

**SMHI**

# A new science and outreach programme for the Baltic Sea region

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## Achievements of 20 years of BALTEX research

- novel observational databases
- coupled atmosphere-ice-ocean models
- novel reanalysis products
- outreach and communication activities like the homepage, study conferences and summer schools organized and coordinated by the International BALTEX Secretariat
- several working groups, e.g. BALTEX Assessment of Climate Change for the Baltic Sea Basin (BACC) project



## Achievements of 20 years of BALTEX research

Not achieved?

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- novel observational databases
  - coupled atmosphere-ice-ocean models
  - novel reanalysis products
  - outreach and communication activities like the homepage, study conferences and summer schools organized and coordinated by the International BALTEX Secretariat
  - several working groups, e.g. BALTEX Assessment of Climate Change for the Baltic Sea Basin (BACC) project
- still new data are needed,  
e.g. carbon cycle, monitoring



## Achievements of 20 years of BALTEX research

- novel observational databases
- coupled atmosphere-ice-ocean models **system models**
- novel reanalysis products
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- several working groups, e.g. BALTEX Assessment of Climate Change for the Baltic Sea Basin (BACC) project



## Achievements of 20 years of BALTEX research

- novel observational databases
- coupled atmosphere-ice-ocean models
- novel reanalysis products **not for all components**
- outreach and communication activities like the homepage, study conferences and summer schools organized and coordinated by the International BALTEX Secretariat
- several working groups, e.g. BALTEX Assessment of Climate Change for the Baltic Sea Basin (BACC) project



## Achievements of 20 years of BALTEX research

- novel observational databases
- coupled atmosphere-ice-ocean models
- novel reanalysis products
- outreach and communication activities like the homepage, study conferences and summer schools organized and coordinated by the International BALTEX Secretariat **regular summer schools**
- several working groups, e.g. BALTEX Assessment of Climate Change for the Baltic Sea Basin (BACC) project



## Achievements of 20 years of BALTEX research

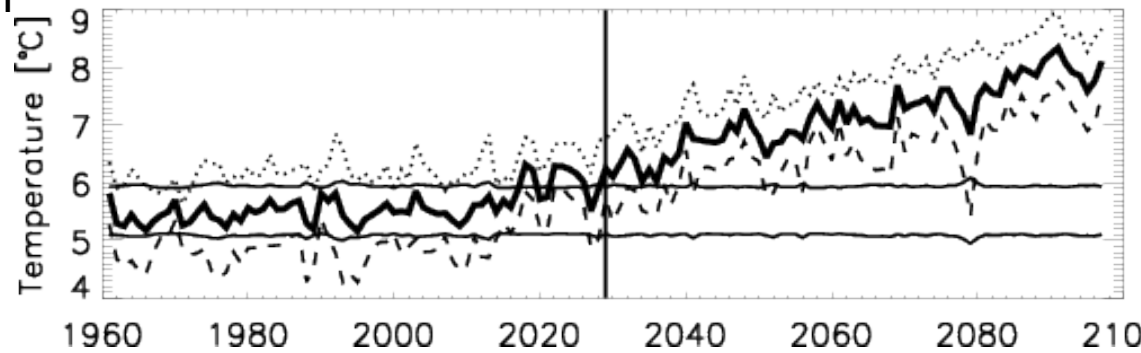
- novel observational databases
- coupled atmosphere-ice-ocean models
- novel reanalysis products
- outreach and communication activities like the homepage, study conferences and summer schools organized and coordinated by the International BALTEX Secretariat
- several working groups, e.g. BALTEX Assessment of Climate Change for the Baltic Sea Basin (BACC) project **other thematic assessments, e.g. environmental**





Climate change  
Eutrophication  
Pollution  
Overexploration  
Habitat degradation  
Invasive species

