



# BALTEX

## Newsletter

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WCRP  
GEWEX



### Farewell BALTEX, welcome Baltic Earth! The 7<sup>th</sup> and final Study Conference on BALTEX

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Finally, after 20 years of international and interdisciplinary research and networking in the Baltic Sea region, BALTEX was terminated with the closure of its 7<sup>th</sup> and final Study Conference on the Swedish island of Öland. Still, BALTEX did not vanish but rather experienced a metamorphosis, re-born under a new name, logo, and somewhat modified portfolio. Baltic Earth, the new Baltic Sea research network, inherits the BALTEX network, infrastructure and scientific legacy. For an introduction to Baltic Earth, flip this Newsletter by 180°.

As usual for BALTEX conferences, a large Baltic Sea island was chosen for the venue. The circle was closed on Öland: we had returned to the country where the first BALTEX Study Conference took place in 1995 (on Gotland). Again, like at all BALTEX conferences, the responsible weather gods were mild, and we had warm and sunny weather, with a few spectacular thunderstorms to illustrate the grand BALTEX theme.

A special highlight was the presence of H.M. King Carl XVI Gustaf, King of Sweden at the Opening Ceremony and Session. The King listened to the introductory



#### Editorial

*Merry Christmas and a Happy New Year 2014!*

The past year was an exciting one: the final BALTEX Conference took place on Öland, BALTEX has transformed into Baltic Earth, and new activities are at the horizon. This is the last BALTEX Newsletter, but it is also the first Baltic Earth Newsletter. Flip it over and see the Baltic Earth perspective! In this final BALTEX Newsletter, we have contributions from outstanding BALTEX personalities, who share their views on BALTEX. Sten Bergström writes on the days when he and SMHI got involved in BALTEX, and it is interesting to read that

the seeds for the new Baltic Earth Group were planted back then. Sirje Keevallik tells us how important BALTEX was in bridging the gap between the western and the former soviet culture of science, including data management. Timo Vihma gives an interesting perspective of arctic research in relation to BALTEX, and finally, Hans-Jörg Isemer tells the story of the International BALTEX Secretariat, which has been the „transmission“ of BALTEX for its entire period. BALTEX is over, but the new programme has already

hatched and is thriving. Let's look forward to many years of exciting research for the Baltic Sea region!

presentations on the history on BALTEX, on the impact BALTEX had on the scientific East-West approximation (read also the article on page 6), on the environmental challenges for the Baltic Sea, on the current knowledge on climate change and its impacts on the Baltic Sea region, and also about the new programme Baltic Earth. The new name and logo was uncovered after the Opening Session in the presence of The King. We hope that The King, like all other conference participants, will remember BALTEX and Baltic Earth as worthwhile activities with benefits for society.

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The participants of the 7<sup>th</sup> Study Conference on BALTEX in front of the Kalmar Sound and the beautiful yacht harbour of Borgholm.

### Participation and contributions

The conference was attended by 120 participants from 14 countries: Sweden, Finland, Russia, Belarus, Estonia, Latvia, Lithuania, Poland, Germany and Denmark, but also from countries outside the Baltic Sea catchment, such as the Netherlands, France, Italy, UK and the US.

In total, we had 110 presentations, with 65 oral and 45 posters, spanning the scope of BALTEX research: water and energy cycles, climate variability and change, water management and extremes, and biogeochemical cycles under anthropogenic influence. Most of the contributions

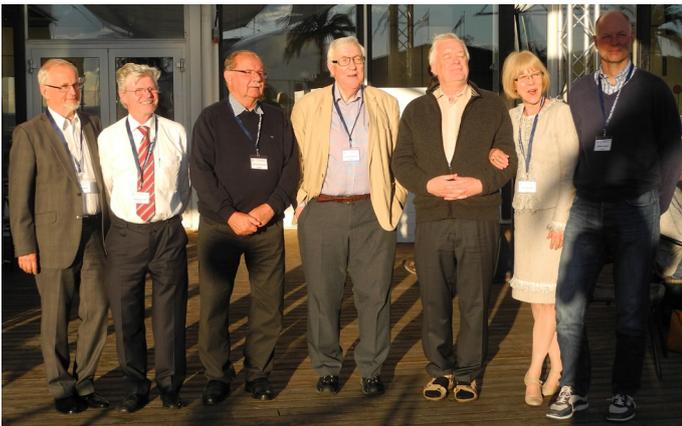
addressed cross-discipline topics, underlining the interdisciplinary nature of the conference and of BALTEX in general.

A strong focus of the conference was the launch of the new programme and the presentation of its name, logo and topics. Baltic Earth, the name of the new programme, stands for Earth system science in the Baltic Sea region. The logo is new but still immediately recognizable as BALTEX descendant (flip over to see it). The new colours light and dark blue and green symbolize the atmosphere, the sea and the land surface, while the arrows stand for the fluxes between these compartments.



