SWAN MODELLING FOR HBC 2011

CLIENT
Deltares

LOCATION
The Netherlands

DATE
2010 - 2011

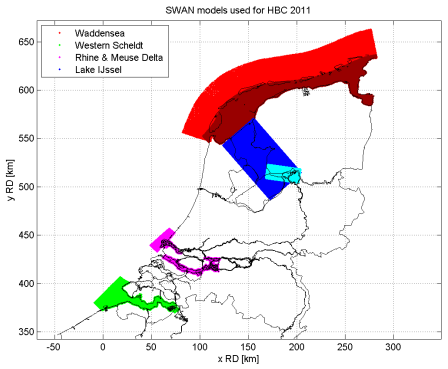
SERVICES
SWAN wave modelling

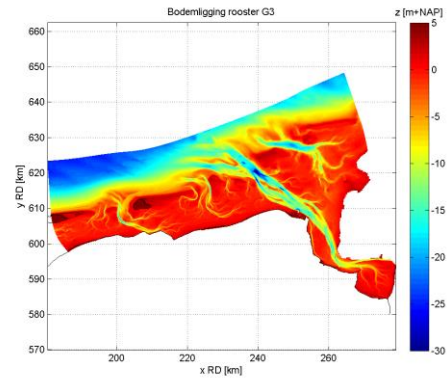
Every five or - since 2009 - six years the safety of the Dutch dunes and dikes has by law to be assessed. As input to that assessment, the Hydraulic Boundary Conditions (HBC), consisting of representative water levels and wave conditions, have to be established.

The HBC are based on a large number of SWAN and WAQUA production calculations which feed into a probabilistic model. For the establishment of the HBC for 2011, Svašek Hydraulics and HKV LIJN IN WATER have been awarded the production and the probabilistic calculations underlying the HBC in four geographical areas.

For the SWAN calculations these four geographical areas concern the Wadden Sea, the Western Scheldt, the Rhine and Meuse Delta, and Lake IJssel together with the Vecht and IJssel Delta. The various SWAN models used are indicated with the colored patches in the figure above. The number of SWAN calculations vary from about 700 SWAN calculations for the Rhine and Meuse Delta to 5400 SWAN calculations for the Wadden Sea.

In order to manage such large number of calculations, the pre-processing, quality control, execution and postprocessing of the calculations are fully automated. The calculations have been performed on Svašek Hydraulics' high performance Linux computing cluster consisting of more than 200 CPU's.





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