

Geostory
A Laboratory for Environmental Transformations
Rethinking Geoengineering Activities
Luis Druschke

1_Motivation [*architectural imaginary*]

2_Site [*entanglement of ecologies*]

3_1st Experiment [*aerosol injection*]

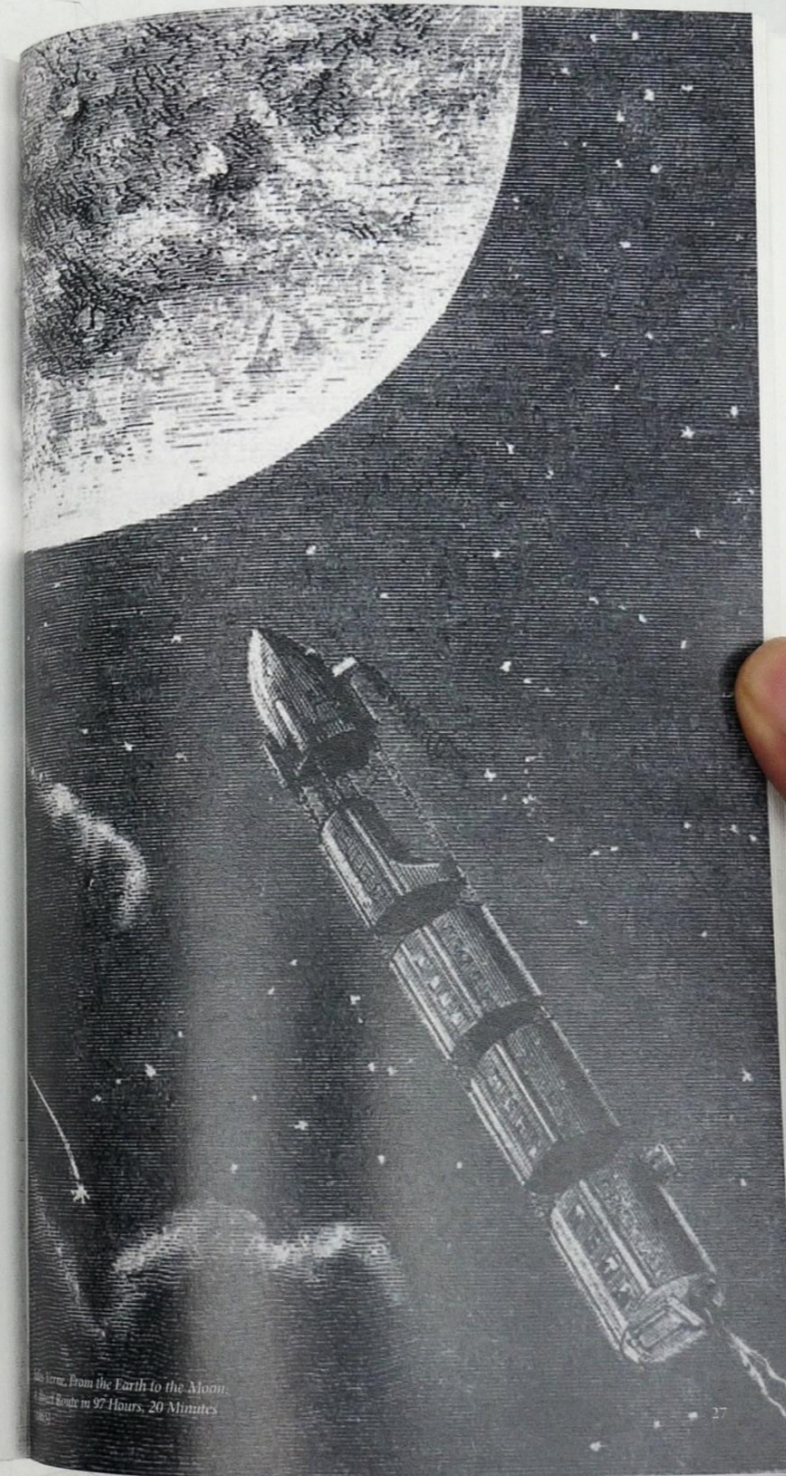
4_2nd Experiment [*fungi tunnel*]

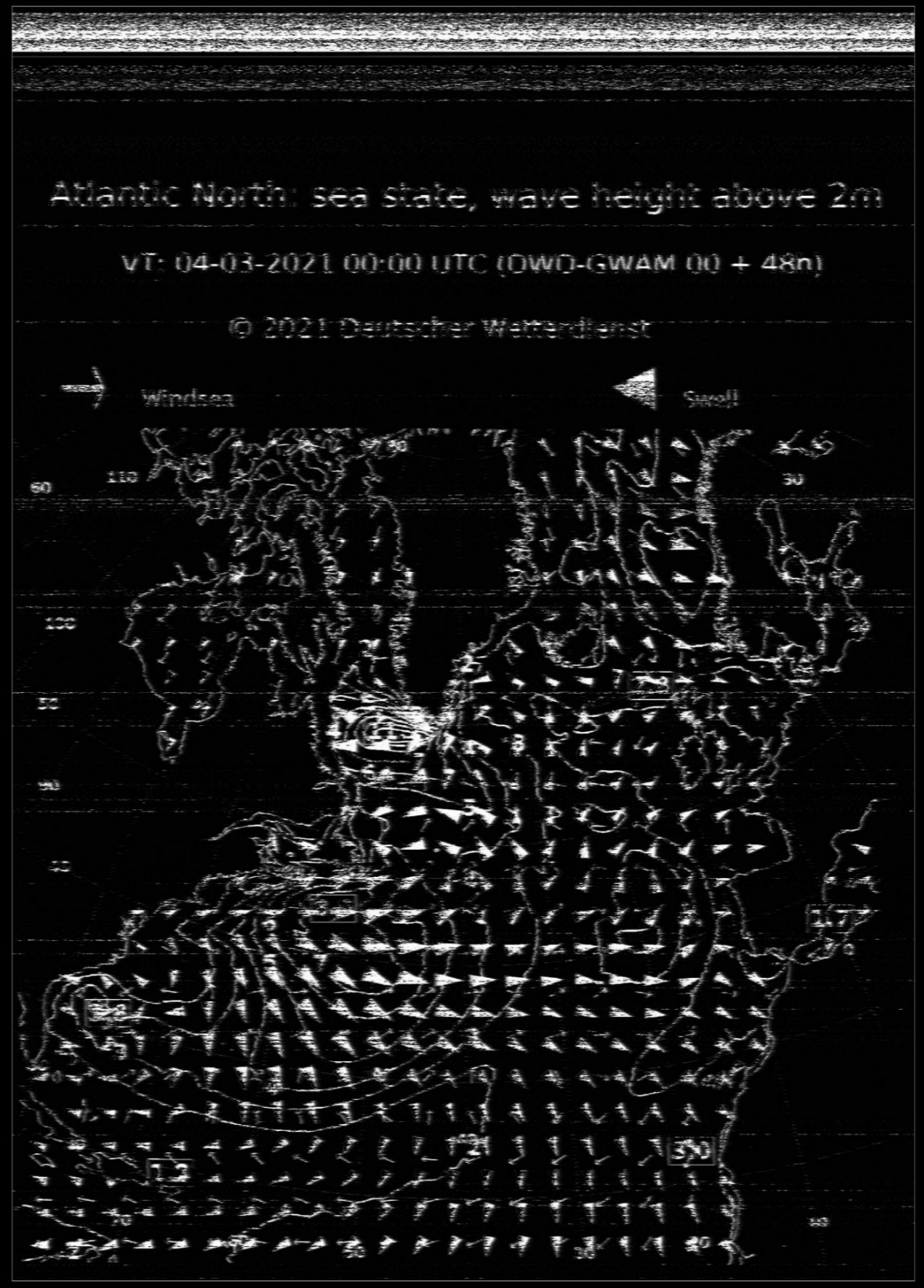
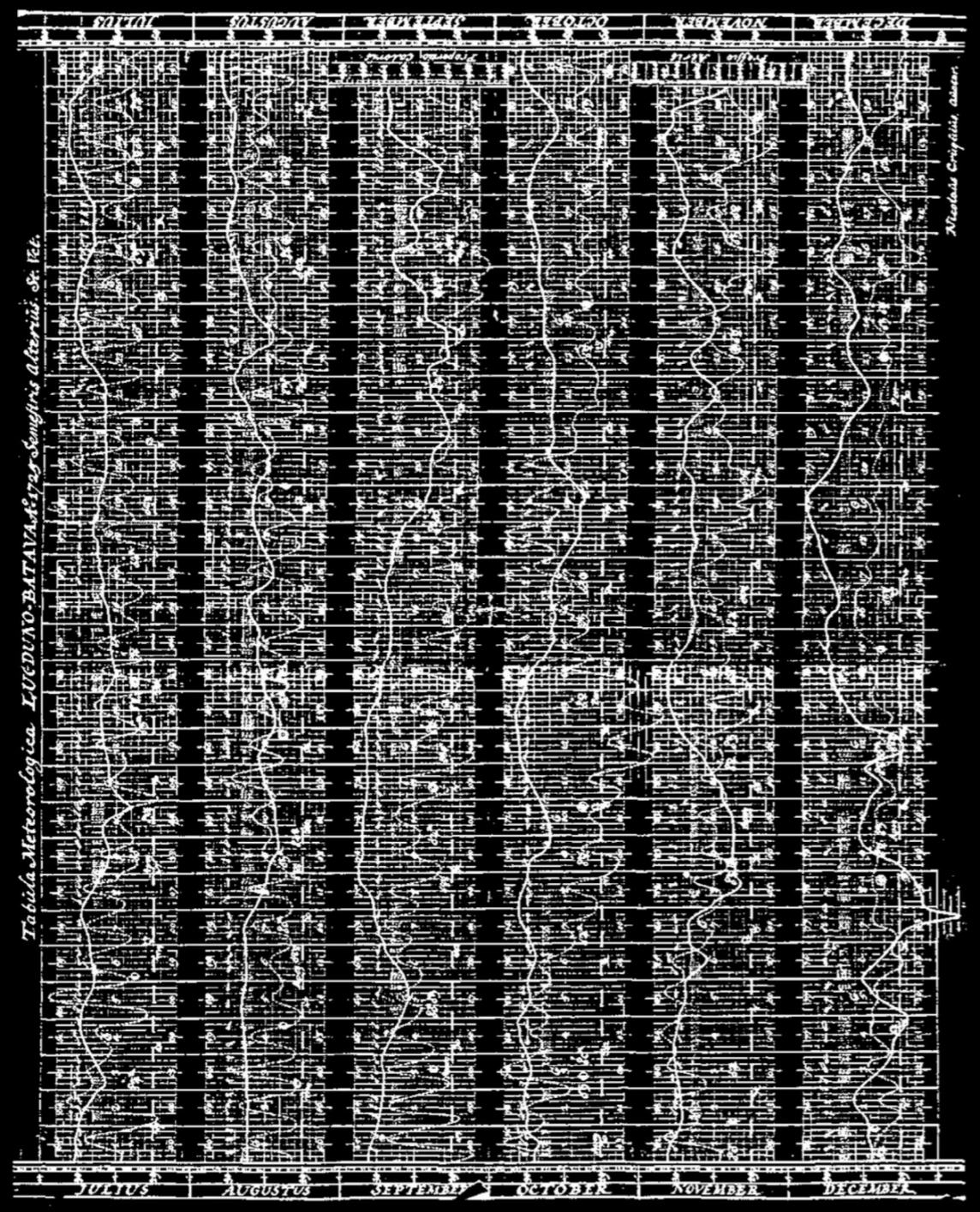
5_Geostory [*utopia/dystopia*]

[architectural] Imaginary

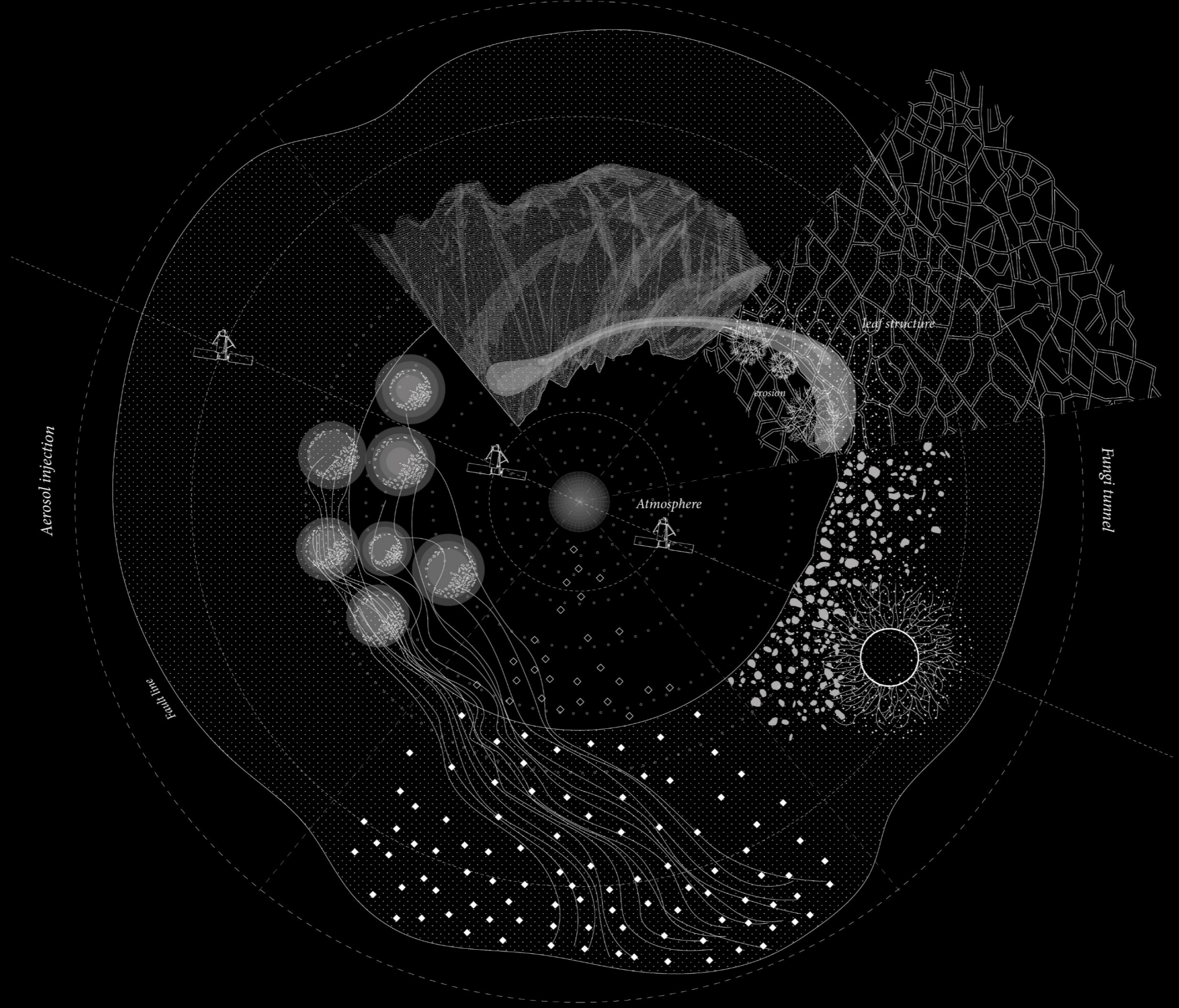
What is the agency of speculative architectural projects that create fictive scenarios? One great example for the power of the imaginary is Jules Verne's novel *From the Earth to the Moon* (1865). He describes the fictive journey of a group of people that designs a projectile to send it into space. Although he never expressed the aim or promise of going to the moon, his sketch became an important concept in the realisation of this endeavour. Engineers in the 1960s were influenced by the design and speculation that Jules Verne had put forward.

This project seeks to portray a speculation that is based on existing engineering processes. By imagining novel relationships and rethinking engineered processes it enters the fictive realm and gains an autonomy that has the potential to influence people's conceptions.





Mountains



Aerosol injection

Fault line

Atmosphere

leaf structure

erosion

Fungi tunnel

Sea



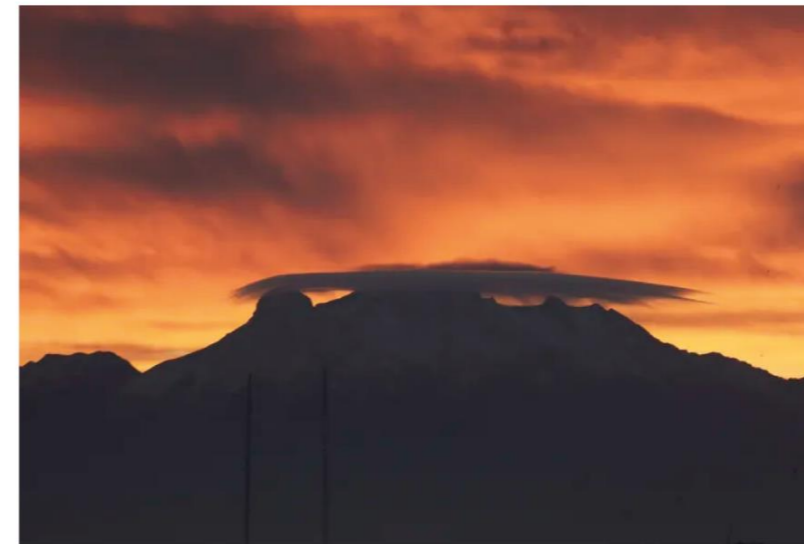
The Gulf of Mexico and US Gulf Coast at sunset, as seen from the International Space Station.

This controversial climate solution be exactly what the planet needs. could be a colossal disaster

CNN, Laura Paddison, February 12, 2023

CLIMATE / ENVIRONMENT / SCIENCE

Mexico bans solar geoengineering experiments after startup's field tests



View of a lenticular cloud over the Iztaccihuatl volcano, also known as Mujer Dormida, at dawn in Mexico City. Photo by Gerardo Vieyra/NurPhoto via Getty Images

/ The startup tried to launch sulfur dioxide into the stratosphere from Baja California, and now, the government of Mexico is cracking down.