## Challenges of society



J. Lokrantz/Azote







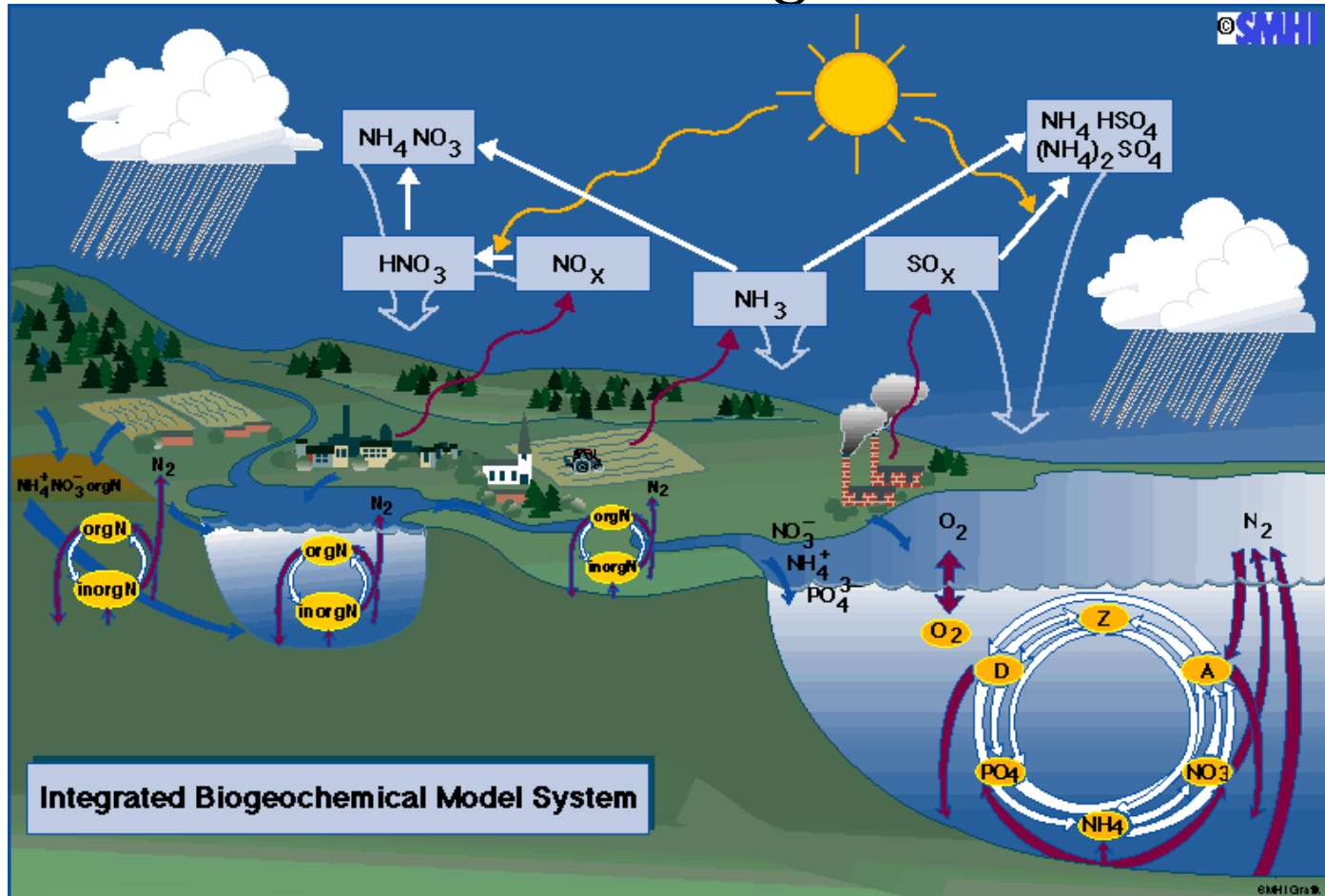


# **A new science and outreach programme for the Baltic Sea region**

- interdisciplinary and international collaboration (study conferences, workshops, etc.)
- holistic view on the Earth system of the Baltic Sea region, encompassing processes in the atmosphere, on land and in the sea and also in the anthroposphere
- “service to society” in the respect that thematic assessments provide an overview over knowledge gaps which need to be filled (e.g. by funded projects)
- education (summer schools)



# Earth System Science for the Baltic Sea region



Earth system science treat the Earth as an integrated system and seeks a deeper understanding of the physical, chemical, biological and human interactions that determine the past, current and future states of the Earth



