



Minutes of the  
8<sup>th</sup> Meeting  
of the Baltic Earth  
Science Steering Group

held at

**Leibniz Institute for Baltic Sea Research  
Warnemünde, Germany**

**8-10 March 2017**

*Edited by*

***Marcus Reckermann***

## 8<sup>th</sup> Baltic Earth SSG Meeting Minutes



Participants at the 8<sup>th</sup> Baltic Earth Science Steering Group meeting in Warnemünde (left to right): Andreas Lehmann, Martin Stendel, Ralf Weisse, Inga Dailiniende, Hans-Jörg Isemer (SAB), Irina Danilovich, Markus Meier, Jari Haapala, Marcus Reckermann, Karol Kulinski, Anna Rutgersson, Gregor Rehder, Hans von Storch. Present at the meeting but not on the photo: Jüri Elken (SAB), Andris Andrusaitis (Observer, connected via Skype), Piia Post (connected via Skype) and Sergej Zhuravlev (connected via Skype).

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## Summary of Decisions and Action Items

DECISION 1: BESSG Terms of References changed so that decisions are possible at meetings with a 2/3 majority of members present

DECISION 2: Sirje Keevallik approved as new member of the Baltic Earth Senior Advisory Group.

DECISION 3: A new WG on Regional Seas to be initiated

DECISION 4: BALTICAPP and INTEGRAL accepted as Baltic Earth projects

DECISION 5: Separate BESSG meetings (1,5 days) to be held in late uneven years when there is not a large Baltic Earth conference. It is advised to hold this meeting in conjunction with a topical Baltic Earth Workshop. Short meeting may be attached to the Baltic Sea Science Congress (uneven years), and to BESSG Conferences (even years); 4-6h should be assigned to the small meetings, when possible.

Action Item 1: **BESSG chairs** to invite candidates as new BESSG members (see 1.4 for potential names).

Action Item 2: Two more candidates for the BESAB to be selected and approached (**BESSG chairs and SAB chair**), see 1.4 for potential names

Action Item 3: **Hans von Storch** to draft a 2p strategy for Outreach and communication in Baltic Earth

Action Item 4: The Baltic Earth WG for Education is asked to consider the issue of a better integration of young scientists and to make a corresponding plan. WG on Education members (**Pia Post, Markus Meier, Marcus Reckermann**) to draft a 2p strategy for Education in Baltic Earth

Action Item 5: **Corinna Schrum** asked to draft 2p document on a possible strategy for this new WG

Action Item 6: **Marcus Reckermann** to finalize LoI/MoU draft and send to all for comments; draft list of institutions and responsible contacts

## Introduction

The 8<sup>th</sup> Baltic Earth Science Steering Group Meeting was a full two-day meeting and took place at the Baltic Sea Research Institute in Warnemünde, Germany. Local host was Markus Meier.

## TOP 1: Organizational Issues

### 1.1 Approval of the agenda

The agenda was approved but Markus Meier requested an addition to the agenda: Modification of the “Terms of References” for the BESSG; see Item 1.4.

### 1.2 Approval of the previous 7<sup>th</sup> Baltic Earth SSG meeting minutes

The previous meeting minutes were approved.

### 1.3 Review of previous 7<sup>th</sup> Baltic Earth SSG meeting action items

The following action items of the previous meeting were discussed:

- Collect information on recent and planned activities related to the recent MBIs and pass on to Marcus Reckermann to post it on the website (WG Chairs and members). *Pending*

*This was specified in such a way that recent publications on MBIs should be posted but also an inventory of current institutional activities with links to metdatabases and names/coordinates of responsible scientists should be posted on the Baltic Earth website.*

- Related to international embedment, prepare a typology or inventory of Earth System research organizations and networks which may be relevant for Baltic Earth (Marcus Reckermann, Sergey Zhuravlev). *Pending.*

*In preparation, if possible ready before the next BESSG meeting #9.*

- Draft an Outreach and Communication Plan (WG members for Outreach and Communication)

*In work, see TOP 5. Hans von Storch will write a 2p draft paper on intentions and possible achievements of the WG.*

- Background explanatory information of GCs/WGs to Marcus Reckermann to post it on the outreach pages of the Baltic Earth website (to all WGs). *Pending*

*GC and WG descriptions in this outreach section should be written for the public and political stakeholders. Material for this should be sent to MR; available information will be screened by MR for outreach purposes.*

- Draft and send out a Memorandum of Understanding (MoU) concerning a voluntary commitment to participation and contributions to Baltic Earth by Baltic Sea region research institutes.