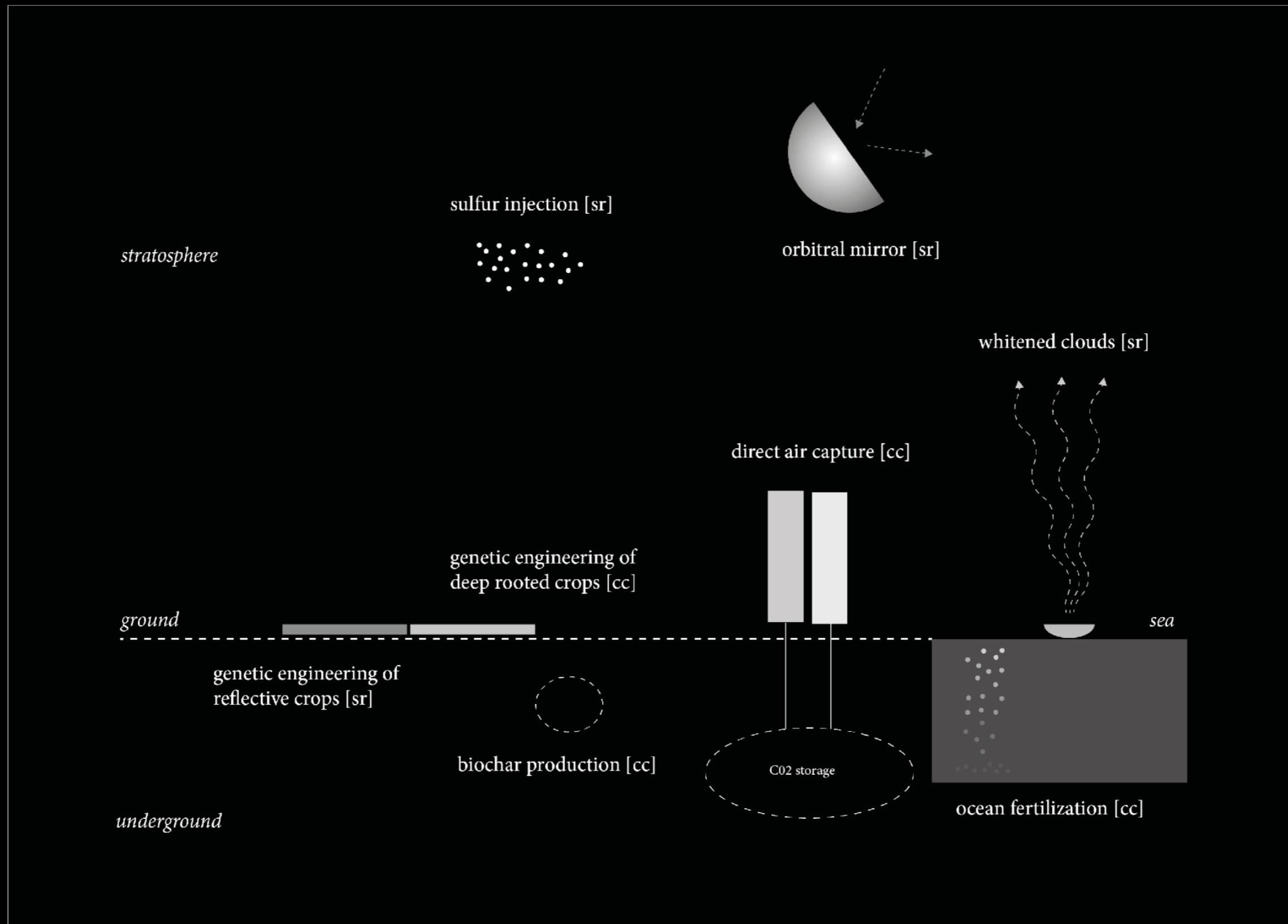
By **Justine Calma**, a science reporter covering the environment, climate, and energy with a decade of experience. She is also the host of the Hell or High Water podcast.

Jan 18, 2023, 7:59 PM GMT+1 | [7 Comments](#) / [7 New](#)



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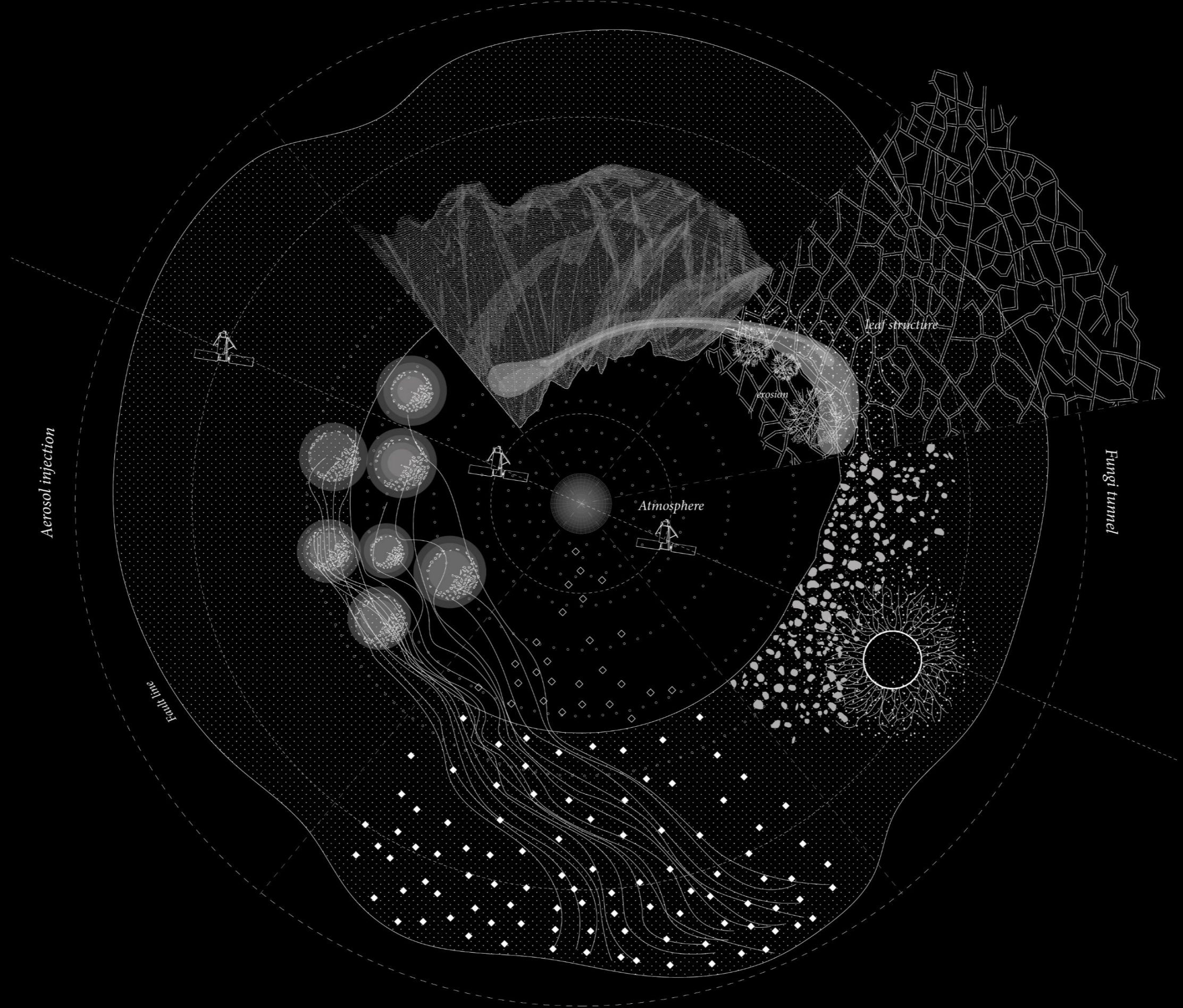
The Verge, Justine Calma, January 18, 2023



Geoengineering Activities



Mountains



Aerosol injection

Fault line

Atmosphere

leaf structure

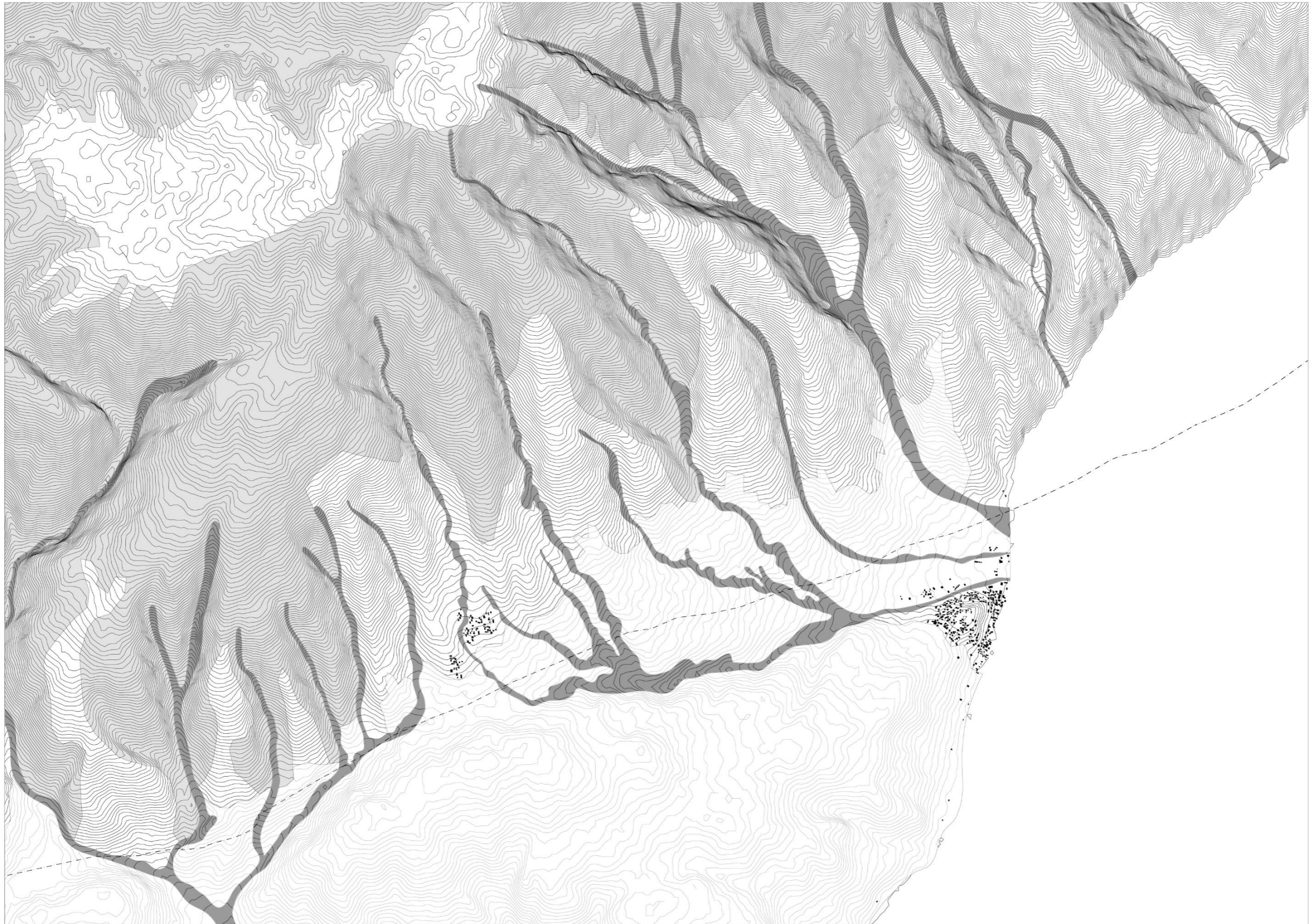
erosion

Fungi tunnel

Sea



Territorial map of Marmara Sea Region



Elements forming an ecosystem



Whitened Clouds
Marmara Sea provides salt to increase sun reflection of clouds

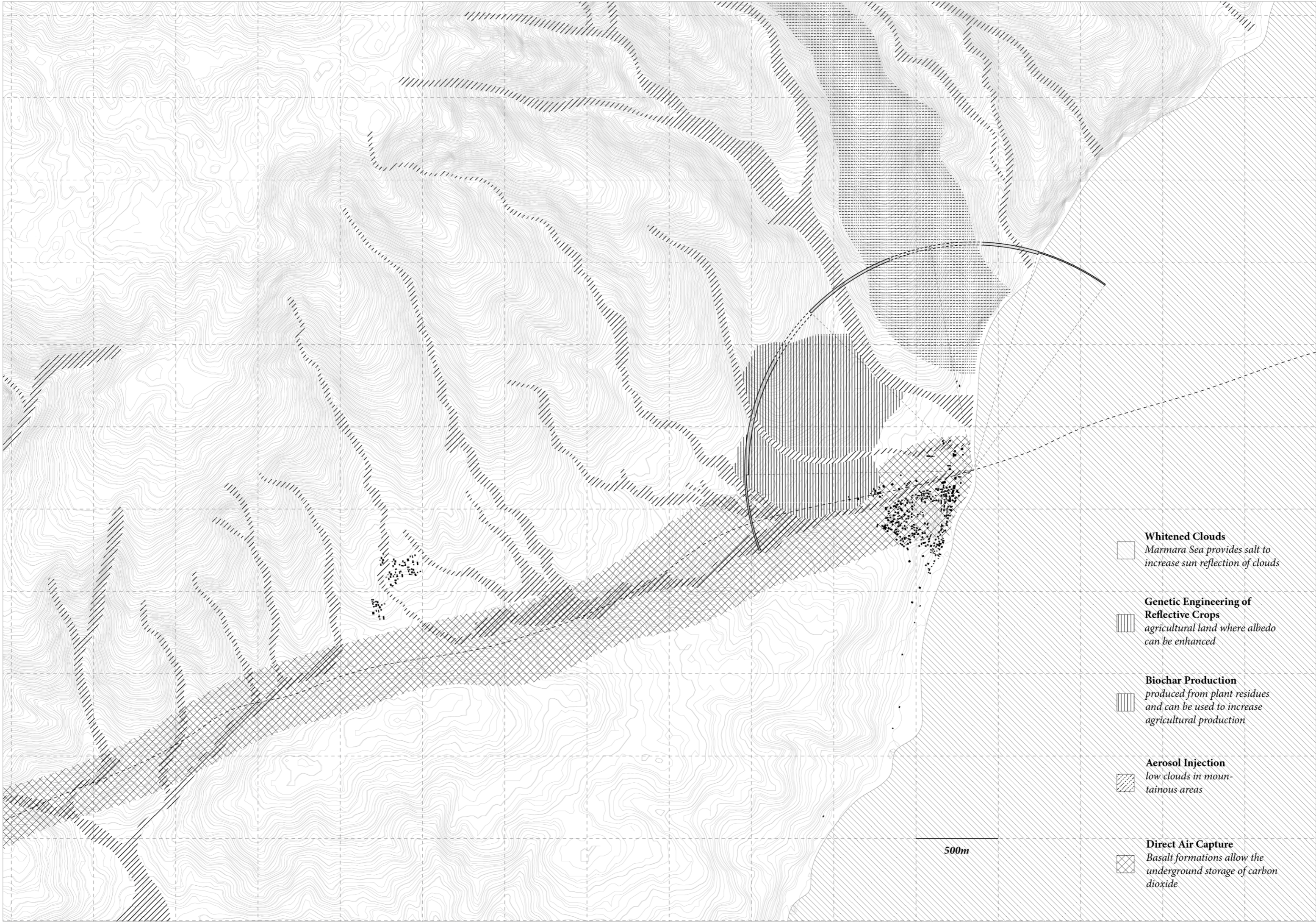
Genetic Engineering of Reflective Crops
agricultural land where albedo can be enhanced

Biochar Production
produced from plant residues and can be used to increase agricultural production

Aerosol Injection
low clouds in mountainous areas

Direct Air Capture
Basalt formations allow the underground storage of carbon dioxide

500m



Whitened Clouds
Marmara Sea provides salt to increase sun reflection of clouds

Genetic Engineering of Reflective Crops
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low clouds in mountainous areas

