

SCHIERMONNIKOOG

EXPLORATION OF DIKE AND DUNE REINFORCEMENT

In 2027, the dike and parts of the dunes on Schiermonnikoog will be reinforced so that the flood defense will once again meet legal requirements for the coming decades. In the exploratory phase preparing for this reinforcement, smart and sustainable solutions are being sought in collaboration with islanders, authorities, and (islander) organisations, with consideration for nature, agriculture, and recreation.

The consortium of SWECO and Svašek supports Wetterskip Fryslân in developing a preferred alternative, the final product of the exploratory phase. Within the consortium, Svašek is responsible for designing the dune flood defense.

By utilising a new calculation method for the dune flood defense, the scope of the dune reinforcement has initially been reduced to about one-third of the original assignment. For this purpose, the numerical model XBeach2D was used to simulate dune erosion in the complex dune area with multiple differently oriented dune ridges on the north and east sides of Schiermonnikoog.

Subsequently, alternatives such as adding volume, modifying the legal location of the flood defense, and enhancing dune dynamics were weighed against each other for the various reinforcement locations.

Dynamic dunes naturally occur more frequently on eroding coasts, and therefore, enhancing dynamics is not equally feasible at all locations on the island. For this reason, a morphological area study was conducted to map the autonomous morphological trend of the island. Based on this, it can be determined where enhancing dynamics is a viable option.

CLIENT

Wetterskip Fryslân

LOCATION

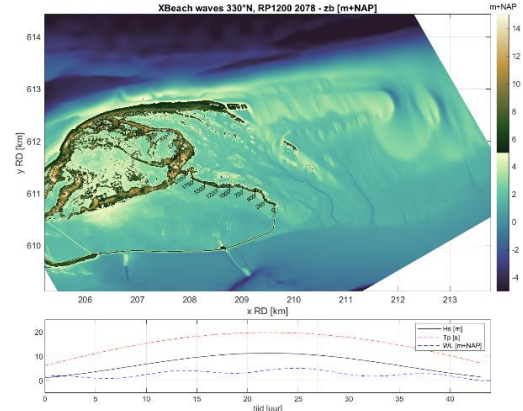
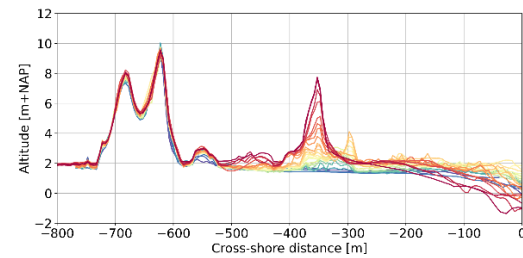
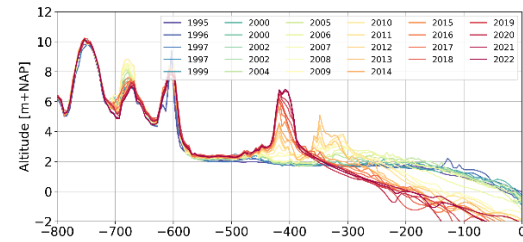
Schiermonnikoog

DATE

2022 - 2024

SERVICES

- Assessment of dune flood defense
- Design of dune flood defense
- 1D en 2D XBeach calculations
- Morphological area study



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