



Baltic Earth

Earth System Science for the Baltic Sea Region

**Baltic Earth
Newsletter
No. 4, January 2018**

Welcome to Baltic Earth Newsletter No. 4!

With the new year just started, it is time to look ahead, but also back at what has happened.

The past years we have established a fixed series of Baltic Earth Summer Schools for about 20 international students on the Swedish island of Askö, of which the third was held in 2017, and the [fourth is coming up in late August 2018](#). It is a great experience to see past year's summer school students at international workshops and conferences present their research, growing into active and committed members of the international scientific community.

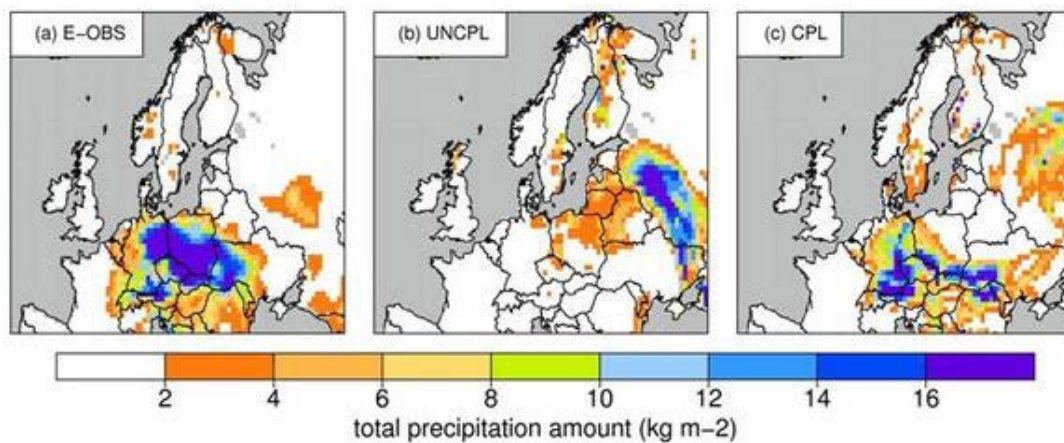
The outstanding event in 2018 is of course the [2nd Baltic Earth Conference](#) in Helsingør, 11-15 June. We hope to attract many scientists from various countries around the Baltic Sea and beyond, and from many scientific disciplines. This time, the conference topic is "transitions", which is meant in a temporal and geographical sense. After all, the conference venue is located in the transition area to the North Sea and Atlantic areas, so we also invite scientists from beyond the Baltic Sea region to share their research.



The upcoming international workshop on "[Regional Climate System Modelling for the European Sea regions](#)" on Mallorca also demonstrates that Baltic Earth reaches out to other regions. This workshop on 14-16 March, in collaboration with [MedCORDEX](#), also has a strong contribution by the Baltic Earth [Working Group on "Coupled Regional Earth System Modelling"](#). A new initiative on coordinated experiments in the Baltic Sea region is announced below.

Again, we would like to encourage you to send us short scientific communications, event or project reports, announcements or short news from your institution or project for publication in this Newsletter. We from the [International Baltic Earth Secretariat](#) wish you a joyful and successful 2018!

[Short communications](#)



Modelling regional climate change

Why coordinated experiments are important and what is expected to achieve

The [Baltic Earth Working Group on “Coupled Regional Earth System Models”](#) has started a “coordinated experiments” initiative. It has been shown that using coupled atmosphere-ocean regional climate models (AORCMs) may lead to a significant improvement of simulated conditions at the ocean surface compared to stand-alone models if air-sea interactions and feedbacks are taken into account. Subsequent improvements of simulated climate may even be visible over land areas remote from the coupling region. However, this is not always the case, and the Working Group intends to set up coordinated modelling experiments to find out why. A second activity will focus on inter-comparison of regional coupled model climate scenarios. The focus will be on the future impact of global climate change on the regional scale. [More...](#)



Conference report

Shipping and the Environment - From Regional to Global Perspectives

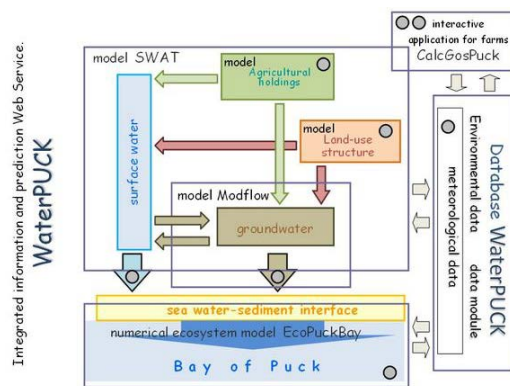
Given its importance for the transport of goods on a global scale, there is a growing interest on the sustainability of the shipping industry. Shipping is a very carbon-efficient transport medium, but there is an increasing focus on its broader environmental consequences. [SOLAS](#) and [SHEBA](#) joined forces to organise a two-day conference “[Shipping and the Environment - From Regional to Global Perspectives](#)”, held at the University of Gothenburg’s conference centre on 24-25 October 2017. It attracted 117 participants from 15 countries. [More...](#)