The panel discussion on Baltic Earth, moderated by Benjamin Smith. From left: Marie-Jose Gaillard-Lemdahl, Jüri Elken, Anders Omstedt, Martin Visbeck, Markus Meier, Anna Rutgersson, and Jan Polcher.

On Wednesday morning, the new programme was introduced and discussed during a dedicated session. The global perspective was presented by Jan Polcher, co-chairman of the GEWEX Hydroclimatological Panel (GHP), to which BALTEX had contributed for 20 years, and Martin Visbeck from the Future Earth initiative. Anna Rutgersson, vice-chair of the Baltic Earth Interim SSG presented the Baltic Earth Grand Challenges which had been proposed by the Working Group on PostBALTEX, the precursor of the new Baltic Earth steering group. This group had been active for two years to elaborate options for a BALTEX follow-up programme. The outreach and education activities of BALTEX during the past years were also presented, and prospects for Baltic Earth in the fields of outreach and education outlined.



Almost all former BALTEX Science Steering Group Chairs and co-Chairs were present (from left): Anders Omstedt, Hartmut Graßl, Erhard Raschke, Lennart Bengtsson, Hans von Storch, Sirje Keevallik, Joakim Langner. Not on the photo: Zdzislaw Kaczmarek (deceased) and Timo Vihma.

A panel discussion on the prospects of Baltic Earth followed, which was moderated by Ben Smith of Lund University, who is also a member of the new interim Steering Group. The panel consisted of members of this group, but also of BALTEX and BACC „veterans“ and the representatives of the global programmes. The vivid discussion showed that there is a large interest in the new programme, and many suggestions concerning scientific topics and strategy were given by the panelists and the audience, including the BALTEX pioneers Erhard Raschke, Lennart Bengtsson, Sten Bergström and Jerzy Dera. A transcript of the panel discussion is available on the Baltic Earth website [www.baltic-earth.eu/balticearth](http://www.baltic-earth.eu/balticearth).

### Scientific sessions

The conference structure largely followed the first four scientific objectives of BALTEX Phase II. There were also sessions on finalized BONUS+ projects, GEWEX GHP contributions, and the above mentioned Baltic Earth session. The scientific conference contents can be tracked in detail on the conference website through the presentations which are available here, and the downloadable conference proceedings which feature extended abstracts of all conference contributions: [www.baltex-research.eu/oland2013](http://www.baltex-research.eu/oland2013).



Ehrhard Raschke is being presented the BALTEX Award. In the background, from left: Anders Omstedt, Sirje Keevallik, Hans von Storch, Marcus Reckermann

### BALTEX Awards

This was the final BALTEX Conference, so we were lucky to have many BALTEX pioneers on board. These „founding fathers“ as well as some selected outstanding personalities from the BALTEX community were honored with a „Certificate of Excellence“ in the evening of the Conference Dinner on Borgholm Castle. The Award is connected with a free admission to the first Baltic Earth conference, which is envisaged for 2016. The persons who received the award were (alphabetically): Lennart Bengtsson, Sten Bergström, Jerzy Dera, Ragnar Elmgren, Hartmut Graßl, Hans-Jörg Isemer, Silke Köppen, Jarmo Koistinen, Joakim Langner, Daniel Michelson, Ehrhard Raschke, Markku Rummukainen, Bernd Schneider, Timo Vihma and Valery Vuglinsky. See photos of the ceremony, the scientific sessions and the social activities on the conference website: [www.baltex-research.eu/oland2013](http://www.baltex-research.eu/oland2013).

### An outreach highlight

A special outreach highlight was the GeoDome of SMHI. This inflatable, planetarium-like dome provides a new way of communicating findings of climate and environmental research in the Baltis Sea area. The dome was presented to the King of Sweden on the first day, and to conference participants during the whole duration of the conference. On Tuesday afternoon, the public was invited to get insights



Silke Köppen of the International BALTEX Secretariat is presenting a children's book on the Baltic Sea to H.M. King Carl XVI Gustaf, King of Sweden. Helen Andersson and Anders Omstedt are watching.

to current research findings. Specifically, results from the BONUS-BALTEX project ECOSUPPORT were shown, giving an impression of the possible combined effects of climate change and eutrophication on the Baltic Sea.

All in all, the conference was a very pleasant experience for us, the organizers, and we think also for the majority of participants. At least this is what we can assume from the overwhelmingly positive response. And one thing was clear after this conference: there was no grief, no tears, no condolences, but a general feeling of contentment with the 20 years of BALTEX, and anticipation of the new programme.

