.84
2MN6	1.53	1.47	1.38	1.37	1.36	1.36	1.37	-18.88	-14.66	-19.85	-18.70	-18.31	-19.68	-19.18	2.90	2.45	2.39	2.31	2.24	2.33	2.31
M6	1.06	1.00	0.93	0.93	0.92	0.93	0.93	-5.71	-0.71	-5.69	-5.70	-5.54	-7.41	-6.73	0.95	0.10	0.98	0.95	0.98	1.15	1.08
MSN6	1.51	1.46	1.32	1.31	1.28	1.27	1.28	80.33	89.99	88.96	85.43	85.24	82.32	83.13	2.72	2.90	2.69	2.59	2.54	2.47	2.49
2MS6	0.90	0.85	0.79	0.80	0.80	0.81	0.80	-10.59	-6.04	-11.33	-11.63	-11.76	-13.51	-12.95	1.63	1.45	2.18	2.14	2.20	2.30	2.27
3MSN6	0.99	0.97	0.91	0.90	0.88	0.89	0.88	0.29	6.22	2.23	0.31	0.16	-1.88	-1.46	0.02	0.20	0.18	0.18	0.21	0.21	0.21
2SM6	0.52	0.47	0.44	0.47	0.46	0.47	0.47	-12.67	-10.36	-19.13	-19.33	-20.06	-21.24	-20.55	0.82	0.88	0.98	0.94	0.95	0.94	0.94
2(MN)8	1.19	1.20	1.15	1.05	1.03	1.04	1.03	66.37	78.95	77.63	74.86	74.99	72.58	73.21	0.63	0.74	0.71	0.65	0.65	0.63	0.63
3MN8	1.59	1.57	1.44	1.39	1.38	1.37	1.37	-27.05	-12.85	-15.05	-18.95	-18.99	-21.68	-21.36	1.20	0.92	0.78	0.79	0.78	0.82	0.82
M8	1.25	1.24	1.15	1.08	1.06	1.06	1.06	-2.45	11.24	9.00	4.76	4.53	1.72	2.15	0.51	0.65	0.45	0.24	0.20	0.13	0.14
2MSN8	1.16	1.15	1.07	0.98	0.96	0.95	0.95	46.40	60.36	58.56	54.26	54.20	50.97	51.81	0.93	1.17	1.10	0.98	0.96	0.91	0.92
3MS8	0.99	0.97	0.90	0.85	0.84	0.84	0.84	-15.09	-1.12	-3.64	-8.73	-8.88	-11.73	-11.26	0.72	0.09	0.32	0.56	0.59	0.68	0.67
2(MS)8	0.74	0.72	0.67	0.63	0.62	0.61	0.62	-15.08	-2.15	-4.62	-9.84	-10.15	-12.56	-12.16	0.35	0.28	0.34	0.40	0.41	0.42	0.42
4MS10	0.87	0.91	0.87	0.84	0.82	0.81	0.81	-23.33	-12.79	-14.55	-13.86	-13.70	-16.85	-16.50	0.83	0.48	0.56	0.57	0.58	0.68	0.67

SHEERNESS

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.496	34.73	1.73	64.15	1.74	64.27	1.73	64.56	1.69	64.84	1.66	65.10	1.63	65.42	1.62	65.27
Q1	13.398661	4.247	129.97	2.92	121.13	2.94	121.72	2.98	121.86	2.92	123.83	2.91	123.55	2.91	122.78	2.91	123.33
O1	13.943036	12.831	186.52	12.61	191.63	12.67	192.25	12.75	192.13	12.51	194.19	12.46	193.90	12.42	193.28	12.44	193.76
K1	15.041069	11.264	10.15	14.36	5.44	14.36	6.00	14.48	5.62	14.12	8.07	14.04	7.88	13.97	7.39	14.00	7.85
3MS2	26.952313	4.084	220.96	1.52	186.62	1.52	187.35	1.51	185.11	1.51	185.41	1.48	186.30	1.48	184.23	1.49	184.85
MNS2	27.423834	4.028	78.99	5.75	58.81	5.65	57.72	5.57	56.05	5.53	57.04	5.47	57.34	5.48	58.13	5.48	56.62
MU2	27.968208	12.716	94.53	15.23	90.05	15.10	91.04	14.95	89.31	14.87	90.11	14.66	90.28	14.65	88.71	14.74	89.25
N2	28.43973	34.755	330.4	31.00	326.86	30.47	327.61	30.16	325.97	29.71	327.75	29.46	327.69	29.50	326.94	29.54	327.47
M2	28.984104	202.089	354.5	203.93	355.03	201.08	355.96	199.10	354.32	196.96	355.94	195.02	355.79	195.75	354.92	196.10	355.46
2MN2	29.528479	13.814	182.96	14.38	194.77	14.29	196.12	14.11	194.59	14.03	195.71	13.85	195.48	13.92	194.32	13.97	194.88
S2	30	57.811	50.75	58.68	60.98	57.65	62.03	57.18	60.47	56.63	62.51	56.23	62.12	56.58	61.47	56.62	62.07
MSN2	30.544375	2.972	249.58	0.81	232.16	0.82	235.33	0.80	234.22	0.81	234.70	0.79	233.51	0.77	232.59	0.79	233.38
2SM2	31.015896	4.055	262.43	2.57	305.22	2.54	307.41	2.51	306.66	2.50	308.16	2.47	307.41	2.51	306.06	2.52	306.66
NO3	42.382765	1.994	75.41	3.14	74.38	3.20	75.61	3.23	74.88	3.17	77.24	3.15	76.99	3.11	75.23	3.13	76.27
2MK3	42.92714	4.846	113.64	5.68	120.23	5.83	121.87	5.89	121.32	5.79	124.15	5.74	123.75	5.68	121.88	5.70	123.08
MK3	44.025173	3.853	306.52	7.44	258.69	7.65	260.52	7.78	259.95	7.57	264.02	7.48	263.44	7.41	261.49	7.45	263.02
2MNS4	56.407938	1.625	104.99	1.59	21.47	1.46	25.41	1.38	22.71	1.40	26.47	1.37	25.98	1.35	22.89	1.37	23.41
3MS4	56.952313	3.036	129.41	1.65	61.10	1.44	68.57	1.29	67.62	1.34	69.09	1.30	69.26	1.26	65.91	1.28	65.24
MN4	57.423834	3.994	332.29	7.69	278.67	7.20	280.10	7.02	276.07	7.17	280.88	7.04	280.39	6.98	278.59	7.09	279.29
M4	57.968208	11.82	9.61	15.34	326.58	13.95	329.02	13.23	325.04	13.74	328.34	13.49	328.02	13.36	326.13	13.59	326.29
3MN4				2.29	169.09	2.02	176.48	1.83	175.49	1.87	174.12	1.82	174.20	1.77	171.07	1.79	170.37
MS4				6.28	19.59	5.61	19.31	5.37	13.04	5.72	16.57	5.59	16.10	5.58	13.88	5.73	14.36
2MSN4				0.94	262.54	0.85	267.77	0.79	265.84	0.77	264.70	0.75	264.94	0.72	262.92	0.73	262.22
3MNS6	85.392042	0.765	101.7	1.89	83.35	1.98	89.41	1.89	84.08	1.83	87.59	1.81	88.64	1.77	87.32	1.79	87.56
2NM6	85.863583	0.603	352.74	1.51	48.91	1.53	56.68	1.52	53.57	1.49	56.34	1.45	56.28	1.45	53.78	1.46	54.57
2MN6	86.407938	2.934	10.72	6.43	334.27	6.54	339.56	6.17	334.73	5.98	338.54	5.95	338.93	5.96	337.56	5.95	337.85
M6	86.952313	5.42	36.3	8.93	16.13	9.01	21.86	8.55	18.01	8.28	21.59	8.22	21.68	8.25	20.02	8.23	20.53
