



WaterPuck the innovative system for the Puck Bay area - the hydrodynamic part

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The ongoing project called WaterPuck is an innovative and interdisciplinary project that is focused on implementation of the environmental protection policy, sustainable growth and improvement of competitiveness of the Polish economy. One of the major goals of the project is to identify the main mechanisms responsible for the transport of pollutants on the surface and ground waters into the Puck Bay, and then into the Baltic Sea. Analysis of this transport will be done based on operational product that will consist of the hydrodynamic model for the Puck Bay area. This model is based on the Community Earth System Model (CESM) developed by UCAR (University Corporation for Atmospheric Research, USA) and NCAR (National Center for Atmospheric Research, USA). Due to the limited configuration provided by developers, it has to be adapted for the concerned region.

The developed model has a resolution of 115 horizontal and 33 vertical levels (it is based on the Parallel Ocean Program – z-coordinate system model). The adaptation required modifications in the code – we added extra energy dissipation based on a Smagorinsky-like viscosity and made modifications of the fresh water fluxes. The atmospheric data are from the UM model (provided by the Interdisciplinary Modelling Centre of the University of Warsaw). The horizontal resolution of the provided atmospheric data is 4 km. The model has passed the main stability tests and currently works properly. The poster presents the preliminary results and validation process of the model.

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