Making better use of existing infrastructure and data

A new project to integrate carbon and trace gas monitoring in the Baltic Sea

The cycling of carbon is the key variable of marine biogeochemistry which links the effects of eutrophication and deoxygenation, and determines the magnitude of coastal acidification. The new [BONUS project INTEGRAL](#) seeks to improve insights into the Baltic Sea carbon system by integrating existing infrastructure and data streams of the [Integrated Carbon Observation System \(ICOS\)](#) for the Baltic Sea. BONUS INTEGRAL seeks to demonstrate and exploit the potential added value of the marine stations of ICOS and similar instrumentation for the ecosystem state monitoring of the Baltic Sea as an important contribution to a state-of-the-art improved HELCOM monitoring. The aim is also to demonstrate the added value of using greenhouse gas data in combination with carbon system data, and promote the project's findings towards a better, cost effective ecosystem based monitoring of the Baltic Sea. [More...](#)



Project report

Modeling the impact of agriculture and land-use on the quality of inland and coastal waters of the Puck region, Poland

The Bay of Puck is a special region protected by NATURA 2000, separated from the open waters of the Baltic Sea by a narrow spit (Hel Peninsula). The Bay of Puck and the Puck region are used in various ways, from agriculture to tourism, which may cause deterioration of the coastal ecosystem. WaterPuck is an innovative interdisciplinary project, integrating knowledge of different disciplines into the implementation of the environmental protection policy, sustainable growth and improvement of the competitiveness of the Polish economy.

[More...](#)

Announcements



[MedCORDEX-Baltic Earth-COST](#) Workshop, Universitat de les Illes Balears, Palma de Mallorca, Spain
14- 16 March 2018

Regional Climate System Modelling for the European Sea Regions

The aim of this workshop is to share recent progress in the understanding of regional climate variability with special focus on coupled effects between sea, atmosphere, land and anthroposphere. In this workshop, we will focus on European seas and their catchment areas

like the Mediterranean Sea, Black Sea, North Sea, Baltic Sea and Arctic Ocean - highly sensitive areas where global models fail to give reliable information about changing climate because key processes are not properly resolved. [Abstracts deadline: 12 January 2018. More...](#)



2nd Baltic Earth Conference in Helsingör, Denmark, 11-15 June 2018

The Baltic Sea Region in Transition

This second Baltic Earth Conference will take place at the western limits of the Baltic Sea, in the very area where the Danish Straits control the flows between the North and Baltic Seas. The title of the conference refers to this geographical property but also to transition processes in the Baltic Sea and its catchment basin, as well as in the regional climatic and socio-economic systems. Helsingör is an attractive city with a rich maritime heritage. [Abstracts can be submitted until 18 February 2018. More...](#)



Baltic Earth related session at EGU 2018 in Vienna

Open Session on Coastal and Shelf Seas

Contributions are invited on innovative observational, theoretical and modelling studies concerning physical processes in coastal and shelf seas. Processes can include hydrodynamics (e.g., waves, tides, currents and Stokes drift, upwelling, eddies, density structures), transport of material (e.g., sediments, contaminants, litter, nutrients), and morphodynamics and sea-bed structure (e.g., evolution of bed forms, banks, Holocene-Antropogene strata or basin shape). A subsession is envisaged on the Baltic Sea, with emphasis on the Baltic Earth programme, focusing on sea-level variability, salinity dynamics and water budget, biogeochemical feedbacks, extreme events and anthropogenically induced changes.

[Abstracts due 10 January! More...](#)



8th GEWEX Science Conference

Extremes and Water on the Edge

The 2018 GEWEX Science Conference is structured around the topic of challenges confronting our ability to understand and predict changes in climate extremes and the availability of freshwater under the complex factors of natural variability, forced climate change due to human activities, and human management practices such as dams, reservoirs, land cover changes, and agricultural management. The Conference will reflect research activities that advance the main themes of the GEWEX project and of the two WCRP Grand Challenges on "Weather and Climate Extremes" and "Water for the Food Baskets of the World." [Extended abstract deadline: 15 January! More...](#)



4th Baltic Earth Summer School on Askö

Climate of the Baltic Sea region

For the fourth time, we will have our Baltic Earth Summer School on the beautiful island of Askö in the Swedish archipelago south of Stockholm. Students will be introduced to fundamental processes in the atmosphere, ocean, sea-ice and on land surface, with relevance for the climate system. The course will also deal with coupled atmosphere-ocean climate models, climate change, the greenhouse gas effect and other drivers of regional climate, dynamical downscaling, and the variability of circulation and regional climate. As part of the Master studies of Physics of the University of Rostock, the course will focus on past and future changes in climate in the Baltic Sea region. Check the website for further infos and how to apply!