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500m



*biochar
production*

*aerosol
injection*

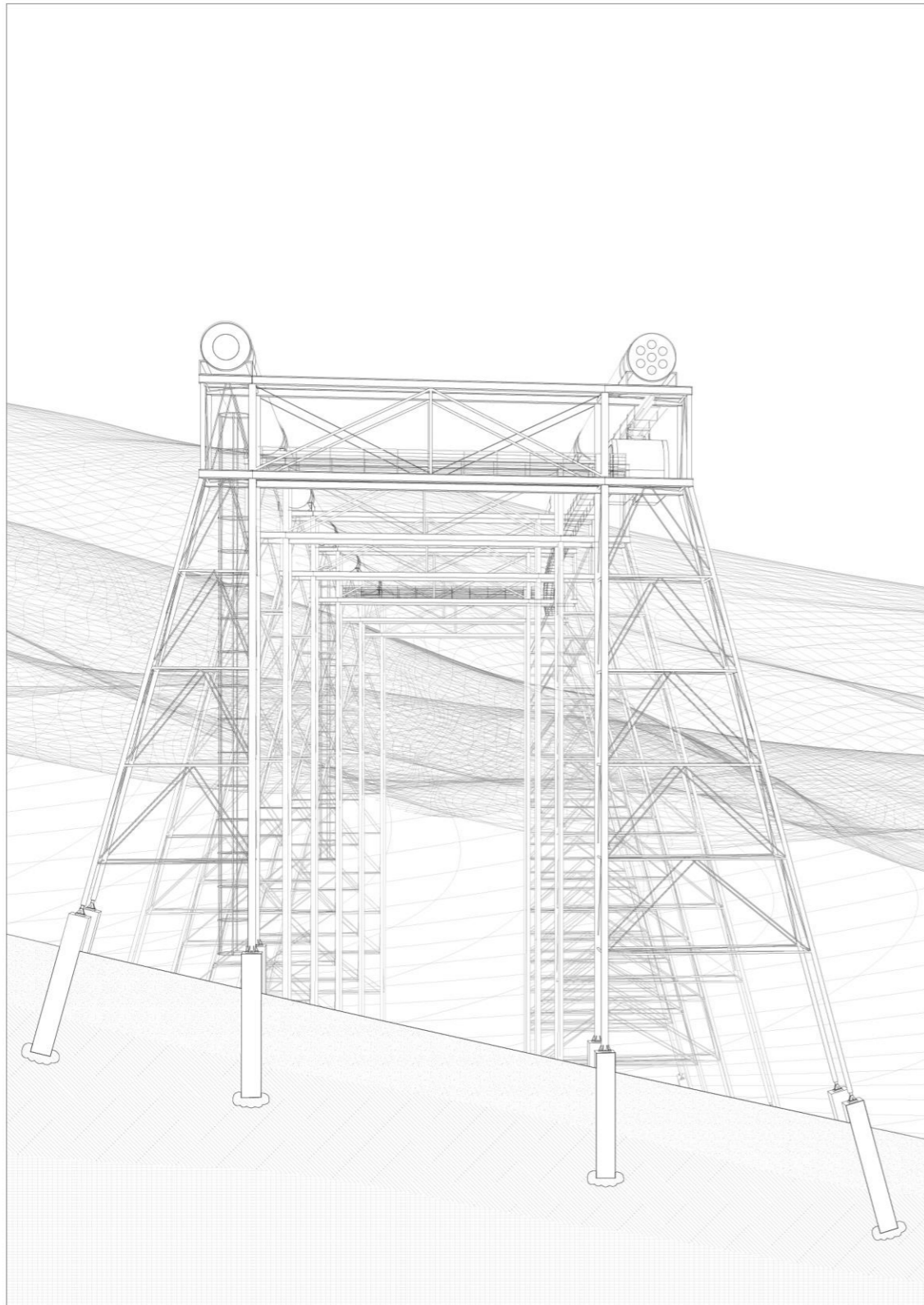
*cloud
whitening*

*reflective
crops*

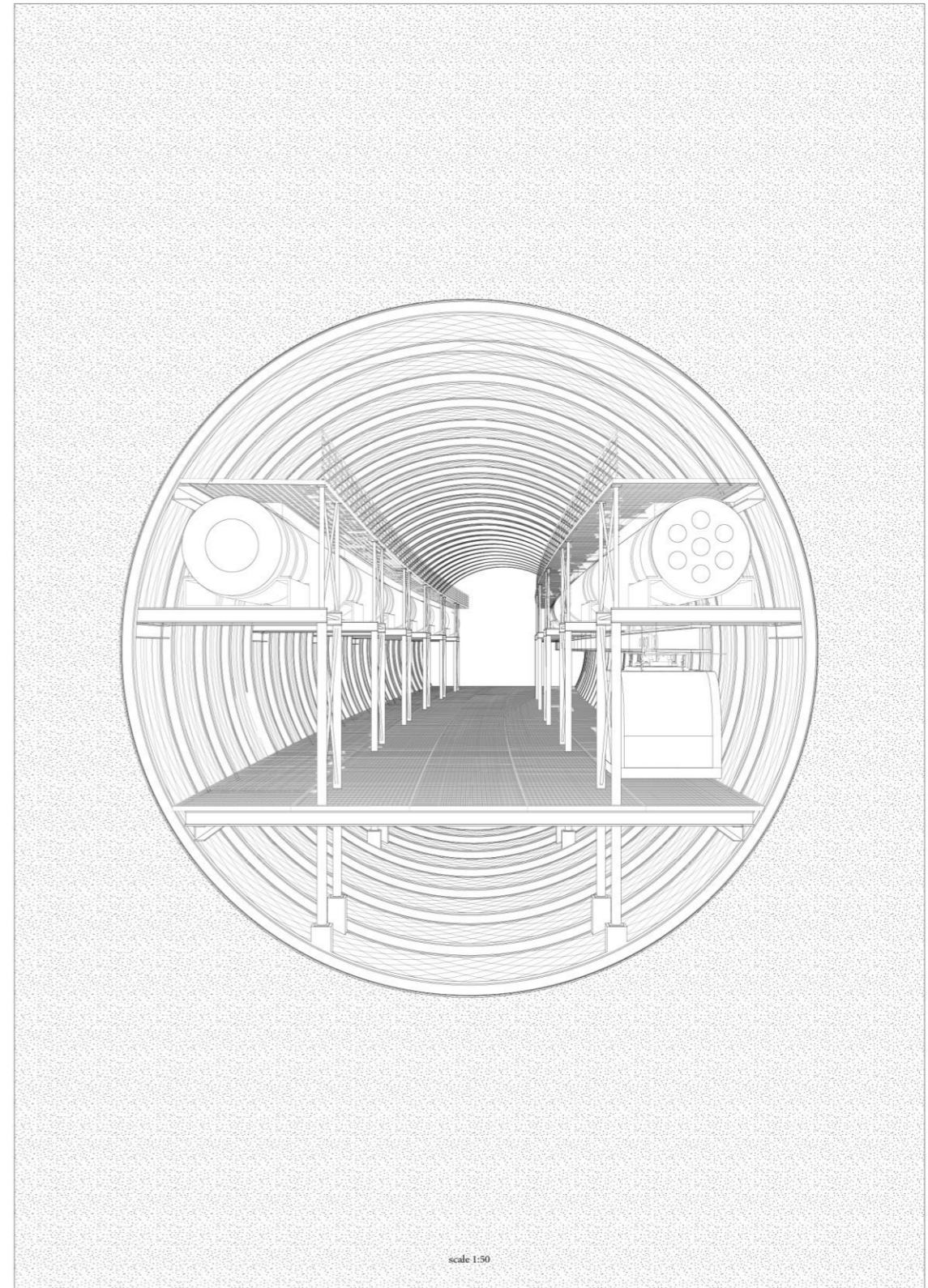
*direct air
capture*

3425m

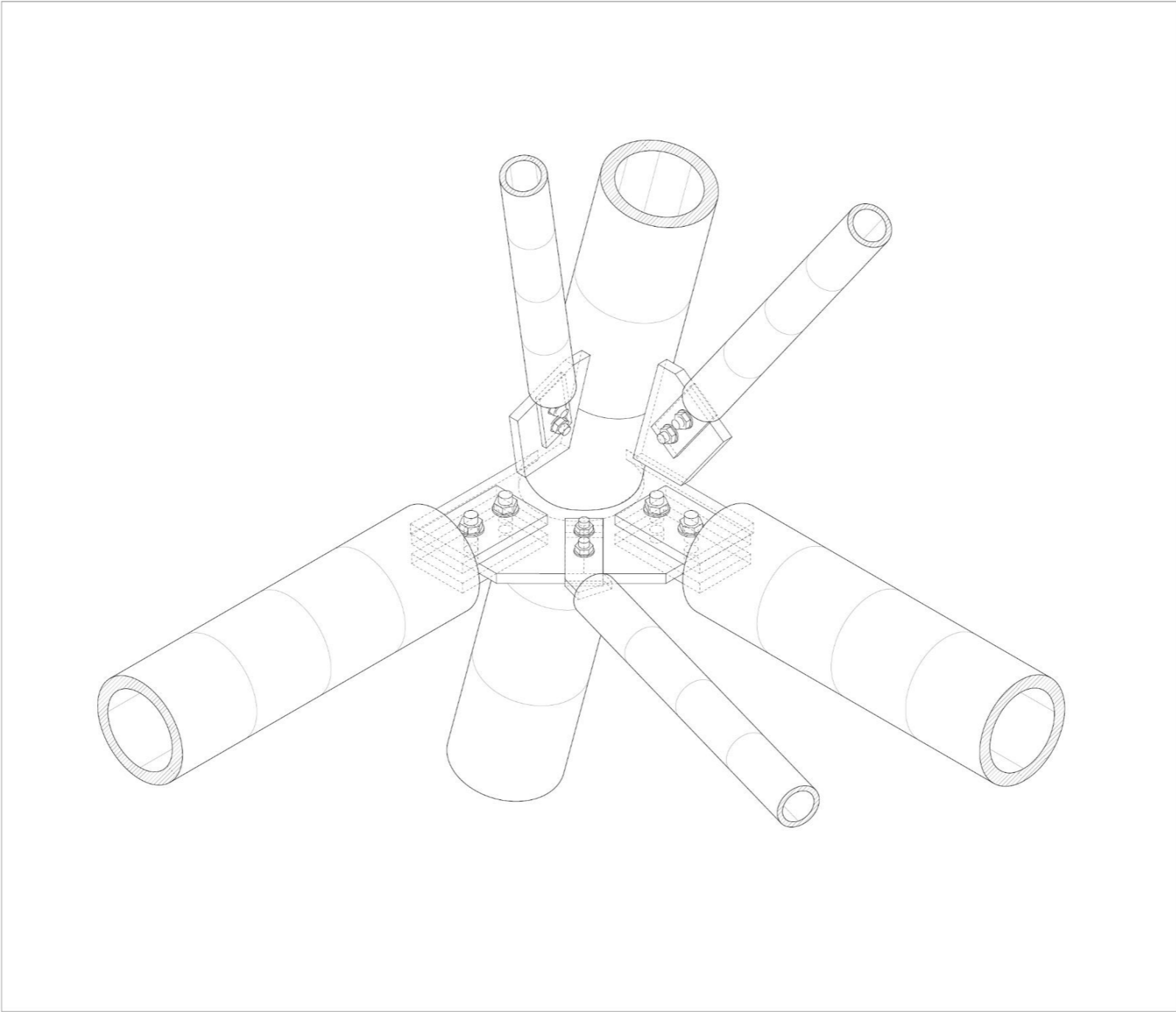
500m



structural system
above ground



structural system
underground



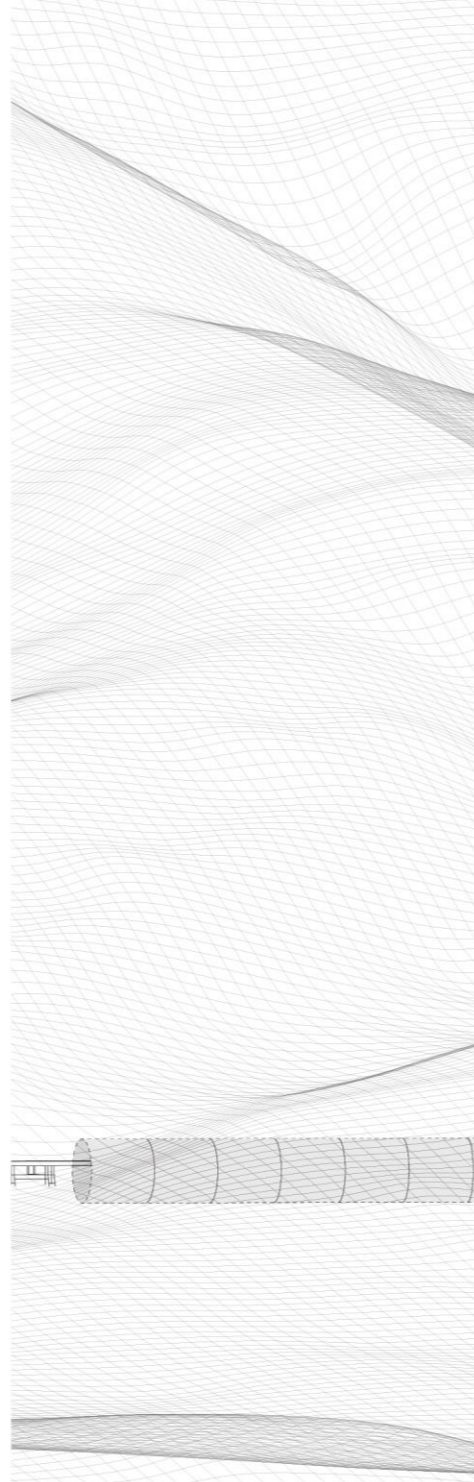
1:5 steel beam connection



direct air capture



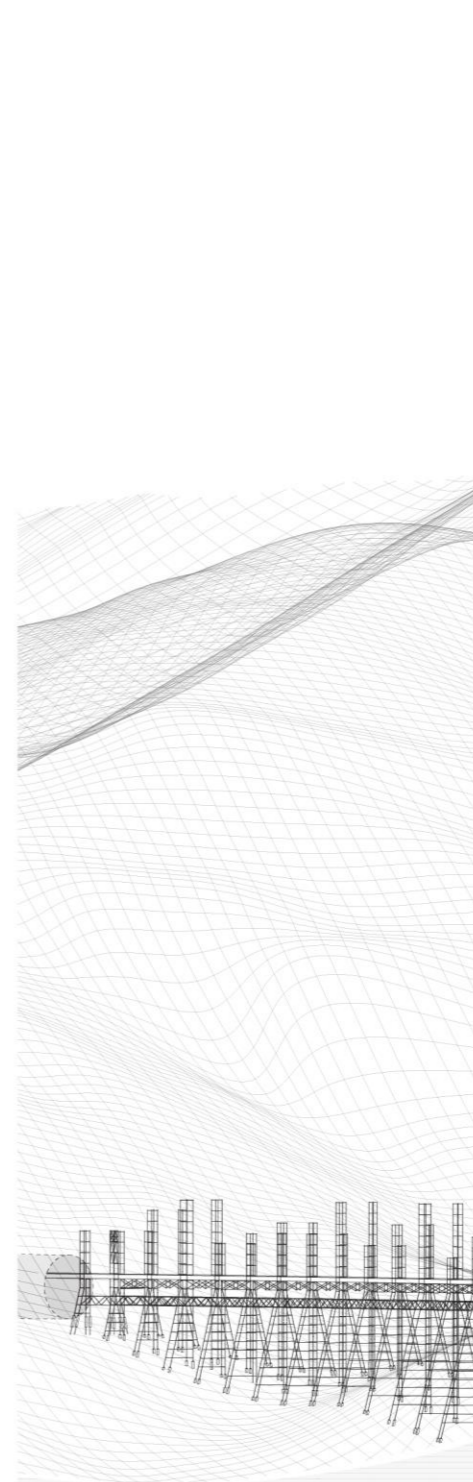
reflective crops



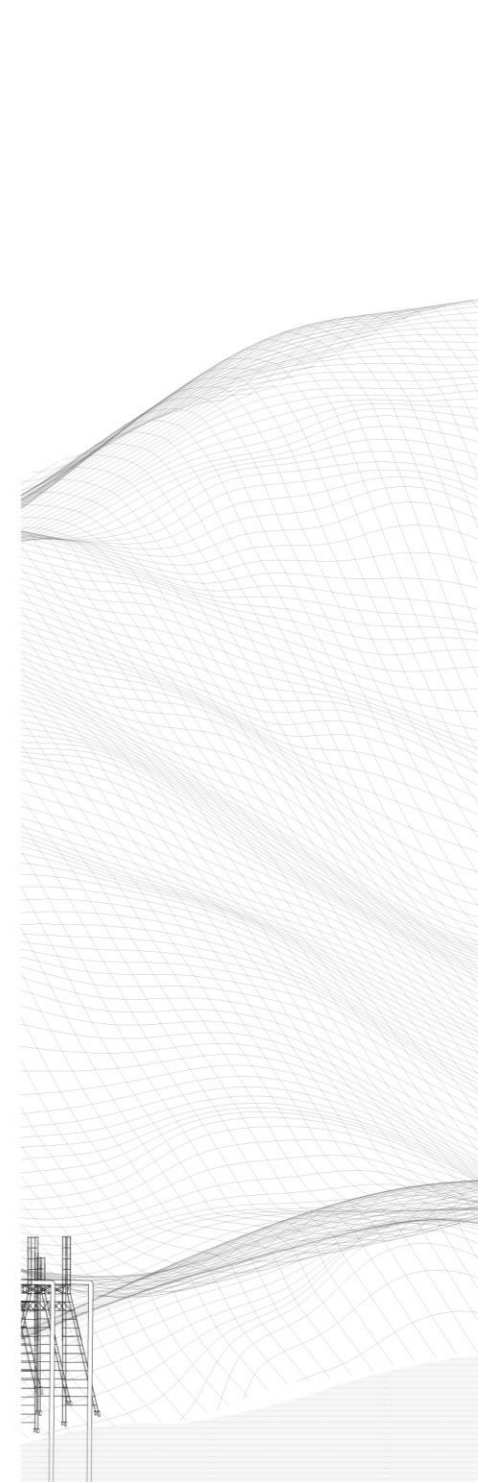
reflective crops underground



biochar production



aerosol injection



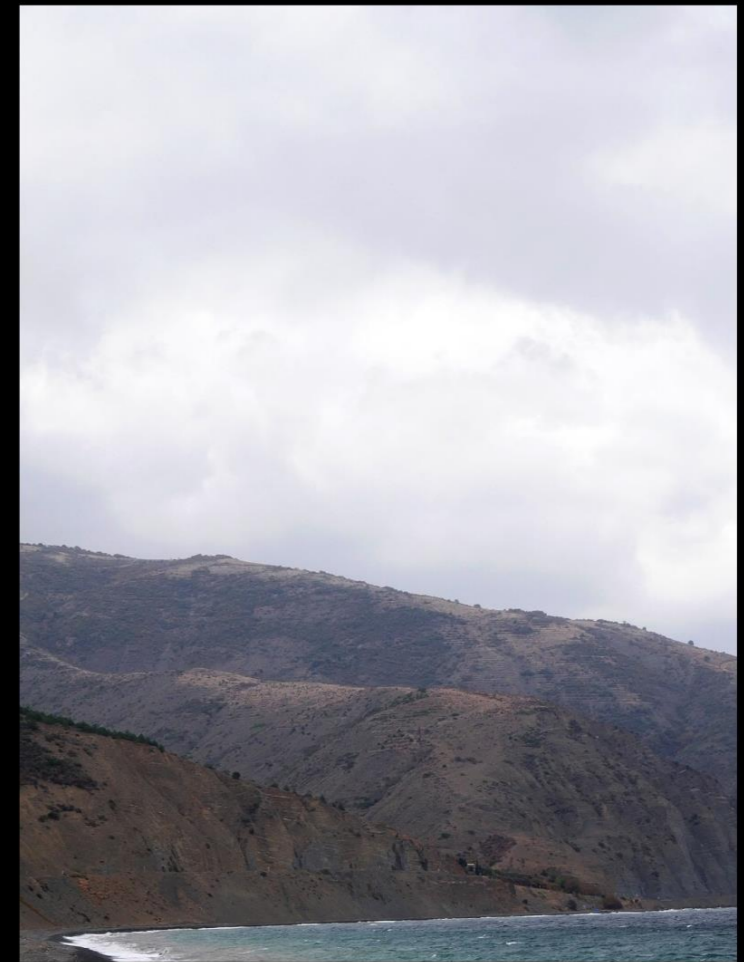
cloud whitening/
ocean fertilization



agricultural fields

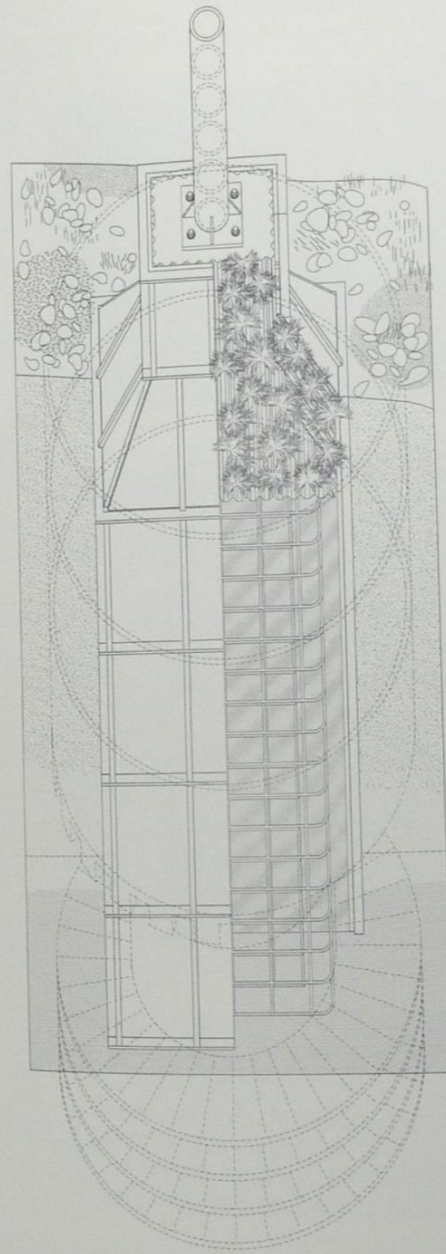
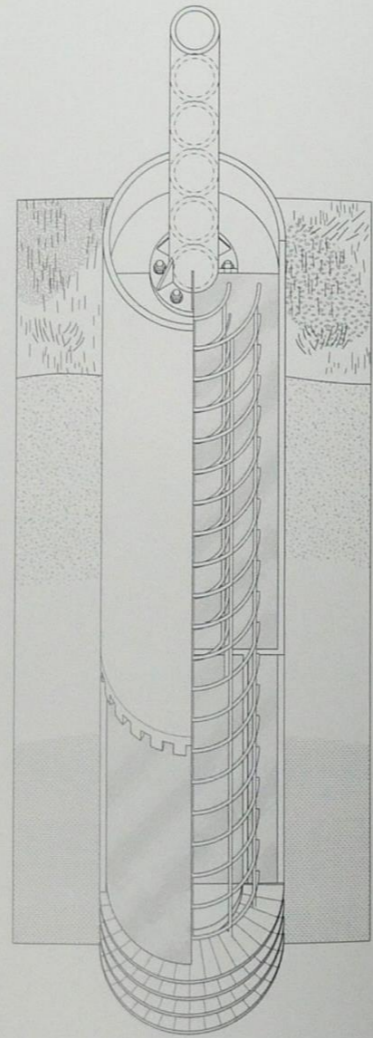


