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New coupled forecasting system for the Baltic Sea area

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BAL MFC



Consortium of five Baltic Sea Institutes:

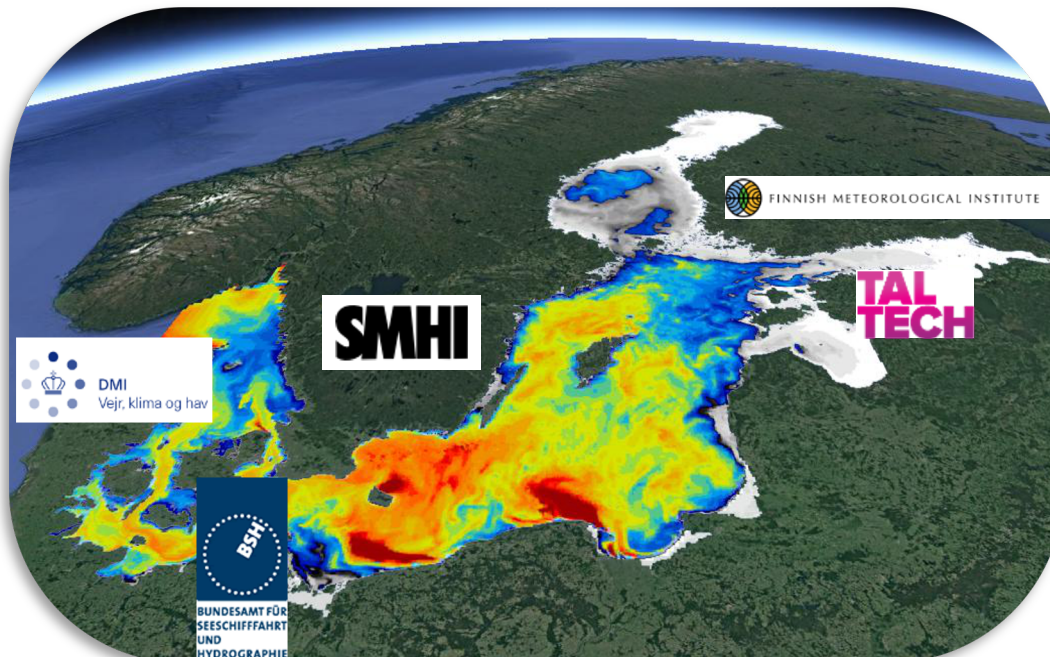
Danish Meteorological Institute (DMI)

Swedish Meteorological and Hydrological Institute (SMHI)

Finnish Meteorological Institute (FMI)