MSN6	87.423834	1.293	78.21	2.66	131.19	2.67	139.89	2.64	137.29	2.56	140.09	2.51	139.36	2.49	137.27	2.50	138.42
2MS6	87.968208	5.243	87.52	7.18	69.43	7.19	75.06	6.81	71.07	6.54	74.62	6.51	74.53	6.50	72.57	6.49	73.21
3MSN6	88.512583	1.19	272.37	1.78	279.21	1.82	285.69	1.74	281.23	1.65	284.75	1.62	284.89	1.59	283.27	1.61	283.81
2SM6	88.984104	1.149	147.61	1.09	133.46	1.06	137.66	0.99	134.46	0.95	137.69	0.96	137.25	0.95	135.27	0.94	136.31
2(MN)8	114.84767	0.32	256.58	0.62	271.40	0.63	277.10	0.60	271.91	0.61	280.07	0.60	279.49	0.61	276.55	0.61	278.46
3MN8	115.39204	0.994	289.43	2.64	278.11	2.64	280.20	2.49	275.83	2.42	281.46	2.40	281.31	2.41	277.89	2.42	279.24
M8	115.93642	1.401	314.33	2.43	314.51	2.46	317.58	2.31	313.73	2.28	319.50	2.27	319.20	2.28	315.93	2.29	317.66
2MSN8	116.40794	0.763	338.87	1.20	357.23	1.22	3.41	1.15	358.26	1.16	5.81	1.14	5.17	1.16	3.12	1.16	4.73
3MS8	116.95231	1.803	4.55	2.77	354.74	2.84	357.84	2.68	352.95	2.66	359.08	2.64	358.82	2.65	355.44	2.67	357.21
2(MS)8	117.96821	0.758	58.39	0.83	52.98	0.84	56.69	0.79	51.86	0.78	58.04	0.77	57.63	0.77	54.33	0.78	56.07
4MS10	145.93642	0.304	134.2	0.47	157.35	0.47	171.20	0.41	147.59	0.36	161.81	0.36	160.78	0.37	161.36	0.38	160.60

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.69	0.70	0.69	0.68	0.66	0.65	0.65	29.42	29.54	29.83	30.11	30.37	30.69	30.54	1.30	1.30	1.32	1.34	1.36	1.37	1.37
Q1	0.69	0.69	0.70	0.69	0.69	0.68	0.68	-8.84	-8.25	-8.11	-6.14	-6.42	-7.19	-6.64	1.43	1.40	1.37	1.38	1.39	1.41	1.40
O1	0.98	0.99	0.99	0.98	0.97	0.97	0.97	5.11	5.73	5.61	7.67	7.38	6.76	7.24	1.15	1.28	1.25	1.72	1.67	1.54	1.64
K1	1.28	1.28	1.29	1.25	1.25	1.24	1.24	-4.71	-4.15	-4.53	-2.08	-2.27	-2.76	-2.30	3.27	3.23	3.37	2.89	2.82	2.77	2.79
3MS2	0.37	0.37	0.37	0.37	0.36	0.36	0.36	-34.34	-33.61	-35.85	-35.55	-34.66	-36.73	-36.11	2.96	2.94	2.99	2.99	2.99	3.03	3.01
MNS2	1.43	1.40	1.38	1.37	1.36	1.35	1.36	-22.18	-21.27	-22.94	-21.95	-21.65	-22.86	-22.37	2.53	2.40	2.44	2.34	2.28	2.34	2.33
MU2	1.20	1.19	1.18	1.17	1.15	1.15	1.16	-4.48	-3.49	-5.22	-4.42	-4.25	-5.82	-5.28	2.74	2.53	2.56	2.40	2.19	2.38	2.39
N2	0.89	0.88	0.87	0.85	0.85	0.85	0.85	-3.54	-2.79	-4.43	-2.65	-2.71	-3.46	-2.93	4.27	4.57	5.23	5.26	5.50	5.60	5.47
M2	1.01	0.99	0.99	0.97	0.97	0.97	0.97	0.53	1.46	-0.18	1.44	1.29	0.42	0.96	2.63	5.24	3.06	7.17	8.36	6.51	6.86
2MN2	1.04	1.03	1.02	1.02	1.00	1.01	1.01	11.81	13.16	11.63	12.75	12.52	11.36	11.92	2.95	3.25	2.84	3.10	3.02	2.75	2.89
S2	1.02	1.00	0.99	0.98	0.97	0.98	0.98	10.21	11.28	9.72	11.76	11.37	10.72	11.32	10.40	11.35	9.76	11.78	11.41	10.76	11.35
MSN2	0.27	0.28	0.27	0.27	0.27	0.26	0.27	-17.42	-14.25	-15.38	-14.88	-16.07	-16.99	-16.20	2.22	2.18	2.21	2.20	2.22	2.24	2.22
2SM2	0.63	0.63	0.62	0.62	0.61	0.62	0.62	42.79	44.98	44.23	45.73	44.98	43.63	44.23	2.79	2.88	2.86	2.92	2.89	2.83	2.86
NO3	1.58	1.61	1.62	1.59	1.58	1.56	1.57	-1.03	0.20	-0.53	1.83	1.58	-0.18	0.86	1.15	1.21	1.24	1.18	1.16	1.12	1.13
2MK3	1.17	1.20	1.22	1.20	1.19	1.17	1.18	6.59	8.23	7.68	10.51	10.11	8.24	9.44	1.03	1.25	1.27	1.35	1.29	1.12	1.22
MK3	1.88	1.94	1.97	1.92	1.89	1.87	1.88	-47.83	-46.00	-46.57	-42.50	-43.08	-45.03	-43.50	5.61	5.67	5.82	5.37	5.32	5.40	5.33
2MNS4	0.98	0.90	0.85	0.86	0.84	0.83	0.84	-83.52	-79.58	-82.28	-78.52	-79.01	-82.10	-81.58	2.14	1.98	1.98	1.92	1.92	1.96	1.96
3MS4	0.54	0.47	0.43	0.44	0.43	0.42	0.42	-68.31	-60.84	-61.79	-60.32	-60.15	-63.50	-64.17	2.87	2.65	2.68	2.64	2.64	2.72	2.73
MN4	1.92	1.80	1.76	1.79	1.76	1.75	1.77	-53.62	-52.19	-56.22	-51.41	-51.90	-53.70	-53.00	6.21	5.70	5.84	5.62	5.55	5.63	5.66
M4	1.30	1.18	1.12	1.16	1.14	1.13	1.15	-43.03	-40.59	-44.57	-41.27	-41.59	-43.48	-43.32	10.49	9.16	9.59	9.18	9.12	9.44	9.52
3MN4																					
MS4																					
2MSN4																					
3MNS6	2.47	2.58	2.47	2.39	2.36	2.32	2.34	-18.35	-12.29	-17.62	-14.11	-13.06	-14.38	-14.14	1.19	1.24	1.18	1.10	1.07	1.05	1.07
2NM6	2.50	2.54	2.52	2.47	2.41	2.41	2.43	56.17	63.94	60.83	63.60	63.54	61.04	61.83	1.27	1.38	1.33	1.33	1.30	1.27	1.29
2MN6	2.19	2.23	2.10	2.04	2.03	2.03	2.03	-36.45	-31.16	-35.99	-32.18	-31.79	-33.16	-32.87	4.42	4.30	4.17	3.83	3.78	3.85	3.83
M6	1.65	1.66	1.58	1.53	1.52	1.52	1.52	-20.17	-14.44	-18.29	-14.71	-14.62	-16.28	-15.77	4.28	3.99	3.80	3.33	3.28	3.40	3.35
MSN6	2.06	2.06	2.04	1.98	1.94	1.92	1.93	52.98	61.68	59.08	61.88	61.15	59.06	60.21	2.14	2.35	2.27	2.26	2.20	2.13	2.17
2MS6	1.37	1.37	1.30	1.25	1.24	1.24	1.24	-18.09	-12.46	-16.45	-12.90	-12.99	-14.95	-14.31	2.73	2.36	2.32	1.85	1.83	1.97	1.92
3MSN6	1.50	1.53	1.46	1.39	1.36	1.33	1.36	6.84	13.32	8.86	12.38	12.52	10.90	11.44	0.62	0.72	0.59	0.55	0.53	0.47	0.51
2SM6	0.95	0.92	0.86	0.83	0.84	0.82	0.82	-14.15	-9.95	-13.15	-9.92	-10.36	-12.34	-11.30	0.28	0.21	0.29	0.27	0.27	0.30	0.29