*MoU finalized and presented by MR, and discussed. Optional formulation as “Letter of Intent” preferred, see TOP 6.*

#### 1.4 Membership issues:

##### **BESSG memberships**

It was discussed to approach new members to strengthen the hydrology and GC5 expertise in the group. With regard to country and institutional affiliations of BESSG members, it was discussed that this should be as evenly distributed as possible and that a clustering in a country or institute should be avoided. Therefore, three names were suggested as new Baltic Earth Science Steering group members:

- **Jens Christian Reefsgaard** (Hydrologist at the Geological Survey of Greenland and Denmark) (*note: JCR declined this offer upon oral invitation by MR due to his upcoming retirement*)
- **Johanna Korhonen** (Hydrologist at the Finnish Environment Institute)
- **Tarmo Soomeere** (Research Professor of the Department of Cybernetics of Tallinn University of Technology; President of the Estonian Academy of Sciences)

**Action Item 1:** BESSG chairs to invite the named persons as new BESSG members.

##### **Modification of the “Terms of Reference” (ToR) of the BESSG**

Upon suggestion by Markus Meier and after a short discussion, it was decided to modify the definition of “qualified majority” as follows: The sentence “A minimum of 1/2 of the BESSG must be present at a meeting for valid votes and to take decisions, this may include votes submitted prior to the meeting to the BESSG chair.” will be deleted. Hence, decisions can be taken with approval by 2/3 of members present at a meeting.

**DECISION 1:** BESSG ToR changed so that decisions are possible at meetings with a 2/3 majority of members present

##### **Senior Advisory Board membership**

**Stanislav Massel** and **Deliang Chen** announced their resignation from the Baltic Earth Senior Advisory Board. The BESSG acknowledges the good advice Stansilav and Deliang gave to the BESSG and thanks both for their continued support of Baltic Earth.

**Sirje Keevallik** was proposed as new member of the Baltic Earth Senior Advisory Board.

**DECISION 2:** Sirje Keevallik approved as new member of the Baltic Earth Senior Advisory Group.

It was suggested to enlarge the SAB with two more members. Potential new members for the Senior Advisory Board were named:

*Kimmo Kahma, Finnish Meteorological Institute, Helsinki, Finland*

*Janusz Pempkowiak, Institute of Oceanology PAN, Sopot, Poland*

*Joakim Langner, Swedish Meteorological and Hydrological Institute, Norrköping, Sweden*

*Mirosław Mietus, University of Gdansk, Poland*

*Joanna Wibig, University of Łódź, Poland*

**Action Item 2:** Two more candidates for the BESAB to be selected and approached (BESSG chairs and SAB chair)

## TOP 2: Recent Baltic Earth and related events

### 2.1 Open ship and presentation on RV “Ludwig Prandtl”, 4-8 July 16; German Baltic Sea ports

MR reported about a regular outreach activity of Helmholtz-Zentrum Geesthacht, namely the outreach and open ship tour with Research Vessel “Ludwig Prandtl”. Every year in summer, an outreach tour to German touristic ports at the German coast and adjacent regions (Netherlands, Denmark, Poland) is conducted. Open Ship and public scientific presentations give an overview over current research activities at the North Sea and Baltic Sea coasts. From the beginning, BALTEX, BACC and Baltic Earth was represented on these cruises in Baltic Sea ports with presentations on climate change at the western Baltic Sea coasts, and at the open ship events.

