

## BOOS Annual Meeting 2018

### Member report

Institution	<b>BSH – federal maritime and hydrographic agency</b>
Country	<b>Germany</b>
Observations	<p><b><u>Status:</u></b></p> <ul style="list-style-type: none"> <li>• Temperature, salinity, current, oxygen content (from various oxygen optodes), radioactivity and meteorological data by the MARNET (Marine Environmental Monitoring Network in the North Sea and Baltic Sea) running with 9 platform stations (thereof 5 in the Baltic Sea) and 8 stations for sea state (thereof 3 in the Baltic Sea). The station "Fehmarn Belt" is back on its position. The station "NSB-3" is still offline due to general maintenance, which will last until May 2018.</li> <li>• Annual monitoring cruise in the western Baltic Sea with chemical focus</li> <li>• Sea level data provided by Water and Shipment Agencies (WSAs)</li> <li>• SST and ice coverage from NOAA-AVHRR and MetOp remote sensing data</li> <li>• Chlorophyll-a (Chl-a) from MODIS remote sensing data</li> <li>• The monitoring network is supplemented by research-platforms for wind plants: FINO: FINO1 in the southern German Bight runs since 2003, FINO3 in the northern German Bight since 2009, and FINO2 in the Baltic Sea since 2008.</li> <li>• Wave measurements at all three FINO platforms are operational.</li> <li>• Sea level data measured with a radar gauge (RADAC) at all three FINO platforms are operational. Levelling is done via GPS.</li> <li>• Oceanographic measurements at FINO2 are operational since 2014. These measurements are carried out by the IOW on behalf of the BSH and the BSH itself (waves and waterlevel).</li> </ul> <p><b><u>New initiatives:</u></b></p> <ul style="list-style-type: none"> <li>• Data transmission from NSB-2 and 3 via inmarsat is now in operation. Tests for other platforms, e.g. Fehmarn Belt platform are running.</li> <li>• A new type of buoy for the position Oder Bank is under development by the IOW on behalf of the BSH and now in a first trial under ice conditions</li> </ul>
Modelling	<p><b><u>Status:</u></b></p> <p><b>operational on national level:</b></p> <ul style="list-style-type: none"> <li>• Baroclinic 3dim. circulation model (BSHcmod) using 2 nested grids (3 nm for whole Baltic, 0.5 nm for Western Baltic), 3 day forecasts, 2 x daily</li> <li>• <b>on demand:</b> Eulerian and Lagrangian dispersion models (BSHdmod, HBMeulerian &amp; SeatrackWeb) for different substances, i.e. SPM</li> </ul> <p><b>operational on European level:</b></p> <ul style="list-style-type: none"> <li>• Multi-model-ensemble of SST, SSS, SSC, SBT, SBS and transports for CMEMS Baltic MFC based on all available model results from BOOS partners (Golbeck et al., 2015)</li> <li>• Modelling/validation/quality assurance for Baltic MFC of CMEMS</li> </ul>