Federal Maritime and Hydrographic Agency (BSH), Germany

Marine System Institute (MSI), TalTech, Estonia



BAL MFC Model-system



Baltic Sea Model System consists of four parts,

physical state (NEMO): *sea level, sea current, temperature, salinity, sea ice*

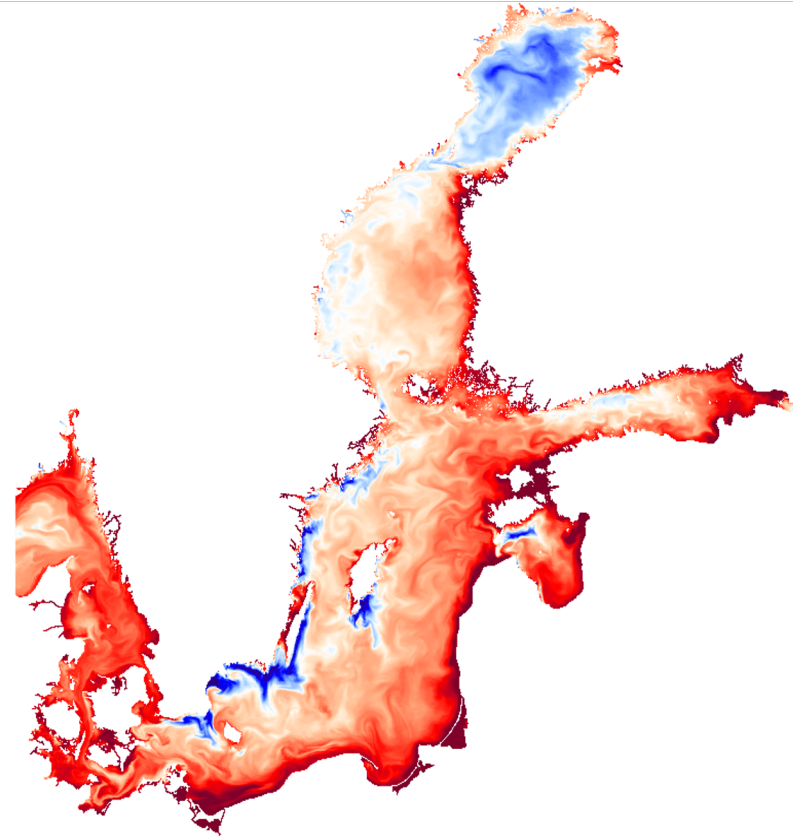
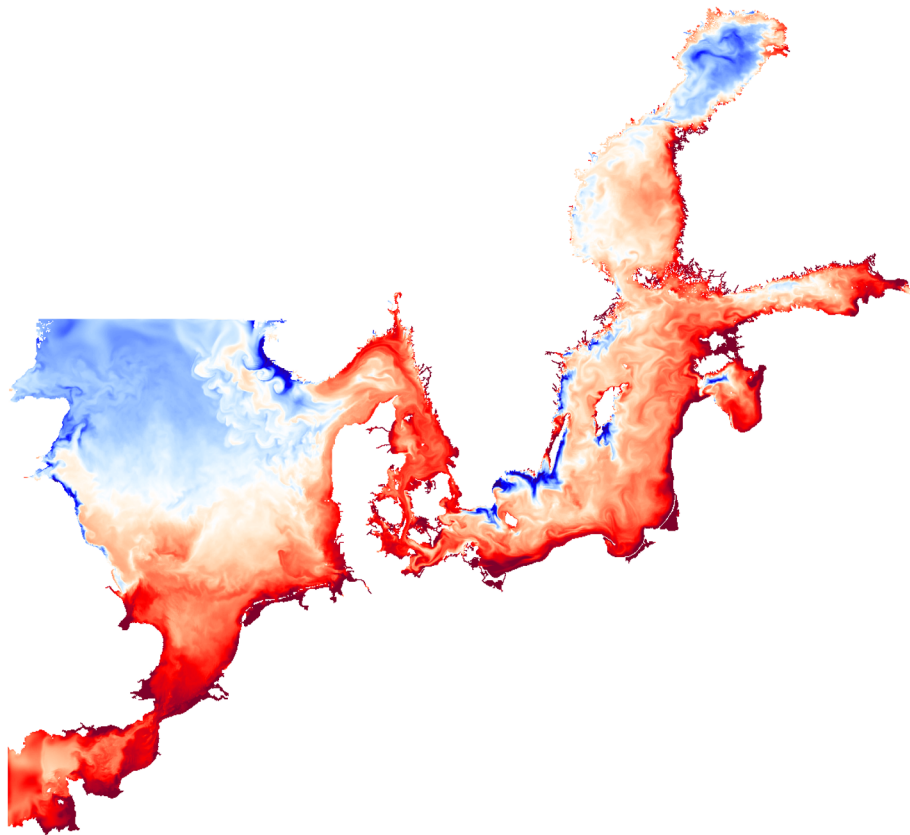
wave dynamics of the ocean (WAM): *wave height, wave period, wave direction*

marine ecosystem (ERGOM): *dissolved oxygen, nutrients, chl-a, carbon cycle*

Data assimilation system: PDAF

The system will be used both for forecasts (up to 6 days) and reanalysis from 1993 up to close to present.