2(MN)8	1.95	1.98	1.88	1.89	1.87	1.90	1.90	14.82	20.52	15.33	23.49	22.91	19.97	21.88	0.32	0.35	0.31	0.34	0.33	0.33	0.33
3MN8	2.66	2.65	2.51	2.44	2.42	2.42	2.44	-11.32	-9.23	-13.60	-7.97	-8.12	-11.54	-10.19	1.68	1.66	1.54	1.44	1.43	1.45	1.46
M8	1.74	1.76	1.65	1.63	1.62	1.63	1.64	0.18	3.25	-0.60	5.17	4.87	1.60	3.33	1.03	1.07	0.91	0.89	0.88	0.88	0.90
2MSN8	1.58	1.60	1.50	1.51	1.50	1.52	1.52	18.36	24.54	19.39	26.94	26.30	24.25	25.86	0.54	0.62	0.50	0.59	0.57	0.56	0.58
3MS8	1.54	1.58	1.48	1.48	1.46	1.47	1.48	-9.81	-6.71	-11.60	-5.47	-5.73	-9.11	-7.34	1.04	1.07	0.98	0.88	0.87	0.92	0.91
2(MS)8	1.09	1.11	1.04	1.03	1.02	1.02	1.02	-5.41	-1.70	-6.53	-0.35	-0.76	-4.06	-2.32	0.10	0.08	0.09	0.02	0.02	0.06	0.04
4MS10	1.54	1.56	1.35	1.18	1.18	1.23	1.26	23.15	37.00	13.39	27.61	26.56	27.16	26.40	0.22	0.29	0.14	0.17	0.16	0.17	0.17

TEXEL NOORDZEE

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.34	17.3841	1.65	60.89	1.63	61.64	1.59	62.14	1.60	62.14	1.58	62.17	1.59	62.26	1.57	62.19
Q1	13.398661	3.396	124.4413	2.65	109.27	2.65	109.86	2.65	110.06	2.59	111.32	2.59	111.28	2.60	110.94	2.60	111.04
O1	13.943036	10.198	183.197	9.74	180.21	9.72	180.90	9.76	181.17	9.51	182.65	9.50	182.53	9.53	182.08	9.52	182.17
K1	15.041069	7.791	343.2589	9.81	344.90	9.83	345.53	9.88	346.00	9.51	347.28	9.49	347.06	9.55	346.52	9.54	346.68
3MS2	26.952312	1.478	1.467688	0.54	323.77	0.54	328.04	0.56	324.94	0.56	325.36	0.55	326.07	0.56	324.85	0.56	325.12
MNS2	27.423834	1.585	228.8662	2.53	204.86	2.47	208.72	2.46	205.93	2.45	206.09	2.42	206.54	2.43	206.14	2.41	206.19
MU2	27.968208	7.553	241.5618	6.48	238.14	6.35	242.16	6.39	239.36	6.35	239.41	6.27	239.82	6.30	239.25	6.26	239.28
N2	28.43973	12.469	144.0003	11.78	135.32	11.62	138.69	11.26	136.13	11.19	135.74	11.06	136.45	11.04	136.89	10.95	136.73
M2	28.984104	77.508	162.3259	87.11	158.27	85.86	161.70	84.00	159.19	83.47	158.89	82.47	159.41	82.37	159.59	81.75	159.45
2MN2	29.528479	6.927	346.2115	6.85	343.92	6.73	347.68	6.71	345.07	6.67	344.92	6.59	345.15	6.59	344.79	6.55	344.71
S2	30	22.81	226.3	26.43	229.21	25.91	232.34	25.24	230.21	25.00	229.92	24.71	230.37	24.77	230.77	24.56	230.60
MSN2	30.544374	1.679	39.84563	0.44	356.01	0.41	359.26	0.43	356.82	0.42	357.40	0.42	356.79	0.43	355.09	0.43	355.14
2SM2	31.015896	2.279	69.6641	0.95	88.54	0.91	93.21	0.90	90.81	0.89	90.38	0.88	90.48	0.88	90.50	0.87	90.40
NO3	42.382767	0.655	245.5672	0.82	234.64	0.87	238.16	0.90	236.64	0.88	236.99	0.88	237.67	0.88	237.35	0.87	237.51
2MK3	42.927139	1.493	279.5929	1.65	277.39	1.75	282.01	1.80	280.52	1.76	280.94	1.76	281.38	1.75	281.19	1.74	281.24
MK3	44.025173	0.87	108.6048	1.29	31.05	1.39	38.17	1.45	38.02	1.40	38.30	1.38	38.60	1.38	38.89	1.36	38.92
2MNS4	56.407936	0.72	257.2321	1.10	260.83	1.09	265.55	1.06	261.72	1.06	261.82	1.05	262.87	1.04	262.12	1.03	262.14
3MS4	56.952312	1.581	271.9077	1.81	287.20	1.84	292.44	1.81	289.42	1.81	289.85	1.79	290.83	1.79	290.11	1.78	290.39
MN4	57.423836	3.286	151.2462	5.14	166.89	5.00	172.11	4.78	167.89	4.78	167.70	4.72	168.42	4.71	168.60	4.66	168.42
M4	57.968208	10.075	181.2518	13.49	200.79	13.23	206.00	12.80	202.21	12.83	202.20	12.65	202.87	12.62	202.95	12.49	202.75
3MN4	58.512585	1.463	22.48742	2.53	23.31	2.55	29.49	2.50	26.28	2.51	26.83	2.47	27.47	2.46	27.39	2.44	27.46
MS4	58.984104	5.802	248.4659	6.49	266.00	6.35	271.91	6.10	268.73	6.07	269.11	5.98	269.69	5.99	269.62	5.91	269.43
2MSN4	59.528481	0.803	91.57152	0.98	101.99	0.97	107.66	0.96	104.18	0.96	105.44	0.95	105.63	0.93	105.59	0.92	105.81
3MNS6	85.392044	1.159	339.538	2.33	329.69	2.31	337.43	2.16	332.78	2.16	334.39	2.17	335.07	2.16	335.03	2.15	334.66
2NM6	85.863564	1.222	201.1564	1.66	295.35	1.59	303.30	1.57	299.20	1.60	299.28	1.58	299.89	1.58	299.12	1.57	298.24
2MN6	86.407936	4.473	230.7021	7.86	218.96	7.71	225.29	7.26	221.36	7.34	223.50	7.34	223.59	7.33	223.00	7.29	222.83
M6	86.952316	8.506	259.4077	10.81	263.70	10.59	270.41	9.98	267.13	10.05	268.85	10.05	268.82	10.02	268.28	9.97	268.13
MSN6	87.423838	1.499	297.4762	2.87	19.84	2.76	28.43	2.73	24.30	2.78	24.47	2.73	24.63	2.74	24.51	2.71	24.03
2MS6	87.968208	7.979	314.8818	8.51	316.60	8.30	323.35	7.80	319.68	7.81	321.34	7.81	321.29	7.72	320.70	7.69	320.53
3MSN6	88.512581	1.81	159.6574	2.17	170.01	2.16	177.28	2.01	173.80	1.97	174.89	1.97	175.51	1.95	175.51	1.94	174.91
2SM6	88.9841	1.414	12.2759	1.27	24.59	1.22	30.41	1.15	28.11	1.14	30.75	1.15	29.57	1.11	30.04	1.12	30.15
2(MN)8	114.84766	0.423	255.5623	0.33	341.38	0.29	355.77	0.29	352.01	0.29	341.49	0.29	342.66	0.28	343.27	0.27	341.66
