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Activation of the marine ecosystem model 3D CEMBS for the Baltic Sea in operational mode

Lidia Dzierzbicka-Glowacka, Jaromir Jakacki, Maciej Janecki, and Artur Nowicki
Institute of Oceanology PAN, Physical Oceanography, Sopot, Poland (arturnowicki@gmail.com)

The paper presents a new marine ecosystem model 3D CEMBS designed for the Baltic Sea. The ecosystem model is incorporated into the 3D POPCICE ocean-ice model.
The Current Baltic Sea model is based on the Community Earth System Model (CESM from the National Center for Atmospheric Research) which was adapted for the Baltic Sea as a coupled sea-ice model. It consists of the Community Ice Code (CICE model, version 4.0) and the Parallel Ocean Program (version 2.1). The ecosystem model is a biological submodel of the 3D CEMBS. It consists of eleven mass conservation equations. There are eleven partial second-order differential equations of the diffusion type with the advective term for phytoplankton, zooplankton, nutrients, dissolved oxygen, and dissolved and particulate organic matter. This model is an effective tool for solving the problem of ecosystem bioproductivity. The model is forced by 48-hour atmospheric forecasts provided by the UM model from the Interdisciplinary Centre for Mathematical and Computational Modelling of Warsaw University (ICM).

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