	<p><b><u>New initiatives:</u></b></p> <p><b>pre-operational:</b></p> <ul style="list-style-type: none"> <li>• Data assimilation for SST based on LSEIK filter on 3nm grid</li> <li>• Baroclinic 3 dim. Circulation model (HBM) including biogeo-chemical model for with 2 nested grids (ERGOM), 3nm&amp;0.5nm grid</li> </ul> <p><b>under development:</b></p> <ul style="list-style-type: none"> <li>• Data assimilation scheme for temperature/salinity profiles and ecosystem parameters</li> </ul>
Data, product and service	<p><b><u>Status:</u></b></p> <p><b>Publicly available via internet (<a href="http://www.bsh.de">www.bsh.de</a>):</b></p> <p>→ <b>Observations:</b></p> <ul style="list-style-type: none"> <li>• MARNET monitoring network in real-time: temperature, salinity, current, oxygen content, sea state, radioactivity, meteorological data</li> <li>• Remote sensing: SST (weekly map), ice and chl-a</li> <li>• Ice reports</li> <li>• Circulation Calendar German Bight</li> </ul> <p>→ <b>Forecasts:</b></p> <ul style="list-style-type: none"> <li>• Sea level (accompanied with measurements from WSAs)</li> <li>• Storm surges</li> <li>• Currents</li> <li>• Briefing for beach visits</li> </ul> <p>→ <b>Miscellaneous:</b></p> <ul style="list-style-type: none"> <li>• Climatological time series</li> <li>• DOD Data Centre: general data requests</li> <li>• MDI-DE: Marine Data Infrastructure for Germany</li> <li>• MURSYS reporting system: environmental reports</li> <li>• GeoSeaPortal: interface to geo information data including observations</li> <li>• Bathymetric data: sets listed, available on request</li> </ul> <p><b>Contributions directly to BOOS:</b></p> <ul style="list-style-type: none"> <li>• Processing of some products for BOOS homepage</li> <li>• Some maintenance of the new BOOS homepage (Web WG lead)</li> </ul> <p><b>Data and products on BOOS homepage:</b></p> <ul style="list-style-type: none"> <li>• MARNET data</li> <li>• Current and transport forecasts for the Baltic Sea and the North Sea/Baltic Sea transition area</li> <li>• Presentation of results from Multi-model-ensemble</li> <li>• Sea level measurements provided by WSAs</li> </ul> <p><b>Data on ftp server with access for BOOS members:</b></p> <ul style="list-style-type: none"> <li>• MARNET data (access also EU-wide)</li> <li>• Sea level measurements provided by WSAs</li> <li>• Full resolution ADCP current data from ARKONA and DARSS station</li> <li>• Simulated sea level data</li> <li>• Simulated sea state data (sea state measurements are part of MARNET data)</li> <li>• Simulated transports in the Baltic Sea and the North Sea/Baltic Sea transition area</li> <li>• Results from Multi-model-ensemble for the Baltic Sea</li> </ul>

	<p><b><u>New initiatives:</u></b></p> <ul style="list-style-type: none"> <li>• Compilation of a Baltic Sea Climatology (ocean and atmosphere) on behalf the expert network of BMVI (Federal Ministry of Transport and Digital Infrastructure)</li> <li>• A new procedure for the comparison of simulations and in-situ data is in the planning phase. Implementation will depend on personal resources.</li> </ul>
Projects including BOOS partners	<ul style="list-style-type: none"> <li>• <b>MeRamo:</b> Project to support the public authorities with results and products for the Marine Strategy Framework Directive (MSFD) from an assimilative hydrodynamical-biogeochemical model system BOOS partners involved: IOW, HZG <a href="http://www.demarine.de/lr/meramo">www.demarine.de/lr/meramo</a></li> <li>• <b>FAMOS:</b> Finalising Surveys for the Baltic Motorways of the Sea BOOS partners involved: SMA <a href="http://www.famosproject.eu">www.famosproject.eu</a></li> <li>• <b>SeaDataCloud:</b> Project to advance the SeaDataNet Services and adopt cloud and High Performance Computing technology BOOS partners involved: SMHI, FMI, IMGW, MSI, IO PAN, SYKE <a href="http://www.seadatanet.org/About-us/SeaDataCloud">www.seadatanet.org/About-us/SeaDataCloud</a></li> <li>• <b>Baltic LINES:</b> Coherent Linear Infrastructures in Baltic Maritime Spatial Plans BOOS partners involved: SYKE <a href="http://www.balticlines.eu">www.balticlines.eu</a></li> </ul>
Other relevant projects	<ul style="list-style-type: none"> <li>• <b>PIMO:</b> Pilot monitoring of pulsed and continuous underwater sound entries into the German Seas according to the MSFD no weblink known</li> <li>• <b>Scrubber Washwater Survey/SWS:</b> Project to survey the impact of washwater from scrubbers on the marine environment no weblink known</li> <li>• <b>MoBo:</b> Development of a monitoring buoy <a href="http://www.iwes.fraunhofer.de/de/forschungsprojekte/aktuelle-projekte/mobo.html">www.iwes.fraunhofer.de/de/forschungsprojekte/aktuelle-projekte/mobo.html</a></li> <li>• <b>FINO:</b> Research platforms North Sea and Baltic Sea (research to determine the effects on the marine flora and fauna) <a href="http://www.fino2.de">www.fino2.de</a></li> </ul>
Involvement in BOOS tasks	STG, BMP, BOP, MME WG, Web WG
Involvement in EuroGOOS WGs, TTs	Executive Directors Board, SAWG, DataMEQ WG, Euro-Argo
Suggestions to BOOS future activities	Investigation of possibilities to regularly monitor marine plastics in the Baltic Sea
Additional information	The second STG term of Jan Reißmann ends in 2019.