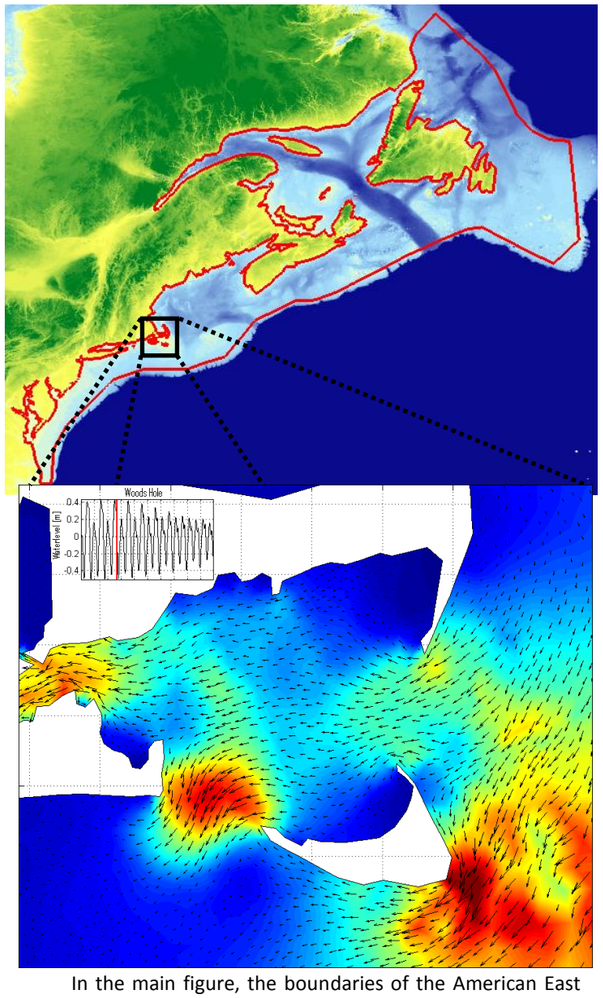
Svašek Hydraulics - Schiehaven 13G, 3024EC Rotterdam, The Netherlands

AMERICAN EAST COAST MODEL

The American East Coast Model, or AECM in short, is developed by Svašek Hydraulics and provides high quality tidal data for the Atlantic continental shelf of the United States and Canada, including the Gulf of Saint Lawrence using numerical flow simulation software FINE2D (www.finel2d.com).



In the main figure, the boundaries of the American East Coast Model are presented. The inset shows flow velocities in the shallow waters around Nantucket.

Abilities

The AECM fits many different purposes. Its water level and current forecasts can serve as input for e.g. ship routing or workability predictions.

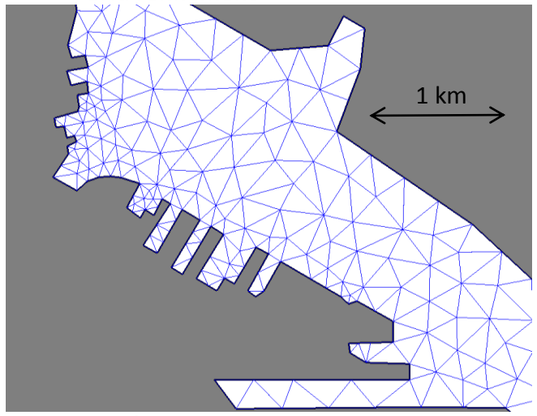
- **Ship routing**

Many shipping routes cross the borders of the AECM. In order to facilitate ship routing, St. Lawrence estuary and part of the river have been included in the model.

- **Workability predictions**

To provide weather dependent water level and current forecasts, the AECM is forced with meteorological input. This is of great use when making workability predictions for off-shore activities.

- **Grid refinement**



The amount of detail in the model can be tailored to the client's needs. Here a refined grid is shown for the port of Boston.

To guarantee that the AECM provides reliable water levels and currents for the American continental shelf, the outcomes of the model can be compared to actual measurements.

