



Report by the
Working Group on POSTBALTEX
concerning the
Continuation of BALTEX after 2012

The PostBALTEX group was appointed by the BALTEX SSG and consists of the following members:

Anna Rutgersson, Uppsala University, Sweden (chair)
Andreas Lehman, GEOMAR, Germany (co-chair)
Frank Beyrich, DWD, Germany
Chantal Donnelly, SMHI, Sweden
Zita Gasiunaite, Klaipeda University, Lithuania
Jari Haapala, FMI, Finland
Birgit Hünicke, HZG, Germany
Karol Kulinski, IOPAN, Poland
Markus Meier, SMHI, Sweden
Thomas Neumann, IOW, Germany
Carin Nilsson, SMHI, Sweden
Piia Post, Tartu University, Estonia
Ben Smith, Lund University, Sweden
Eduardo Zorita, HZG, Germany

In the below text the BALTEX organization after 2012 is denoted New Baltex (NB). This is not a suggested new name, but a working name throughout the document.

Content of the report

- Summary
- Vision
- Role of the network
- Grand Challenges
- Organization
- Communication and outreach
- Monitoring and data management
- International embedment of the program
- New name
- Appendix: (A) Suggested Grand Challenges, (B) Communication and outreach
 - *A1. Salinity dynamics in the Baltic Sea.*
 - *A2. Land-Sea biogeochemical feedbacks in the Baltic Sea region (Biogeochemical functioning of the Baltic Sea).*
 - *A3. Natural hazards and extreme events as the key factor in understanding and predicting natural disasters in the Baltic Sea region.*
 - *A4. Understanding sea level dynamics using new technologies (remote sensing).*
 - *A5. Anthropogenic changes and how the Earth system of the Baltic Sea region is affected.*

 - *B1. Communication activities*
 - *B2. Relevant actors for outreach and communication*

Summary

We suggest building a new scientific network for the Baltic Sea region based on the present BALTEX network and infrastructure, suggestively called:

Baltic Future - Addressing scientific Grand Challenges in the Baltic Sea region

The new scientific network should have a wider research scope towards Earth System science and a continuous ongoing definition of key scientific questions in the region. Thus, the network should be viewed a continuous development.

Vision

The vision of the NB was suggested to be **“Achieve an improved Earth System understanding of the Baltic Sea region”**. We suggest developing a flexible scientific network with a periodic definition of core research questions (*Grand Challenges, GC*) that are identified as key scientific issues. These GC should be identified and thoroughly defined within NB. NB should also have a continuous communication with stakeholders and research funders to promote funding relevant for the GC. GC are then suggested as research focus areas for periods of about 3-4 years, with a continuous process within NB to identify and develop new GC.

The geographical area, the Baltic Sea region, is loosely defined as the Baltic Sea basin, Baltic Sea drainage basin and nearby areas with relevance for the Baltic Sea. The region can be defined more specifically (e.g. as catchment basin) as appropriate for specific purposes, but will be different depending on scientific questions addressed.

Role of the network

The suggested NB is a regional **scientific network** to identify scientific missing knowledge and to bridge the gap between policy needs and scientific knowledge. Subject of research is the regional Earth System of the Baltic Sea region, *[One could here define Earth System science to consider processes within the following spheres as well as the interaction between the spheres (atmosphere, hydrosphere, lithosphere (geosphere), biosphere). Earth system science treats 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. Earth system science provides a physical basis for understanding the world in which we live and upon which humankind seeks to achieve sustainability].*

Available and future assessments of existing research shall be used to identify research gaps and questions on a regular basis, and to define GC for Baltic Sea regional Earth system research over the course of 3-4 years. Research challenges will be periodically identified and defined actively within NB by the SSG using assessment projects, and will also be an important issue for NB conferences. Working groups will then be formed for each GC in

which research gaps will be analyzed and strategies for the research will be outlined. Furthermore, the working groups should actively monitor and assess the progress of the corresponding GC.

Communication and dialogue with stakeholders (e.g. politics and management organisations) in the early stages of the GC is recommended with the aim of defining research activities that are relevant for the society. It is also important to increase the awareness of the society, by early involvement, in how the research can be useful, and how it should be interpreted to support the development of a sustainably sound environment in the Baltic Sea area. Communications with research funders is also a significant component to promote science relevant for the Grand Challenges.

