



Watermovement on tidal flats in the Western Scheldt (ECOMORF)

The watermovement on tidal flats is not important for the general watermovement in estuaries and is therefore not analysed at the time of calibration of numerical flow models of these area's. To answer questions about policy and management a good reproduction of the velocity on tidal flats is necessary. This applies especially to ecological questions.

In this project a 2DH WAQUA Western-Scheldt model called "SCALWEST" is verified with velocity measurements on the tidal flats. The numerical flow model WAQUA is developed by the Ministry of Public Works (Rijkswaterstaat). The verification showed that the model underestimated the flow velocity generally by a factor 1.5 -2.

A sensitivity analysis showed that the bottom friction of the model was the only parameter which could explain the anomaly. The bottom friction on tidal flats is defined in the same way as in the main channels, because it is not important for the watermovement in general.

To increase the model performance a geomorphological map of the tidal flats was used. For each geomorphological unit a bottom roughness was defined using a roughness-estimator. The bottom roughness was then optimised by calibrating on the measurements.

The new approach of calibration of the tidal flats will be used in the a Western-Scheldt model with the latest available bathymetry.

Client
National Institute for Coastal and Marine Management (RIKZ), the Netherlands

Location
Western Scheldt, the Netherlands

Date
2002 (study)

Services
Verification of calculated numerical flow velocities with measurements in tidal flats, calibration of bottom roughness per geomorphological unit