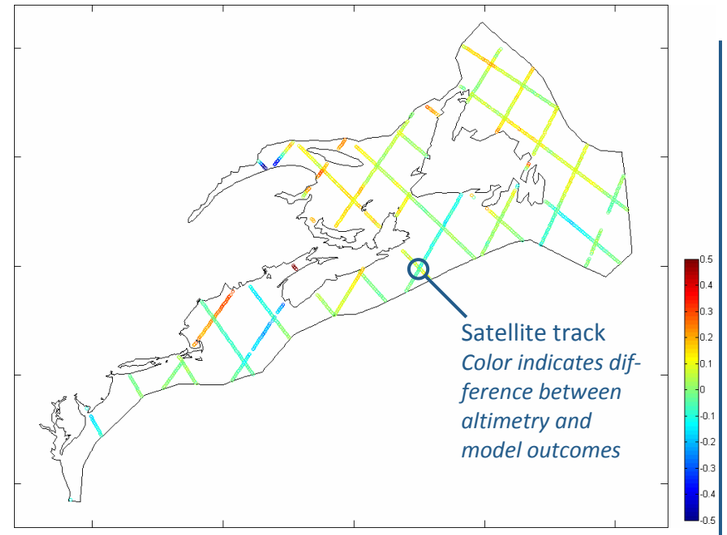
→ Water level time series

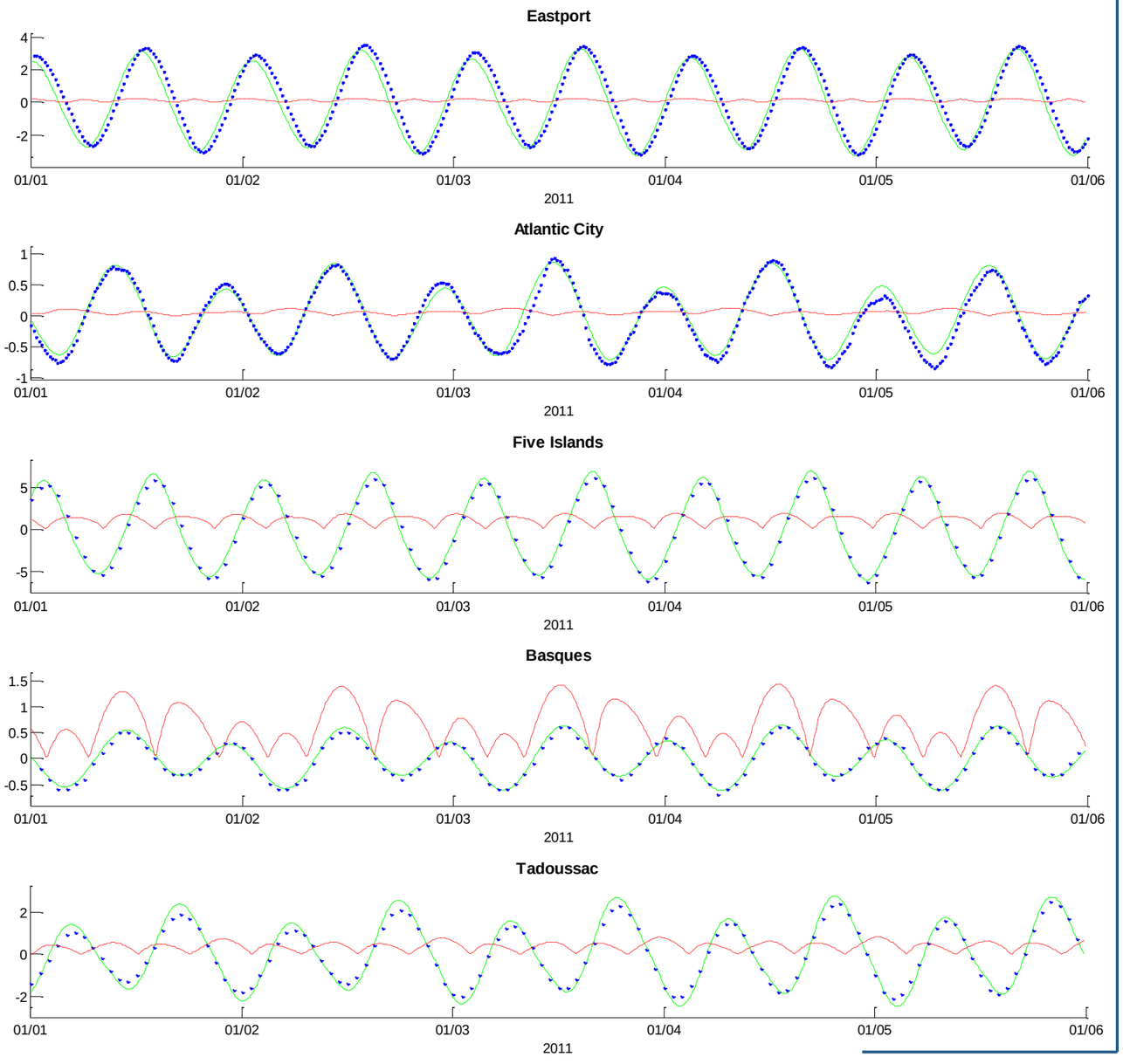
Time series of water levels provide a very effective way to verify a tidal model. Here the outcomes (green line) at five locations throughout the model domain are compared with other data sources (blue dots). The upper two time series are compared to actually measured data [1], whereas the lower three figures show a comparison with predictions based on a purely astronomical tide [2]. The time series at Five Islands shows how well the model predicts the Bay of Fundy's enormous tidal range.

→ Satellite data

The NASA maintains a number of satellites with the purpose of measuring the sea surface height [3]. In this way a source of water level verification data throughout the whole model domain is obtained. The color indicates the difference between measurements and model outcomes.

Svašek Hydraulics is a specialist consultant in coastal, harbour and river engineering. Visit us at **www.svasek.com**.





[1] http://uhslc.soest.hawaii.edu/ [2] http://www.tides.gc.ca/ [3] http://sealevel.jpl.nasa.gov/