erosion channels

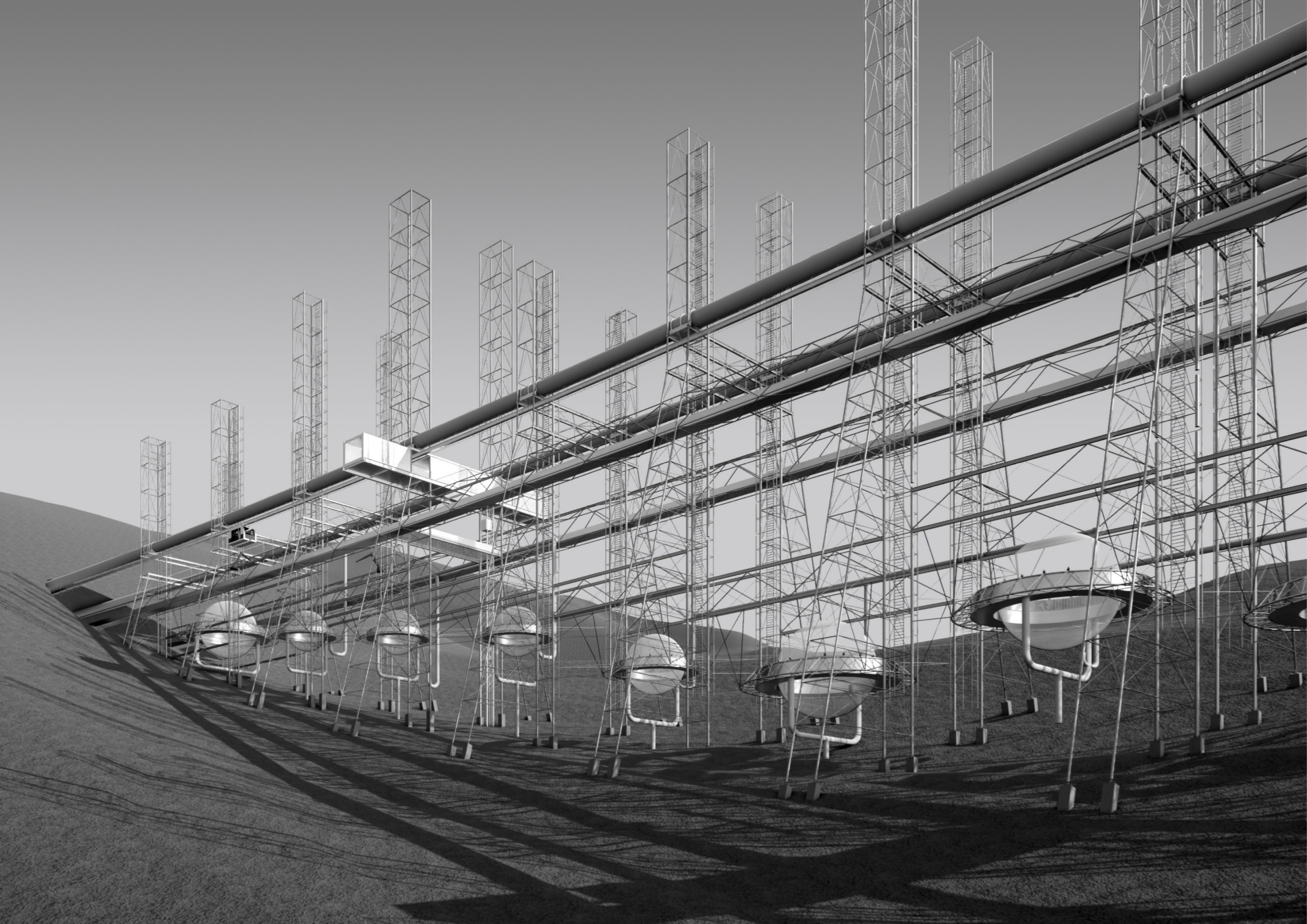


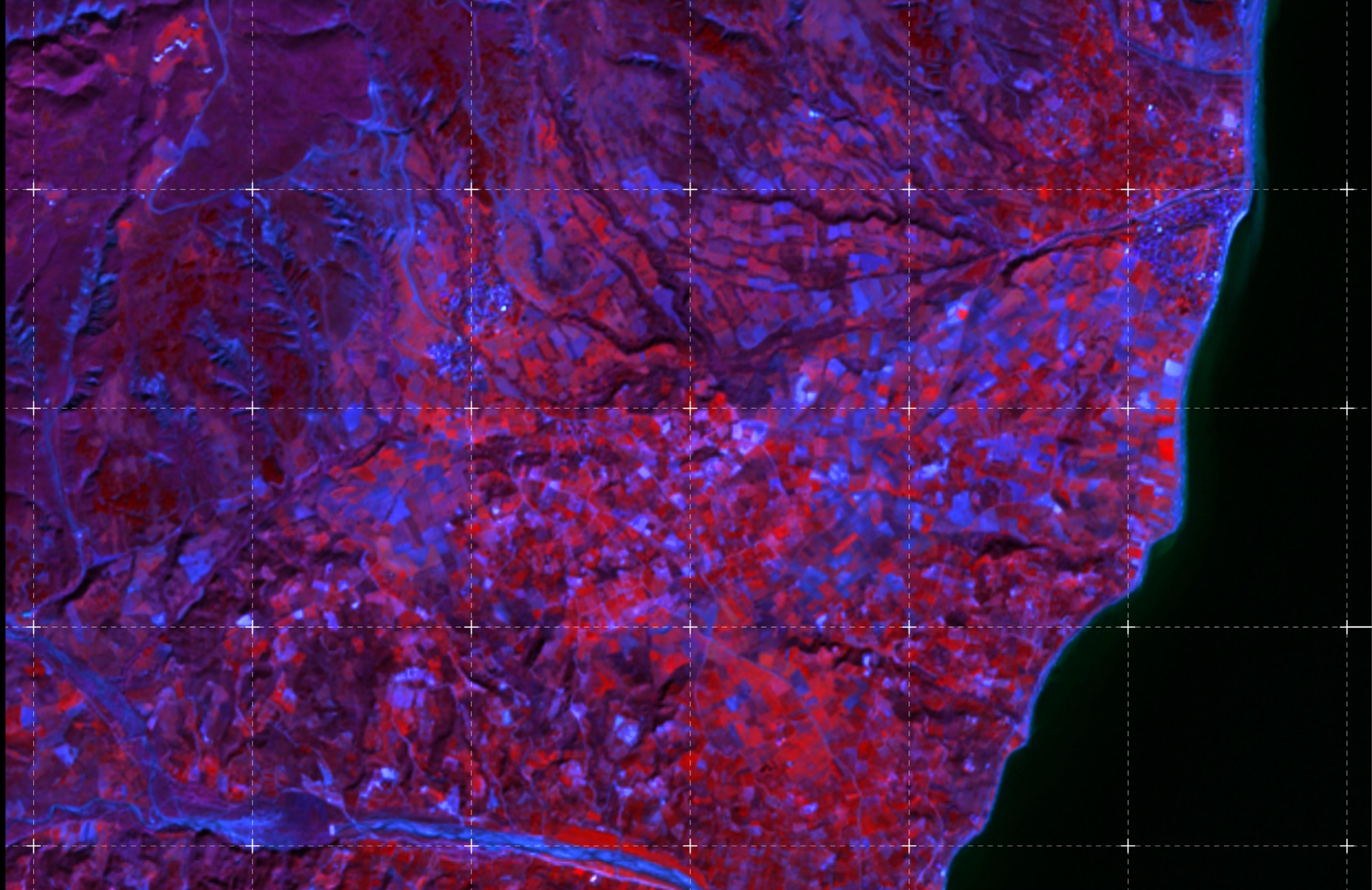
coastline

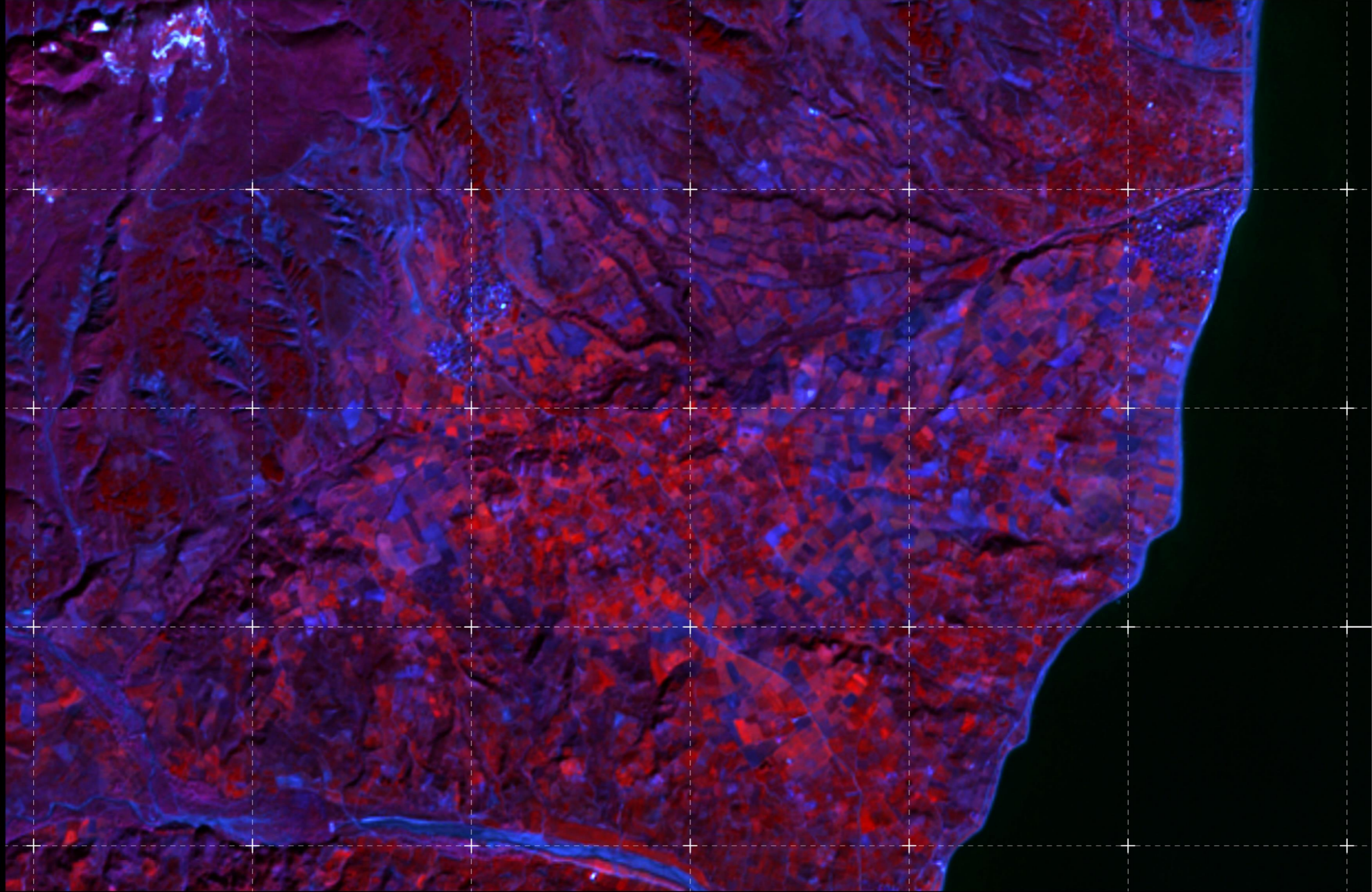
Biogenic Design



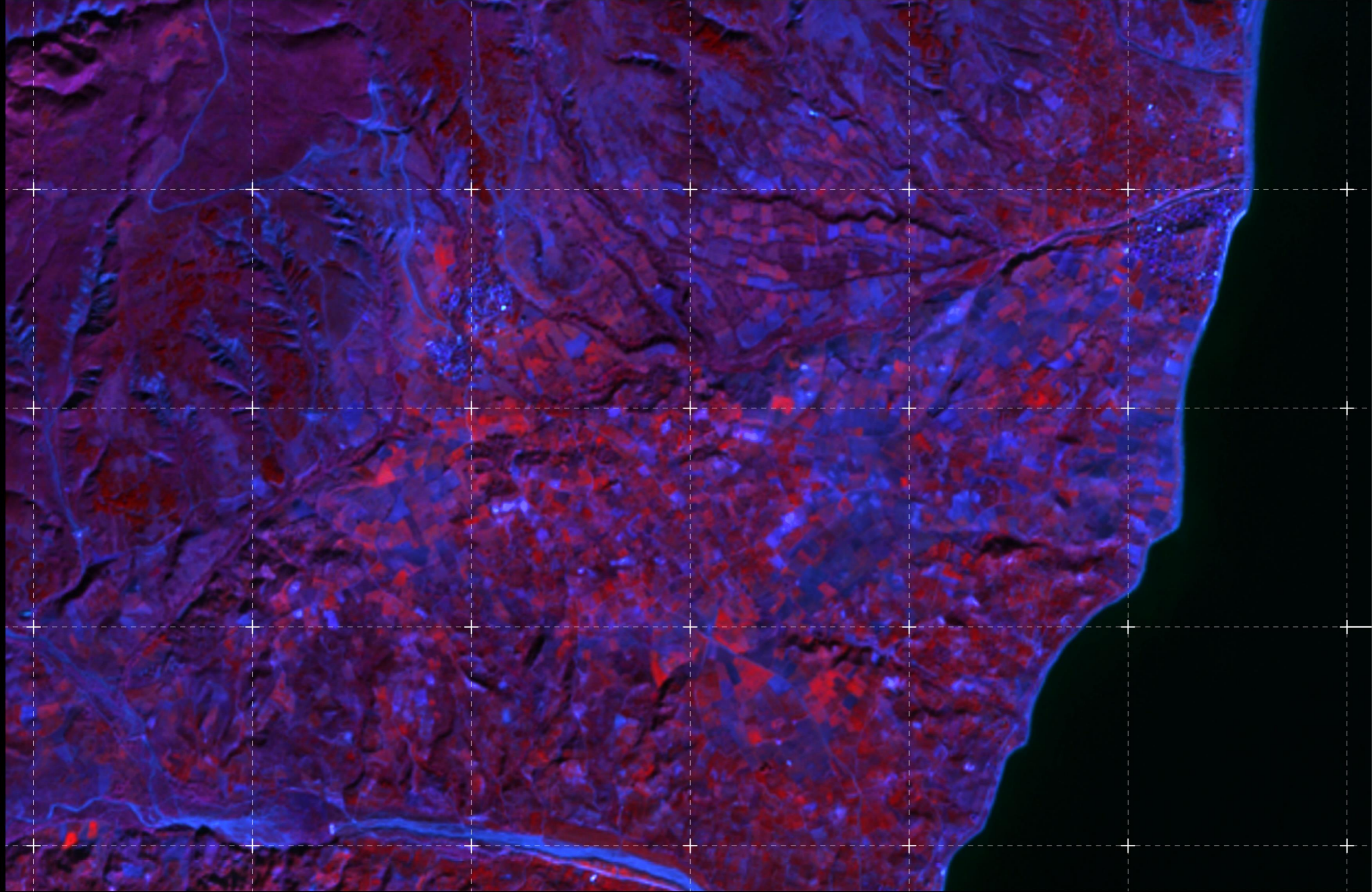
1st Experiment [*aerosol injection*]