Grand Challenges

A set of Grand Challenges in Baltic Sea Earth system research, suggested to be tackled in the next 3-4 years should be identified. Each GC could have several specific research questions. The PostBALTEX group has initiated the identification of these overarching themes by suggesting 5 GC:

- *Salinity dynamics in the Baltic Sea*
- *Land-Sea biogeochemical feedbacks in the Baltic Sea region (Biogeochemical functioning of the Baltic Sea)*
- *Natural hazards and extreme events as the key factor in understanding and predicting natural disasters in the Baltic Sea region*
- *Understanding sea level dynamics using new technologies (remote sensing)*
- *Anthropogenic changes and how the Earth system of the Baltic Sea region is affected*

More detailed descriptions are given in the Appendix. These are meant to be working versions, but it is recommended that the new SSG considers them, modify or draft additional ones as deemed necessary. It is suggested to base the BACC II book as a means to identify knowledge gaps and additional GCs of relevance. After identifying the GCs, dedicated working groups should be identified to analyze the research gap and suggest plans to fill those research gaps.

Organization and lifetime

The International BALTEX Secretariat has been the node to keep BALTEX Phase I and II active. It is identified as an essential component within the new scientific network as well.

The NB SSG should consist of participants from the Baltic Sea countries. Ideally it will not be too large, and should consist of persons committed to being active in the network. There is, however, a need to include most BS countries and also persons from the key scientific organizations in the region. To have an active SSG, every member should also be a member

of at least one dedicated working group (they must not be the chair of the working group). This will guarantee an active information exchange within the SSG and a continuous assessment of ongoing research with respect to the GCs.

The lifetime of NB should be 12 years comprising 3 periods of GCs.

Communication and Outreach

Tentative aims for outreach and communication are:

- *to provide an arena for scientific exchange and discussion around the Baltic Sea*
- *to communicate findings within the NB research community internally and to other researchers and society*
- *to provide an arena for integrating discussions with actors in society as a step to continuously develop the challenges*
- *to contribute to education of young researchers*
- *to advertise NB and make the research and researchers visible*
- *to communicate the importance of GCs to funding agencies and to promote funding of relevant research*

Setting up/revising an outreach communication plan is a suggested step to organize the activities coherently within outreach and communication. Appendix B1 includes a suggestion on what such a plan could comprehend. Appendix B2 includes a list of some of the interesting actors to interact with or keep in touch with for the NB network.

Study Conferences on BALTEX are suggested to be pursued in the next phase. However, some modifications are suggested:

- *Conferences should have one or few specific research foci related to the GC. There could be a few invited lecturers and a larger focus on posters. Conferences should dedicate more time for open discussion (as part of the continuous process to define new research problems). One possibility is that scientists are invited to suggest discussion topics*
- *Conferences with a 4-year interval to avoid having them the same years as the BSSC*
- *Dedicated stakeholder involvement in conferences and discussions, for example having one specific day with stakeholder involvement at a 5-day conference.*

In addition to specific NB-conferences we suggest to increase the activities by having specific sessions at already existing conferences (EGU, AGU, BSSC etc), focusing on NB or related

topics (e.g. shelf sea research). This is one way to have the NB network come together as well as exchange ongoing research with other relevant scientific communities.

The BACC efforts have been an important work in assessing the research done on the Baltic Sea area. We expect that there could be a new edition of BACC when the new RCPs (Representative Concentration Pathways, four greenhouse gas concentration trajectories adopted by the IPCC for AR5) have penetrated through the scientific system giving significant new research. It is, however, one important task of NB to perform a continuous assessment of scientific important questions by identifying and defining new Grand Challenges. This does not necessarily need to be done only within complete and very thorough assessments like the BACC (which require much work, and cannot be completed too frequently). NB should take advantage of assessment reports and indicator fact sheets (e.g. regularly published by HELCOM under (http://www.helcom.fi/BSAP_assessment/en_GB/main/)).

In addition we suggest forming a specific working group on communication and outreach to foster the communication with stakeholders and coordinate communication and outreach activities (s. Appendix B1)

Monitoring and data management

We suggest continuing the present Working Group on data management to compile inventories of available data and gaps. The WG on data management should also be involved in the development of plans concerning the Grand Challenges contributing with identifying gaps in existing data concerning the major research questions in the GCs. NB should stress the need for data monitoring and data management when communicating with research organizations and stakeholders. An inventory of monitoring needs for NB research should be compiled; the outcome could be a peer reviewed scientific paper.

The WG on data management should aim at the establishment of a portal which contains a meta-database for the Baltic Sea region, and information on availability and facilitation of data access; relevant distributed databases and how to access relevant databases.