Model and product grid



Coupling



SMHI

PDAF

Offline

ERGOM

Online

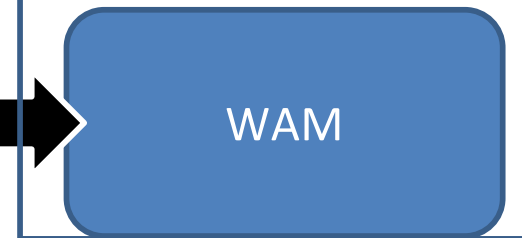
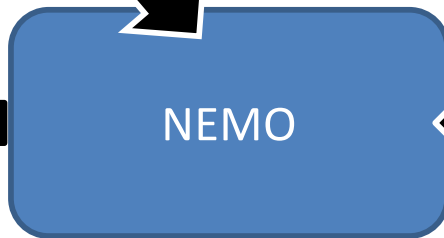
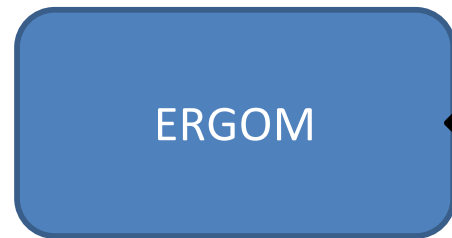
NEMO