3MN8	115.39204	1.315	284.678	1.87	283.45	1.74	296.87	1.55	289.66	1.63	281.14	1.60	282.31	1.60	281.34	1.60	280.11
M8	115.93642	1.881	316.6036	1.81	332.31	1.66	345.48	1.50	337.88	1.59	329.11	1.55	330.07	1.54	328.33	1.53	327.51
2MSN8	116.40794	1.058	354.2721	0.80	56.14	0.72	67.42	0.69	62.21	0.73	52.52	0.71	53.84	0.71	53.98	0.71	53.27
3MS8	116.95232	2.921	11.73768	2.15	10.25	1.96	22.02	1.84	13.68	2.05	7.06	1.99	7.63	1.99	6.70	1.99	6.06
2(MS)8	117.96821	1.069	78.65179	0.62	73.84	0.60	84.91	0.54	76.93	0.59	71.36	0.57	71.92	0.56	73.29	0.57	72.36
4MS10	145.93642	1.42	86.30358	1.52	71.89	1.40	83.39	1.34	71.51	1.45	69.19	1.44	69.16	1.43	66.49	1.40	66.28

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.71	0.70	0.68	0.68	0.67	0.68	0.67	43.51	44.26	44.76	44.76	44.79	44.88	44.81	1.61	1.63	1.65	1.65	1.65	1.65	1.65
Q1	0.78	0.78	0.78	0.76	0.76	0.77	0.76	-15.17	-14.58	-14.38	-13.12	-13.16	-13.50	-13.40	1.09	1.07	1.06	1.05	1.06	1.06	1.06
O1	0.96	0.95	0.96	0.93	0.93	0.93	0.93	-2.99	-2.30	-2.03	-0.55	-0.67	-1.12	-1.03	0.69	0.62	0.57	0.69	0.71	0.70	0.70
K1	1.26	1.26	1.27	1.22	1.22	1.23	1.22	1.64	2.27	2.74	4.02	3.80	3.26	3.42	2.03	2.06	2.13	1.82	1.80	1.82	1.82
3MS2	0.37	0.37	0.38	0.38	0.37	0.38	0.38	-37.70	-33.43	-36.53	-38.11	-35.40	-36.62	-36.35	1.10	1.07	1.08	1.08	1.08	1.08	1.08
MNS2	1.60	1.56	1.55	1.54	1.53	1.53	1.52	-24.01	-20.15	-22.94	-22.78	-22.33	-22.73	-22.68	1.26	1.12	1.18	1.16	1.13	1.15	1.13
MU2	0.86	0.84	0.85	0.84	0.83	0.83	0.83	-3.42	0.60	-2.20	-2.15	-1.74	-2.31	-2.28	1.16	1.21	1.19	1.23	1.30	1.28	1.32
N2	0.94	0.93	0.90	0.90	0.89	0.89	0.88	-8.68	-5.31	-7.87	-8.26	-7.55	-7.11	-7.27	1.96	1.40	2.03	2.13	2.09	2.04	2.12
M2	1.12	1.11	1.08	1.08	1.06	1.06	1.05	-4.06	-0.63	-3.14	-3.44	-2.92	-2.74	-2.88	11.23	8.40	7.85	7.67	6.41	6.18	5.83
2MN2	0.99	0.97	0.97	0.96	0.95	0.95	0.95	-2.29	1.47	-1.14	-1.29	-1.06	-1.42	-1.50	0.29	0.26	0.25	0.30	0.36	0.37	0.42
S2	1.16	1.14	1.11	1.10	1.08	1.09	1.08	2.91	6.04	3.91	3.62	4.07	4.47	4.30	3.83	4.02	2.93	2.66	2.54	2.70	2.50
MSN2	0.26	0.24	0.26	0.25	0.25	0.26	0.25	-43.84	-40.59	-43.03	-42.45	-43.06	-44.78	-44.71	1.40	1.39	1.40	1.40	1.40	1.41	1.41
2SM2	0.42	0.40	0.39	0.39	0.39	0.38	0.38	18.88	23.55	21.15	20.72	20.82	20.84	20.74	1.41	1.49	1.48	1.48	1.49	1.49	1.50
NO3	1.25	1.33	1.37	1.35	1.35	1.34	1.33	-10.93	-7.41	-8.93	-8.58	-7.90	-8.22	-8.06	0.22	0.24	0.27	0.26	0.25	0.25	0.24
2MK3	1.11	1.17	1.20	1.18	1.18	1.17	1.16	-2.20	2.42	0.93	1.35	1.79	1.60	1.65	0.17	0.26	0.31	0.27	0.27	0.26	0.25
MK3	1.49	1.60	1.67	1.60	1.59	1.59	1.57	-77.55	-70.43	-70.58	-70.30	-70.00	-69.71	-69.68	1.40	1.37	1.42	1.37	1.36	1.35	1.34
2MNS4	1.52	1.52	1.47	1.47	1.46	1.44	1.43	3.60	8.32	4.49	4.59	5.64	4.89	4.91	0.38	0.39	0.34	0.35	0.34	0.32	0.32
3MS4	1.15	1.16	1.14	1.15	1.13	1.13	1.13	15.29	20.53	17.51	17.94	18.92	18.20	18.48	0.51	0.66	0.56	0.58	0.59	0.57	0.57
MN4	1.57	1.52	1.46	1.45	1.44	1.43	1.42	15.64	20.86	16.64	16.45	17.17	17.35	17.17	2.17	2.26	1.89	1.87	1.86	1.85	1.80
M4	1.34	1.31	1.27	1.27	1.26	1.25	1.24	19.54	24.75	20.96	20.95	21.62	21.70	21.50	5.23	5.87	4.95	4.97	4.95	4.95	4.83
3MN4	1.73	1.74	1.71	1.71	1.69	1.68	1.67	0.82	7.00	3.79	4.34	4.98	4.90	4.97	1.07	1.11	1.05	1.06	1.02	1.01	0.99
MS4	1.12	1.09	1.05	1.05	1.03	1.03	1.02	17.53	23.44	20.26	20.64	21.22	21.15	20.96	1.99	2.53	2.11	2.14	2.18	2.17	2.13
2MSN4	1.22	1.21	1.19	1.20	1.18	1.16	1.15	10.42	16.09	12.61	13.87	14.06	14.02	14.24	0.24	0.30	0.25	0.27	0.26	0.24	0.25
3MNS6	2.01	1.99	1.86	1.86	1.87	1.87	1.85	-9.85	-2.11	-6.76	-5.15	-4.47	-4.51	-4.88	1.21	1.15	1.01	1.01	1.02	1.01	1.00
2NM6	1.36	1.30	1.28	1.31	1.29	1.29	1.28	94.19	102.14	98.04	98.12	98.73	97.96	97.08	2.13	2.20	2.12	2.14	2.13	2.12	2.10
2MN6	1.76	1.72	1.62	1.64	1.64	1.64	1.63	-11.74	-5.41	-9.34	-7.20	-7.11	-7.70	-7.87	3.60	3.29	2.94	2.95	2.96	2.96	2.93
M6	1.27	1.24	1.17	1.18	1.18	1.18	1.17	4.29	11.00	7.72	9.44	9.41	8.87	8.72	2.41	2.77	1.93	2.17	2.16	2.08	2.03
MSN6	1.92	1.84	1.82	1.85	1.82	1.83	1.81	82.36	90.95	86.82	86.99	87.15	87.03	86.55	3.06	3.16	3.04	3.08	3.04	3.05	3.02
2MS6	1.07	1.04	0.98	0.98	0.98	0.97	0.96	1.72	8.47	4.80	6.46	6.41	5.82	5.65	0.59	1.24	0.68	0.91	0.90	0.84	0.82
3MSN6	1.20	1.19	1.11	1.09	1.09	1.08	1.07	10.35	17.62	14.14	15.23	15.85	15.85	15.25	0.50	0.70	0.51	0.53	0.54	0.54	0.51
2SM6	0.90	0.87	0.82	0.81	0.81	0.79	0.79	12.31	18.13	15.83	18.47	17.29	17.76	17.87	0.32	0.46	0.44	0.49	0.47	0.49	0.49
2(MN)8	0.78	0.69	0.68	0.69	0.67	0.66	0.65	85.82	100.21	96.45	85.93	87.10	87.71	86.10	0.52	0.55	0.54	0.50	0.50	0.50	0.49
3MN8	1.43	1.32	1.17	1.24	1.22	1.21	1.22	-1.23	12.19	4.98	-3.54	-2.37	-3.34	-4.57	0.56	0.53	0.26	0.32	0.29	0.29	0.31
M8	0.96	0.88	0.80	0.84	0.82	0.82	0.81	15.71	28.88	21.28	12.51	13.47	11.73	10.91	0.51	0.91	0.73	0.48	0.52	0.49	0.47