[https://www.hzg.de/institutes\\_platforms/coastal\\_research/service/central/fva/index.php.en](https://www.hzg.de/institutes_platforms/coastal_research/service/central/fva/index.php.en)

### 2.2 Baltic Earth Summer School on Askö, Sweden, 28 August – 5 Sept 16

MM reported on the successful 2<sup>nd</sup> Baltic Earth Summer School, in collaboration with Stockholm University, Baltic Sea Research Institute Warnemünde and Rostock University, in Askö, Sweden. 20 students from most Baltic Sea countries gathered on Askö for a week of learning, discussing and playing. Topic of the summer school was “Climate change in the Baltic Sea region”. For details, and an interview of the course organizers, see

<http://www.baltic.earth/events/summerschool2016/>

### 2.3 Baltic Earth session on “Exchanges between the North and Baltic Seas: A scientific overview” at Fehmarnbelt Days, 20-22 September 16

MR reported on the Baltic Earth outreach session at this event. The Fehmarnbelt Days are an international stakeholder conference around the planned fixed Fehmarnbelt crossing, to improve the economic, cultural and scientific collaboration in the southwestern Baltic Sea region. This interdisciplinary half - day seminar was intended to provide an overview over the current scientific knowledge concerning exchange processes between the North Sea and the Baltic Sea. This involved aspects of atmospheric and oceanographic exchanges, as well as biological and biogeochemical aspects, but also anthropogenic pressures like shipping. Speakers were from the scientific Baltic Earth and NOSCCA communities. The event was supposed to address scientists and non - scientific stakeholders from different disciplines, practitioners and other professionals, as well as the general public, but it was regretfully recognized that almost only scientists were interested in this offer. Photos and the presentations given are available at:

<http://www.baltic.earth/events/FBD2016/>

### 2.4 Presentation at 16<sup>th</sup> Polish-German Seminar, Hamburg, 11-12 October 16

MR reported on a series of seminars which have been fostering the bilateral scientific exchange between Poland and Germany since 1982. This year’s seminar had the title „The coasts of the North Sea and the Baltic Sea under climate change – synthesis of German and Polish strategies for development and prediction“, and many speakers from Baltic Earth were present. For more infos, see <http://www.baltic.earth/events/polishgermanseminar/>

**2.5 GEWEX-GHP Meeting at Gif-sur-Yvette, France, 3-5 October 16**

Baltic Earth was presented by AR, IDan, SZ and MR at this meeting. After the meeting, it was communicated that Baltic Earth was accepted as an initial state Regional Hydroclimate Project within the GEWEX Hydroclimatology Panel. In the GEWEX Newsletter 26 (4), Nov. 2016, it was stated “A number of potential new RHPs were discussed, including Baltic Earth, which has established itself as the successor to BALTEX and written a new science plan for the Baltic Sea Region around the six WCRP Grand Challenges. Baltic Earth has been accepted as an Initiating Phase RHP. We welcome it to the family and look forward to helping them with their progress towards addressing the Grand Challenges in the coming years.”

**2.6 Podium discussion on the future of the Baltic Sea at EU-BSR 7<sup>th</sup> Strategy Forum, Stockholm, 8-9 November 16**

Marcus Reckermann was invited to a podium discussion on the possible and desired future of the Baltic Sea, along with Kari Hyytäinen (BalticApp), Kaisa Kononen (BONUS), Talis Linkaitis (VASAB) and Monika Stankiewicz (HELCOM). The event was organized by BONUS as a “hot seat” for young scientists to ask and challenge some of the big players in the region. For more information, see <https://goo.gl/yUxMCM>

**2.7 Presentation at 15<sup>th</sup> System Earth Fall School “Seas and Oceans – Discover, Use, Protect”, Potsdam, 14 November 16**

This was an educational outreach event for teachers to which MR presented the results of the BACC assessments and gave an overview over the Baltic Earth activities.

**2.8 Baltic Earth WG on Scenarios meeting, Warnemünde, 22-24 November 16**

MM reported on the Working Group meeting. The meeting will produce a manuscript assessing existing scenario simulations for the Baltic Sea coupled physical-biogeochemical-carbonate system. The broader scientific community also of other marginal seas should be addressed as well. The assessment will include material that is available now and analyze the data as one large ensemble of scenarios for the Baltic Sea. The study will address different sources of uncertainties, how to deal with them and how to take advantage of the ensemble approach and the variety among the individual members. Also, a discussion on simulated key processes like e.g. hypoxia and the complexity of the problem will be included. The study will advertise future coordinated scenario simulations to generate ensembles of comparable members and argue that climate change needs to be taken into account in revised BSAP calculations.