7<sup>th</sup> Study Conference on BALTEX website  
[www.baltex-research.eu/oland2013](http://www.baltex-research.eu/oland2013)

Baltic Earth website  
[www.baltic-earth.eu/balticearth](http://www.baltic-earth.eu/balticearth)

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## From the early days of BALTEX to practical adaptation to climate change – A personal view

**Sten Bergström** (*sten.bergstrom@smhi.se*), Swedish Meteorological and Hydrological Institute, Norrköping, Sweden

*Sten Bergström had been in BALTEX from the very beginning, when he was Research Director of the Swedish Meteorological and Hydrological Institute.*



For me it all started in 1992. As a newly appointed head of the research department of SMHI, with background in hydrology, I had the challenging task to try to unite the diverging research cultures of meteorology, oceanography and hydrology. The scientific perspectives were mainly Swedish and the department was run with an all Swedish staff. But Sweden was closing up to the European Union with its research opportunities and broader perspectives. So internationalization was needed also at SMHI. This was also the time when the Soviet Union disintegrated, which facilitated new contacts and exchange with a number of independent states across the Baltic Sea.

At the newly formed research department, we had the ambition to address two major environmental concerns of those days, the growing problem of eutrophication of the Baltic Sea and Climate Change. Data collection of river flows to the Baltic Sea from surrounding countries started and the idea came up to form a national center for regional climate modeling. The latter was eventually to become the

well-known Rossby Centre.

In the above environment, the scientific community started to request SMHI to engage in the so called BALTEX research programme. It was even stated that input from the national services for meteorology, oceanography and hydrology was a prerequisite for the success of BALTEX. Some key persons arrived in the remote city of Norrköping for a planning meeting, held in 1992. For us at SMHI this was something new! The Germans, headed by Ehrhard Raschke and Lennart Bengtsson, came with a different perspective of what we considered as our Baltic Sea. Fortunately Lennart was a Swede and a well-known and respected figure for us. He could explain what was not so clear from the beginning, for example the links between BALTEX, GEWEX and WCRP.

Another fortunate circumstance was that one of the Directors of SMHI saw more possibilities than obstacles. Jörgen Nilsson managed to convince SMHI to invest in four fresh PhD students entirely devoted to BALTEX research. I still wonder how he managed to do this! One of these students, Anna Rutgersson, is now professor of Meteorology at the University of Uppsala.

So BALTEX got a good start at SMHI and with Anders Omstedt coming back from Canada it became logical that we should host the first Study Conference on BALTEX, the one at Visby in 1995. We started to feel that we had at least come a little bit closer to the international scientific community. We also began to make friends in the countries in the Baltic Sea basin. And we were happy to be able to host two of the four datacenters of BALTEX. Another advantage was that we were introduced into the mysterious culture of research proposals to the European Union.

A final important factor that assisted our engagement in BALTEX was the generous offer by the German government to finance and host the very efficient International BALTEX Secretariat in Geesthacht. In the early days of BALTEX and onwards we got to know Hans-Jörg Isemer as an enthusiastic and very helpful contact point.

### Scientific debates

Already from the start, the scientific debate within BALTEX was intense and sometimes amusing. So could, for example, hydrologists and meteorologists argue long and loudly about the concept of soil moisture. Or if evapotranspiration has the dimension of Watts per square meters or mm/day. I am not convinced that we have reached consensus yet!

Another overarching debate was that of overparameterization and compensation errors. This debate had long influenced hydrological modelers and was a key factor behind the simple and robust structures of their models. It is difficult to

drive a car if you have four individual steering wheels, two for the front-wheels and two for the rear! As a hydrologist, I had problems when hydrological models were labeled as pedestrian models when contrasted to the sophisticated meteorological models. I still regret that I did not have the reply ready then: A pedestrian is more sophisticated than any advanced modeling system!

Within BALTEX, hydrologists began to look at the Baltic Sea as an outlet lake of a river basin. And from a Swedish perspective we began to realize that our rivers are maybe not as mighty as we normally think they are. It was interesting to discuss this with Valery Vuglinsky from Russia and to realize that River Neva carries about 5 times the amount of the water of our largest river on the Baltic side, River Lule älv.

When one of the PhD students at SMHI, Phil Graham, took on the task of modeling the entire catchment of the Baltic basin with the simple HBV hydrological model we got a confirmation that scale may not be a great issue, as long as it is large enough. We also realized that the coupling between climate models and hydrological models was not a trivial problem. Direct linking, without bias correction, could easily create a new ice age over parts of the Scandinavian Peninsula, if hydrological models were run with uncorrected output from climate models. Bias correction is an annoyance which we still have to live with.

Anyway, with time the scientific debates generated mutual understanding and friendship. It simply took some time to realize that different problems require different modeling tools. The existence of different scientific cultures within BALTEX was turned into an advantage when the research funds of the European Union were approached. Several of the applications from the BALTEX community came out successfully from the evaluation process. Thus, science also gained momentum. The International BALTEX Secretariat played an important role in that process.