[More...](#)



Workshop at FMI, Helsinki, 25-27 April 2018

Knowledge Gaps of Cryospheric Extremes

Extreme weather events are commonly encompassed phenomena such as heat waves, droughts, floods and storms. In cold regions, these are augmented with snow and sea-ice related extreme events, usually triggered by anomalous atmospheric or oceanic conditions. Although extreme events are a core climate research focus, cryospheric extremes have not received much attention yet. The overarching aim of the workshop is to review our understanding of cryospheric extreme events in the past, present and future, and to identify research needs.

[More...](#)

[Short news...](#)

Papers wanted for a Special Issue in *Atmosphere*

Storms, Jets and Other Meteorological Phenomena in Coastal Seas

Contributions are invited for a Special Issue on "Storms, Jets and Other Meteorological Phenomena in Coastal Seas" in *Atmosphere* (ISSN 2073-4433). This special issue belongs to the section "Climatology and Meteorology". [More ...](#)

Discussion paper

Outreach and Communication in Baltc Earth

What does outreach and communication mean in the context of Baltic Earth? Who is reaching out to whom? What can and should be achieved? Hans von Storch, chair of the Baltic Earth [Working Group on Outreach and Communication](#), has drafted a discussion paper which is available on the Baltic Earth website. He defines the terms and argues that outreach should not be a one-way street of educating the ignorant but rather be a mutual process. [More ...](#)

Unusual student initiative

BloomSail - Chasing cyanobacteria blooms with a small sailing boat

Jens Müller, PhD student at the Leibniz Institute for Baltic Sea Research, has a passion for his scientific work, and for his sailing boat. He had the fabulous idea to combine the two: in the summer months of 2018 he will be cruising east of Gotland on his sailboat Tina V to sample blue-green algal blooms. He intends to go out daily to cover the whole vegetation period of the bloom, which is difficult for large research vessels due to their strict schedule, with sampling cruises planned months ahead. With this initiative, Jens hopes to complement the data collected through automated measurements on the voluntary observing ship Finnmaid (red line), and satellites. Look at his [website](#) and see the [video](#) in which he explains his initiative!

[More...](#)

Working on coupled regional climate modelling?

New discussion forum on Coupled Atmosphere-Ocean Modelling (CAOM)

A new discussion forum around coupled regional climate modelling has been set up. If you are working with these topics, you can use the forum to discuss any issues. This is an initiative of the [Baltic Earth Working Group on Coupled Regional Earth System Models](#). [More...](#)

Publications

Collection of papers on Baltic Earth research out now

Special Issue on "Multiple drivers for Earth system changes in the Baltic Sea region" in *Earth System Dynamics*

The collection of papers which is now available as Open Access with *Earth System Dynamics*, originates from the [1st Baltic Earth Conference](#) in Nida, Lithuania in 2016 and spans a wide range of topics related to the conference theme of "Multiple drivers for Earth system changes in the Baltic Sea region". [More...](#)

Baltic Earth contributions to the OXFORD RESEARCH ENCYCLOPEDIA (ORE) "CLIMATE SCIENCE"

Overview papers on various aspects of climate science in the Baltic Sea region

Baltic Earth contributes to the [ORE "Climate Science"](#), a collection of overview papers authored by international scholars on specific topics around climate science. The articles are peer-reviewed and intended as reference material for scientists from other fields, scholars, students and the interested public. What is special about this series of papers is that it intends to look at the science from different perspectives to provide an expert overview over the different aspects of climate science in the Baltic Sea region, also including the the development of the science, wherever possible. [More...](#)

Featured Publication

In the future, we would like to ask Baltic Earth scientists to name a paper of the past year which they would like to recommends to the Baltic Earth community. Please send us your suggestion for the next Baltic Earth Newsletter!

Climate, History, and Social Change in Sweden and the Baltic Sea Area From About 1700

by Sven Lilja

Oxford Research Encyclopedia of Climate Science

Regional and Local Climates

Online Publication Date: Sep 2017

DOI: 10.1093/acrefore/9780190228620.013.633

The growing concern about global warming has turned focus in Sweden and other Baltic countries toward the connection between history and climate. Within the fields of history and socially oriented climate research, the industrial revolution has often been seen as a watershed between an older and a younger climate regime. The breakthrough of the industrial society was a major social change with the power to influence climate. Before this turning point, man and society were climate dependent. Weather and short-term climate fluctuations had major impacts on agrarian culture. When the crops failed several years in sequence, starvation and excess mortality followed. As late as 1867–1869, northern Sweden and Finland were struck by starvation due to massive crop failures.

The author shares a historian's view at the climate history in the Baltic Sea region (for which Sweden can serve as approximation), which is a good opportunity for (climate) scientists from other disciplines to look at their science from a different perspective.

(recommended by Marcus Reckermann)

New Baltic Earth Publications...

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Geesthacht**
Centre for Materials and Coastal Research



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