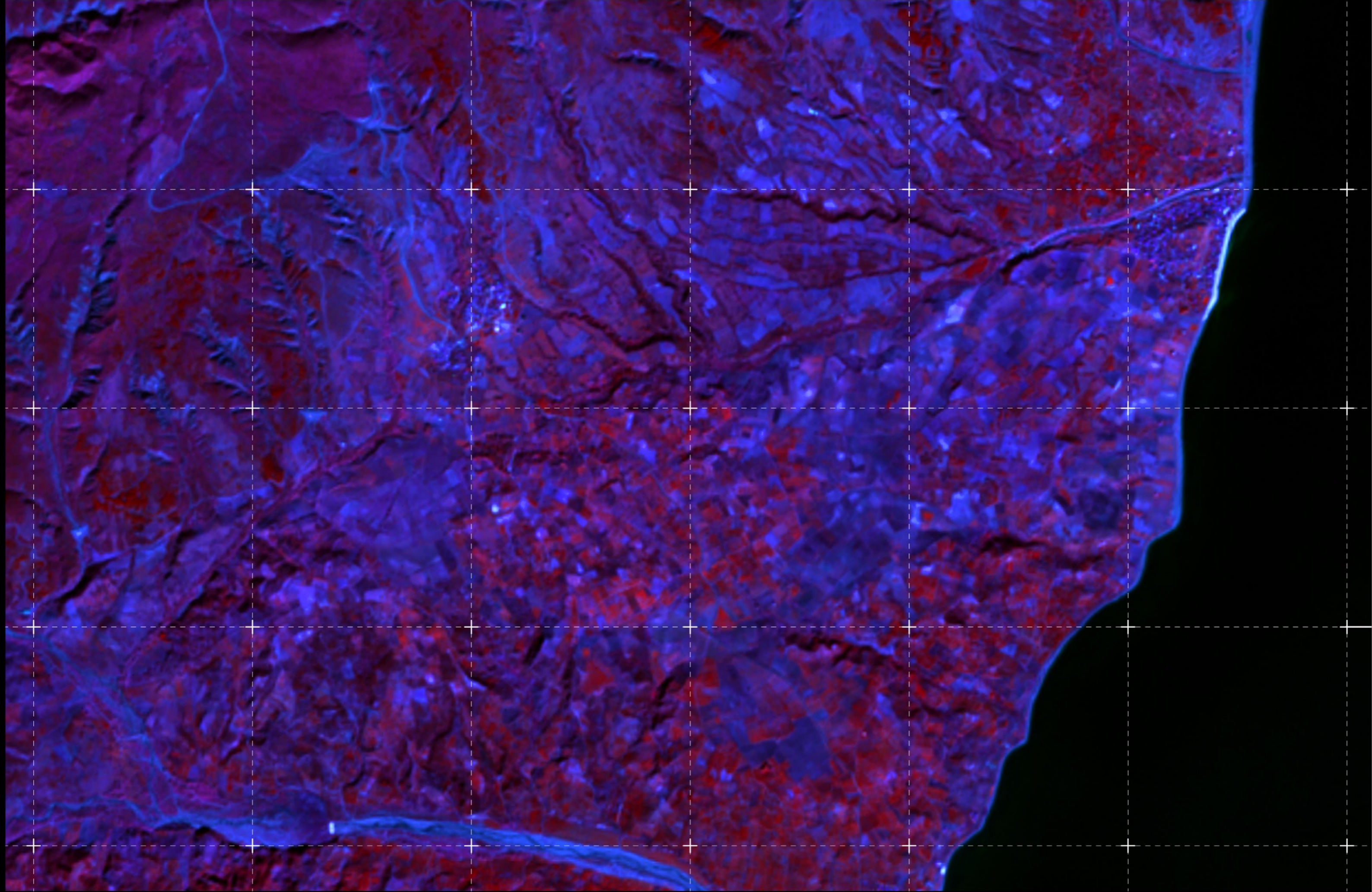






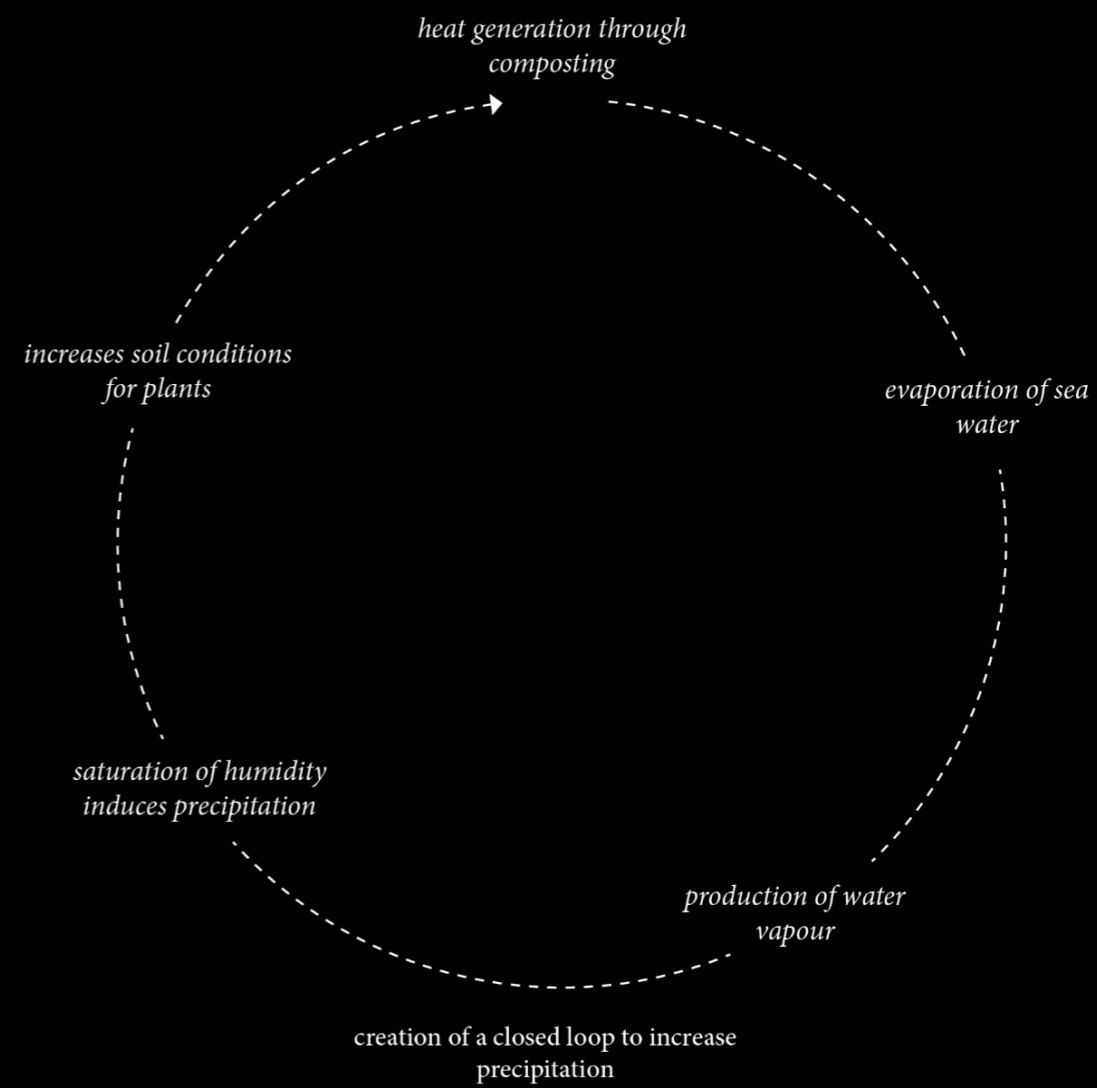


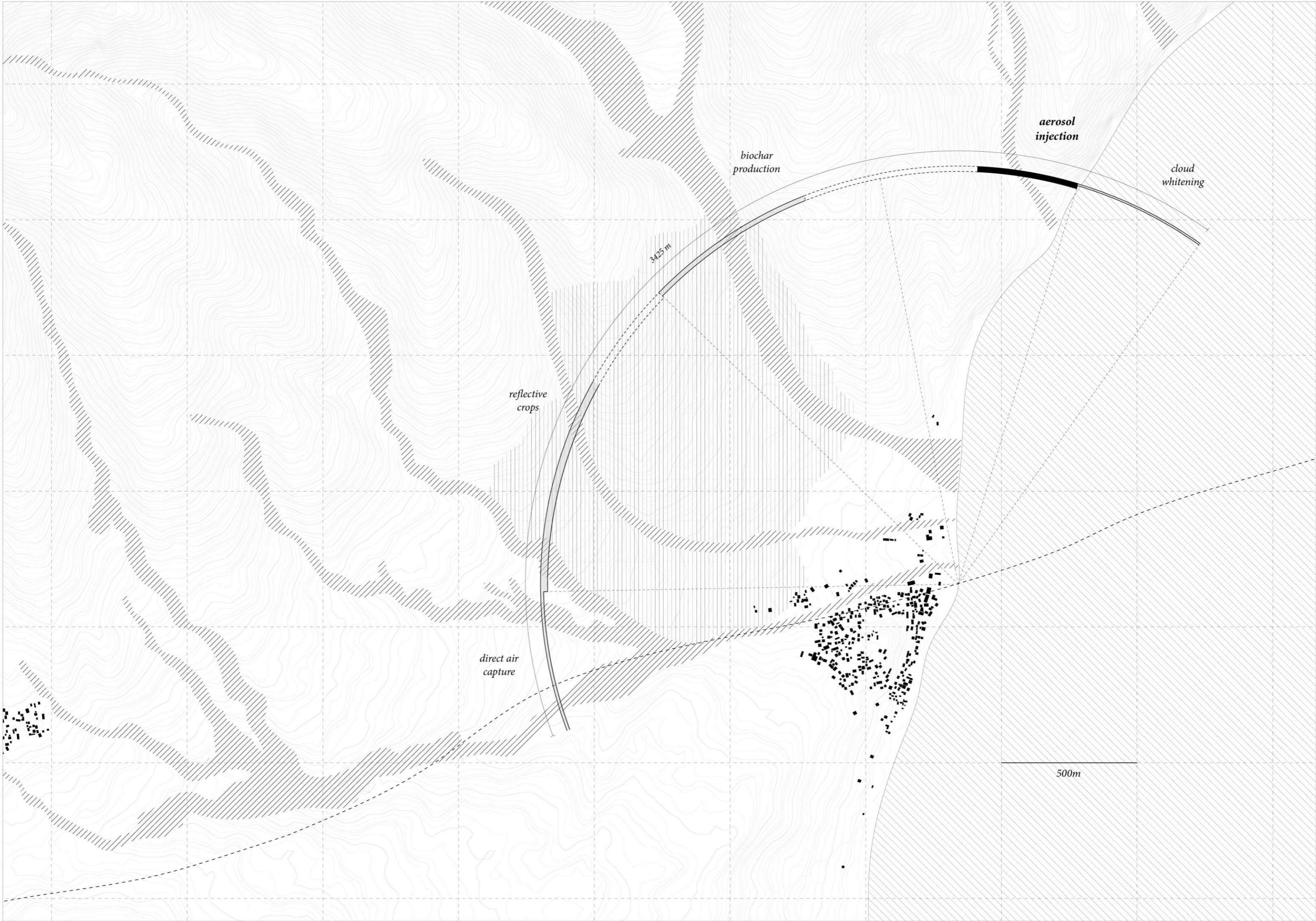




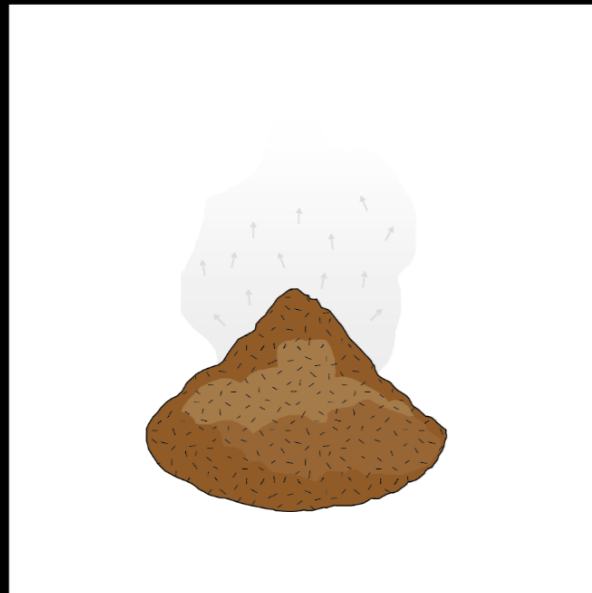


existing practice of aerosol injection

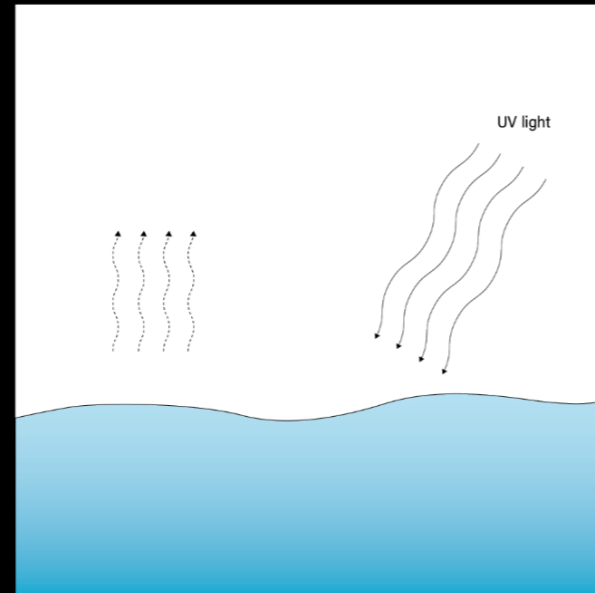




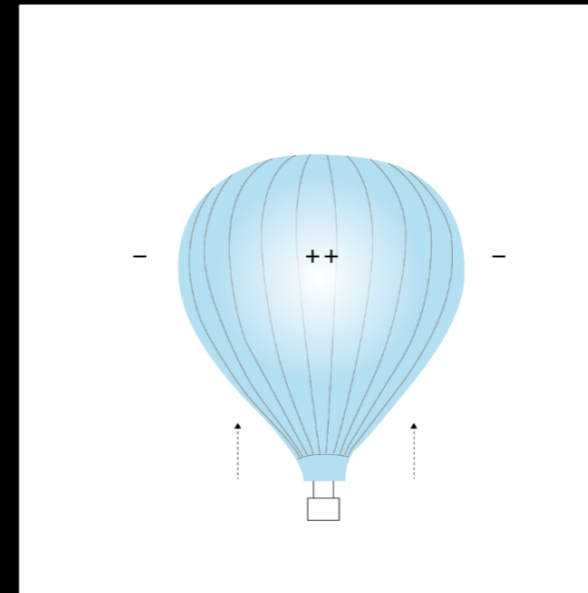
Natural processes



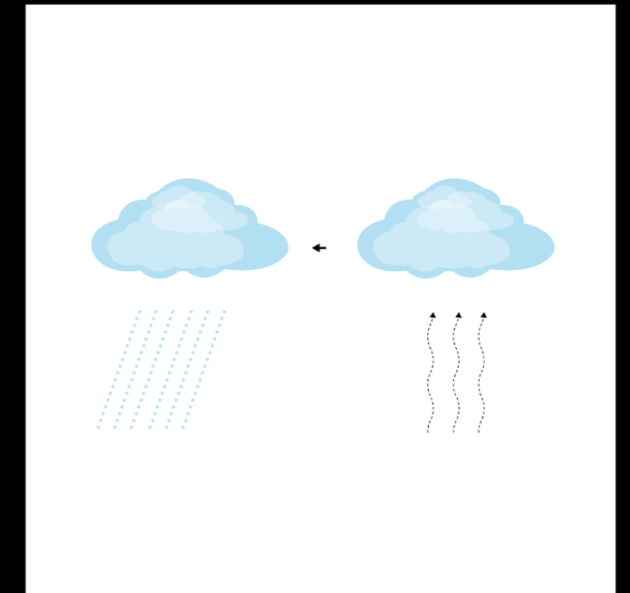
1. compost to hot air



2. evaporation

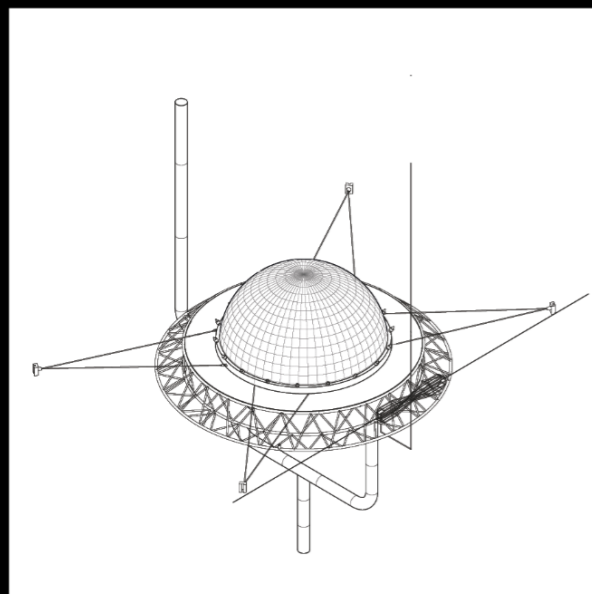


3. convection

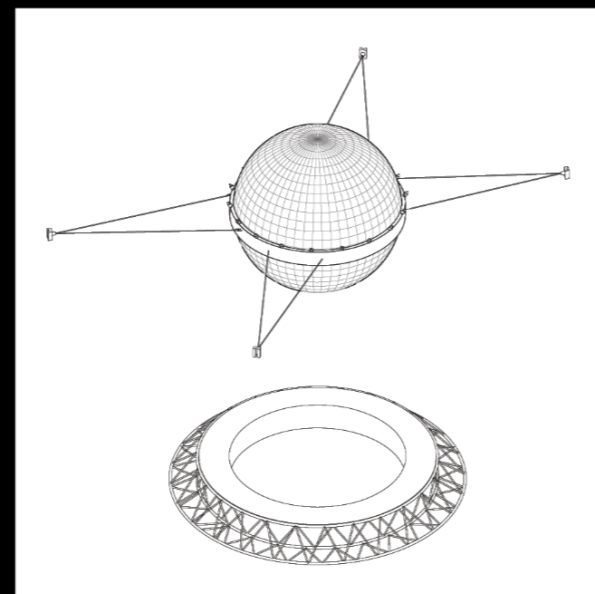


4. water vapour to precipitation

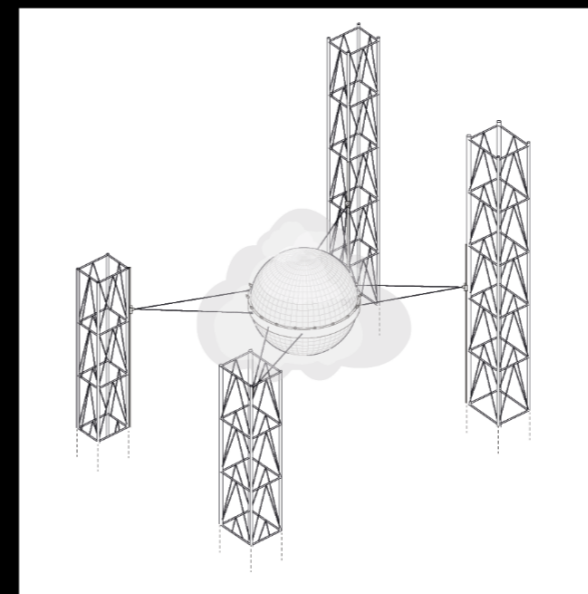
Spatial translation



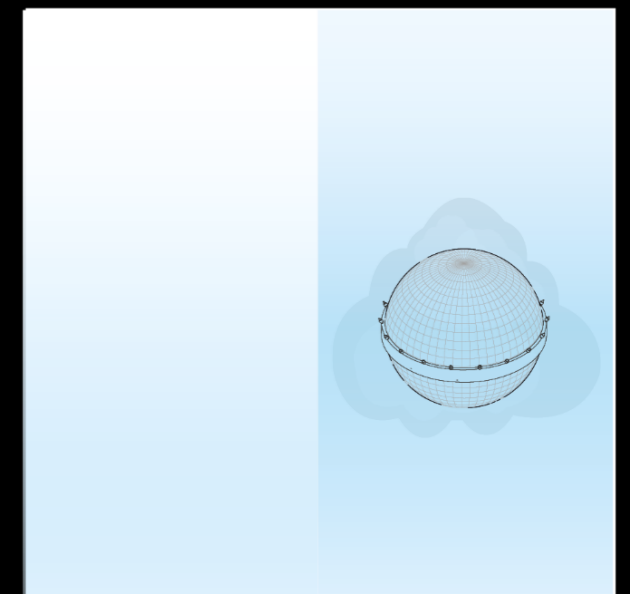
1. hot air and water produce water vapour