### Today

In Sweden, after the launch of the final report by the Swedish Commission on Climate and Vulnerability in 2007, adaptation to climate change finally became politically accepted. The commission identified risks in the metropolitan areas of Stockholm and Gothenburg. The two big lakes Mälaren and Vänern and River Göta älv were explicitly addressed. But before that, climate impacts on the hydrological upgrading of Swedish dam safety was in focus already since the arrival of new guidelines for design floods in 1990. These guidelines are now updated and since 2007 it is prescribed that climate change shall always be considered in dam safety assessments in Sweden.

So it is fair to say that adaptation to climate change has

become everyday practice in Sweden and at SMHI. The technique used has parts of its roots in the scientific discussions within BALTEX but also in a broader international co-operation, where the Rossby Centre is a key player. Recently, our role in adaptation to climate change has been strengthened by the establishment of the Swedish National Knowledge Centre for Climate Change Adaptation at SMHI.

### The future

Looking forward, there are issues which are still unsolved. First of all we have to safeguard and improve a swift and reliable exchange of data of riverine input to the Baltic Sea from its surrounding countries. This is of fundamental importance for the understanding of its environmental status.

Secondly, the use of regional climate simulations and downscaling techniques has now become standard. This has facilitated the use of ensembles of scenarios, a way that is also favored by the scientific community. However, in real life applications, guidance as to which ensemble of climate scenarios to use is now needed. We also have to consider how the output statistics of this ensemble shall be handled.

A third and, as it seems, everlasting issue is how to handle evapotranspiration in a changing climate. Compared to air temperatures and precipitation, very little efforts have been spent on evapotranspiration, even though it constitutes as much as half the annual precipitation in Sweden.

A fourth issue is sea level rise. It is a myth that this is compensated by isostatic uplift of land in a country like Sweden. This is not the case in the south (for example the city of Malmö or even Gothenburg), and as far north as in Stockholm, scenarios of sea level rise have to be considered in new developments along the shore lines. And the coastal cities are growing fast.

Finally, on July 2, 2011 Copenhagen experienced a disastrous rainstorm which might as well occur almost anywhere in Sweden. It was a drastic signal of the vulnerabilities in a modern society that alerted the insurance companies and others of the potential risks in a world of urban growth. Again we got a reminder of the simple fact that society changes faster than climate. And this, of course, has strong impacts on the future needs for scientific support in societal adaptation to climate.

Swedish National Knowledge Centre for Climate Change  
Adaptation at SMHI  
[www.smhi.se/klimatanpassningsportalen](http://www.smhi.se/klimatanpassningsportalen)

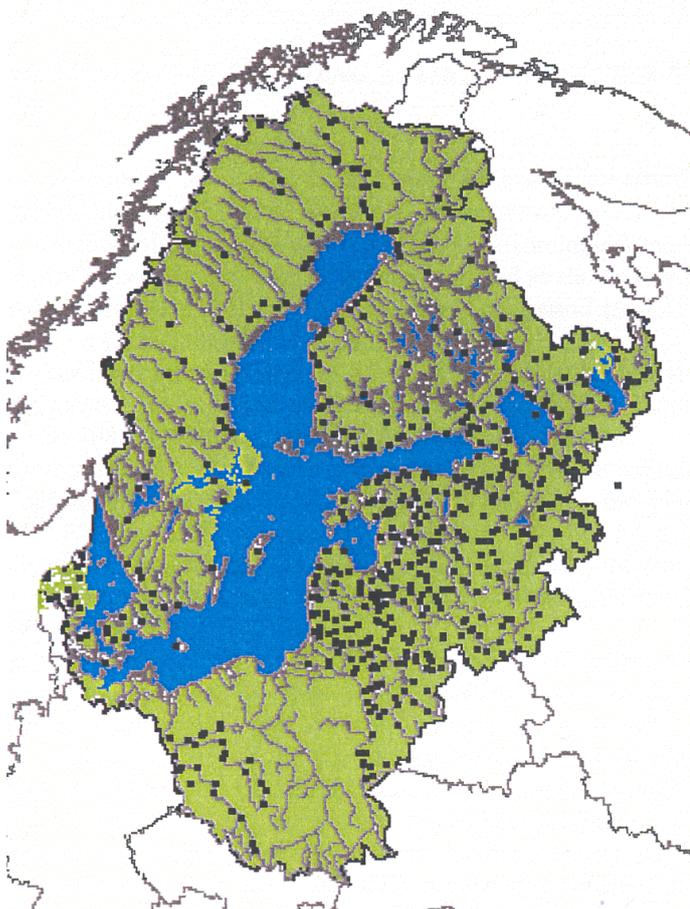
## East and West and BALTEX

**Sirje Keevallik** (*sirje.keevallik@gmail.com*), Marine Systems Institute at Tallinn University of Technology, Tallinn, Estonia

*Sirje Keevallik was in BALTEX from the very beginning, and has been co-chair of the BALTEX Science Steering Group in the past years.*



Before 1990, the Baltic Sea catchment area was politically cut in two pieces: The largest socialist country of the world was in the East, capitalist countries were in the West, and Poland between them. The same separation could be noticed in the hydrometeorological data management. The western countries had their own services; the USSR was governed by GOSKOMGIDROMET - State Committee for Hydrometeorology. In the USSR, collecting and storing of the data was under strict control: The devices were unified, the measurement routine was prescribed in detail and the personnel was well trained. Unfortunately, the data in the USSR were not freely available. Certain permission was required to work with the raw data. International communication was centralized and not everybody could participate in world conferences.