International embedment of the programme

Currently, BALTEX is embedded in GEWEX, which has had a strong emphasis on BALTEX Phase I research: the strictly physical side of the Earth system, with the water and energy cycle in focus. This will presumably be the case also in the next GEWEX Phase.

Future Earth is the grand new umbrella of global change research which had previously been organized under the Earth System Science Projects ESSP, integrating the projects running under Diversitas, IGBP and IHDP. WMO, WCRP and consequently also GEWEX, do not participate directly but have observer status. The future structure and regionalization of Future Earth is vague at the moment and should be further investigated.

There is ongoing work within GEWEX as well as Future Earth on the organization and direction of research foci. Finalized future plans were not clear when writing this report and it is thus difficult to come up with a clear recommendation. Preliminary plans from GEWEX indicate a more limited, restrictive focus on water and energy cycles than we envisage for NB. Within Future Earth, an Earth System perspective seems to be envisaged, which is more inclusive and better matches a holistic view on environmental problems of relevance. We think NB would be better integrated in Future Earth, with a more problem oriented focus rather than only addressing parts of the system.

Although the future directions of NB are suggested to go along the directions of Future Earth (emphasizing an integrated and interdisciplinary Earth System approach), there are also arguments that support a new integration as RHP in GEWEX, as some important aspects of the Earth system are more prominently treated there. The strong traditional link between BALTEX and GEWEX should be considered when defining the international integration of NB.

It is suggested to leave this question open and further investigate potential overlaps in research topics and grand challenges. Being affiliated to both programmes may be possible, but it is not clear whether this is desirable and the new SSG should, however, strongly consider the advantages/disadvantages.

New name

It is strongly suggested by the group to change the name. BALTEX was started as a project with a limited duration. To clearly mark the end of BALTEX and the initiation of a new network, a new name with limited resemblance to BALTEX is deemed to be required.

There are some arguments for keeping the name BALTEX (or keeping it with minor re-lettering and meaning), as it is already well established in the research community. But we feel that there are more and stronger arguments for a new name, which would symbolize a new start, with new emphasis, building on the BALTEX network and infrastructure.

In the PostBALTEX working group, several possibilities were named, but acronyms were not favoured. Rather, the agreement is that a suiting brand name was a better option. After a long discussion and vote the following is suggested:

Baltic Future - Addressing scientific Grand Challenges in the Baltic Sea region

Other names that were discussed are:

Baltic Earth

Balt Link

Balt Net

Balt Scope

Baltic Prospect

And acronyms

BALTECHS

CHANTAL

CHANCE

CHESS

i-Baltex (Integrating Baltex to Address scientific grand challenges in the Baltic Sea region)

Appendix

A1. Salinity dynamics in the Baltic Sea

Salinity is an elementary factor controlling the ecosystem of the Baltic Sea. Over the recent 40 years it has decreased by about 0.3 PSU. The salinity dynamics is controlled by net precipitation, river runoff and the compensating inflow of higher saline waters from the Kattegat. Furthermore, due to the expected increase in precipitation, first studies of future development indicate even 2-3 PSU decrease in salinity to the end of the century. Since the Baltic Sea ecosystem has adapted to the present salinity regime, expected changes would exert an enormous stress on marine fauna and flora with associated negative social-economic consequences for the Baltic Sea countries. The present understanding of salinity changes is still very limited, and future projections of the salinity evolution are rather uncertain. More detailed investigations on regional precipitation patterns (runoff), atmospheric variability (wind), highly saline water inflows, the exchange between the sub-basins and turbulent mixing processes are still needed. Furthermore, there is also a need for new climate projections simulations with improved atmospheric and oceanographic (coupled) model systems.

Suggested key research areas:

- *Interrelation between decadal/climate variability and salinity*
- *Water mass exchange and major Baltic inflows (MBI); do we understand the dynamics of the present-day salinity distribution, can we predict MBIs?*
- *Regional salinity dynamics: Detailed studies on the regional salinity distribution/variability and associated circulation patterns (including salinity fluxes between the coastal areas and the open sea and within the sub-basins), regional salinity dynamics is strongly related to oxygen distribution*

A2. Land-Sea biogeochemical feedbacks in the Baltic Sea regions or Biogeochemical functioning of the Baltic Sea

Within the last two decades, large research efforts have led to advances in the understanding of the Baltic Sea biogeochemistry. However, in some areas still the most basic questions remain unanswered. One of the key problems remains – a comprehensive understanding of the primary production mechanism during the entire vegetation period. Although the early spring and autumn phytoplankton activity is well described, the late spring and summer primary production still is not fully understood. The fundamental unknown is the mechanism of phytoplankton activity in the conditions of phosphorus limitation in the productive zone. The comprehension of these processes is necessary to study the issues of eutrophication, evolution of the oxygen deficiency zones, ecosystem condition etc. This is as well the present-day limitation in the functioning of the biogeochemical models.

