

5th Baltic Earth Conference

Jūrmala, Latvia

13 -17 May 2024



New Challenges for Baltic Sea Earth System Research



Second Announcement and Call for Papers

Background and Scope

The Baltic Earth scientific network strives to achieve an improved Earth System understanding of the Baltic Sea region as the basis for science-based management in the face of climatic, environmental and human impact in the region. Baltic Earth brings together a broad international research community around scientific issues relevant for societal efforts to achieve sustainability in the region. Baltic Earth targets the atmosphere, land and marine environment of the Baltic Sea, its drainage basin and nearby areas with relevance for the Baltic Sea region.

The completion of the Baltic Earth Assessment Reports (BEARs) marks the termination of the first phase, ten years after the launch of Baltic Earth. The BEARs provide a retrospect of Baltic Earth related research, current knowledge and knowledge gaps, and wrap up Baltic Earth activities.

After the publication of the Baltic Earth Assessment Reports (BEARs) in 2023, reflecting the Grand Challenges and research themes of Baltic Earth over the past ten years, it is now time to move on and update research challenges, and define new ones. The updated and new research foci will be presented and discussed by scientists, students, managers and other stakeholders. Conference language is English.

Topics

The updated set of Grand Challenges and Working Group topics are reflected in the thematic fields below and are described in the updated Baltic Earth Science Plan 2024, which will be available prior to the conference.

- **Biogeochemistry of the Baltic Sea – Linking observations and modelling:** Investigations on the marine and terrestrial carbon, nitrogen and phosphorus cycles and pathways towards an understanding of primary production mechanisms and organic matter transformations in the Baltic Sea; biogeochemical causes and effects of eutrophication, oxygen limitations and trace gas production, including microbiological processes; modelling approaches to explain observations and project future changes
- **Natural hazards and extreme events:** Observations, analysis and modelling of high impact events in the Baltic Sea region; frequency and strength of storm surges and waves, flooding due to extreme precipitation events or droughts; prediction systems, probabilistic estimates and attribution analyses
- **Sea level dynamics, sediment dynamics, coastal processes and impacts on coasts:** Variability and change of mean and extreme sea level; waves, storm surges, currents, seiches, variations in wind and sea level pressure, river runoff, effects of sea ice, inflows, thermosteric effects, land uplift/subsidence and their effects on sea level/sediment transport/coastal changes; projections of future sea level rise, observed and projected long-term trends and multi-decadal variations
- **Human impacts and their interactions:** Interactions between anthropogenic forcings like eutrophication, pollution, fisheries, aquaculture, shipping, offshore installations, hydrographic engineering, coastal management, agricultural and forestry practices and land cover change with natural forcings; analysis and application of coupled Earth system models capturing interactions between atmospheric, marine and land compartments/processes, as well as responses to anthropogenic forcings; regional detection and attribution efforts
- **Sustainable management options** to cope with the various human and environmental impacts described above and climate change, including geoengineering options
- **Analysing and modeling past and future climate changes:** Recent and projected changes in regional climate variables like temperature, precipitation, etc., as well as impacts on the atmosphere, hydrosphere, oceanography, and biosphere of the Baltic Sea region; recent progress in the understanding of regional climate variability with special focus on coupled effects between sea, atmosphere, land and anthroposphere
- **Atmospheric teleconnections affecting the Baltic Sea region:** Identification of critical regions with teleconnections to the Baltic Sea; assessment of potential change of atmospheric mass and energy flow over Europe; assessment of dynamically driven climate variability (e.g. jet stream) with its origin far outside the Baltic Sea and its propagation into the Baltic Sea region
- **Small scale processes not yet resolved and their impact on the large scale dynamics and patterns:** State-of-the-art knowledge of submesoscale dynamics in the Baltic Sea and similar coastal and/or marginal sea environments based upon observations and modelling and the role of submesoscale in multiscale interactions, e.g. energy transfer, mixing, development of stratification, coastal-offshore exchanges, fluxes of substances, including through the air-sea interface, etc.
- **Comparing marginal seas worldwide:** How do climatic, geological and human impacts in different polar, moderate and other marginal seas compare with conditions in the Baltic Sea? Can we establish a systematic scheme (classification), describing cause-effect relations for marginal seas with regard to the human-environment relationship?
- **Philosophical aspects of Baltic Sea Earth system research:** Dichotomous thinking and the need for broader, integrative perspectives; complex systems with multiple drivers; ,external' social dynamics in ,internal' scientific modeling; what is the basis of the public authority of scientific knowledge? What is the knowledge market for the Baltic Sea region? What is the boundary between science and activism?

Contributions from any of the above topics are welcome, as well as contributions from related programmes. Contributions will be grouped into scientific sessions which reflect the above described topics, as feasible. Invited and contributed papers will be presented in plenary and dedicated poster sessions. There will be a dedicated young scientist's event.

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Call for Papers

Contributions in accordance with the conference topics as outlined above, both oral or as poster, are welcome. Extended abstracts in English, maximum of two pages, including figures, tables or diagrams, are invited to be submitted by e-mail to the International Baltic Earth Secretariat.