Daily runoff stations in 2001.

In 1991, a political miracle happened – the red line that cut the Baltic Sea catchment area in two pieces disappeared. In the conditions of political turbulence, new possibilities appeared in Earth sciences. Ehrhard Raschke was the person who together with Lennart Bengtsson and Zdzisław Kaczmarek initiated a new GEWEX Continental Scale Experiment that comprised a sea – BALTEX.

In 1992, the International Radiation Symposium with approximately 160 participants took place in Tallinn. At least 40 of the participants were from the eastern countries. Ehrhard Raschke explained his intentions for those who were interested. He formulated the aims as follows:

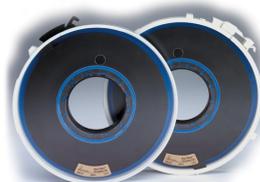
- To describe water and energy cycles in the Baltic Sea catchment area;
- To unite meteorology, hydrology and oceanography;
- To collect as many data as possible to feed and validate the models.

In 1994, the first BSSG meeting took place. It was decided that the BALTEX Secretariat should work at Geesthacht and its head should be Hans-Jörg Isemer. The data centres should be established at DWD (meteorology), SMHI (hydrology) and FMI (oceanography, only metadata). To start modeling, data were needed urgently and the specification included real-time and non-real-time data: standard meteorology, actinometry, precipitation, snow depth, river runoff, soil moisture, soil temperature and sea level. It was decided that the key time periods should be 1986-1987 and 1992-1993 for reanalysis and August-October 1995 for the forthcoming PIDCAP - Pilot Study for Intensive Data Collection and Analysis of Precipitation.

First of all, it was necessary to find out what we had.

During the soviet era, the formation of the archive of the hydrometeorological data in the USSR started with measurements in the stations. Data were coded and written on magnetic tapes. Tapes were sent to Obninsk - Research Institute of Hydrometeorological Information of the USSR – World Data Centre. Here, tables were printed and sent to the regional committees for hydrometeorology. Therefore the local archives consisted mainly of tables on paper, as magnetic tapes with coded data were not copied and stored systematically. In Estonia, it was decided that it was easier to digitize hydrometeorological data of the period 1986-1987 from tables than to decode the information from old tapes.

The period of 1992-1993 was even more complicated, as centralized data processing collapsed. This resulted in a chaos: There was no overview which institutions collect and store data. The good side of the situation was that data were mostly stored digitally.



To solve the data problem in the East, the BALTEX Workshops were initiated. During the hardest times, the workshops were led by Hans-Jörg Isemer. Later, Jens Meywerk was responsible.

Altogether, seven workshops took place:

- 6-7 June 1994, Vilnius, Lithuania
- 14-15 November 1994, Minsk, Belarus
- 26-27 June 1995, St. Petersburg, Russia
- 28-30 May 1996, Wroclaw, Poland
- 29-31 October 1996, Tallinn, Estonia
- 21-22 October 1999, Tallinn, Estonia
- 21-22 July 2000, Jelgava, Latvia

To enhance digitizing in the East, the West offered money. First, we could provide our people with extra pays. Second, every eastern country got at least one PC and printer.

Meanwhile it was discovered that there were also problems with data quality and unification in the West. Therefore, the last BALTEX Workshops dealt with the situation all over the BALTEX area.

The first problem was that different countries used different instruments.

E.g., precipitation was measured by means of at least four types of rain gauges, some with wind shields, some without. Some measurements were accompanied by wetting corrections, some were not.

The second problem was different temporal and spatial resolution, especially for non-real-time measurements. So the spatial resolution of the measurement of soil temperature ranged from 14 levels in Finland to 3 levels in Estonia, the temporal resolution from every 3 hours in Latvia and Lithuania to every 10 days in Estonia. Some countries did not measure or at least did not provide data of soil temperature at all.

The third problem was related to different units. As an example, the methods to estimate the global radiation and the units are shown.

|                    |  |
|--------------------|--|
| Estonia:           | Hourly and daily totals measured and stored in MJ/m <sup>2</sup>     |
| Finland:           | Hourly and daily mean values measured and stored in W/m <sup>2</sup> |
| Sweden:            | Hourly mean values measured and stored in W/m <sup>2</sup>           |
| Poland:            | Daily totals measured and stored in J/cm <sup>2</sup>                |
| Latvia, Lithuania: | Daily totals calculated as a sum of direct and diffuse radiation     |



The intensive data collection ended in 2002. By that time also the BALTEX Phase I terminated with the advanced knowledge on the processes and nice coupled models of the energy and water cycles.