**2.9 Baltic Science Network meetings in Kiel (24 November 16) and Hamburg (7 December 16)**

MR participated in two meetings of the German branch of the EU Interreg project “Baltic Sea Network”. Baltic Science Network (BSN) is an Interreg Baltic Sea Region funded project. Its aim is to provide science and research ministries of the Baltic Sea region states with an overall coordination framework to develop and implement science policy in a macro-regional dimension and to ensure a better representation of macro-regional interests on the EU level. The meetings in Kiel and Hamburg were brainstorming meetings with regional German stakeholders (scientific and educational organisations). Emphasis of these two meetings were “Researcher mobility” and “International cooperation” MR gave input on BALTEX and Baltic Earth experience on those subjects, especially pinpointing the still prevailing economic divide

between the Eastern and western parts of the Baltic Sea region, which has an influence on the mobility of researchers.

**2.10 Session on “Mature Science” at AGU Fall Meeting, San Francisco, 12-16 December 16**

At the American Geophysical Union Fall Meeting 2016, a session called “Determining Matured Science: Cases, Formats, Utility” was convened by Hans von Storch, Thomas Stocker and Allan Graubart”. The session discussed and featured different examples of “documenting mature science”, including the IPCC reports, and also the BACC reports. MR gave a presentation on the BACC approach and participated in the panel discussion. A summary paper of the session outcomes can be downloaded at <https://goo.gl/ROub97>; videos of given presentations are available at AGU On Demand at <https://goo.gl/72GwEZ>

**2.11 Baltic Earth Workshop on Coupled Models, Warnemünde, 7-8 February 17**

On 7-8 February , a dedicated Baltic Earth Workshop on “Coupled atmosphere-ocean modeling for the Baltic Sea and North Sea” was conducted by the Baltic Earth Working Group on Coupled Models and organized by Markus Meier and Ha Ho-Hagemann at the Leibniz Institute for Baltic Sea Research Warnemünde, Germany. The workshop brought together 36 participants from institutes and weather services around the Baltic Sea region who exchanged views and experiences on coupled modeling. Participants agreed to follow up on coordinated activities to solve some of the urgent problems associated in coupling different models. Ensemble analyses and, if possible, coordinated experiments are envisaged for the coming years. See also <http://www.baltic.earth/caom2017/>

## **TOP 3: Upcoming Baltic Earth and related Events**

**3.1 3<sup>rd</sup> PannEx Workshop on the Climate system of the Pannonian basin, Cluj-Napoca, Romania, 20-22 Mar 17**

Baltic Earth representatives were invited to participate in this meeting of the GEWEX-GHP prospective Regional Hydroclimate Project. Although it was considered interesting and relevant to participate in the meeting, no Baltic Earth scientists was able to go. Still, Baltic Earth intends to collaborate with Pannex as much as possible.

**3.2 ESA-Baltic Earth Workshop on “Baltic from Space”, Helsinki, 29-31 Mar 17**

The workshop will be organized by ESA and Baltic Earth on 29 and 30 March at the Finnish Meteorological Institute in Helsinki. The workshop is organized around invited oral presentations and discussions. Sessions will be designed around dedicated topics related to the workshop’s objectives and an interactive session will be organized around selected posters. The official language of the workshop is English, no participation/registration fee will be charged but participants are expected to finance their own travel and accommodation. For Baltic Earth this will be a good opportunity to reach out with our scientific profile and to assess possibilities for Earth Observation applications in Baltic Earth research.