Abstracts must be submitted by e-mail to balticearth@hereon.de by 22 January 2024. Please indicate to which topic you would like to have your presentation allocated. An electronic abstract template is available for download at <https://baltic.earth/jurmala2024>. Please use this template, other formats will not be accepted.

Abstract Deadline: 22 January 2024

The Scientific Conference Committee will review the submitted papers, decide on allocation to topic, oral or poster presentation and establish the conference programme. Authors will be notified by late February 2024, and the programme is expected to be online by mid March 2024. An abstract volume will be distributed at the conference.

Authors will be invited to submit a full paper based on their presentation for a special conference issue in an international scientific journal to be published after the conference.

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International Baltic Earth Secretariat

Time Table

Abstract deadline.....	22 January 2024
Notification to authors.....	26 February 2024
Programme available.....	11 March 2024
Registration and Hotel booking open.....	6 December 2023
Registration and fee payment deadline.....	8 April 2024
Hotel booking deadline.....	8 April 2024
Conference.....	13 - 17 May 2024

Social programme

Ice Breaker (included in fee)	13 May 2024
Excursion (self-pay)	14 May 2024
Conference Dinner (included in fee)	16 May 2024

5th Baltic Earth Conference

Venue and Accommodation

Hotel Jūrmala Spa

Jomas 47/49

Jūrmala LV-2015

Latvia

<https://www.hoteljurmala.com/en/>

The conference takes place in Hotel Jūrmala Spa in the centre of Jūrmala, located on the sandy peninsula north of river Lielupe, and a well-known holiday resort at the southernmost banks of the Gulf of Rīga. The Latvian capital is just 25 km away. Jūrmala has been a tourist attraction with long beaches facing the sea and romantic wooden houses in the Art Nouveau style. For more information about Jūrmala, see:

<https://www.visitjurmala.lv/en/>



Single and double rooms have been pre-booked in the Hotel Jūrmala Spa, where the conference will take place, at very attractive prices **until 8 April (see website)**. Please book your room with the Hotel before this date. See the conference website for further infos on accommodation.

Travel Information

By air: Rīga Airport is an international hub which is served by all major airports in the Baltic Sea region and beyond. It is possible to get to Rīga train station and downtown by bus. See <https://www.riga-airport.com/en>

By train: There are regular trains from Rīga Central Train Station (Rīgas Centrālā stacija) to various locations in Jūrmala. The stop „Majori“ (30 min from Rīga Central) is just a few minutes walk from the Conference Hotel.

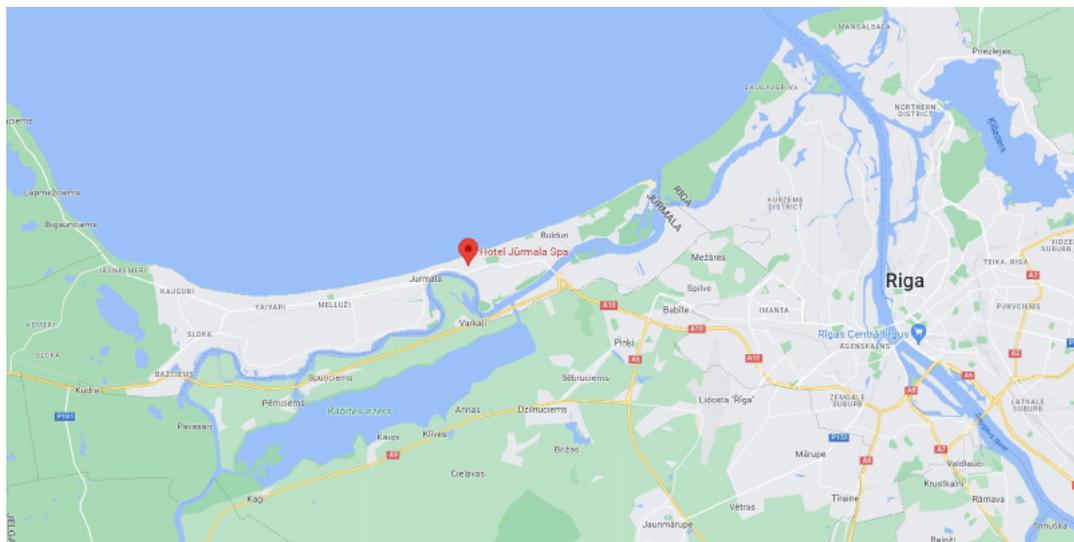
Further infos:

<https://www.visitjurmala.lv/en/whats-on/getting-here/>

Registration and Fees

Conference participants must register online via the conference website:

baltic.earth/jurmala2024



Registration Deadline: 8 April 2024

The conference fee is 390 € (440 € after 18 April) for full delegates. Students (proof needed) pay 190 € (240 € after 8 April). The conference fee covers the conference venue, the abstract volume, the Ice Breaker, morning and afternoon coffee and refreshments, daily lunches and the conference dinner. Accompanying persons will be charged for participation at the conference dinner. We will offer a guided excursion to Jūrmala Open Air Museum (self-pay, for details, see website). Fees are incl. VAT.

For payment details see the conference website

baltic.earth/jurmala2024