

Maasvlakte 2

Operational current forecast Rotterdam port extension

In the final realisation stage of the sea defence of the port extension of Rotterdam a difficult situation for navigation occurred with continuous changing current patterns and high velocities. An operational forecast system was used that accounted for ongoing bathymetric changes and the most recent weather forecasts.

The “Maasvlakte 2”, the extension of the port of Rotterdam, exists of a hard sea defense close to the port entrance and a soft sea defense. Before the future entrance via Maasvlakte 1 will be opened the sea defense will be closed creating a closed basin of 520 ha. The final closure stage is located at the transition from the hard to the soft sea defense.

The hopper suction dredgers closing the sea defense experience a difficult current situation consisting of a strong cross current while approaching the closure gap and a jet coming out of the closure gap at outflow. Whilst the presence of the hard sea defense induced serious risk of damage to the ships. The combination of this difficult and continuously changing situation for navigation and the

presence of the hard sea defense created a serious risk of damage to the ships. As a mitigation measure it was felt that advanced current predictions were needed that accounted for the ongoing change in bathymetry and even included the daily weather forecast to account for wind driven currents and pressure fluctuations.

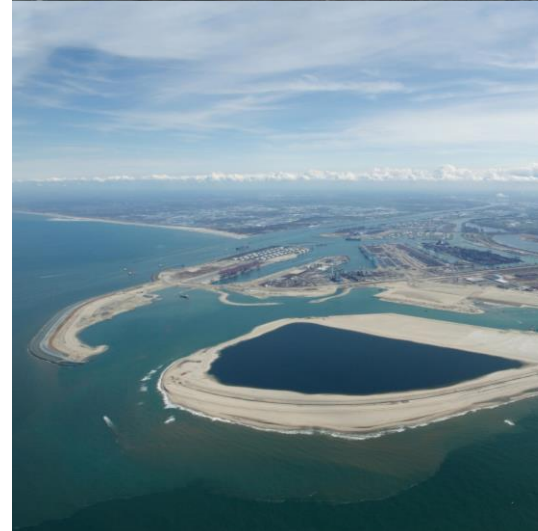
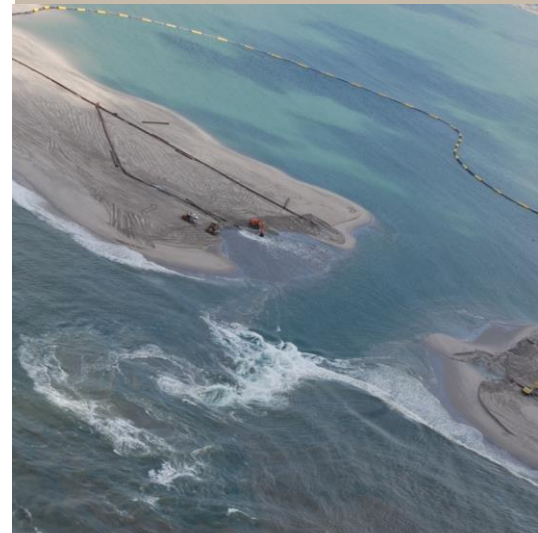
Every 24 hours a bathymetry update was received from the clients survey department. An automatic calculation was started using an updated bathymetry and an updated pressure and wind forecast. At the end of the calculation the forecast was visualized as shown below and automatically sent to the ships.

CLIENT
PUMA

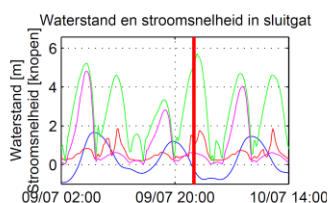
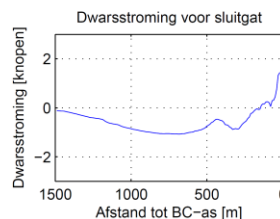
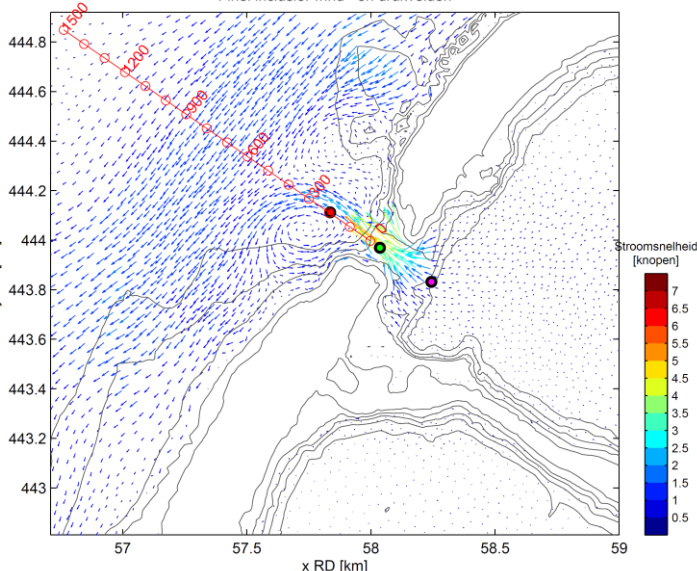
LOCATION
Netherlands

DATE
2012

SERVICES
Operational current forecast



Stromingsbeeld op 09-Jul-2012 23:00
Peiling : 08-Jul-2012
Finel inclusief wind- en drukvelden



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