**3.3 Baltic Earth-NOSCCA Session at EGU General Assembly 2017, Vienna, 24-28 Apr 17**

For the third time already, there will be a joint Baltic Earth-NOSCCA session at the European Geophysical Union General Assembly. In 2017, this session CL 4.03 “Climate change and its

impacts in the Baltic and North Sea regions: Observations and model projections” will be a so-called PICO session (Presenting Interactive COntent), which is a touchscreen-based interactive way of presenting; something in between an oral presentation and a poster, with the unique possibilities of a digital presentation like short-cuts and links to additional material. There are 14 presentations in this session. See

<http://meetingorganizer.copernicus.org/EGU2017/session/22770>

### **3.4 BONUS 10<sup>th</sup> Anniversary and Triple Meeting, Helsinki, 3-4 May 17**

On 3-4 May 2017, BONUS will celebrate its 10<sup>th</sup> Anniversary in Helsinki. Among the participants, members of the BONUS community will be present, ranging from the BONUS Steering Committee, Advisory Board and Project Coordinators Forum, to the wider researchers community, industry, end-users and other stakeholders. See also

[https://www.bonusportal.org/events/bonus\\_10\\_years\\_celebration](https://www.bonusportal.org/events/bonus_10_years_celebration)

### **3.5 Baltic Sea Science Congress, Rostock, 12-16 June 17**

On June, 12–16 2017, the 11<sup>th</sup> Baltic Sea Science Congress with the topic “Living along gradients: past, present, future” will be held in Rostock, Germany. Baltic Earth will be presented by numerous scientists presenting results from Baltic Earth relevant research and a Baltic Earth poster. Andris Andrusaitis made reference to the dedicated BONUS event

“Science meets Policy: Role of evidence-based science in decision-making” on June 15 ; see

<https://www.io-warnemuende.de/bssc2017-home.html>

### **3.6 3<sup>rd</sup> International Baltic Earth Summer School on “Climate of the Baltic Sea Region”, 28 August – 4 September 2017**

For the third time, this summer school will take place on Askö in the Swedish archipelago. The School is open to undergraduate and graduate students in marine sciences and associated fields and will focus on past and future changes in climate of the Baltic Sea region. See <http://www.baltic.earth/summerschool2017>

### **3.8 Shipping and the environment – Conference in Gothenburg, 24-25 Oct 17**

On 24-25 October 2017, an international conference takes place in Gothenburg, Sweden, on scientific findings on impacts of shipping on the environment and their application in policy, marine spatial planning and the maritime transport sector. The conference is jointly organised by the BONUS project SHEBA (which is also an associated Baltic Earth project), and by the International Surface Ocean – Lower Atmosphere Study (SOLAS). The conference is of high relevance for Baltic Earth, in particular for GC6 (Multiple drivers of regional Earth system changes).

### **3.9 Baltic Earth Workshop on Multiple Drivers, Winter 2017/2018**

A workshop around the new Baltic Earth Grand Challenge 6 is planned as a brainstorming event in order to discuss, decide and initiate activities of the WG on Multiple Drivers. A tentative goal of this workshop could be the establishment of particular topics and a writing team for a White Paper or similar, on the topic of Multiple Drivers. Exact dates and location will be discussed among the members of the respective WG, and will be announced in early autumn.

## **TOP 4: 2<sup>nd</sup> Baltic Earth Conference issues**

It had been decided that the 2<sup>nd</sup> Baltic Earth Conference should take place in Helsingør, Denmark. Venue will be the “Konventum” which is a dedicated conference centre ([www.konventum.dk](http://www.konventum.dk)). The location was chosen to make reference to the scientific scope of the conference “The Baltic Sea in Transition”, which is meant in the temporal sense, with human impacts including climate change shaping the Baltic Sea region’s environment over time, but also in a geographical sense in that the conference location is in the centre of the transition area between the Baltic and the North Seas, with all its hydrological, biogeochemical and ecological impacts. The location was also chosen to strengthen the Danish participation in Baltic Earth. The conference will be organized jointly by DMI (Danish Meteorological Institute) and HZG (Helmholtz-Zentrum Geesthacht).

The financial aspects were discussed and it was emphasized that the conference fees cannot be raised in a way that all costs are paid off; hence, it will be necessary to ask institutions to support the conference as far as they are able to. Possible ways of support could also be that student could be funded by their home institutes. This may, however, be possible only in some cases. Furthermore, it was suggested to organize a training school connected to the conference to facilitate funding. Nevertheless, additional funding will be necessary to finance this conference.

