



Baltic Earth – Earth System Science for the Baltic Sea Region

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The Baltic Sea region, defined as its river catchment basin, spans different climate and population zones, from a temperate, highly populated, industrialized south with intensive agriculture to a boreal, rural north. It encompasses most of the Scandinavian Peninsula in the west; most of Finland and parts of Russia, Belarus, and the Baltic states in the east; and Poland and small parts of Germany and Denmark in the south. The region represents an old cultural landscape, and the Baltic Sea itself is among the most studied sea areas of the world.

Baltic Earth is the new Earth system research network for the Baltic Sea region. It is the successor to BALTEX, which was terminated in June 2013 after 20 years and two successful phases. Baltic Earth stands for the vision to achieve an improved Earth system understanding of the Baltic Sea region. This means that the research disciplines of BALTEX continue to be relevant, i.e. atmospheric and climate sciences, hydrology, oceanography and biogeochemistry, but a more holistic view of the Earth system encompassing processes in the atmosphere, on land and in the sea as well as in the anthroposphere shall gain in importance in Baltic Earth. Specific grand research challenges have been formulated, representing interdisciplinary research questions to be tackled in the coming years. A major means will be scientific assessments of particular research topics by expert groups, similar to the BACC approach, which shall help to identify knowledge gaps and develop research strategies. Preliminary grand challenges and topics for which Working Groups have been installed include:

- Salinity dynamics in the Baltic Sea
- Land-Sea biogeochemical feedbacks in the Baltic Sea region
- Natural hazards and extreme events in the Baltic Sea region
- Understanding sea level dynamics in the Baltic Sea
- Understanding regional variability of water and energy exchange
- Utility of Regional Climate Models
- Assessment of Scenario Simulations for the Baltic Sea 1960-2100
- Outreach and Communication
- Education

The issue of anthropogenic changes and impacts on the Earth system of the Baltic Sea region is recognized as a major topic, and shall receive special attention. The intention of the “Outreach and Communication” and “Education” groups will be to initiate and design potential outreach activities and to provide an arena for scientific exchange and discussion around the Baltic Sea, to communicate findings and exchange views within the Baltic Earth research community internally and to other researchers and society, both professionals and non-professionals. A regular international Baltic Earth Summer School shall be established from 2015. There will be a strong continuity related to BALTEX in infrastructure (secretariat, conferences, publications) and the network (people and institutions).