2MSN8	0.76	0.68	0.65	0.69	0.67	0.67	0.67	61.87	73.15	67.94	58.25	59.57	59.71	59.00	0.98	1.10	1.02	0.92	0.93	0.93	0.92
3MS8	0.74	0.67	0.63	0.70	0.68	0.68	0.68	-1.49	10.28	1.94	-4.68	-4.11	-5.04	-5.68	0.77	1.05	1.09	0.90	0.94	0.96	0.97
2(MS)8	0.58	0.56	0.50	0.55	0.53	0.53	0.53	-4.81	6.26	-1.72	-7.29	-6.73	-5.36	-6.29	0.45	0.48	0.53	0.49	0.51	0.51	0.51
4MS10	1.07	0.99	0.94	1.02	1.01	1.01	0.99	-14.41	-2.91	-14.79	-17.11	-17.14	-19.81	-20.02	0.38	0.07	0.38	0.43	0.43	0.49	0.49

WEST-TERSCHELLING

Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	2.17	49.2841	1.99	63.48	2.00	63.80	2.02	64.17	2.05	64.29	2.02	64.29	2.04	64.21	2.00	64.06
Q1	13.398661	3.293	153.3813	2.44	127.71	2.44	128.85	2.43	130.15	2.38	131.88	2.38	131.84	2.38	131.59	2.37	131.62
O1	13.943036	9.334	206.007	8.85	200.23	8.81	201.38	8.85	202.85	8.62	204.72	8.60	204.50	8.61	204.32	8.60	204.22
K1	15.041069	6.798	3.728931	8.91	4.03	8.89	5.09	8.89	6.78	8.54	8.29	8.52	7.99	8.57	7.75	8.56	7.78
3MS2	26.952313	2.226	64.71769	0.73	31.54	0.72	36.08	0.72	33.74	0.71	34.19	0.70	36.08	0.70	34.92	0.70	34.96
MNS2	27.423834	1.996	282.4062	2.77	264.18	2.70	268.07	2.65	266.48	2.59	267.57	2.55	268.50	2.54	268.34	2.52	268.18
MU2	27.968208	8.115	305.0318	7.25	298.38	7.09	302.25	6.98	300.64	6.86	301.51	6.75	302.41	6.71	302.07	6.68	301.76
N2	28.43973	12.745	198.2803	12.89	185.28	12.61	188.03	12.10	186.81	11.85	187.66	11.70	188.34	11.58	188.78	11.53	188.39
M2	28.984104	79.797	219.0959	91.72	211.39	89.84	214.35	86.71	213.07	85.00	213.83	83.77	214.39	83.04	214.60	82.71	214.24
2MN2	29.528479	6.942	49.37152	7.02	44.55	6.90	48.11	6.75	46.60	6.62	47.28	6.51	47.77	6.47	47.56	6.45	47.22
S2	30	21.46	282.76	25.74	281.91	25.03	284.52	24.09	283.45	23.57	284.28	23.22	284.60	23.06	284.99	22.94	284.59
MSN2	30.544375	1.725	108.4756	0.40	81.40	0.40	87.17	0.41	85.17	0.40	86.95	0.38	86.14	0.39	85.38	0.39	84.46
2SM2	31.015896	2.116	133.1941	1.03	152.99	0.99	156.99	0.97	155.71	0.95	156.02	0.93	157.17	0.93	156.65	0.92	156.71
NO3	42.382765	0.11	337.2172	0.42	318.05	0.42	319.60	0.41	315.84	0.39	314.06	0.39	314.26	0.38	313.43	0.37	313.80
2MK3	42.92714	0.587	6.87286	0.70	350.97	0.72	353.18	0.74	348.05	0.71	345.37	0.71	345.60	0.71	343.66	0.70	343.74
MK3	44.025173	0.349	216.1048	0.80	3.20	0.80	10.74	0.86	19.11	0.92	24.37	0.91	23.86	0.93	24.01	0.91	22.17
2MNS4	56.407938	0.415	303.5621	1.14	285.13	1.15	292.04	1.17	291.41	1.19	294.78	1.17	296.08	1.16	296.75	1.14	295.33
3MS4	56.952313	0.89	317.8977	2.05	308.47	2.08	315.86	2.11	316.29	2.14	319.86	2.10	321.10	2.11	321.49	2.06	320.72
MN4	57.423834	2.14	223.2062	4.66	212.38	4.68	217.65	4.61	216.77	4.60	219.21	4.55	220.09	4.52	221.30	4.45	220.44
M4	57.968208	5.827	245.7718	12.19	244.78	12.20	250.13	12.15	249.53	12.20	252.20	12.05	252.97	12.00	253.94	11.78	253.12
3MN4	58.512583	0.876	65.65742	2.48	53.78	2.48	60.93	2.54	61.15	2.58	64.81	2.54	65.55	2.52	66.39	2.46	65.40
MS4	58.984104	3.581	315.1859	6.05	313.97	6.04	319.16	5.98	318.92	5.97	322.23	5.90	322.93	5.88	323.71	5.78	322.82
2MSN4	59.528479	0.53	129.6115	0.83	146.41	0.84	152.81	0.84	152.10	0.85	155.31	0.84	155.55	0.82	156.64	0.82	156.13
3MNS6	85.392042	0.977	62.83796	2.23	46.27	2.14	54.57	2.03	51.12	2.07	54.16	2.06	54.70	2.05	55.15	2.04	54.16
2NM6	85.863563	0.885	297.1564	1.58	22.87	1.48	32.61	1.45	28.78	1.48	30.78	1.44	31.61	1.44	31.46	1.41	30.59
2MN6	86.407938	2.91	322.4521	6.23	298.92	5.98	306.03	5.67	303.39	5.80	306.37	5.74	306.22	5.71	306.41	5.69	305.32
M6	86.952313	5.415	349.6277	8.91	344.29	8.53	351.30	8.18	349.48	8.34	352.27	8.24	351.95	8.19	352.19	8.15	351.12
MSN6	87.423834	0.975	38.84617	2.53	112.95	2.37	121.96	2.34	118.57	2.38	120.58	2.32	121.23	2.33	121.48	2.30	120.34
2MS6	87.968208	5.006	48.78179	7.32	40.98	7.02	48.14	6.69	46.50	6.77	49.63	6.71	49.34	6.63	49.67	6.60	48.60
3MSN6	88.512583	1.445	248.4674	2.09	250.90	2.03	258.58	1.94	256.92	1.96	259.79	1.95	259.83	1.94	260.42	1.92	259.49
2SM6	88.984104	0.894	129.2759	0.96	107.94	0.91	114.04	0.89	113.44	0.90	117.65	0.87	115.81	0.86	117.09	0.86	116.29
2(MN)8	114.84767	0.262	355.0623	0.37	61.32	0.33	68.33	0.36	66.68	0.40	68.65	0.39	69.58	0.41	71.30	0.39	67.78
3MN8	115.39204	0.624	18.69796	1.76	26.03	1.67	37.18	1.55	31.24	1.67	29.76	1.69	29.54	1.72	30.31	1.68	28.92
M8	115.93642	0.902	47.52358	1.85	77.71	1.77	88.29	1.68	84.06	1.77	83.81	1.77	83.74	1.79	83.85	1.75	82.25
2MSN8	116.40794	0.623	83.08206	0.82	143.54	0.78	153.32	0.79	150.36	0.86	152.03	0.85	152.46	0.88	154.96	0.86	153.15
3MS8	116.95231	1.386	96.34769	1.98	117.87	1.85	128.40	1.79	122.57	1.98	121.41	1.94	121.82	1.98	122.27	1.93	120.64