## **TOP 5: Reports by Working Groups**

### **WG 1 Salinity dynamics**

Andreas Lehmann shortly reported on activities and plans of the WG. Activities in the past have been participation in a session at the BSSC in Riga in 2015, two dedicated workshop on MBIs in Warnemünde and Sopot, a dedicated GC session at the 1<sup>st</sup> Baltic Earth Conference in Nida. There will be an Open Session on Coastal and Shelf Seas at the EGU General Assmeby in late April, with reference to Baltic Earth and its GCs. Also a special session is planned for the 2<sup>nd</sup> BE Conference in Helsingör in 2018.

Furthermore, it is envisaged to write a review paper on salinity dynamics in the Baltic Sea which should collect new information after BACC II, involving the changes in The Baltic Sea, major inflows, atmospheric forcing, impacts on biogeochemistry and the oxygen regime.

The 2014 and following inflows have triggered new research including the usage of new instruments and methods as well as new aspects like turbulence.

Referring to outreach, it is to be investigated how the salinity story of the Baltic Sea can be told. A popular science paper could be a good way to tell this interesting story to the outside world. Also, an outreach poster/rollup describing the state of the art in Baltic Sea salinity research could be produced.

### **WG 2 Biogeochemical linkages**

Gregor Rehder shortly reported on activities and plans of the WG. The BONUS project INTEGRAL is coordinated by IOW and was approved as a Baltic Earth project (see TOP 9); the project aims at a better understanding of carbon components by extended use of the ICOS network for biogeochemical monitoring of the Baltic Sea, in combination to existing monitoring programs, enhanced ASE-parameterizations. It is envisaged to provide best experimentally based seasonal concentration charts for carbon dioxide, methane and nitrous

oxide. All this should merge into a full integration of carbon system into high resolution physical biogeochemical model of the Baltic Sea.

It was noted that currently Baltic Earth and the WG on biogeochemical linkages lack experience from the land side; the WG chairs were encouraged to investigate/recruit suitable candidates.

### **WG 3 Hazards and extremes**

The Helsinki workshop in 2014 ([www.baltic.earth/events/hazards](http://www.baltic.earth/events/hazards)) was a good start which evolved into a Marie Curie proposal which was not selected for funding. It is now planned to prepare a Special Issue on extremes in the Baltic Sea region including an inventory of ongoing projects, trying to involve more scientists. The product could be similar to the Special IPCC report on “Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation” ([www.ipcc.ch/report/srex](http://www.ipcc.ch/report/srex)), on the scale of the Baltic Sea region.

### **WG 4 Sea level and coastal dynamics**

The idea to initiate comparative studies on sea level dynamics and coastal changes in different regions, e.g. the Chesapeake Bay, the BoHai and Chinese Seas, and others was discussed. Scientists to be involved could be Birgit Hünicke, Ralf Weisse, Eduardo Zorita, and others from the Baltic Sea and other sea regions. The intention would be to mutually benefit from exchange of ideas and approaches and to increase critical mass.

### **WG 5 Water and energy exchanges**

Irina Danilovich reported on activities. There was a dedicated session at the 1<sup>st</sup> Baltic Earth Conference in Nida, and the GC was represented by Irina Danilovich and Sergey Zhuravlev at the GEWEX GHP meeting in Gif-sur-Yvette. Irina has a PICO presentation at EGU2017 on the “Interaction between Flood Occurrence and Gender and Age Structure of Population in Belarus”. Furthermore, Irina plans to have a study visit at HZG in Germany in 2017 which will also be relevant to work on some Baltic Earth issues. Topics to be treated in the future are the work-up of model data, a project on future climate change in Belarus; the work on a Belarus version of the BACC II booklet; the study of low water and dry periods in Belarus which pose a problem; a study to be conducted together with Russia and Lithuania.

Sergey Zhuravlov mentioned a current project by Russian research funding on climate and the water regime of the western Dzwina. A funding opportunity by the *Nordic xxx* was missed in 2016 as there was no interest by western scientists for a common project. A new opportunity will be there next spring (“programme for environment and climate”). In order to get funded, western scientists must collaborate.

