



Implementation of a barotropic model of the northeastern Atlantic

Ø. Leikvin, B. Büchmann and C. Hansen

Royal Danish Administration of Navigation and Hydrography, Copenhagen, Denmark
(lei@frv.dk / Phone: +45 32689608)

A 2D barotropic storm surge model, driven by meteorology (wind, pressure) from a regional data set of the northeastern part of the North Atlantic and the Nordic Seas, has been implemented with the publicly available GETM model, Burchard and Bolding (<http://www.getm.eu/>). The intention with this model is to provide, on an operational basis, non-tidal low frequency elevation boundary conditions for a 1nm baroclinic model for the coupled North Sea – Baltic Sea area. An iterative analysis has been utilized in order to find the optimal set-up of the model when it came to limitations on computation time and load, type of boundary conditions, bottom roughness values and adjustment of the model bathymetry. The explained variances between observations from about 30 sea level stations and model results from more than 40 different set-ups has been computed for different simulation periods. The set-up with the highest explained variance utilizes wall boundary condition, relatively high bottom roughness and an artificial long and smooth beach ascending up towards the oceanic boundaries. A comparison between measurements and a model simulation of the fall season of 2006, showed very good results with an explained variance of about 0.8.