2(MS)8	117.96821	0.578	169.3518	0.64	180.97	0.61	189.61	0.58	186.34	0.61	187.70	0.60	186.62	0.62	189.68	0.60	187.41
4MS10	145.93642	0.982	191.3136	1.26	199.40	1.22	214.29	1.10	208.82	1.15	209.47	1.14	210.19	1.15	209.73	1.11	208.55

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.92	0.92	0.93	0.94	0.93	0.94	0.92	14.20	14.52	14.89	15.01	15.01	14.93	14.78	0.54	0.55	0.56	0.56	0.57	0.56	0.56
Q1	0.74	0.74	0.74	0.72	0.72	0.72	0.72	-25.67	-24.53	-23.23	-21.50	-21.54	-21.79	-21.76	1.52	1.48	1.43	1.39	1.39	1.40	1.40
O1	0.95	0.94	0.95	0.92	0.92	0.92	0.92	-5.78	-4.63	-3.16	-1.29	-1.51	-1.69	-1.79	1.04	0.90	0.69	0.74	0.77	0.77	0.78
K1	1.31	1.31	1.31	1.26	1.25	1.26	1.26	0.30	1.36	3.05	4.56	4.26	4.02	4.05	2.11	2.10	2.13	1.84	1.82	1.85	1.84
3MS2	0.33	0.32	0.32	0.32	0.31	0.31	0.31	-33.18	-28.64	-30.98	-30.53	-28.64	-29.80	-29.78	1.67	1.63	1.65	1.65	1.65	1.66	1.66
MNS2	1.39	1.35	1.33	1.30	1.28	1.27	1.26	-18.23	-14.34	-15.93	-14.84	-13.91	-14.07	-14.23	1.07	0.91	0.91	0.84	0.78	0.77	0.77
MU2	0.89	0.87	0.86	0.85	0.83	0.83	0.82	-6.65	-2.78	-4.39	-3.52	-2.62	-2.98	-3.27	1.24	1.09	1.27	1.34	1.41	1.46	1.49
N2	1.01	0.99	0.95	0.93	0.92	0.91	0.90	-13.00	-10.25	-11.47	-10.62	-9.94	-9.50	-9.89	2.90	2.27	2.57	2.44	2.36	2.32	2.42
M2	1.15	1.13	1.09	1.07	1.05	1.04	1.04	-7.71	-4.75	-6.03	-5.27	-4.71	-4.50	-4.86	16.56	12.25	11.15	9.18	7.80	7.16	7.47
2MN2	1.01	0.99	0.97	0.95	0.94	0.93	0.93	-4.82	-1.26	-2.77	-2.09	-1.60	-1.81	-2.15	0.59	0.16	0.39	0.40	0.47	0.51	0.56
S2	1.20	1.17	1.12	1.10	1.08	1.07	1.07	-0.85	1.76	0.69	1.52	1.84	2.23	1.83	4.30	3.64	2.64	2.19	1.90	1.82	1.64
MSN2	0.23	0.23	0.23	0.23	0.22	0.22	0.22	-27.08	-21.31	-23.31	-21.53	-22.34	-23.10	-24.02	1.38	1.36	1.36	1.36	1.38	1.38	1.38
2SM2	0.49	0.47	0.46	0.45	0.44	0.44	0.44	19.80	23.80	22.52	22.83	23.98	23.46	23.52	1.20	1.27	1.28	1.29	1.32	1.32	1.32
NO3	3.80	3.78	3.75	3.52	3.58	3.47	3.40	-19.17	-17.62	-21.38	-23.16	-22.96	-23.79	-23.42	0.32	0.31	0.31	0.29	0.30	0.28	0.28
2MK3	1.19	1.22	1.26	1.21	1.22	1.21	1.19	-15.90	-13.69	-18.82	-21.50	-21.27	-23.21	-23.13	0.21	0.20	0.27	0.27	0.27	0.29	0.28
MK3	2.30	2.28	2.47	2.63	2.62	2.66	2.62	147.10	154.64	163.01	168.27	167.76	167.91	166.07	1.11	1.12	1.20	1.26	1.26	1.27	1.25
2MNS4	2.74	2.77	2.81	2.86	2.82	2.79	2.74	-18.43	-11.52	-12.15	-8.78	-7.48	-6.81	-8.23	0.75	0.75	0.77	0.78	0.76	0.75	0.73
3MS4	2.30	2.33	2.37	2.40	2.35	2.37	2.31	-9.43	-2.04	-1.61	1.96	3.20	3.59	2.82	1.18	1.19	1.22	1.25	1.21	1.22	1.17
MN4	2.18	2.19	2.15	2.15	2.13	2.11	2.08	-10.83	-5.56	-6.44	-4.00	-3.12	-1.91	-2.77	2.59	2.58	2.50	2.47	2.41	2.39	2.31
M4	2.09	2.09	2.09	2.09	2.07	2.06	2.02	-0.99	4.36	3.76	6.43	7.20	8.17	7.35	6.36	6.41	6.35	6.44	6.31	6.29	6.05
3MN4	2.83	2.83	2.90	2.94	2.90	2.88	2.81	-11.88	-4.73	-4.51	-0.85	-0.11	0.73	-0.26	1.63	1.61	1.67	1.70	1.66	1.65	1.59
MS4	1.69	1.69	1.67	1.67	1.65	1.64	1.61	-1.22	3.97	3.73	7.04	7.74	8.52	7.63	2.47	2.48	2.42	2.45	2.40	2.39	2.28
2MSN4	1.56	1.58	1.58	1.60	1.58	1.55	1.54	16.80	23.20	22.49	25.70	25.94	27.03	26.52	0.35	0.41	0.40	0.44	0.43	0.42	0.41
3MNS6	2.28	2.19	2.08	2.12	2.11	2.09	2.09	-16.57	-8.27	-11.72	-8.68	-8.14	-7.69	-8.68	1.32	1.18	1.09	1.11	1.10	1.09	1.09
2NM6	1.78	1.67	1.63	1.67	1.63	1.62	1.60	85.71	95.45	91.62	93.62	94.45	94.30	93.43	1.75	1.79	1.72	1.77	1.75	1.74	1.71
2MN6	2.14	2.05	1.95	1.99	1.97	1.96	1.95	-23.53	-16.42	-19.06	-16.08	-16.23	-16.04	-17.13	3.74	3.29	3.07	3.11	3.06	3.02	3.03
M6	1.65	1.58	1.51	1.54	1.52	1.51	1.50	-5.34	1.67	-0.15	2.64	2.32	2.58	1.49	3.56	3.12	2.77	2.94	2.84	2.79	2.74
MSN6	2.59	2.43	2.40	2.44	2.38	2.39	2.36	74.10	83.11	79.72	81.73	82.38	82.63	81.49	2.45	2.45	2.37	2.44	2.39	2.41	2.36
2MS6	1.46	1.40	1.34	1.35	1.34	1.32	1.32	-7.80	-0.64	-2.28	0.85	0.56	0.89	-0.18	2.45	2.02	1.70	1.77	1.70	1.63	1.59
3MSN6	1.45	1.41	1.34	1.36	1.35	1.34	1.33	2.43	10.11	8.45	11.32	11.36	11.95	11.02	0.65	0.66	0.55	0.61	0.60	0.60	0.57
2SM6	1.08	1.01	0.99	1.00	0.97	0.96	0.97	-21.34	-15.24	-15.84	-11.63	-13.47	-12.19	-12.99	0.35	0.24	0.25	0.18	0.21	0.19	0.20
2(MN)8	1.41	1.25	1.36	1.52	1.48	1.55	1.47	66.26	73.27	71.62	73.59	74.52	76.24	72.72	0.36	0.36	0.37	0.41	0.41	0.43	0.40
3MN8	2.81	2.67	2.49	2.67	2.70	2.75	2.70	7.33	18.48	12.54	11.06	10.84	11.61	10.22	1.14	1.09	0.95	1.06	1.08	1.11	1.07
M8	2.05	1.96	1.86	1.97	1.96	1.98	1.94	30.19	40.77	36.54	36.29	38.22	38.33	34.73	1.16	1.23	1.09	1.17	1.17	1.19	1.13
2MSN8	1.32	1.22	1.26	1.38	1.36	1.40	1.37	60.46	70.24	67.28	68.95	69.38	71.88	70.07	0.75	0.80	0.79	0.86	0.86	0.90	0.87
3MS8	1.43	1.33	1.29	1.41	1.40	1.43	1.40	21.52	32.05	26.22	25.06	25.47	25.92	24.29	0.86	1.00	0.82	0.91	0.91	0.95	0.88