### **WG 6 Multiple drivers**

Marcus Reckermann reports that his new WG intends to hold an initiation or brainstorming workshop in the winter of 2017/2018. WG members Marcus Reckermann, Juris Aigars and Anneli Poska are to organize this meeting. A possible venue could be Riga, but arrangements still need to be made.

### **WG 7 Scenario simulations**

The aim of the working group is to produce an assessment paper. After finishing the publication no further activities are planned.

### **WG 8 Coupled models**

A dedicated workshop was conducted in February in Warnemünde. The working group will continue to organize common workshops (the next is planned for February 2018) with the aim to deepen collaboration, to exchange know-how, to plan coordinated experiments and to write common publications. The first coordinated experiments will focus on hindcast simulations driven by ERA interim. This activity will be coordinated by Ha Ho-Hagemann, Claudia Frauen and Jenny Brauch.

### **WG 9 Outreach and communication**

A 2-page definition of the WG and its tasks will be drafted by Hans von Storch to be presented to and discussed by WG and SSG members.

**Action Item 3:** Hans von Storch to draft a 2p strategy for Outreach and communication in Baltic Earth

### **WG 10 Education**

The WG's main task has been the preparation and implementation of the Baltic Earth Summer School on Askö. The next summer school on Askö in 2017 is currently in preparation. Furthermore, it was suggested by the BESSG that the WG on Education should prepare a strategy on how to involve young scientists better into Baltic Earth.

**Action Item 4:** WG on Education members (PP, MM, MR) to draft a 2p strategy for Education in Baltic Earth

### **Proposal for a new WG on Regional Seas**

A new WG on Regional Seas was proposed to accommodate the wider geographical scope of future research funding, in particular a possible future BONUS-type EU funding instrument involving the Baltic and North Seas as well as possibly other European regional Seas like the Black Sea.

It was discussed to initiate and promote coordinated research in regional seas in order to profit from synergetic effects. The new WG may in this sense form a "task force" for communication and collaboration with similar initiatives and research communities around other regional seas.

An example mentioned was the "BlueMed" initiative in the Mediterranean to support "Blue Growth" there (<http://www.bluedmed-project.eu/>), similar to the BONUS Blue Baltic call for the Baltic Sea region ([https://www.bonusportal.org/programme/competitive\\_calls/bonus\\_call\\_2015\\_blue\\_baltic](https://www.bonusportal.org/programme/competitive_calls/bonus_call_2015_blue_baltic)).

The new WG could generate links not only to other European Seas but to similar regions worldwide. It was proposed to have a session on regional sea sat the 2<sup>nd</sup> Baltic Earth Conference in Helsingör, Denmark.

**DECISION 3:** To initiate new WG on Regional Seas

**Action Item 5:** Corinna Schrum asked to draft 2p document on a possible strategy for this new WG

## **TOP 6: Science Plan and how to distribute it effectively**

The Baltic Earth Science Plan is finalized and printed, and is currently being sent out to an extensive mailing list. The pdf can be downloaded from the Baltic Earth website ([http://www.baltic.earth/material/Baltic\\_Earth\\_Science\\_Plan\\_2017.pdf](http://www.baltic.earth/material/Baltic_Earth_Science_Plan_2017.pdf)).

It is intended to advertise and distribute the Science Plan together with a type of “Letter of Intent”(LoI) at specific relevant institutions around the Baltic Sea region. An informal LoI was considered a better alternative to a more formal “Memorandum of Understanding” (MoU).

The draft LoI is attached to these minutes and shall be adopted by the BESSG at the next full BESSG meeting.

A list of institutions and prominent representatives shall be drafted which may be approached with this LoI.

