



Sand Motor on 24 August 2016 (photo: Jurriaan Brobbel, Rijkswaterstaat)



Bather Safety App

Deltares hosts a mobile phone application that displays forecasts of sea currents and beach widths around the Sand Motor (Delfland Coast, the Netherlands). The information is consulted by the lifeguards responsible for monitoring bather safety at the Sand Motor. It allows them to anticipate potentially dangerous situations on the beach and in the shallow waters such as rip currents. Precautionary measures can be taken to reduce the risks for visitors to the beach.

The Sand Motor is a pilot project established to generate knowledge about the sustainable and economical maintenance of our coastlines that integrates different coastal functions: flood risk management, nature and leisure activities. The forces of nature redistribute the sand along the coast, making the Sand Motor a dynamic and unpredictable environment. At the outset, there was public concern about bather safety at the Sand Motor. In response, Rijkswaterstaat, the provincial authority of South Holland, the Haaglanden Security Region and the local lifeguard organisations decided to look for ways to manage bather safety.



An operational model predicts the currents and beach width in the Sand Motor area using global predictions of the tide, waves and weather. The hour-by-hour forecasts look 48 hours ahead and are updated every six hours to incorporate the most recent global predictions. The automatic retrieval of a range of (open-source) information flows to run the model and the periodical updating of the forecasts are implemented in the forecasting framework FEWS. In addition to the model-based predictions, the mobile phone application also shows near-real-time images from two video stations. This information helps the life guards to keep an eye on beach-user density and the trajectory of the water line.

The success of this project was largely a result of the frequent interaction with end users and the stakeholders. The continuous feedback from the lifeguards about the practicality of the application, the quality of the model predictions and the type of information required allowed us to iterate to a fit-for-purpose product that is tailored to the needs of the end users. In the annual evaluations of the bathing season, which are attended by all the relevant stakeholders, the application is still evaluated as 'easy to use and very accessible' and 'our field observations confirm the model-based predictions'.

Deltares is now exploring other ways of using this service in the Netherlands and abroad. Safe bathing is a topic of global interest. The technical framework of the application is transferrable and information resources such as models and video images are widely available. This means that only minimal efforts will be needed to develop a very powerful tool.

Further reading:
zandmotorapp.deltares.nl