2(MS)8	1.10	1.06	1.01	1.05	1.04	1.07	1.04	11.62	20.26	16.99	18.35	17.27	20.33	18.06	0.14	0.21	0.17	0.19	0.18	0.22	0.19
4MS10	1.29	1.24	1.12	1.17	1.16	1.18	1.13	8.09	22.98	17.51	18.16	18.88	18.42	17.24	0.32	0.49	0.34	0.38	0.38	0.38	0.34

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Component name	Frequency deg/hr	Amplitude obs	Phase obs	Amplitude Initial	Phase	Amplitude Iter-1	Phase	Amplitude Iter-2	Phase	Amplitude Iter-3	Phase	Amplitude Iter-4	Phase	Amplitude Iter-5	Phase	Amplitude Iter-6	Phase
SM	1.015896	3.74	45.8841	2.34	60.36	2.38	60.95	2.33	61.65	2.30	61.83	2.27	61.79	2.30	61.96	2.28	61.94
Q1	13.398661	3.737	131.6813	2.46	103.02	2.47	104.07	2.50	103.71	2.43	105.14	2.42	105.08	2.42	104.67	2.42	104.92
O1	13.943036	9.981	176.587	9.86	179.12	9.89	180.13	10.03	179.22	9.77	180.92	9.72	180.95	9.69	180.77	9.70	180.92
K1	15.041069	6.725	357.7189	9.77	355.33	9.80	355.85	10.00	354.44	9.62	356.86	9.53	356.95	9.47	356.79	9.49	356.96
3MS2	26.952313	3.415	262.5677	1.48	230.74	1.45	234.22	1.39	231.95	1.36	231.20	1.37	232.11	1.39	231.09	1.38	231.64
MNS2	27.423834	3.072	118.3062	5.63	99.91	5.42	102.40	5.20	99.76	5.18	99.30	5.16	99.94	5.19	99.67	5.18	99.72
MU2	27.968208	12.799	139.3118	15.09	133.32	14.63	135.88	14.10	133.54	14.00	132.91	13.91	133.52	14.00	132.87	13.97	133.01
N2	28.43973	28.87	6.19027	27.17	1.57	26.14	2.76	25.44	359.04	25.58	359.62	25.38	0.08	25.46	0.31	25.45	0.20
M2	28.984104	174.212	30.5359	189.62	32.88	182.72	34.45	177.39	31.03	178.32	31.16	176.80	31.58	177.81	31.62	177.62	31.55
2MN2	29.528479	13.211	227.2815	15.28	235.49	14.87	237.74	14.42	235.14	14.38	234.58	14.26	234.95	14.35	234.59	14.34	234.63
S2	30	48.201	86.5	51.40	98.06	49.21	99.23	47.87	95.24	48.52	95.51	48.10	95.77	48.44	96.11	48.40	95.95
MSN2	30.544375	2.834	289.6956	1.07	289.35	1.07	292.08	1.05	290.19	1.02	289.07	1.00	289.16	1.00	289.06	1.00	288.88
2SM2	31.015896	4.155	313.7641	2.75	335.21	2.64	337.18	2.55	334.33	2.58	333.90	2.53	334.21	2.57	333.87	2.56	333.79
NO3	42.382765	1.287	84.18724	1.99	80.27	1.99	82.50	2.00	80.29	1.98	79.62	1.97	80.08	1.96	79.83	1.95	79.80
2MK3	42.92714	3.036	115.8329	3.55	125.12	3.55	127.99	3.54	125.68	3.51	124.99	3.49	125.40	3.48	125.05	3.47	124.97
MK3	44.025173	2.408	274.7148	4.35	241.81	4.37	244.55	4.38	241.28	4.30	241.01	4.27	241.58	4.25	241.74	4.25	241.72
2MNS4	56.407938	0.839	134.2021	0.35	102.51	0.35	119.82	0.34	143.03	0.30	140.79	0.30	135.50	0.29	126.82	0.29	129.20
3MS4	56.952313	1.855	144.2777	1.16	122.64	1.22	133.26	1.11	144.49	1.07	141.37	1.06	140.27	1.06	135.31	1.05	136.32
MN4	57.423834	4.082	33.75617	3.42	42.68	3.52	52.40	3.46	61.40	3.24	57.70	3.17	56.10	3.09	51.60	3.05	52.28
M4	57.968208	12.736	59.70179	10.80	59.59	10.81	68.23	10.10	74.17	9.74	70.50	9.61	69.25	9.58	65.57	9.50	66.02
3MN4				2.26	215.04	2.26	224.47	2.01	229.40	1.96	227.00	1.94	226.54	1.97	223.35	1.96	223.97
MS4				5.84	122.17	5.80	131.35	5.40	138.95	5.19	133.77	5.11	132.83	5.07	129.13	5.02	129.69
2MSN4				0.73	287.65	0.67	297.40	0.56	301.09	0.57	297.96	0.56	298.41	0.58	295.43	0.59	295.18
3MNS6	85.392042	1.071	97.60796	1.67	93.63	1.70	100.62	1.66	98.01	1.59	97.03	1.56	98.33	1.52	96.94	1.53	97.03
2NM6	85.863563	1.249	333.6964	1.26	56.46	1.24	66.62	1.15	64.70	1.15	62.72	1.12	62.56	1.11	60.23	1.12	60.62
2MN6	86.407938	4.478	356.2121	6.44	347.97	6.41	353.28	6.23	348.72	6.11	348.84	6.01	349.55	5.94	348.56	5.95	348.90
M6	86.952313	8.502	21.31769	8.92	23.07	8.75	28.87	8.48	24.52	8.40	23.99	8.24	24.38	8.22	23.11	8.20	23.48
MSN6	87.423834	1.919	60.99617	2.22	140.00	2.15	150.79	2.02	149.53	1.99	146.63	1.95	146.34	1.92	143.03	1.92	143.94
2MS6	87.968208	8.746	71.17179	7.59	72.76	7.43	78.40	7.20	73.77	7.15	73.39	7.03	73.43	7.02	72.25	7.00	72.51
3MSN6	88.512583	1.944	267.6374	1.70	277.40	1.68	284.35	1.64	280.84	1.61	279.50	1.56	279.45	1.55	277.95	1.55	278.40
2SM6	88.984104	1.817	133.6859	1.07	130.45	1.00	134.45	0.97	127.97	0.99	128.08	0.98	127.83	0.99	126.82	0.98	127.08
2(MN)8	114.84767	0.921	300.6323	0.18	4.44	0.18	27.90	0.24	42.47	0.20	35.72	0.18	32.75	0.15	25.37	0.15	25.22
3MN8	115.39204	2.409	327.018	1.38	338.29	1.33	351.87	1.62	352.76	1.55	348.73	1.44	347.71	1.29	343.27	1.33	344.11
M8	115.93642	3.318	357.1436	1.21	9.58	1.17	25.08	1.37	32.32	1.29	25.16	1.20	23.16	1.10	15.45	1.13	17.41
2MSN8	116.40794	1.825	23.99206	0.44	58.85	0.41	80.77	0.40	102.84	0.37	88.74	0.35	83.46	0.34	70.96	0.34	73.30
3MS8	116.95231	4.584	45.31769	1.18	49.01	1.11	65.53	1.38	76.67	1.29	69.34	1.20	66.06	1.06	57.85	1.10	59.48
2(MS)8	117.96821	1.71	102.2518	0.33	111.68	0.31	127.82	0.39	135.76	0.36	128.42	0.32	124.99	0.29	118.00	0.30	119.26