What did the East gain? The inventory of measurement routine and equipment was accelerated, data processing was intensified and the foundation to digital data base was laid. Also the access to the data stored at the BALTEX data centres was made available.

We may also ask what the West gained. They had to revise their data collection routine, equipment and units. Data over the whole catchment area was made available for the modelers. Guest scientists from the East contributed to the exchange of the ideas and experience.

Both sides got a wonderful meeting point in the form of BALTEX Study Conferences that took place in 1995 at Visby, in 1998 at Juliusruh, in 2001 at Mariehamn, in 2004 at Gudhjem, in 2007 at Kuressaare, in 2010 at Międzyzdroje and in 2013 at Borgholm.

In 2013 there is practically no difference between the East and the West. Weather services cooperate to give better weather forecast and research groups cooperate to apply for money and promote science.

## BALTEX in comparison with Arctic research

**Timo Vihma** ([timo.vihma@fmi.fi](mailto:timo.vihma@fmi.fi)), Finnish Meteorological Institute, Helsinki, Finland



*Timo Vihma has been active in BALTEX since 1997, and he was vice-chairman of the BALTEX Science Steering Group from 2005 until 2009.*

My most active period as a BALTEX scientist was from 1997 to 2009, including three years as a Vice Chairman of BALTEX. Both before and after this period, my main research focus has been on Arctic and Antarctic meteorology and sea ice research. From this perspective I present some comparisons of BALTEX and Arctic research activities.

From the physical point of view, research in the catchment areas of the Baltic Sea and the Arctic Ocean has a lot of similarities in actual study topics and challenges. The Baltic Sea and the Arctic Ocean are both affected by a large river discharge, precipitation exceeding evaporation, an oceanic export of freshwater, and an important role of sea ice and snow in the catchment area water budget and in the climate system in general. Both regions are characterized by climate warming associated with a strong inter-annual

and decadal variability, which keeps us uncertain about the weather and climate during the next decade or so, although a warming trend in longer time scales is inevitable. The large-scale circulation patterns controlling a large part of the inter-annual variability are partly the same for the Arctic and the Baltic region. The Northern Annular Mode (NAM) and North-Atlantic Oscillation (NAO) have, however, stronger effects on the Baltic region. Hence, the Baltic research community may benefit more from the recent advance in understanding the factors controlling NAM and NAO, including links to North Atlantic sea surface temperature anomalies, Eurasian snow cover, El Niño, and the Quasi-Biennial oscillation. In the Arctic, the role of NAM and NAO have decreased during this century, as the large-scale circulation has become more meridional, characterized by the Arctic Dipole pattern. A recently discovered concrete link between the Arctic and the Baltic region is the potential effect of the Arctic sea ice decline on winter weather and climate in mid-latitudes, including the Baltic region. This topic has received a lot of attention with a flurry of papers published in a few years.

Both the BALTEX and Arctic research communities have recently made important work in reviewing and synthesizing the existing knowledge. A major achievement has been the BALTEX Assessment of the Climate Change

in the Baltic Sea Basin (BACC), with books published in 2008 and 2014. It can be seen comparable to the Arctic Climate Impact Assessment (ACIA), published in 2004 and the Snow, Water, Ice, and Permafrost in the Arctic (SWIPA) published in 2011, both coordinated by the Arctic Monitoring and Assessment Program (AMAP). I regard the first BACC book as a very important step for the BALTEX community and its successors in Baltic Earth. The writing of the book concretely joined together climate scientists in the Baltic region, and brought new power and enthusiasms for the last years of BALTEX. Likewise, the ACIA book had a major role in boosting Arctic research. Although significant changes in the Arctic climate system had been detected already in 1990s, ACIA was an essential step to raise awareness of the dramatic effects of the Arctic climate change. This awareness was soon further increased by the (then) record-minimum sea ice extent in September 2007. I personally felt the ACIA book and the 2007 sea ice minimum as urgent calls to work more effectively, with clearer priorities.

From the point of view of research communities, the differences between the Baltic and Arctic regions are perhaps larger than the physical differences, although the communities are partly overlapping. Looking at the participant lists of the recent BALTEX Study Conferences,



I estimated that roughly  $20 \pm 10\%$  of BALTEX scientists are more or less active also in Arctic research. The percentage of Arctic scientists simultaneously active in Baltic research is naturally much smaller. Considering the similarities in the environments and challenges, a larger overlap could yield benefit for both communities. The main advantage of the Arctic research community is that the total amounts of brainpower and material resources are much larger than in the Baltic research community. This is mostly due to the strong involvement of the USA, Russia, Canada, UK, Norway, China, and Japan in Arctic research. In many respects, however, Earth sciences are more advanced in the Baltic Sea catchment area. This is made possible by the higher concentration of people and observations over the smaller study area, with numerous large institutes located right at the coasts of the Baltic Sea - a major difference from the coasts of the Arctic Ocean. In addition, the environmental problems in the Baltic Sea, detected already decades ago, have generated a strong need for ecosystem-oriented multidisciplinary research, which is far more advanced in the Baltic Sea catchment area than in the Arctic.



