NOOS annual report 2019

**Member report - GetMOETOC**

[20191010]

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| **Country** | Denmark |
| **Institution** | Joint GeoMETOC Support Center (previously FCOO) |
| **Observations****Status and new initiatives**  | ***Status:*** ***Operational***:None***New Initiatives:******Under development:***The governmental responsibility for current observations in the Danish Straits has been transferred from DMI to Joint GeoMETOC Support Center. There is one station close to the Drogden Sill and two stations in the vicinity of the Great Belt bridge. For technical and administrative reasons it may take a while (a year?) before they are in operation. |
| **Modelling****Status and new initiatives** | ***Status:******operational:***GETM:Operational barotropic 2D model covering the Northern North Atlantic. To generate open boundary conditions to baroclinic model. Operational: baroclinic 3-dimensional model covering North Sea – Baltic Sea region* One way nested (1nm. and 1/3 nm.).
* 60 vertical layers, general vertical coordinates
* 4 times a day
* 56 hour

Wave model Wave Watch III:* Four one way nested models, with focus on the inner Danish waters. The horizontal resolution for the the Arctic - North Atlantic, North-West European Shelf, North Sea – Baltic Sea, and the Inner Danish water models are 18nm, 9nm, 3nm and 1 nm, respectively.

56 hour forecasts* 4 times a day
* Updated to version 5.14
* Includes effect of sea ice. Sea ice is a CMEMS product produced by Finnish Meteorological Institute (FMI)

Seatrack Web:* Oil dispersion model for the Danish Waters and Baltic Sea
* Includes Stokes drift forcing from Wave Watch III

Under development:* GETM: Changed drag coefficient parameterization in the barotropic North Atlantic model. To be operationalized
* GETM: Improving tides in the operational 3D GETM setups
* GETM: Improve Baltic Sea deep water salinity and temperature in GETM
* WW3: Update to version 6

WW3: Submit our updates to WW3 master, such as rotated grid at open boundaries, and improved description of Stokes drift.***New initiatives***:Predicting sea level at coastal stations using forecast and sea level observations using Machine Learning***under development:***Sea ice module for the operational model (GETM) in the North Sea – Baltic Sea regionUse satellite SST to compute model error. To be used for ensemble model runsImproving tidal signal in GETM by adjusting bathymetry and bottom drag |
| **Dissemination****Status and new initiatives** | ***Status:******Operational:***Current forecasts to Search And Rescue (SAR) SystemSeatrackWebInternet service (public):Real-time observations and forecasts available at IFM Maps (ifm.fcoo.dk)**Observations:** Sea level (Source: Danish Meteorol. Inst.)**Forecasts:*** Sea level
* Sea temperature
* Salinity
* Near-surface currents
* Wave significant height, mean direction, mean period
* Wave height, direction, mean period 7 days, External source: ECMWF)
* Sea surface meteorology (54 hours, , External source: DMI Harmonie)Sea surface meteorology (7 days, External source: ECMWF)
* Ftp box services: Sea level forecast at selected stations. The NOOS project e-surge

 Cross section transports. To MyOcean2 project: MME 2D fields of salinity, temperature and currents (0-5m average). To MME project* Impact Maps
* Ocean forecasts in the Atlantic, Mediterranean and Arctic Seas ((Source: NOAA)
* Tidal predictions at Greenland harbours (Source: DMI)

***New Initiatives:******Under development:***Disseminat sea level forecast and observation at selected non-Danish stations on ifm.fcoo.dk |
| **Relevant national projects** | None |
| **Relevant International projects** | NOOS Model Validation WGNOOS Activity Waterlevel Forecast ExchangeNOOS Activity Wave Exchange |
| **Additional information** | None |