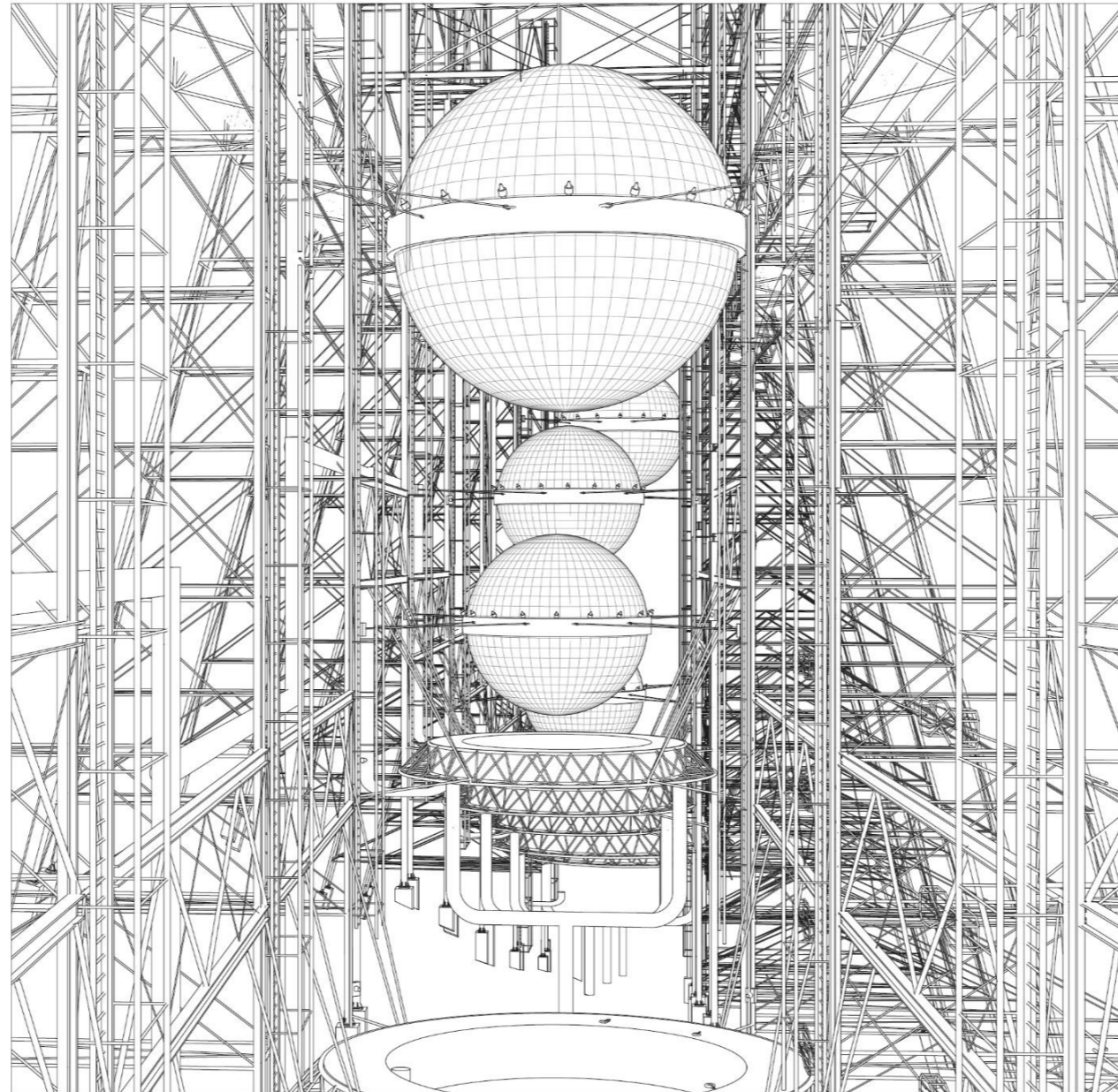
2. UV sunlight heats up the air inside the balloon, that expands and makes the balloon rise



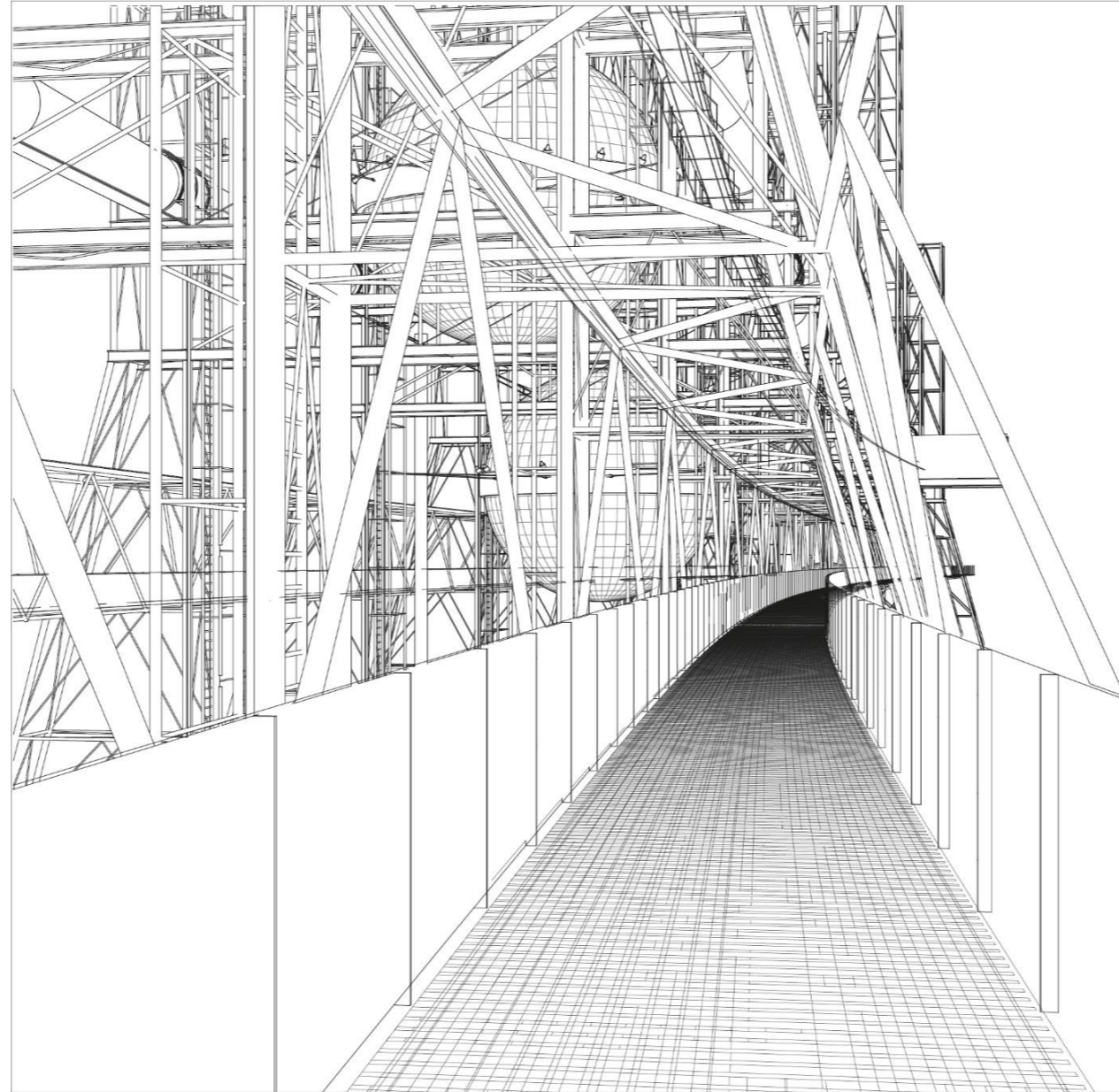
3. balloon releases water vapour at different heights



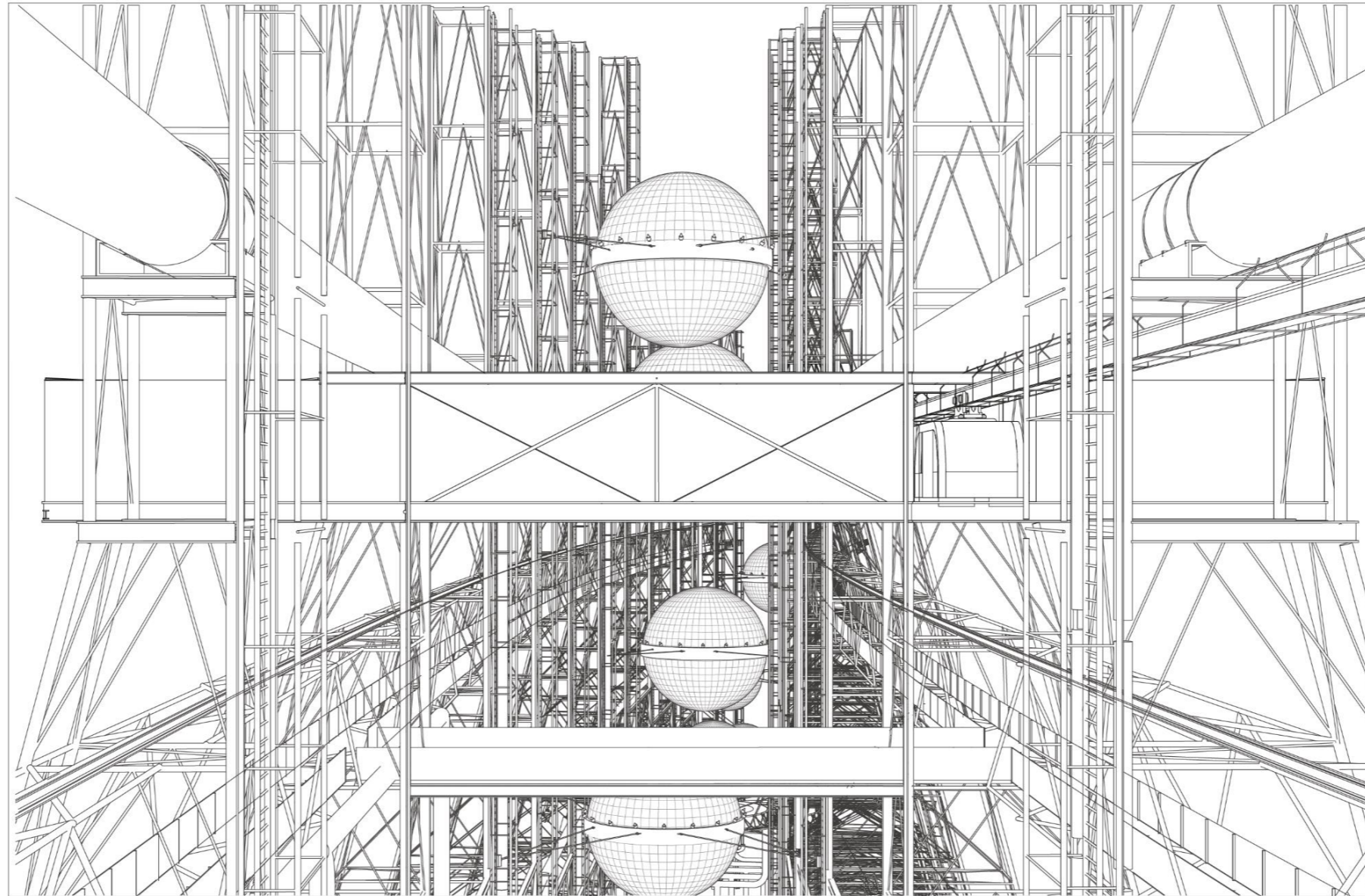
4. water vapour leads to a saturation of humidity that increases precipitation