What could the Arctic research community learn from the Baltic research community? One example to be followed is the close integration of physical and biogeochemical research. Advance in this field has been helped by the role of HELCOM and its close connections with research institutes and programs, such as BALTEX. BALTEX has also been very good in collecting the meteorological, oceanographic, and hydrological research communities under the same umbrella. This has not yet been equally well done in the Arctic, but promise is shown by the recently established Arctic Freshwater Synthesis – a joint effort of the WCRP Climate and Cryosphere (CliC) program, the International Arctic Science Commission, and AMAP. Finally, there is a strong need to develop operational services on weather, sea ice, and ocean conditions in the Arctic. The advanced experiences from the Baltic Sea,



above all the operational sea ice services, provide an example to be followed in the Arctic. Considering seasonal forecasting of sea ice conditions, however, there has been much more research activity in the Arctic, which could provide guidance for the Baltic research community. In the Baltic Sea, however, the relevant issue is winter ice conditions, whereas in the Arctic the interest lies in the summer and early autumn conditions. What else could the Baltic Earth program learn from activities elsewhere? One aspect is to be a truly international program, playing an active role in the WCRP and building close collaboration with other regional programs/projects studying analogous environments, such as the Mediterranean Sea, the U.S. Great Lakes, the Arctic Ocean, and the White Sea. Considering the White Sea, the Baltic Earth community should bear in mind the possibilities provided by the inter-regional and inter-governmental collaboration within the Barents Euro-Arctic Region.

BALTEX Assessment of Climate Change for the Baltic Sea basin  
[www.baltex-research.eu/BACC](http://www.baltex-research.eu/BACC)

The Arctic Monitoring and Assessment Programme  
[www.amap.no](http://www.amap.no)

Arctic Climate Impact Assessment  
[www.acia.uaf.edu](http://www.acia.uaf.edu)

Snow, Water, Ice, Permafrost in the Arctic  
[www.amap.no/swipa](http://www.amap.no/swipa)

Arctic Freshwater Synthesis  
[www.climate-cryosphere.org/activities/targeted/afs](http://www.climate-cryosphere.org/activities/targeted/afs)

Barents Euro-Arctic Council  
[hwww.beac.st](http://hwww.beac.st)

## The International BALTEX Secretariat – 20 years of Baltic Region Research Management

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The International BALTEX Secretariat (IBS) was officially established on the 1<sup>st</sup> of April 1994, intentionally not as an April fool's joke. Instead, Ehrhard Raschke, one of the founders of BALTEX and co-chair of the BALTEX SSG during 1994 to 2001 together with Lennart Bengtsson and Zdzislaw Kaczmarek, had the good sense to anticipate the subsequent development of BALTEX into a truly international endeavour and therefore had applied for funding of the International BALTEX Secretariat as part of a major national German Water and Energy Research Programme of the German Federal Research Ministry (BMBF). The International BALTEX Secretariat (IBS) was established at the Helmholtz-Zentrum Geesthacht, at that time named GKSS Research Centre Geesthacht, in Geesthacht, Germany, and has been in continuous operation since then for almost 20 years.



The IBS staff from 1994 - 1999, at the 2<sup>nd</sup> BALTEX Conference on Rügen, Germany, 1998: Ehrhard Raschke (left), Wiebke Jansen (centre left, red dress), Cord Ruhe (centre, kneeling), Rüdiger Brandt (second from right), and Hans-Jörg Isemer (right), with conference helpers.

I have had the privilege to be one of the 10 International BALTEX Secretariat's staff members during much of IBS's time until present and I also served as head of the IBS during several years, followed by Jens Meywerk and Marcus Reckermann (see the enclosed list of staff members of the IBS). The latter list is not entirely complete, as the IBS enjoyed several guest visits of BALTEX scientists. I remember for example Piia Post of Tartu University, who worked for several months at the IBS sometime in the 1990s. Piia is now a member of the Baltic Earth ISSC and is an example for the long-term commitment of various researchers to BALTEX and its follow-up programmes.