# **Vision of the new science and outreach programme**

is to

“achieve an improved Earth System  
understanding of the Baltic Sea region”



# Science Plan and Grand Challenges

- flexible science plan with a continuously on-going definition of core research questions which are identified to be key scientific issues, so-called **Grand Challenges**
- new Grand Challenges will be identified at conferences and by using assessments of existing research by dedicated working groups. They will be research foci for periods of about 3-4 years
- the new programme will communicate with stakeholders and research funding agencies to promote funding relevant for the Grand Challenges



# Suggested Grand Challenges

- **GC1: Salinity dynamics in the Baltic Sea.**
- **GC2: Land-Sea biogeochemical feedbacks in the Baltic Sea region.**
- **GC3: Natural hazards and extreme events as the key factor in understanding and predicting natural disasters in the Baltic Sea region.**
- **GC4: Understanding sea level dynamics using new technologies (remote sensing).**
- **GC5: Anthropogenic changes and how the Earth system of the Baltic Sea region is affected.**
- **GC6: Understanding of regional/local variabilities of water and energy exchanges**



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**More on Wednesday morning**





# International BALTEX Secretariat (IBS) Helmholtz-Zentrum Geesthacht





## **Interims Science Steering Group (until June 2014)**

1. Active contribution to SSG meetings, conferences, workshops, summer schools, chairing working groups and contribute in projects like BACC and Grand Challenges projects
2. Country balance
3. Gender balance
4. Scientific discipline balance
5. Institutional balance



# Interims Science Steering Group

Markus Meier (chair, Sweden)

Anna Rutgersson (co-chair, Sweden)

Carin Nilsson (Sweden)

Anders Omstedt (Sweden)

Ben Smith (Sweden)

Jari Haapala (Finland)

Kai Myrberg (Finland)

Sergey Zhuravlev (Russia)

Irina Partasenok (Belarus)

Sirje Keevallik (Estonia)

Piia Post (Estonia)

Juris Aigars (Latvia)

Inga Dailidienė (Lithuania)

Karol Kulinski (Poland)

Franz Berger (Germany)

Andreas Lehmann (Germany)

Marcus Reckermann (Germany)

Gregor Rehder (Germany)

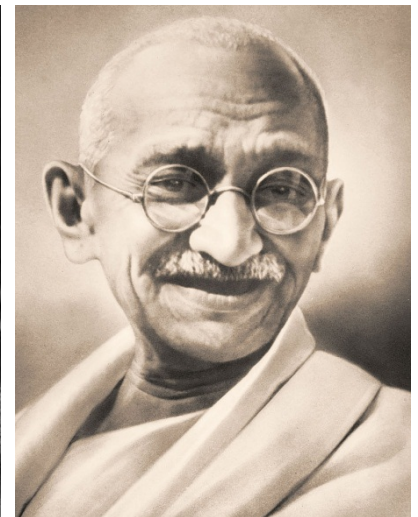
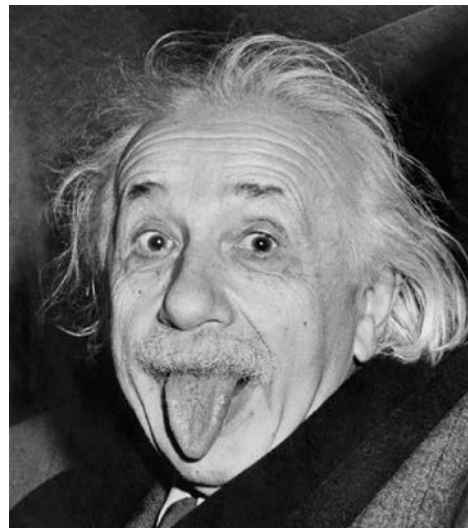
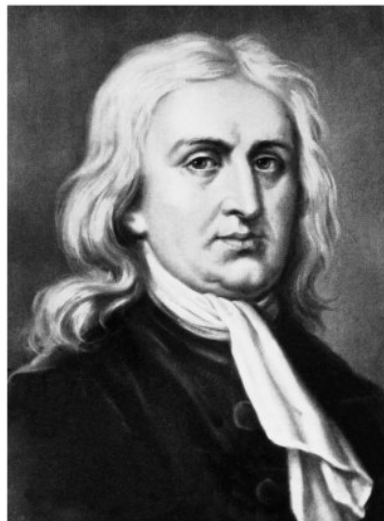
Hans von Storch (Germany)