The processes occurring within the drainage area greatly influences the functioning of the Baltic Sea ecosystem. First of all, river runoff affects the Baltic Sea salinity, which is the key element for the marine biogeochemistry in general. Moreover, rivers supply the Baltic with great loads of different chemical substances. In most cases (e.g. nutrients, carbon, alkalinity, some organic pollutants and heavy metals), these loads are well recognized. However, some gaps still exist within the present databases. One example is missing data from the Neva River - incidentally the largest river entering the Baltic Sea. For some other chemical substances (e.g. pharmaceuticals) the terrestrial loads are still insufficiently described. On the other hand, the pathways of several substances, after entering the marine system remain unrecognized. Still, little is known about the transformation mechanisms occurring within the mixing zone. Since the geological structures, anthropogenic influences, types of the vegetation are different in the different parts of the catchment, the detailed studies are required for the individual sub-basins.

The suggested key research areas in this field are:

- *C, N, P cycles studies for the understanding primary production mechanism and organic matter transformations in the Baltic Sea*
- *transformations and pathways of terrestrial organic matter*
- *influence of the terrestrial input on the carbonate system*
- *extension of the databases with the missing terrestrial loads data of the key chemical substances (e.g. Neva River)*

A3. Natural hazards and extreme events as the key factor in understanding and predicting natural disasters in the Baltic Sea region

Contemporary society is very vulnerable by natural disasters that pose a severe threat for human lives, cause economic losses and influence ecosystems. Understanding the underlying causes of natural disasters i.e. the natural hazards increases and the sensitivity of ecosystem services to these hazards increases the ability to predict the occurrence and severity and may save human lives as well as mitigate economic losses. Many natural hazards have hydrometeorological origin (storms, waves, flooding, droughts) and can potentially be better understood. Natural hazards are often complex phenomena (storm surge + heavy precipitation → excess runoff → extreme flooding). Closely linked to natural hazards are extreme events, but presently the prediction capability of the extreme events is very limited. This is generally well recognized regarding infrastructure such as dam safety and urban flooding risks, but the range of ecosystem services at risk is more poorly defined, from vital societal functions such as drinking water supply to biodiversity.

In addition to the small to synoptic-scale extreme events, extremes caused by certain sequences of weather types on monthly to seasonal time scales are also key interest of society, and further research on understanding processes like atmospheric blocking are needed for developing monthly to seasonal forecasting models.

Recent changes in climate factors for the Baltic Sea region are relatively well described in the mean sense. The uncertainty is larger when analyzing changes in extreme conditions due to the fact that extreme events are rarer. The shortage of data reduces the statistical significance in the analysis (BACC II). There are indications that the Northern Hemisphere storm tracks have been shifted slightly northward as a consequence of the global warming during the last century. In addition there are indications of additional NH circulation changes due to the significant reduction of Arctic ice cover (BACC II). Their relations are, however, not clearly understood and described and there is a need to further investigate this within the Baltic Sea perspective. The adaptation capability of many terrestrial ecosystems and marine species as well as society on environmental changes depends very much on the variation of the extreme events.

Suggested key research areas of relevance for the Baltic Sea region with an Earth System perspective:

- *Understanding changes in atmospheric circulation in the NH (due to higher global mean temperatures and reduced sea ice in the Arctic Ocean) and the impact of circulation changes on climate extremes in the Baltic Sea region in the future.*

- *Response and contribution of marine processes to changes in extremes and climate variability (water level, waves, ice conditions, sea surface temperature).*
- *Monthly to seasonal prediction systems and probabilistic estimates of the extreme events.*
- *How the achievement of environmental goals is influenced by changes in extreme conditions (droughts, floods and heat waves)?*
- *How vulnerable is drinking water security to hydrometeorological extremes?*
- *What is the response of marine ecosystems to extreme events (coastal processes) using integrated studies (what drives what, when and how)?*
- *How will the carbon cycle of the Baltic region respond to changes in extreme conditions (the amount, timing and quality of carbon delivered to the Baltic, and the subsequent fate of that carbon)?*