The character of the key work at the IBS changed during the years, just as the programme itself developed further. During Phase 1 of BALTEX, the IBS contributed to the establishment and consolidation of the BALTEX network within more than 10 countries. BALTEX science and implementation plans were discussed and formulated, and the programme became a partner within GEWEX. Data management, including the setup of dedicated data centres was among the key activities of the IBS during that period. BALTEX enjoyed a considerable dedicated funding through several national programmes (e.g. "Wasserkreislauf" in Germany) and EU projects such as NEWBALTIC I and II, BASIS, BALCON, BALTIMOS and CLIWA-NET through the 4<sup>th</sup> and 5<sup>th</sup> Framework Programmes of the European Commission. BALTEX conducted dedicated observational periods such as PIDCAP and BRIDGE, and the pan-Baltic weather radar network BALTRAD was further developed. At the 3<sup>rd</sup> BALTEX Conference on Åland in 2001, an extensive evaluation of achievements of BALTEX Phase I, conducted by an international expert panel and organized by the IBS (with Jens Meywerk as head) was presented, and subsequently Phase II of BALTEX was developed with a stronger focus on climate change and biogeochemical cycles.



The IBS staff from 1999 - 2001, at the 3<sup>rd</sup> BALTEX Conference on Åland, Finland, 2001: Jens Meywerk (centre foreground), and Silke Köppen (right) with conference helpers.

I think it was at the Bornholm Conference in 2004, when Anders Omstedt illustrated the programme's development by tuning into Bob Dylan's "The times they are a changing" during his presentation. The IBS supported these changes by e.g. contributing to the Phase II science and implementation plans. In 2005, BALTEX joined forces with HELCOM to get the results of one of its ambitious projects more closely linked to stakeholders: the BALTEX Assessment of Climate Change for the Baltic Sea region (BACC). The first BACC book, planned since 2004 and finally published in 2008, challenged the IBS to edit a several hundred pages long cross-disciplinary assessment document, including support for various authors, an external review panel, the publisher and the interested communities at large. BACC 1 appears to have been successful: while I am writing these lines the even larger material for BACC 2 nears editorial completion and the final product is planned to be published in early 2014, again with the IBS as the key support and management function, now under prudent leadership of Marcus Reckermann.



The IBS staff from 2002 - 2005 as the „Stairway to BALTEX“ (from left): Hans-Jörg Isemer, Sigrid Meyer and Silke Köppen.

I am not the right person - and it is not my intention here - to assess the impact of the IBS. In terms of the IBS's research management and dissemination deliverables, the interested reader is encouraged to visit the BALTEX website at [www.baltex-research.eu](http://www.baltex-research.eu). Key activities at the IBS have included the publication of more than 50 issues of the IBS Publication Series (ISSN 1681-6471) comprising 10 international conference volumes, numerous science and implementation plans, project reports and all BSSG meeting minutes. The IBS organized and conducted more than 10 major international conferences as well as numerous workshops, and has maintained a comprehensive BALTEX publication library. I am proud to say that all scientific staff members are authors or co-authors to several peer-reviewed publications, and some acted as book editor and summer school organizer. Ever since, the IBS tried to serve the international BALTEX programme as a whole, thereby trying to justify the term "international" in its name to the best extent possible, rather than being the secretariat of individuals. It is my firm belief that this attitude has contributed to the, if you like, success of the IBS, and that it can be maintained in the future.

### The Future

The new programme Baltic Earth with the overall objective to achieve an improved understanding of the Earth system of the Baltic Sea region was launched at the 7<sup>th</sup> Study Conference on BALTEX in June 2013. The International BALTEX Secretariat will continue to act as the management and coordination function for the new program and it will continue to be located at the Helmholtz-Zentrum Geesthacht in Germany. Following the new programme's name it is now called International Baltic Earth Secretariat, headed by Marcus Reckermann.

### Acknowledgement

On behalf of all past and present staff members I cordially thank the BALTEX community, friends and colleagues within BALTEX and other programmes, which the IBS has been in contact with, for all support and credit we have enjoyed and benefitted from. As an international management function it was natural that it was the chairs and members of the BALTEX SSG as well as the various BALTEX Working Groups who the IBS was most frequently working with, and it is my particular pleasure to highlight the sense of cooperation and confidence we have always felt working for and with the above groups and individuals.

We also appreciate the year-long financial support of the German Federal Ministry of Education and Research (BMBF) during 1994 to 2002 and of the Helmholtz-Zentrum Geesthacht (HZG) ever since 1994.



The International BALTEX Secretariat staff members in 2013: Marcus Reckermann (head of IBS), Silke Köppen and Hans-Jörg Isemer (left to right). The photo was taken during the 6<sup>th</sup> BALTEX Study Conference in Wolin, Poland in June 2010.

In person, it is my wish to thank all IBS staff members for their continuous outstanding engagement. And with this appreciation, I specifically like to mention the non-scientific IBS members Wiebke Jansen, Sabine Hartmann, Kheira Dashti-Hashtjin, and, last but not least, Silke Köppen. Without their often invisible and professional support many actions, workshops, conferences would have failed, or, at least, being conducted differently. It has been an honour and inspiration for me to work with you all during the recent years for such an exciting research programme.



# 2014

We wish you a Merry Christmas and a  
Happy, Healthy and Successful New Year!

Your International Baltic Earth Secretariat