**Action Item 6:** MR to finalize LoI/MoU draft and send to all for comments; draft list of institutions and responsible contacts

## **TOP 7: BE Publications**

### **7.1 Baltic Earth Newsletter**

The new online Baltic Earth Newsletter format was presented by MR. The Baltic Earth Online Newsletter is edited at the International Baltic Earth Secretariat and distributed as E-Mail Newsletter to a mailing list of over 1200 international recipients. It is intended as a communication platform for scientists and other professionals involved in Baltic Earth related matters. It is published and sent to the mailing distribution list four times a year and is also available as pdf at the Baltic Earth website ([www.baltic.earth/newsletter](http://www.baltic.earth/newsletter)). Short scientific communications, announcements and reports of meetings, conferences etc. as well as news from projects and institutions and job announcements are welcome; everything which may be of interest and relevance to the Baltic Earth scientific community.

For each Newsletter, one outstanding new publication shall be selected and featured. BESSG members are encouraged to suggest articles to be featured. Articles should be not older than one year.

The Newsletter is distributed by E-Mail but will be also available as pdf on the Baltic Earth website.

## 7.2 ESD Special issue

The Special Issue in “Earth System Dynamics” on “Multiple drivers of Earth system changes in the Baltic Sea region” is now in its final stages. 20 manuscripts have been published three of which have been finalized and published at the time of these minutes. The rest is under review. It is expected that all manuscripts will be published still in 2017.

[http://www.earth-syst-dynam.net/special\\_issue861.html](http://www.earth-syst-dynam.net/special_issue861.html)

## 7.3 ORE project

The special project in “Oxford Research Encyclopedia” is on its way; about 40 articles are envisaged covering the field of climate science in the Baltic Sea region of which about half have been confirmed, many of which are from the Baltic Earth and BACC communities.

<http://climatescience.oxfordre.com/>

## TOP 8: Future of Baltic Earth

A discussion evolved around the question how young scientists can be better incorporated into Baltic Earth and to participate also with own ideas. Andris Andrusaitis gave the example of the BONUS Young Scientist Club, which offers various activities like seminars and training workshops. Mobility across borders of nations and disciplines should be initiated. Social media activities should be promoted as a networking mean for young scientists (see Action Item 4).

## TOP 9: Miscellaneous

### Presentation BALTICAPP

Kari Hyytiäinen, University of Helsinki, and coordinator of BALTICAPP gave a presentation on BONUS project BALTICAPP. The project tries to combine scientific and economic scenarios, building on the previous BONUS projects Ecosupport, Recoca and Baltic Stern. The project was as Baltic Earth project. For more information, see <http://blogs.helsinki.fi/balticapp/>

### Presentation INTEGRAL

Gregor Rehder of Baltic Sea Institute Warnemünde, coordinator of INTEGRAL, presented the prospective BONUS project INTEGRAL. The project aims at a better understanding of carbon components by extended use of the ICOS network for biogeochemical monitoring of the Baltic Sea, in combination to existing monitoring programmes, enhanced ASE-parameterizations. It is envisaged to provide best experimentally based seasonal concentration charts for carbon dioxide, methane and nitrous oxide. All this should merge into a full integration of carbon system into high resolution physical biogeochemical model of the Baltic Sea.

The project accepted was as Baltic Earth project but the final funding decision by BONUS is pending.

**DECISION 4:** BALTICAPP and INTEGRAL both are accepted as Baltic Earth projects

### **Baltic Earth Science Steering Group meetings**

It was agreed that physical meetings of the SSG are necessary and should be continued; but it was suggested to emphasize the scientific part more and to involve the WGs more prominently in a scientific discussion at the meetings. The administrative part of the meetings should be shorter; some items can be treated in written form and distributed beforehand and do not need to be treated orally.

The next short meeting is scheduled for **Monday 12 June 17**, 16:00 in combination with Baltic Sea Science Congress.

The next meeting thereafter is scheduled in combination with the Helsingör conference in June 2018.

**DECISION 5:** Separate BESSG meetings (1,5 days) to be held in late uneven years when there is not a large Baltic Earth conference. It is advised to hold this meeting in conjunction with a topical Baltic Earth Workshop. Short meeting may be attached to the Baltic Sea Science Congress (uneven years), and to BESSG Conferences (even years); 4-6h should be assigned to the small meetings, when possible.

Approved by BESSG, 9 June 2017