

NOOS PROJECT SUMMARY: **Multi Model Ensemble Prediction System**

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KEYWORDS: data exchange, multi model ensemble, ensemble prediction system, SST, SSS, water transports, currents

| <i>Project title:</i> NOOS Multi Model Ensemble Prediction System | |
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| Project Aims | <p>Several NOOS partners provide operational model forecasts for the North Sea area on a daily basis. A range of information and emergency response systems is based on the available forecasts. All these systems can benefit from a systematic combination of the variety of forecasts in a Multi Model Ensemble (MME).</p> <p>The project aims at providing a Multi Model Ensemble (MME) which shall serve two main purposes:</p> <ul style="list-style-type: none"> • The MME shall provide the basis for the development of uncertainty estimates for all forecast products. • The MME system shall provide an estimate of the <i>best</i> overall forecast, i.e. have a reduced overall error compared to every single ensemble member. <p>Exactly the same approach is applied in the Baltic Sea area based on model forecasts provided by several BOOS members. A close cooperation between this NOOS project and the BOOS counterpart will aimed at.</p> |
| Lead agency Lead scientist | <p>Bundesamt für Seeschifffahrt und Hydrographie (BSH) Federal Maritime and Hydrographic Agency Frank Janssen, frank.janssen@bsh.de</p> |
| Participants | <ul style="list-style-type: none"> • BSH, Frank Janssen, Inga Golbeck, Xin Li, Stephan Dick • DMI, Jacob Woge Nielsen, Vibeke Huess • FCOO, Johan Söderkvist • Met Office, Ed Blockley, Alistair Sellar • Met.no, Bruce Hackett, Harald Engedahl • MUMM, Sebastien Legrand, Jose Ozer <p><i>BOOS - Participants</i></p> <ul style="list-style-type: none"> • FMI, Simo-Matti Siiriä • MSI, Priidik Lagemaa • SMHI, Patrik Ljungemyr, Lars Axell |
| Present status: <i>Ongoing</i> | <p>Project partners (BSH, DMI, FCOO, MetOffice, Met.no, MUMM) provide daily 48 h-forecasts of computed sea surface temperature (SST), – salinity (SSS) and – currents (SSC), based on different circulation models. The format of the input data to the MME is not fully standardised yet and a substantial amount of work is needed in reformatting the data to be used in the MME. The data are interpolated onto a common grid and ensemble products and uncertainty measures are produced. SSC are evaluated with progressive vector diagrams calculated of time series at the middle of NOOS transects. A MME of daily means of volume transport is also calculated. Figures showing the MME and first uncertainty estimates of each parameter are produced on a daily basis and displayed on the NOOS website.</p> <p>A trial version of MME and uncertainty measures exists for 2D surface fields of SSC.</p> |

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| <p>Project timescale</p> | <ul style="list-style-type: none"> • Sept. 2012: Start of planning phase / Pre-operational phase • Apr. 2013: Initialisation of MME • 16. Aug. 2013: MME of SST, SSS (netCDF files) available on BSH ftp server • Aug. 2013: Presentation of first results at Baltic Sea Science Conference, Klaipeda • Sept. 2013: Presentation of first results at NOOS AM, Brussels • Nov. 2013: Presentation at FutOOre2013, Hamburg • 22. Jan. 2014: MME Figures available on NOOS / BOOS websites • Apr. 2014: Presentation of results at MyOcean-2 AM, Athens • May 2014: Presentation of results at EGU, Vienna • Aug. 2014: Definition of NOOS project |
| <p>Planned Developments and Activities (2014 - ...)</p> | <ul style="list-style-type: none"> • Higher standardization of input data provided by NOOS partners. (This is urgently needed to make the MME sustainable when project funding is no longer available.) • MME of sea bottom temperature and – salinity • Implementation of weighted-average methods (i.e. Bayesian model averaging) • Include sea ice and biogeochemical parameters |
| <p>Link to project documents (password protected URL ??)</p> | <p>http://www.noos.cc/index.php?id=mme ftp://ftp.bsh.de/outgoing/opmodel/my_ocean/MME/</p> |