New coupled forecasting system for the Baltic Sea area

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The Copernicus Marine Environment Monitoring Service (CMEMS) is providing operational data products for the European Seas. During the current phase of CMEMS, Baltic Monitoring Forecasting Centre (BAL MFC) has been developing a brand new coupled forecasting system for the Baltic Sea area. With the latest update in December 2020 the products of the new model system for near real-time became operationally available in the CMEMS catalogue. The system consists of four parts – Nucleus for European Modelling of the Ocean (NEMO), Ecological Regional Ocean Model (ERGOM), the Wind Wave Model (WAM) and the Parallel Data Assimilation Framework (PDAF). The most notable difference between the new system and its predecessor is the change of the physical model to NEMO 4.0 instead of HBM (Hiromb Boos Model), resulting in an improvement of the physical parameters. NEMO 4 and ERGOM is one-way online coupled and runs at the same production unit. In addition, NEMO and WAM are offline coupled in both directions. These two models are produced at two different production units. WAM uses ice conditions and currents from NEMO to increase the quality of the wave forecast. In return WAM provides NEMO with stokes drift, mainly to improve the extreme sea level events. We present the components of the forecasting system focusing on the implementation and effects of the coupling.