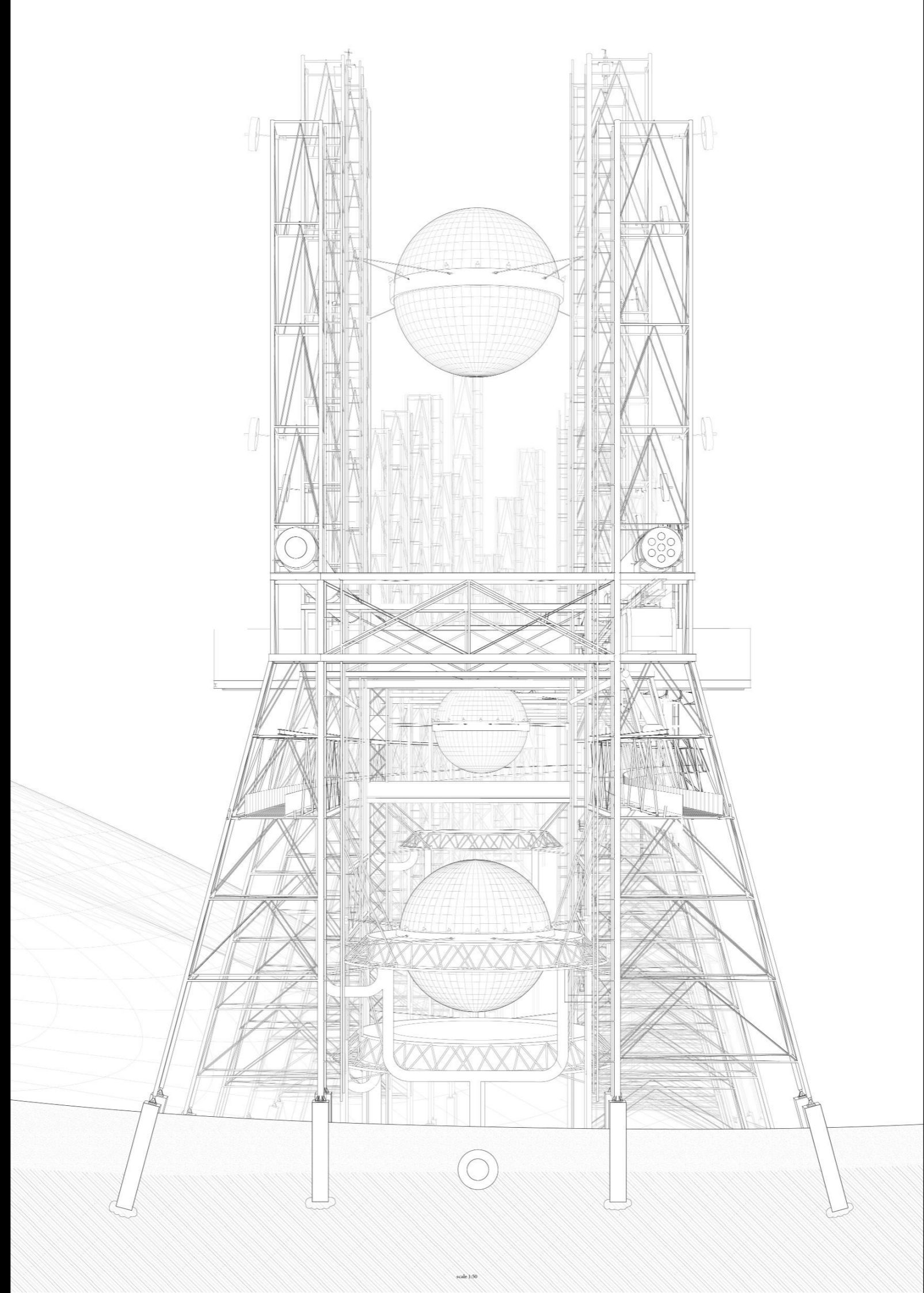
central space

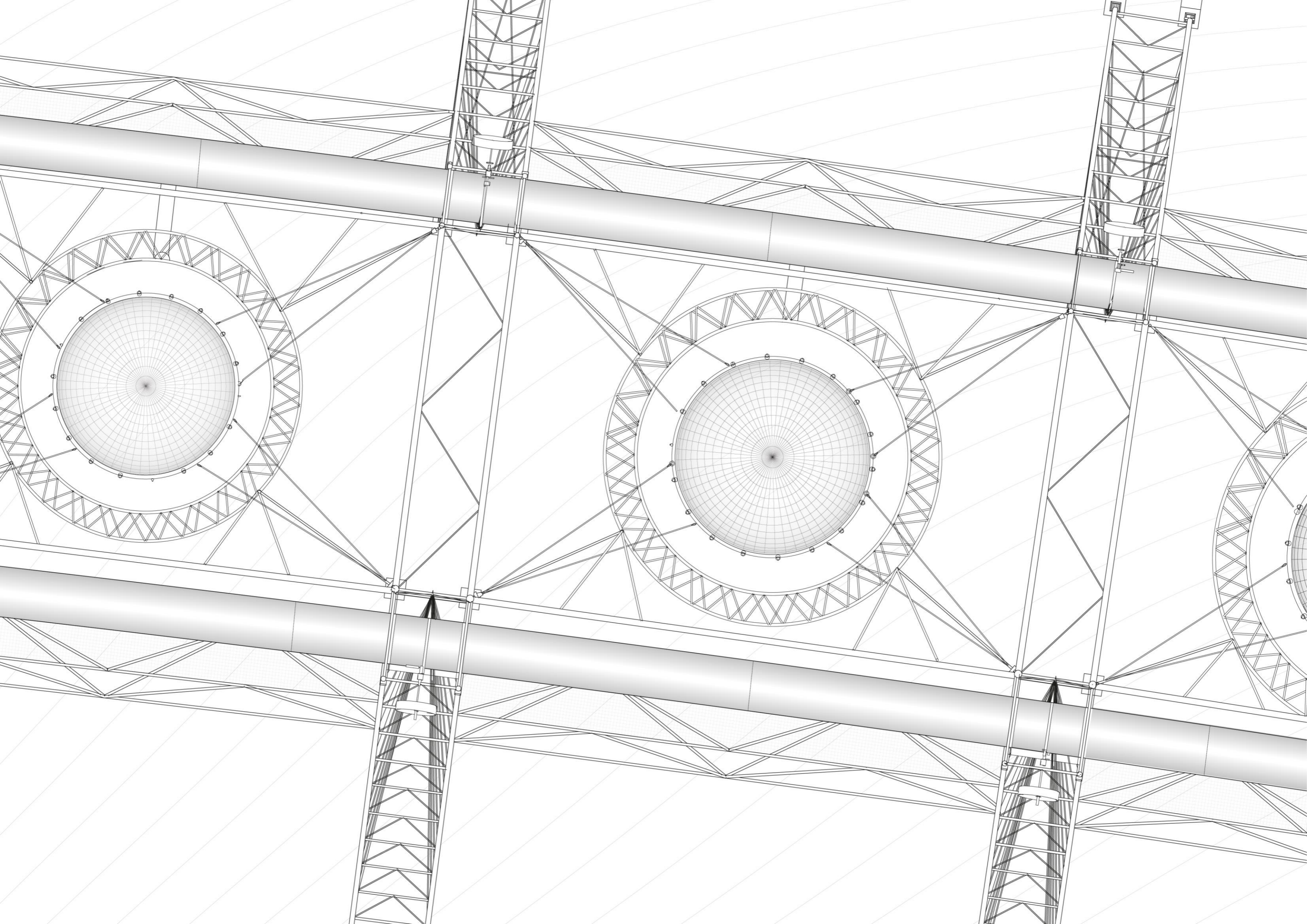


circulation space



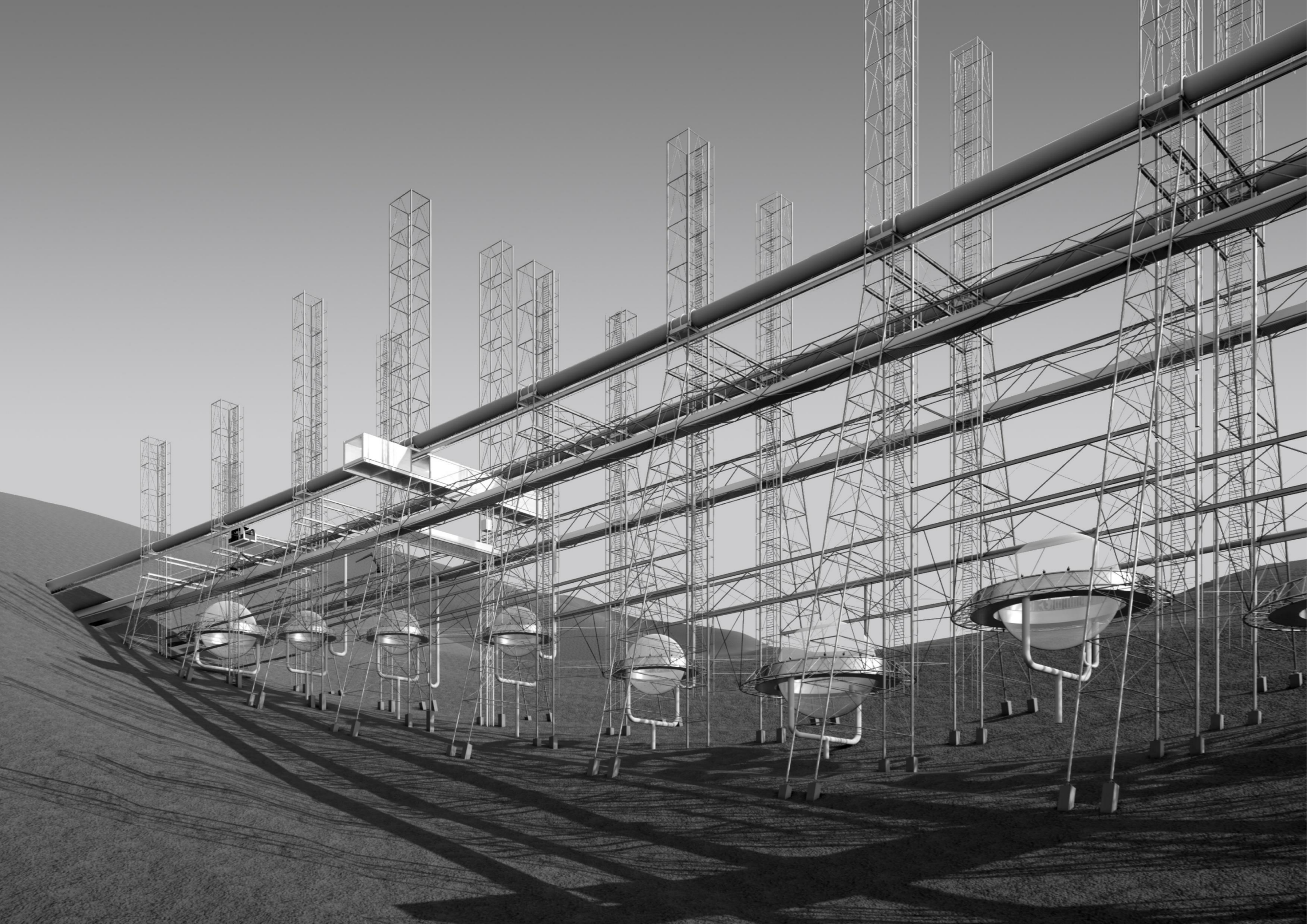
observation platform

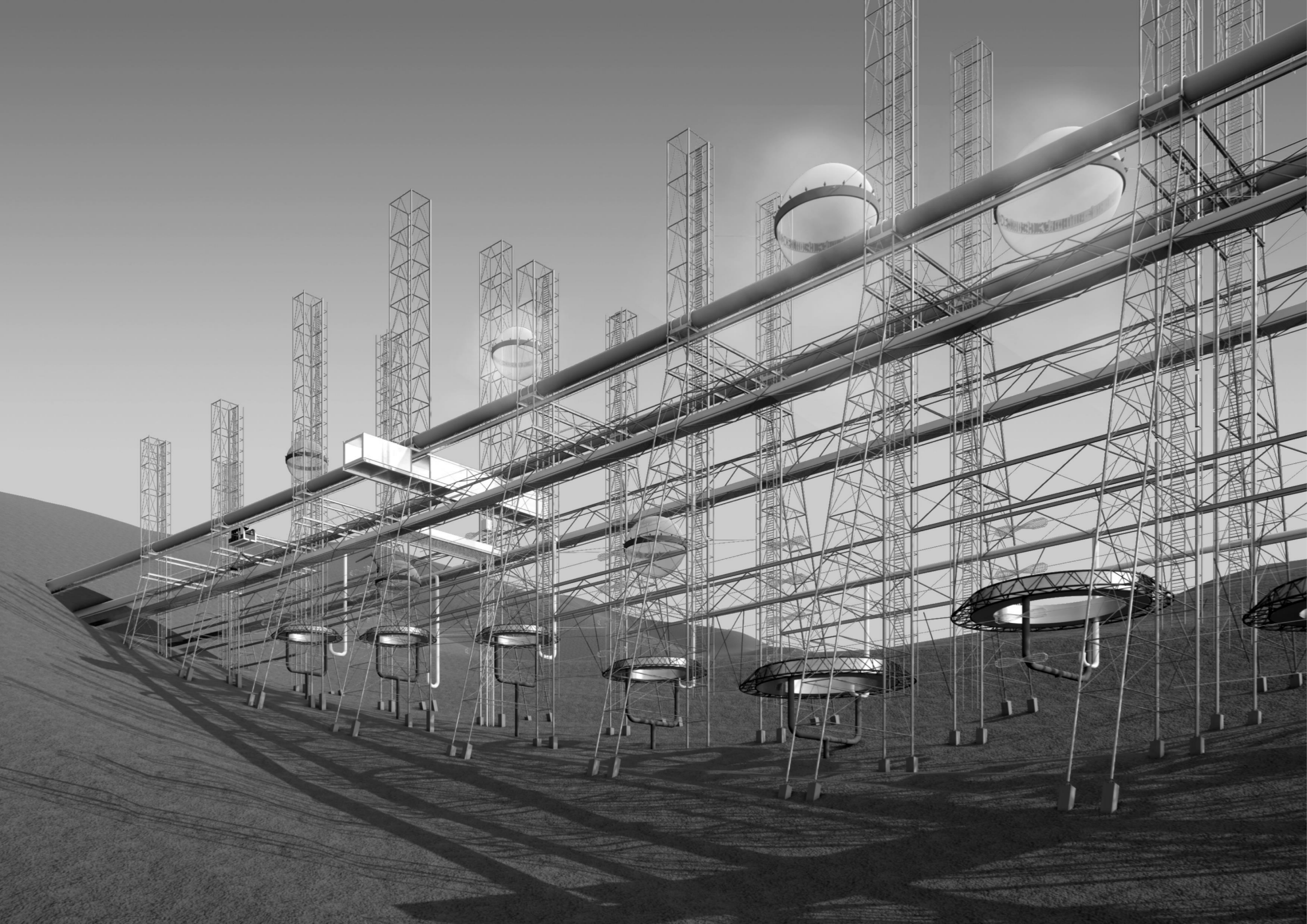






1 km



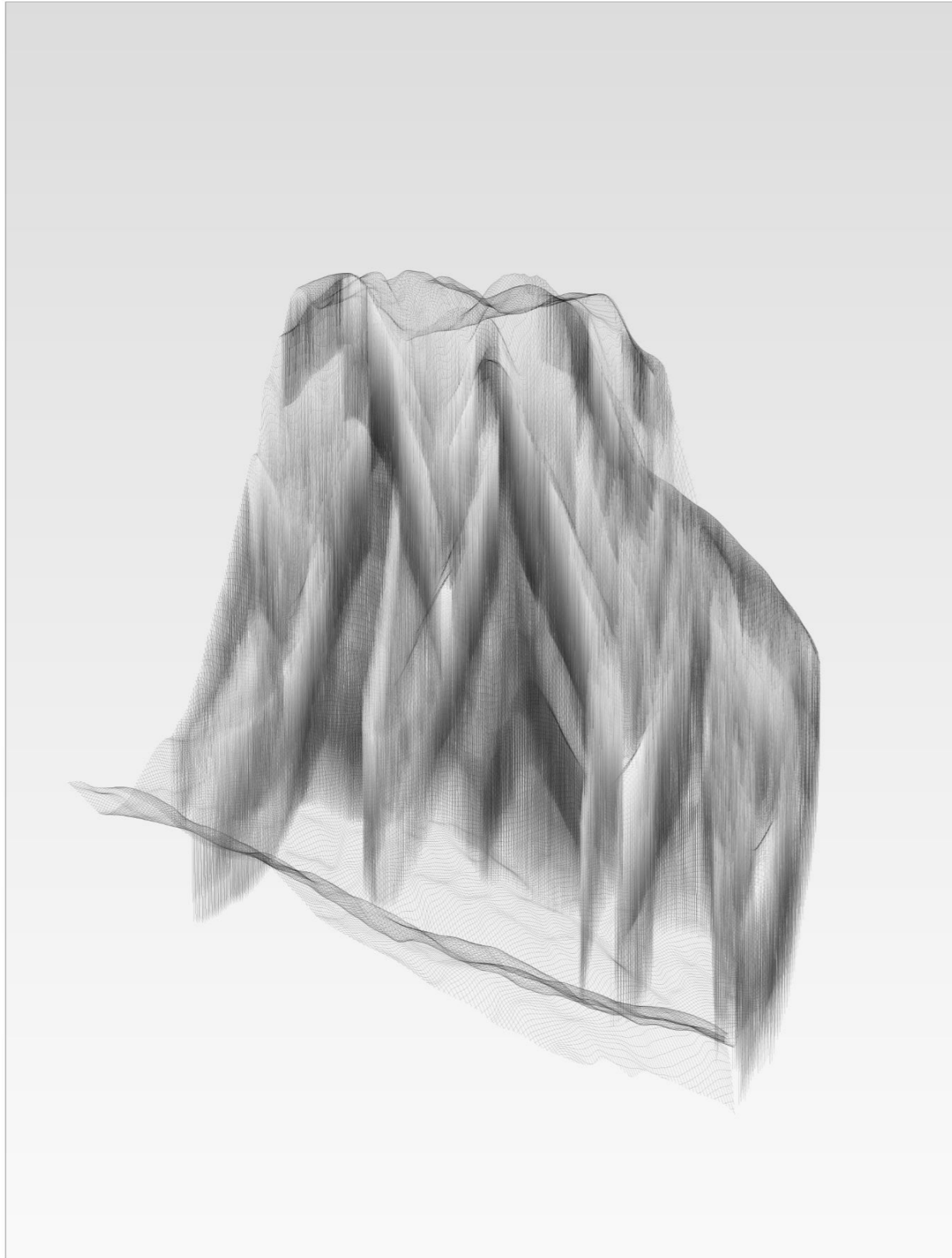


2nd Experiment [*fungi tunnel*]

