

Scientific assessment of knowledge about regional climate change and impacts – process and results of BACC

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Abstract

While the assessment of scientific knowledge about global climate change and climate impact is a well-established practice of the IPCC, with so far five major reports, the knowledge about regional and even local issues is not a common practice so far. There are many reports about regional climate change – but that is rather different from a report about the knowledge of regional change. The latter includes statements about the degree of consensus, the detailing of contested issues and the determination of gaps in knowledge. When we consider “change”, two different items may be considered, namely change of climate and change of knowledge about climate change. The BACC-effort is about the latter.

The Baltic Earth Assessment of Climate Change in the Baltic Sea Region (BACC) is an effort to establish what scientifically legitimised knowledge about climate change and its impacts is available for the Baltic Sea catchment. Observed past and projected future changes in atmospheric, hydrological, and oceanographic conditions are assessed, as well as the observed and potential impacts on the natural and socio-economic environments.

The assessment has been used by the intergovernmental Baltic Marine Environment Protection Commission (HELCOM) as a basis for its future deliberations. A division of labour has been established between BACC and HELCOM: the BACC programme focuses purely on the science and does not draw conclusions about the political, economic or management consequences of the scientific knowledge, while HELCOM accepts the BACC findings and uses them in its work within the political negotiation processes.

The first BACC assessment report was published in 2008 (BACC Author Team 2008) and was accompanied by a Thematic Report by HELCOM published the previous year (HELCOM 2007). For the first BACC book, approximately 80 scientists from 12 countries researched and assessed the available literature on climate change in the Baltic Sea basin.

BACC II (2015) follows the BACC I format in documenting the consensus and disensus on climate knowledge up to about 2012. New aspects in BACC II are the consideration of the long-term and recent historical past to provide a framework for evaluating the severity and unusualness of the current climate change, a detailed analysis of sea level changes in the Baltic Sea, a description of climate change effects on urban complexes, and a reflection on detection and attribution of regional climate change in the Baltic Sea region. For the present assessment, more than 180 researchers contributed in various functions, from the lead and contributing authors and reviewers to the overseeing of the process by the Scientific Steering Committee and coordination by the International Baltic Earth Secretariat.

Keywords: Baltic Sea region; BACC; climate change, knowledge; regional assessment,