A4. Understanding sea level dynamics, including the application of new technologies (remote sensing)

The future long-term increase in global mean sea-level is mostly governed by the external radiative forcing, ocean diffusivity and land-ice dynamics. The global mean sea-level shows large variations at regional scales, which are reflected in the very heterogeneous pattern of sea-level trends in the last 30 years. The still present large uncertainties in future global sea-level are thus magnified when considering regional scenarios for sea-level change. So far, no comprehensive scenarios for future sea-level rise in the Baltic Sea exist. The complex bathysphere of the Baltic Sea and the influence of the North Sea and the Baltic Sea catchment area represent specific challenges for the predictions of sea-level rise that are distinct from the global average.

In our view, this state of affairs represents a grand challenge for the Baltic Sea scientific community for the next few decades. The research efforts should encompass the following key lines of work:

- *compilation of a large long-time series from data of written records, in particular for gauges, which have been operated by different national authorities in the course of history, and homogenisation of these data records to quantify regional sea-level changes including monthly means and extremes (surges and waves)*
- *analysis of satellite data sets and comparison with coastal station data in the period of overlap, characterizations and understanding of their differences, and common assessment of their strengths and weaknesses*
- *identification of the locally resolved multi-decadal variability and centennial trends of the rate of sea-level rise and understanding of the global, regional and local mechanisms involved by application of modelling and statistical approaches*
- *regionalization of sea-level scenarios by analyses of AR5 CMIP5 scenarios +scenarios of land-ice dynamics, by the use of regional atmosphere-ocean models, statistical downscaling techniques, and combination of these information with recent knowledge about land movement, storm surges and wave conditions to evaluate the impact on the coast*
- *identification of the major physical and socio-economic mechanisms, and their possible interaction, that may in the future endanger the stability of the coastlines beyond the range of its natural variability.*

A5. Anthropogenic changes and how the Earth system of the Baltic Sea region is affected

A natural extension to understanding the dynamics of the Baltic Sea region earth system is to then understand how humans impact and affect these dynamics.

The ability to simulate effects of anthropogenic changes to earth systems is emerging; however simulation models make assumptions regarding the effects of anthropogenic drivers on various parts of the earth system. There remains large scope to verify such assumptions against the effects of historical anthropogenic changes.

For example, in the field of nutrient hydrology, simulations of the effects of remedial measures or climate change on nutrient loads to rivers, lakes and seas are often requested. Scientists make these simulations by changing the anthropogenic or climate drivers to the model, but rarely verify simulated changes against observed changes. There is long phase lag between changes to nutrient drivers and observed effects, difficulties in attributing observed changes to observed changes in the correct driver and difficulties in creating data sets describing changes to anthropogenic drivers over sufficient periods of time to simulate the observed changes. There remains therefore large scope for

- *Quantifying the effects of anthropogenic change to the Baltic Sea region Earth system*
- *Attribution of observed changes to the correct anthropogenic drivers*
- *Simulation and validation of simulations of changes to anthropogenic drivers.*

Appendix B1

Communication and outreach

Communication within the BALTEX network is essential and has so far been done in a very successful manner through the secretariat. The activities within the network during the past years (webpage, conferences, meetings, summer schools, the BACC book etc.) have also effectively contributed to a vivid and fruitful scientific discussion, and it is of high importance that these types of discussions can continue forward.

Further, there are several identified actors outside the research community (see Appendix B2), but also in related research fields, that are interested to follow and to integrate in the discussions about the future of the Baltic Sea (see objective 5 and 6 in BALTEX phase II). Our suggestion is that these different actors will be continuously identified (just as in the past) and, when relevant, invited to take a more active role – as a partner in discussions at meetings or at scientific conferences, i.e. to expand the successful earlier outreach activities. Our suggestion includes a focus on networking, a continuation of the educational efforts (PhD summer schools), and a possibility for these actors to join at our conferences.