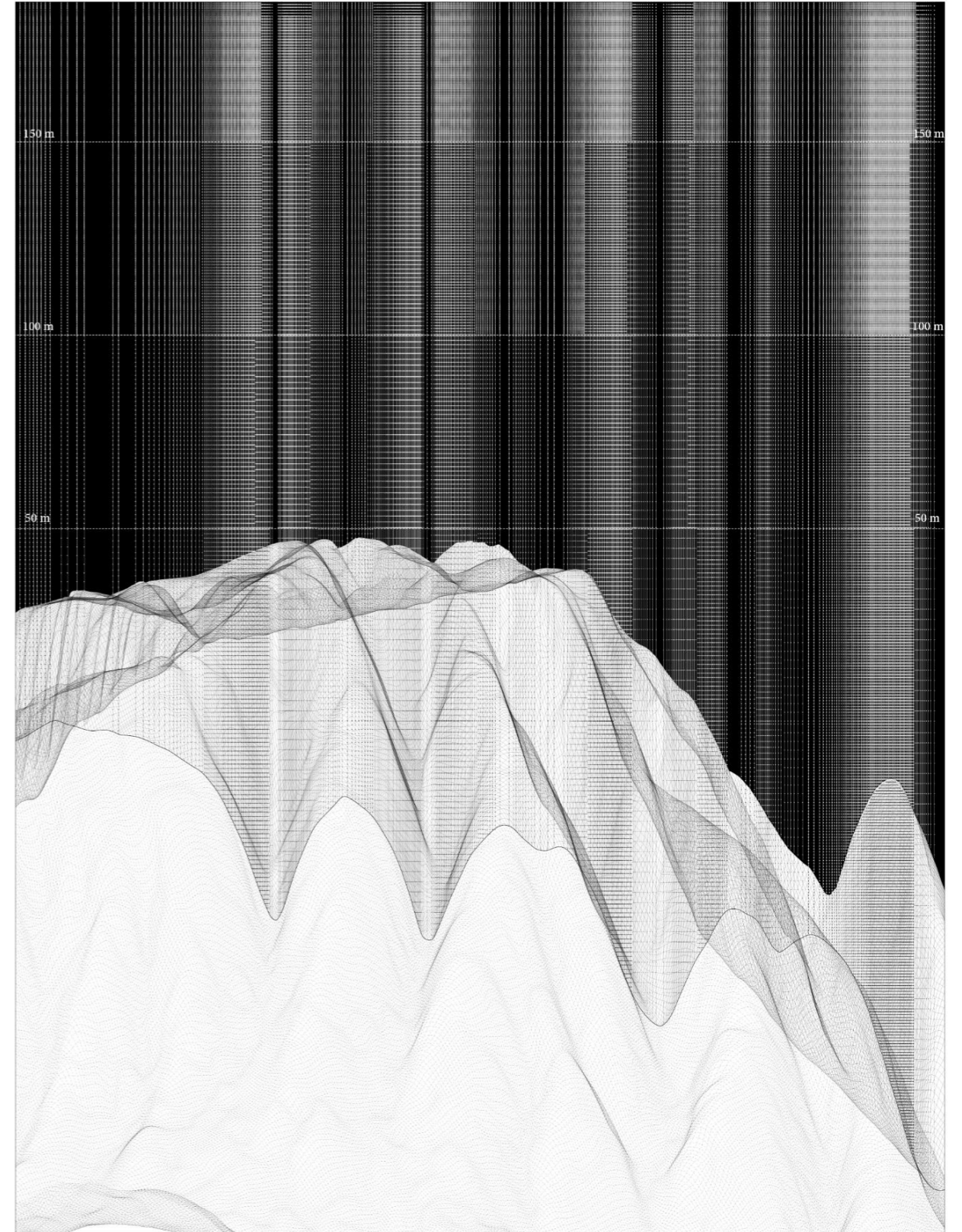




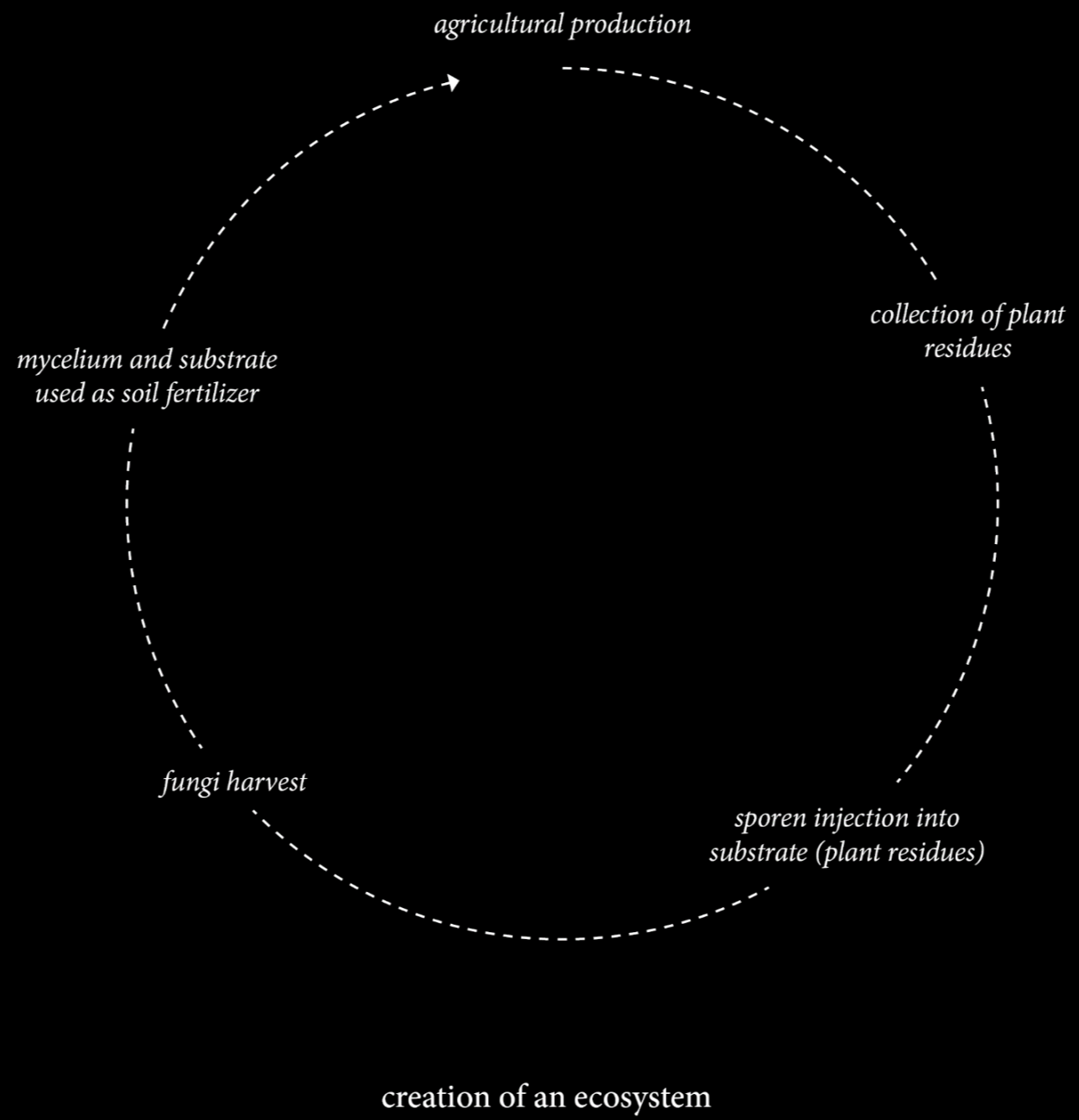


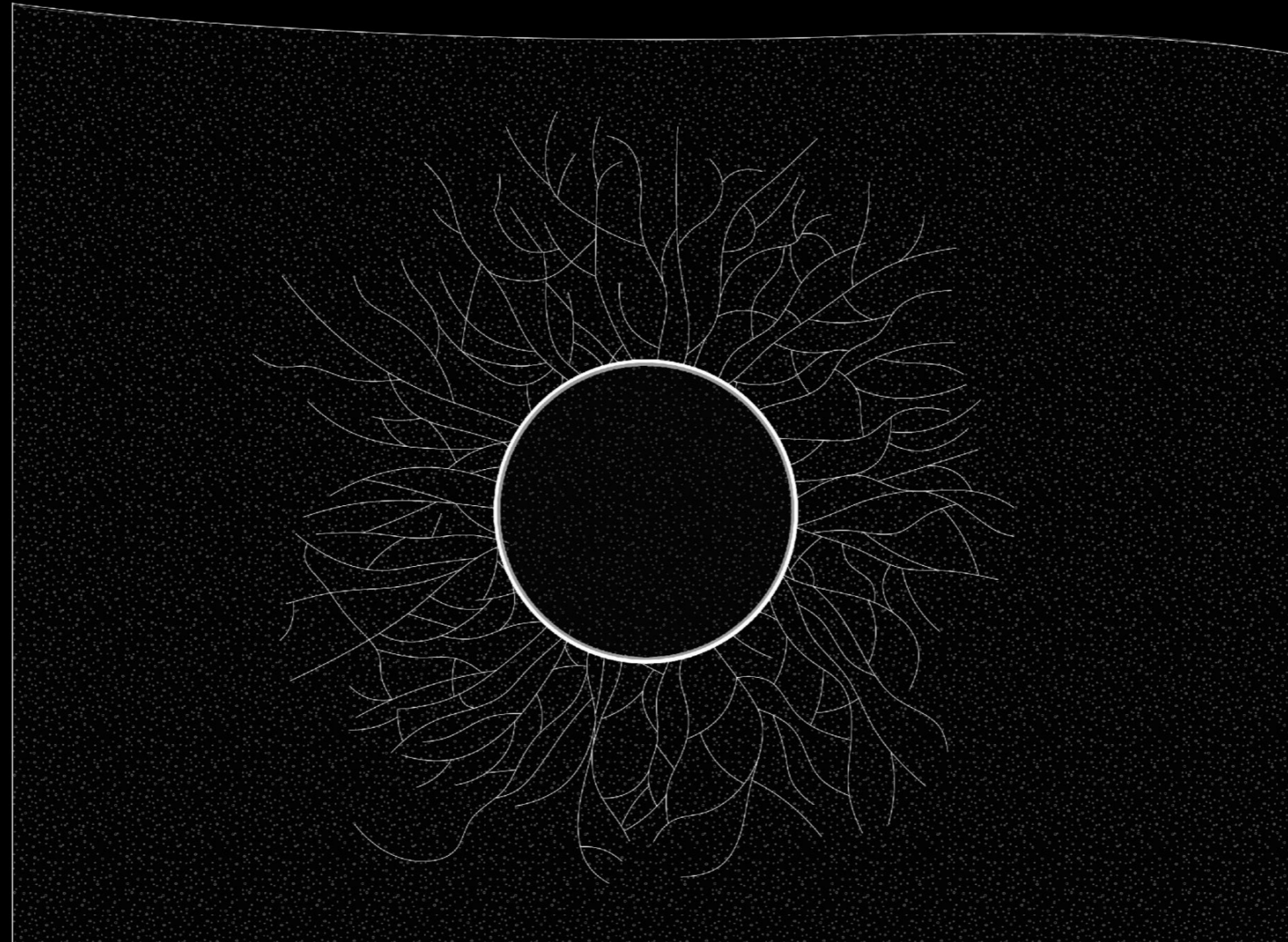


potentialities and intensities
of landslides

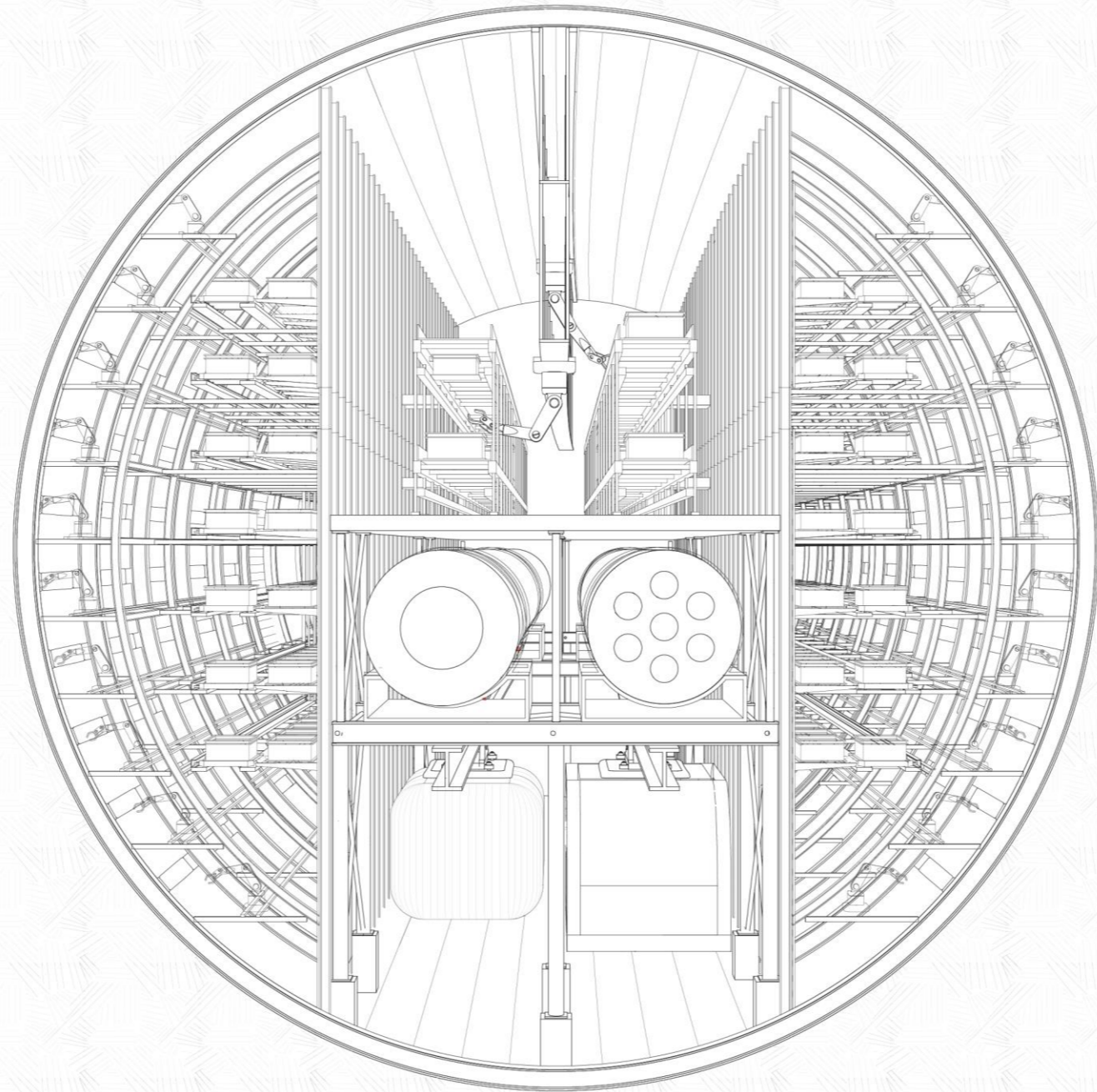


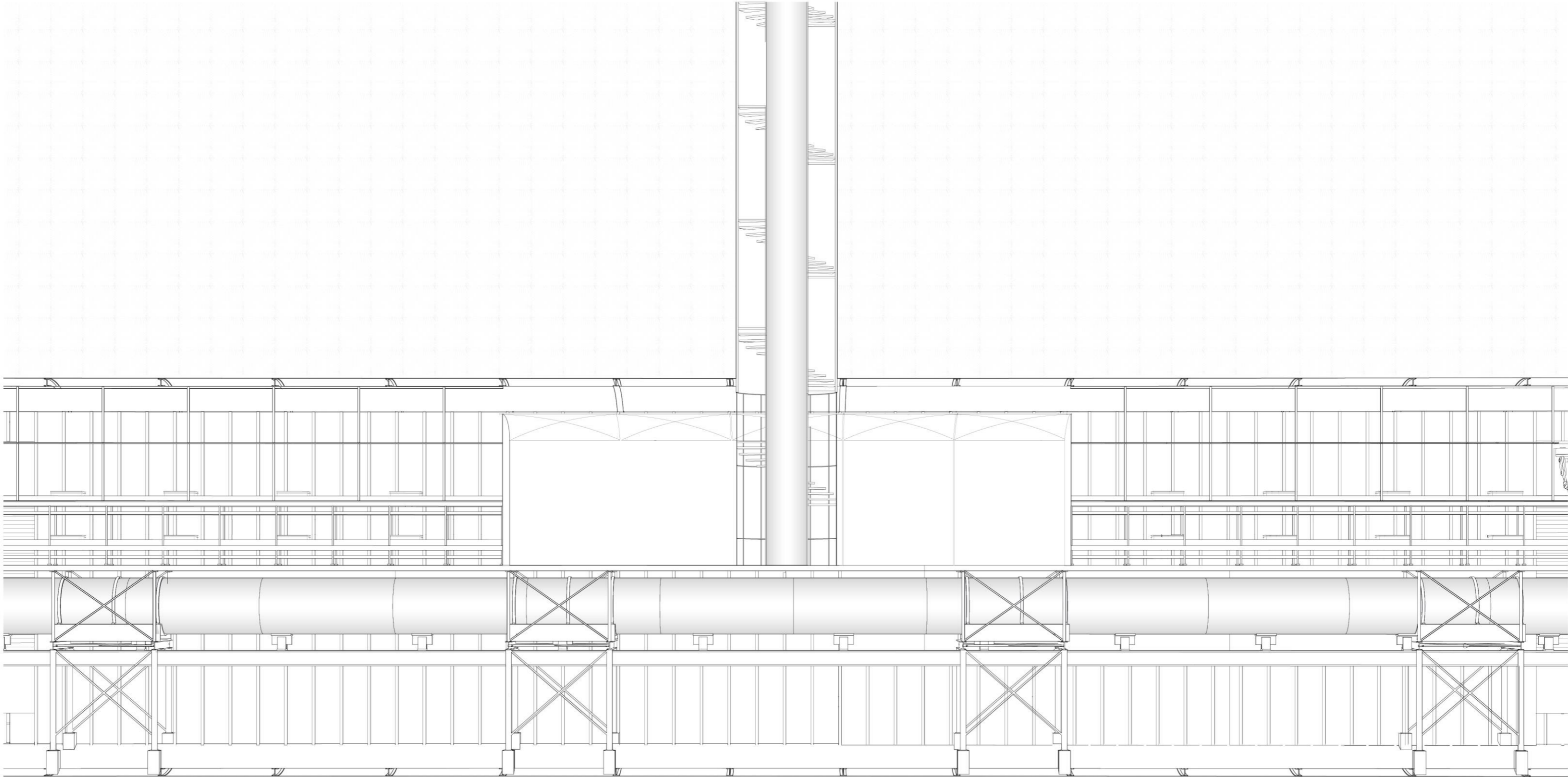
wind force on the terrain





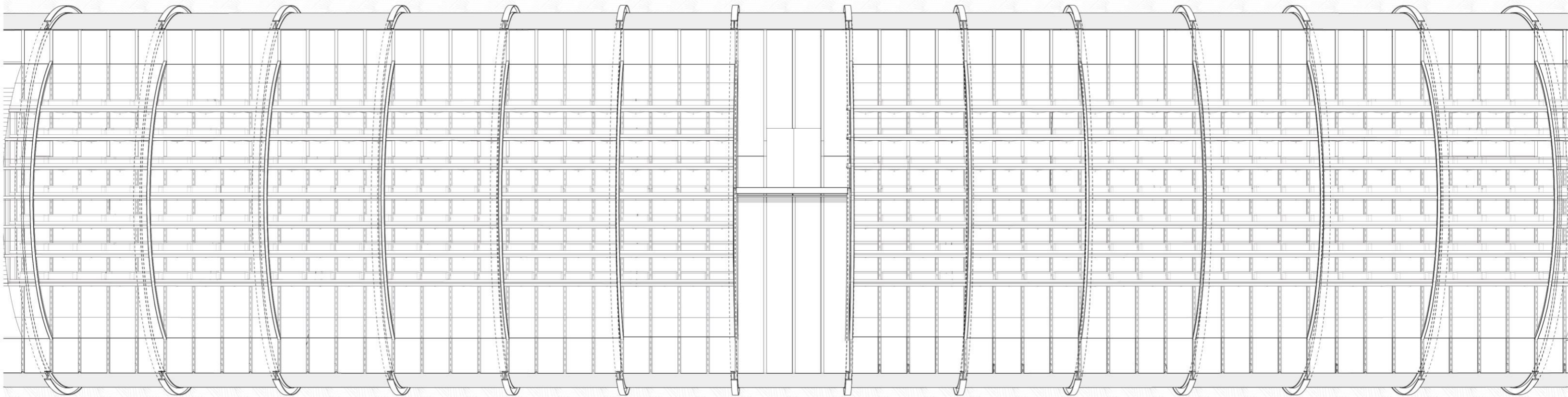
mycelium contributes to quality, fertility and
resilience of soil

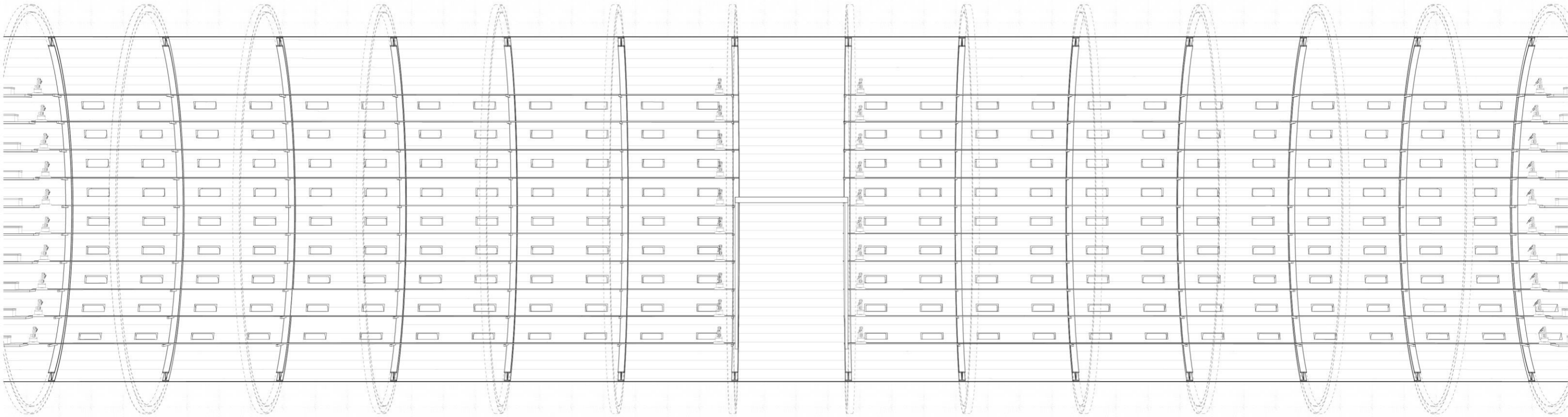














Geostory

There are times in which we grapple with an existing social,
political [*and environmental*] order and moments when its our
very desire to posit an alternative

Utopia/Dystopia



speculative scenario I, barren ground

Utopia in its purest form refers to an idealized society that is characterized by perfection and harmony, whereas dystopian scenarios render a state of oppression and suffering. In this project, the controversies of geoengineering activities are used to contemplate human's relationship with nature.



speculative scenario II, lush landscape

Geoengineering activities polarize between salvage for the earth's climate and total destruction of habitats. Purposefully, the project does not position itself in either one of the two rubrics, but requires the listener to decide whether it is a utopian or dystopian scenario