Eduardo Zorita (Germany)

Martin Stendel (Denmark)

## Senior Advisory Board

with renowned senior scientists from the BALTEX community and beyond, to advise the Steering Group and to potentially provide support whenever necessary. Important stakeholder organizations in the Baltic Sea region like HELCOM, BONUS, ICES, etc should also be represented





## Working groups

- **BALTEX Working Group on Radar**
- **BALTEX Working Group on the Utility of Regional Climate Models**
- **BALTEX Working Group on Data Management**
- **BACC II**
- **Working Group on Outreach and Communication**  
**NEW**
- **Working Group on Education** **NEW**







# Ongoing activities



## 1. Conferences

- **Climate Change - The environmental and socio-economic response in the Southern Baltic Region – II: 12-15 May 2014 in Szczecin, Poland (SZC 2014)**
- Organized by U Szczecin (Andrzej Witkowski, Jan Harff) together with IBS;  
1<sup>st</sup> conference of this sort was 2009.
- Topics  
**Proxies and modeling of climate change:** Past and future projections  
**Climate and coastal areas:** Natural dynamics and socio-economic development, changing Baltic Sea coasts and their sustainable protection  
**Adaption of energy politics to climate change**

## Second Announcement and Call for Papers

International Conference on  
**Climate Change**  
The environmental and  
socio-economic response  
**in the southern Baltic region**



Szczecin, Poland  
25 - 28 May 2009



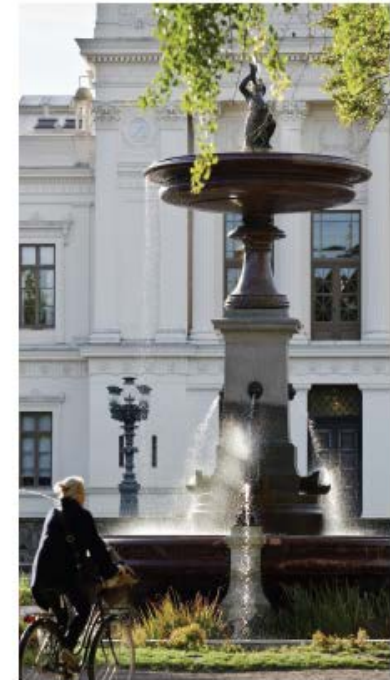


## 1. Conferences

- **3<sup>rd</sup> Lund Regional-scale Climate Modelling Workshop:  
21<sup>st</sup> Century Challenges in Regional Climate  
Modelling:  
16-19 June 2014 in Lund, Sweden (RCM 2014)**
  - Organized by Lund U, SMHI, DMI, HZG together with  
IBS (Markku Rummukainen, Lars Bärring, Burkhardt  
Rockel, Jens Hesselbjerg Christensen)  
1<sup>st</sup> and 2<sup>nd</sup> conference of this sort were 2004 and  
2009; 1<sup>st</sup> Announcement almost finished
  - Topics  
**Regional Climate and Earth System Models**  
**Very-high-resolution RCMs**  
**Challenges for RCM evaluation and application**  
**RCM ensembles**

3<sup>rd</sup> Lund Regional-scale  
Climate Modelling Workshop

## 21<sup>st</sup> Century Challenges in Regional Climate Modelling



Lund, Sweden  
16 - 19 June 2014



First Announcement

- **BACC II book to be published in early 2014.** Follow-up activity: Summary booklet for non-scientists in English and the Baltic Sea riparian languages
- **Further BALTEX Phase II Wrap-Up activities:** BALTEX Assessment on the water and energy cycle (Berger et al.); BALTEX Assessment on the coupled climate models (Meier et al.)







# Baltic Earth

Earth System Science for the Baltic Sea Region