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Influence of wave climate schematisation on the simulated morphological development of the Western Scheldt entrance.

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In the entrance of the estuary of the Western Scheldt (defined as the area between Vlissingen and Terneuzen), wave conditions are dominated by local wind conditions rather than by wave conditions at the North Sea. This is caused by the presence of the ebb tidal delta in front of the entrance. Waves influence the simulated morphology by eroding shoals edges, depositing sediment in the adjacent channels and by partly shifting patterns of erosion and sedimentation. Waves have the most influence at relative shallow areas where also tidal currents are present. These areas are in particular the shoals of Spijkerplaat and the shoals south of the Everingen flood channel.

The way the wave climate is schematised influences the simulated local morphological development up to 20% to 25% (on the spatial scale of the channels and shoals and a time scale of one year). The amount of wind and wave classes within the climate schematisation has the most influence on the simulated morphology (up 20% to 25%). Other influences within the schematisation are subordinate to the influence of the amount of classes (in the order of 5%).

Including a storm event within the wave climate schematisation, has limited influence on the considered time and spatial scale (order of 5%). On the time scale of one year, the influence of the storm is to a large extent redone by more occurring, moderate conditions.

For the simulation of the morphological development in the entrance of the Western Scheldt it is recommended to apply a wave climate schematisation of five wind and wave classes at most. The schematisation should be based on the reproduction of the bottom changes in the estuary, seasonality and storm event don't need to be taken into account.