Suggested activities

To achieve the aims in communication and outreach, the following activities are suggested:

Activity	Aim with activity	Suggested Responsibility
<i>Activities preparing the ground for communication and outreach</i>		
continuously update the list of participants within the Baltex network	Facilitate internal communication	Secretariat
Continuously update the list of actors with relevance for the challenges and outcomes from the Baltex network	Facilitate external communication, provides a list of target audiences for the Baltex outreach	Board and secretariat, and total network can assist
Assess ways to communicate with climate services and environmental agencies – through special targeted newsletters or policy papers or other types of interactions	To communicate findings within the Baltex research community internally and to other researchers and society To provide an arena for integrating in discussions with actors in society as a step to continuously develop the challenges To market the NB network and make the research and researchers visible	Secretariat + appointed working group

Explore the possibilities of taking advantage of social networks in the internet	Facilitate networking within the NB community but also outside (depending on how we set it up.. suggested startpoint was to use LinkedIN)	Secretariat + appointed working group
Maintaining and continuously updating the webpage	To communicate findings within the NB research community internally and to other researchers and society, and to market the NB community	Secretariat
Identify key conferences in Europe and globally where NB can show itself	To market the NB network and make the research and researchers visible	Board and secretariat, and total network can assist
Update/write a communication and outreach plan for the next phase		Secretariat + appointed working group
<i>Communication and outreach activities</i>		
A continuation of a newsletter in a similar form as the present BALTEX Newsletter (at least once a year).	Facilitate internal communication, to communicate findings within the NB research community internally and to other researchers and society	Secretariat + appointed working group
Conferences (see details in the text under headline Communication and Outreach)	<p>To provide an arena for scientific exchanges and discussions around the Baltic Sea</p> <p>To communicate findings within the NB research community internally and to other researchers and society</p> <p>To provide an arena for integrating in discussions with actors in society as a step to continuously develop the challenges</p> <p>To contribute to education of young researchers</p> <p>To market the NB network and make the research and researchers visible</p>	Secretariat + appointed working group
Summer schools are an important component for fostering a new generation of scientists with a good network/strong interest in the Baltic Sea region.	<p>To contribute to education of young researchers</p> <p>To provide an arena for scientific exchanges and discussions around the Baltic Sea</p>	Secretariat + appointed working group

Start using a social network on internet, based on assessment above.		
Develop a newsletter/information/ dialogue meeting with climate services and environmental organisations, and other interested groups, in accordance with the assessment suggested above.		
<i>More can be added...</i>		

Appendix B2

Some of the identified actors for NB to keep in contact with, participate in, invite or stay informed of (Not totally comprehensive yet...):

<i>Identified actors</i>	<i>Description</i>	<i>webpage</i>
GLOBAL AND/OR EUROPEAN/REGIONAL WIDE ACTORS		
EIONET	Description cited from their webpage: Eionet is a partnership network of the European Environment Agency (EEA) and its member and cooperating countries. It consists of the EEA itself, six European Topic Centres (ETCs) and a network of around 1000 experts from 39 countries in over 350 national environment agencies and other bodies dealing with environmental information. These are the National Focal Points (NFPs) and the National Reference Centres (NRCs).	http://www.eionet.europa.eu/
Network for the National Platforms for disaster risk reduction in the Nordic countries	a yearly informal meeting is held between the national platforms from Norway, Denmark, Sweden and Finland. Climate issues and adaptation is discussed. There is also a European network of these national platforms, all based on the Hyogo Framework for Action	http://www.preventionweb.net/english/ for more information on international/European level
WMO Region IV		http://www.wmo.int/pages/members/region6_en.html
GMES		http://www.gmes.info/
EUMETNET		http://www.eumetnet.eu/
DG Research		
DG Clima		
<i>Add more...</i>		
NATIONAL NETWORKS/ORGANISATIONS		
SWE:Kunskapscentrum för klimatanpassning at SMHI	The newly established centre for adaptation knowledge, established by the Swedish government in 2012.	
<i>Fill in with all other initiatives in other countries...</i>		

RESEARCH COMMUNITIES AND PROJECTS OF INTEREST		
Balt-adapt		http://www.baltadapt.eu/
ECLISE		http://www.eclise-project.eu/
Euro 4M		http://www.euro4m.eu/
EMBRACE		http://www.smhi.se/embrace/
<i>HELCOM</i>		http://www.helcom.fi
The European topic Centre on Climate Change impacts, vulnerability and adaptation		http://cca.eionet.europa.eu/
European Topic Centre on Inland, Coastal and Marine waters		http://icm.eionet.europa.eu/
RESEARCH FUNDING NETWORKS		
JPI CLIMATE		http://www.jpi-climate.eu/
JPI FACCE	Agriculture Food security and Climate Change	http://www.faccejpi.com/
JPI WATER		
JPI Urban Europe		http://www.jpi-urbaneurope.eu/
ERA-net BIODIVERSA		http://www.biodiversa.org/
ERA-net CIRCLE-2		http://www.circle-era.eu/
BONUS		http://www.bonusportal.org