4MS10	145.93642	1.633	74.40358	0.52	85.75	0.80	94.13	1.06	86.35	0.84	86.39	0.81	86.62	0.73	87.36	0.75	87.28

Component name	Amplitude ratio Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Phase-lag Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6	Vector difference Initial	Iter-1	Iter-2	Iter-3	Iter-4	Iter-5	Iter-6
SM	0.63	0.64	0.62	0.61	0.61	0.61	0.61	14.48	15.07	15.77	15.95	15.91	16.08	16.06	1.59	1.57	1.63	1.65	1.68	1.66	1.67
Q1	0.66	0.66	0.67	0.65	0.65	0.65	0.65	-28.66	-27.61	-27.97	-26.54	-26.60	-27.01	-26.76	1.97	1.93	1.93	1.90	1.91	1.93	1.92
O1	0.99	0.99	1.00	0.98	0.97	0.97	0.97	2.53	3.54	2.63	4.33	4.36	4.18	4.33	0.46	0.62	0.46	0.78	0.79	0.77	0.80
K1	1.45	1.46	1.49	1.43	1.42	1.41	1.41	-2.39	-1.87	-3.28	-0.86	-0.77	-0.93	-0.76	3.06	3.08	3.31	2.89	2.81	2.74	2.76
3MS2	0.43	0.42	0.41	0.40	0.40	0.41	0.40	-31.83	-28.35	-30.62	-31.37	-30.46	-31.48	-30.93	2.30	2.25	2.33	2.36	2.34	2.34	2.34
MNS2	1.83	1.76	1.69	1.69	1.68	1.69	1.68	-18.40	-15.91	-18.55	-19.01	-18.37	-18.64	-18.59	2.88	2.60	2.49	2.48	2.44	2.48	2.47
MU2	1.18	1.14	1.10	1.09	1.09	1.09	1.09	-5.99	-3.43	-5.77	-6.40	-5.79	-6.44	-6.30	2.71	2.00	1.88	1.92	1.75	1.92	1.88
N2	0.94	0.91	0.88	0.89	0.88	0.88	0.88	-4.62	-3.43	-7.15	-6.57	-6.11	-5.88	-5.99	2.83	3.19	4.81	4.53	4.53	4.40	4.44
M2	1.09	1.05	1.02	1.02	1.01	1.02	1.02	2.34	3.91	0.49	0.62	1.04	1.08	1.01	17.11	14.86	3.52	4.54	4.11	4.90	4.62
2MN2	1.16	1.13	1.09	1.09	1.08	1.09	1.09	8.21	10.46	7.86	7.30	7.67	7.31	7.35	2.90	3.04	2.24	2.11	2.11	2.09	2.09
S2	1.07	1.02	0.99	1.01	1.00	1.00	1.00	11.56	12.73	8.74	9.01	9.27	9.61	9.45	10.52	10.85	7.33	7.60	7.78	8.10	7.96
MSN2	0.38	0.38	0.37	0.36	0.35	0.35	0.35	-0.35	2.38	0.49	-0.63	-0.54	-0.64	-0.82	1.76	1.76	1.78	1.82	1.83	1.83	1.83
2SM2	0.66	0.63	0.61	0.62	0.61	0.62	0.61	21.45	23.42	20.57	20.14	20.45	20.11	20.03	1.89	2.03	1.98	1.96	1.99	1.96	1.96
NO3	1.55	1.55	1.55	1.54	1.53	1.52	1.52	-3.92	-1.69	-3.90	-4.57	-4.11	-4.36	-4.39	0.71	0.71	0.72	0.70	0.69	0.68	0.68
2MK3	1.17	1.17	1.17	1.16	1.15	1.14	1.14	9.29	12.16	9.85	9.16	9.57	9.22	9.14	0.74	0.87	0.76	0.70	0.71	0.68	0.68
MK3	1.81	1.81	1.82	1.79	1.77	1.76	1.77	-32.90	-30.16	-33.43	-33.70	-33.13	-32.97	-32.99	2.67	2.59	2.71	2.66	2.61	2.59	2.59
2MNS4	0.42	0.42	0.40	0.36	0.36	0.35	0.34	-31.69	-14.38	8.83	6.59	1.30	-7.38	-5.00	0.57	0.51	0.51	0.54	0.54	0.55	0.55
3MS4	0.63	0.65	0.60	0.57	0.57	0.57	0.57	-21.64	-11.02	0.21	-2.91	-4.01	-8.97	-7.96	0.89	0.70	0.74	0.79	0.80	0.82	0.83
MN4	0.84	0.86	0.85	0.79	0.78	0.76	0.75	8.92	18.64	27.64	23.94	22.34	17.84	18.52	0.88	1.35	1.90	1.73	1.67	1.48	1.53
M4	0.85	0.85	0.79	0.76	0.75	0.75	0.75	-0.11	8.53	14.47	10.80	9.55	5.87	6.32	1.93	2.60	3.88	3.66	3.63	3.35	3.46
3MN4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MS4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2MSN4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3MNS6	1.56	1.59	1.55	1.49	1.46	1.42	1.42	-3.98	3.01	0.40	-0.58	0.72	-0.67	-0.58	0.61	0.64	0.59	0.52	0.49	0.45	0.45
2NM6	1.01	0.99	0.92	0.92	0.90	0.89	0.89	82.76	92.92	91.00	89.02	88.86	86.53	86.92	1.66	1.80	1.71	1.68	1.66	1.62	1.63
2MN6	1.44	1.43	1.39	1.36	1.34	1.33	1.33	-8.24	-2.93	-7.49	-7.37	-6.66	-7.65	-7.31	2.11	1.95	1.88	1.77	1.64	1.62	1.61
M6	1.05	1.03	1.00	0.99	0.97	0.97	0.96	1.75	7.55	3.20	2.67	3.06	1.79	2.16	0.50	1.16	0.48	0.41	0.52	0.39	0.44
MSN6	1.16	1.12	1.05	1.04	1.01	1.00	1.00	79.00	89.79	88.53	85.63	85.34	82.03	82.94	2.64	2.88	2.75	2.66	2.62	2.52	2.54
2MS6	0.87	0.85	0.82	0.82	0.80	0.80	0.80	1.59	7.23	2.60	2.22	2.26	1.08	1.34	1.18	1.66	1.59	1.62	1.75	1.74	1.76
3MSN6	0.87	0.86	0.84	0.83	0.80	0.80	0.80	9.76	16.71	13.20	11.86	11.81	10.31	10.76	0.40	0.59	0.51	0.50	0.52	0.50	0.51
2SM6	0.59	0.55	0.54	0.55	0.54	0.54	0.54	-3.22	0.78	-5.70	-5.59	-5.84	-6.85	-6.59	0.76	0.82	0.85	0.84	0.85	0.84	0.85
2(MN)8	0.19	0.19	0.26	0.22	0.20	0.16	0.17	63.81	87.27	101.84	95.09	92.12	84.74	84.59	0.86	0.93	1.00	0.96	0.94	0.92	0.92
3MN8	0.57	0.55	0.67	0.64	0.60	0.53	0.55	11.27	24.85	25.74	21.71	20.69	16.25	17.09	1.09	1.32	1.18	1.13	1.18	1.23	1.20
M8	0.37	0.35	0.41	0.39	0.36	0.33	0.34	12.44	27.94	35.18	28.02	26.02	18.31	20.27	2.15	2.35	2.34	2.27	2.30	2.30	2.29
2MSN8	0.24	0.22	0.22	0.20	0.19	0.19	0.19	34.86	56.78	78.85	64.75	59.47	46.97	49.31	1.49	1.64	1.79	1.70	1.68	1.61	1.62
3MS8	0.26	0.24	0.30	0.28	0.26	0.23	0.24	3.69	20.21	31.35	24.02	20.74	12.53	14.16	3.41	3.56	3.48	3.44	3.49	3.55	3.53
2(MS)8	0.19	0.18	0.23	0.21	0.19	0.17	0.17	9.43	25.57	33.51	26.17	22.74	15.75	17.01	1.39	1.43	1.40	1.40	1.42	1.43	1.43
4MS10	0.32	0.49	0.65	0.52	0.50	0.45	0.46	11.35	19.73	11.95	11.99	12.22	12.96	12.88	1.13	0.92	0.64	0.83	0.86	0.94	0.92

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