Offline

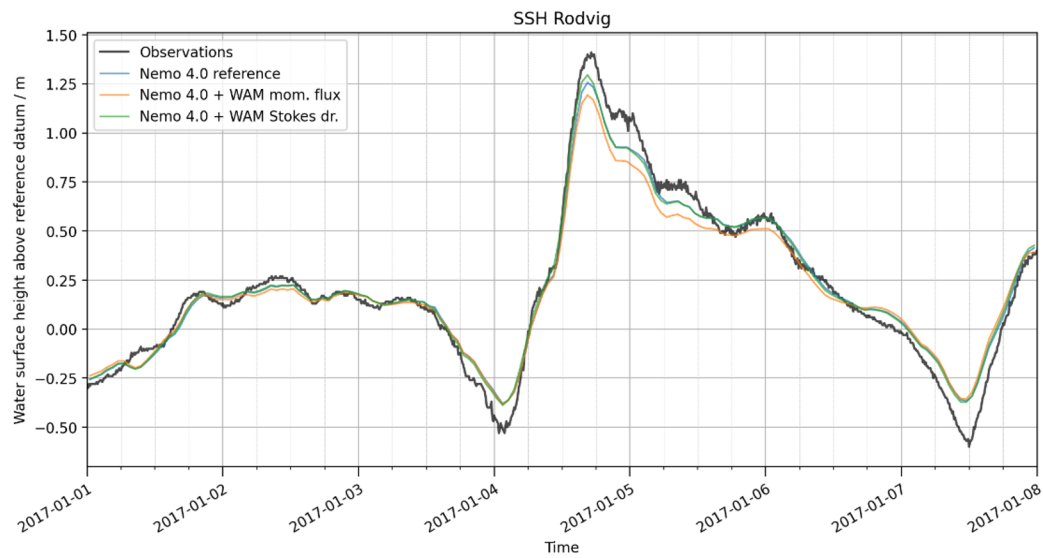
WAM

FTP

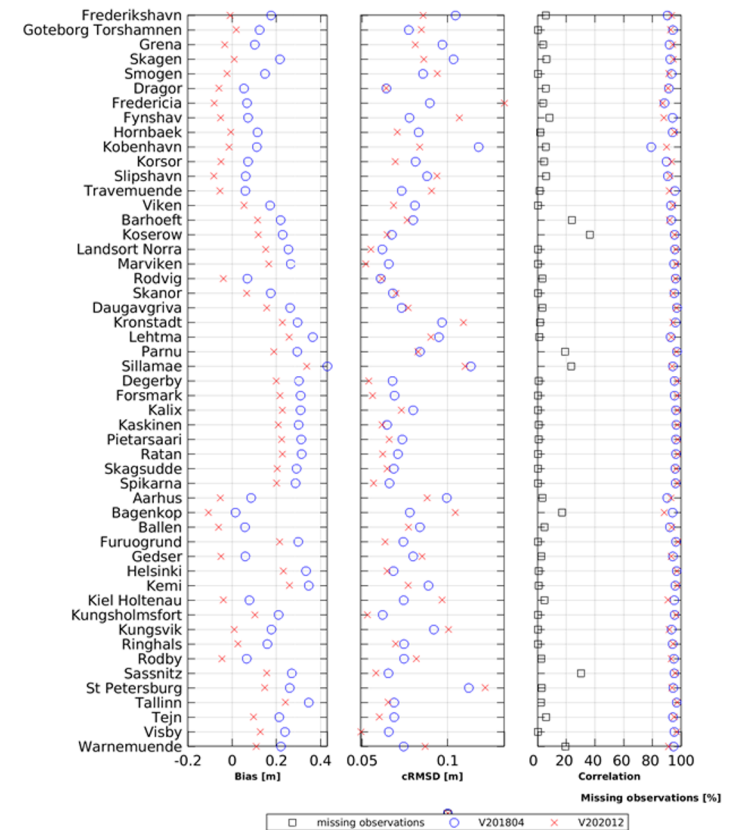
FMI



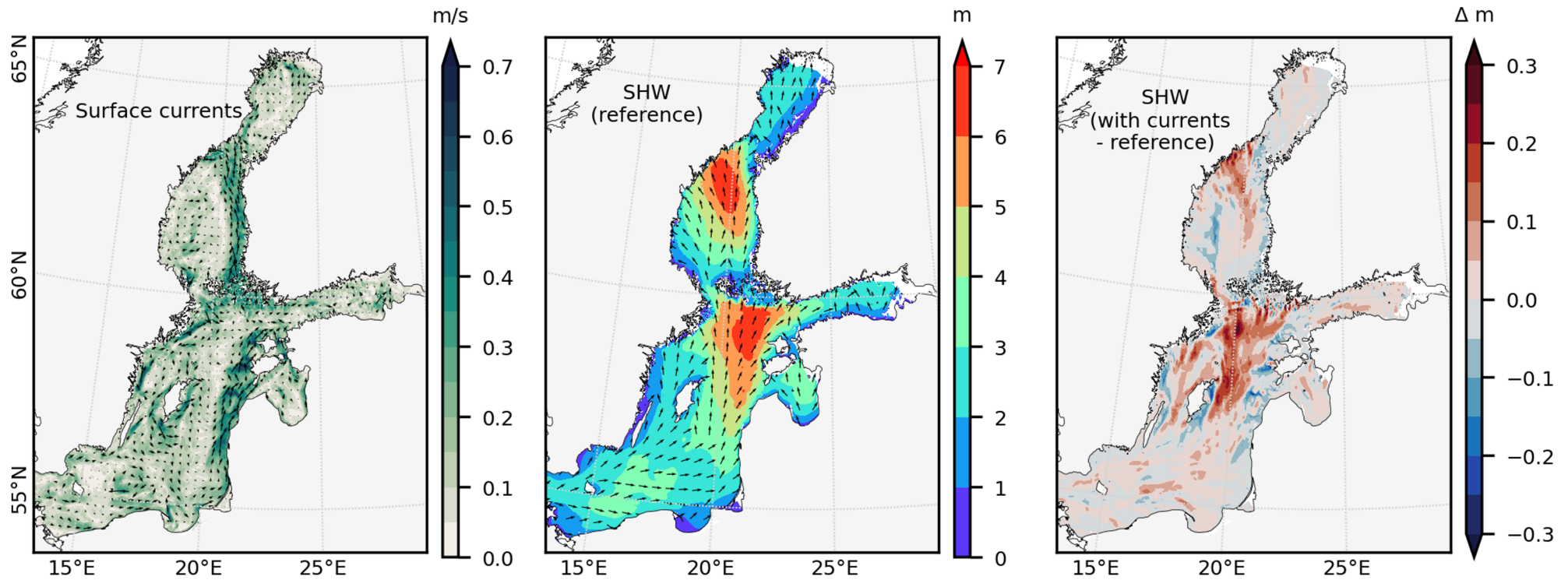
WAM to NEMO



- Coupling to the wave model effects sea level
- For storm situations the effect of coupling increases

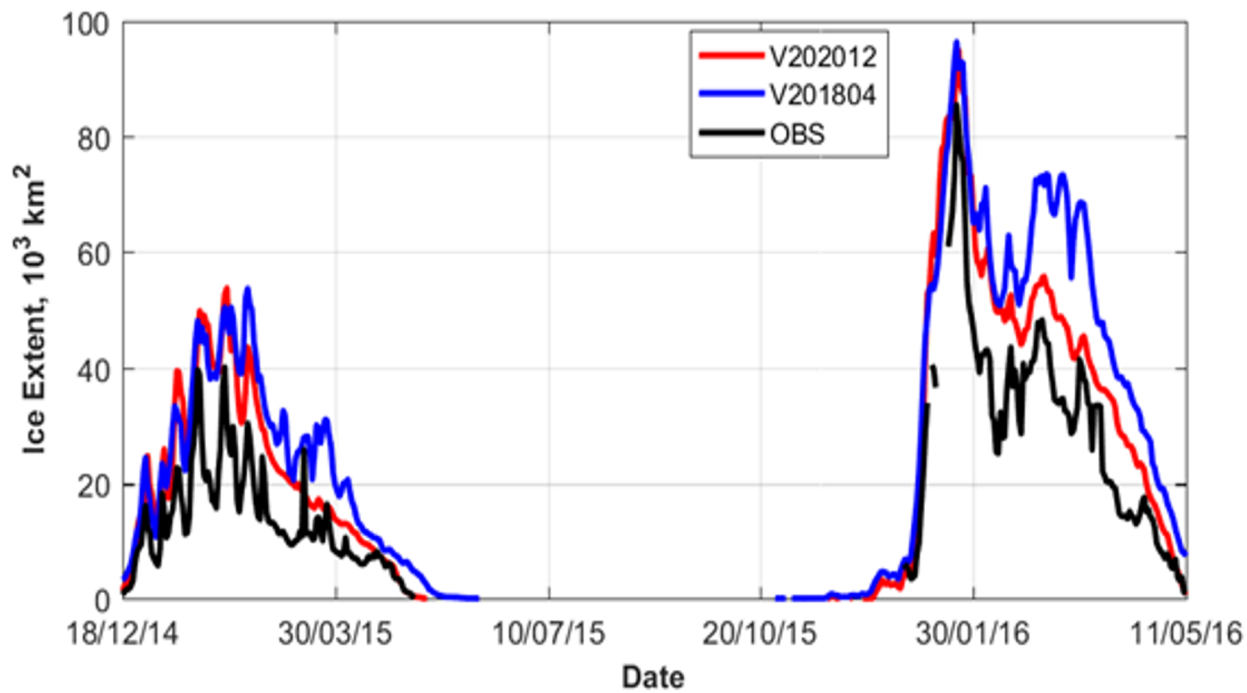


NEMO to WAM



- The storm Toini on 12 Jan 2017
- Effect of wave-current interaction to the significant wave height.

PDAF to NEMO



Conclusion and outlook



- The coupled system works good in general
- Improvements by the coupling of wave to ocean circulation can be situational
- More work possible!