NOOS annual report 2014

Member report – Denmark, DMI

August 2014

Country: Denmark

Institution

Danish Meteorological Institute

Observations Status and new initiatives

Status:

- Tide gauge network. 35 DMI, 39 owned by other national authorities, total 74 sites.
- 42 of these with temperature sensor
- 3 belt sea moorings for ocean current
- Remote sensing data: SST (SST anomaly), water colour/algae blooms

New initiatives:

- One, possibly two more Belt Sea current meters
- Altimetry sea level
- HF radar feasibility study for establishing a Coastal Radar system of the Skagerrak

Modelling Status and new initiatives

Status:

Operational

- Storm surge: baroclinic 3-dim.circulation model (HBM) using 3 nested grids (3 n.m., 1 n.m, 0.5 n.m.) and a fjord module, 4x daily for a 5 day forecast plus a once-a-year non-forced (tidal) run.
- MyOcean: baroclinic 3-dim.coupled circulation and marine ecology model (HBM+ERGOM) using 4 nested grids (3 n.m., 1 n.m, 0.5 n.m, 1 n.m), 2x daily for a 2½ day forecast.. High vertical resolution to properly resolve benthic processes.
- Lagrangian drift/dispersion model (BSHdmod) for various substances and objects
- HBM code optimized for HPC

New initiatives:

- 11 year four-grid re-run (2003-2013) with 3 n.m. / 1.n.m. resolution in western / eastern North Sea.
- Contribute to MyOcean-2 multi-model ensemble

Under development:

- Assess the benefit of assimilating blended tide gauge – altimetry sea level analysis in storm surge model
- test effect of including tidal potential
- two-way nested fjord model
- new method for ice dynamics

Planning:

- implement E-HYPE for river run-off
- extension of the Wadden Sea bathymetry to include the eastern North Sea in 1 n.m. Horizontal and high vertical resolution

Dissemination Status and new initiatives

Status:

- Responsible for noos.cc North Sea – Baltic Sea region real-time sea level information system, including 14, with a potential 15 countries
- Ocean forecast service (www.dmi.dk, ocean.dmi.dk), including
    - Sea level

    - Tide
    - Water temperature at beaches
    - Surface salinity
    - Sea ice
    - Sea state
    - Marine ecology
- Ocean monitoring service, including
    - Sea level
    - Tide
    - Daily SST map
    - Marine ecology / ocean colour
- Ftp box service (for NOOS):
    - Tide gauge data
    - Wave buoy data
    - Sea level forecast at North Sea ports
    - Wave forecast at buoy locations
    - Modelled transport for North Sea cross-sections
- in-NOOS service
    - homepage (using the TYPO3 content management system)

New initiatives:

- Modelled surface hydrography for multi-model ensemble prediction
- webstats on NOOS home page

Relevant national projects

MEMC: National co-operation on eco modelling (DTUaqua, DCE, DMI)

Relevant International projects

eSurge: ESA project with focus on real-time use of satellite data in storm surge forecasting
MyOcean, Kopernikus: EU Marine Core Service project
GMES-PURE: EU Marine Core Service project
SOROS HF Radar: Surface current monitoring in the Skagerrak
Mona Lisa 2: Operational metocean service for e-navigation.
ESA-CCL: long-term SST re-analysis from satellite

Additional information

http://ocean.dmi.dk DMI ocean products, studies and services.
http://www.dmi.dk/home/research-topics/ocean DMI research projects with ocean focus

DMI “Free Data” initiative aims to make publically available any DMI owned data. The exact bounds to be clarified within ~6 months.