

RADOST Event at the Darßer Arche

“Adaptation to climate change – From research to practice”: this was the motto of the RADOST presentation at the Darßer Arche (“Darß Ark”) on 9 September 2013. The Darßer Arche is a National Park Center

work of restaurateurs, farmers, and food industry representatives aiming to promote high-quality, local, and organic food products. Samples were offered after the RADOST event.



National Park Center Darßer Arche in Wieck

located in Wieck, on the Darß peninsula. In his welcome note, the mayor of the town, Bernd Evers, emphasized that there could be no better place for such an event. The Darßer Arche building, which symbolizes a ship’s hull, was designed in a climate-friendly way. Featuring a permanent exhibition of the National Park, the Ark also hosts the Darß Nature Film Festival once a year. Additionally, it is home to the local tourist information office and a local food initiative called “ländlichfein”, a net-

In his welcome statement, Mayor Evers, a hotel owner whose restaurant features organic cuisine, criticized the media coverage of climate change issues, which he perceives as often being too superficial. The media has highlighted potential positive effects of global warming for the region in a partly ironical manner, rather than providing information in an appropriate way about the state of scientific knowledge regarding climate change and its consequences.

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RADOST Final Conference in Rostock – Save the Date

The results of five years of RADOST work will be presented on 1–2 April 2014 in Rostock City Hall. Representatives from all relevant fields of research and implementation, as well as all stakeholders who have been involved in the project over the years are invited to attend the event. During this

final conference, research results from the RADOST focus topics, i.e., Coastal Protection, Tourism and Beach Management, Water Management and Agriculture, Ports and Maritime Economy, Conservation and Land Use, and Renewable Energies, will be presented and discussed.

Registration and further information will be available soon here:
www.klimzug-radost.de/en/events/radost-final-conference

Regional Activities

Climate Impacts in our Communities: Adaptation Strategies for Schleswig-Holstein



Minister Robert Habeck at the opening of the conference

On 30 September 2013, RADOST co-hosted the 5th Climate and Energy Conference of the "Schleswig Holsteinischer Gemeindetag" (SHGT) – a union of communities located in Schleswig-Holstein. The event titled "Climate Impacts in our Communities: Adaptation Strategies for Schleswig-Holstein" took place at the Wissenschaftszentrum in the city of Kiel and was visited by around 80 participants.

Schleswig-Holstein's Minister of Energy, Agriculture, the Environment and Rural Areas, Robert Habeck, gave the opening speech, addressing climate change mitigation targets and implementation of an energy transition. For these topics, he identified heat supply and mobility as important areas. Regarding climate adaptation, Habeck characterized the upcoming challenges as being closely related to regional identity since life

in Schleswig-Holstein has always been dominated by struggle with the sea and adaptation to uncertain environmental conditions. After an introduction to the RADOST project and the state of knowledge on climate change in Schleswig-Holstein, the geographic scope was widened. Frank Schlegelmilch of BPW baumgart+partner, who has been carrying out accompanying research in support of the project "Urban Strategies and Potentials to Tackle Climate Change", reported on the experience of nine pilot communities from seven German federal states. Among the key areas of action taken by these communities were responses to torrential rainfall and flooding and coping with increasing temperatures. Activities and research results from different areas of climate change adaptation were then presented and discussed in two parallel forums.

The forum "Climate adaptation in agriculture and water management" dealt with floods and torrential rainfall as well as possibilities for nutrient management to improve water quality. Thomas Hirschhäuser from the State Agency for Agriculture, Environment and Rural Areas (LLUR) introduced the flood hazard and flood risk maps developed according to the European Floods Directive. Hazards and risk maps, due at the end of 2013, will form the basis for flood risk management plans, which are required by 2015. Inland and coastal floods are regarded separately. Mandatory updates to the maps and plans every six years will provide an opportunity to integrate climate change considerations: If scientific evidence shows that certain flood levels will be reached more frequently, risk assessments will need to be adjusted accordingly. Rüdiger Schulz of the University of Kiel presented different ways that microalgae can be used as nutrient scavengers in retention basins while simultaneously producing large amounts of usable biomass and thereby binding carbon dioxide to a corresponding degree. To what extent these algal cultures can be used economically has yet to be explored intensively. Therefore, no statement about the potential for nutrient retention is yet possible.

The second forum focused on climate change adaptation in coastal regions. Jacobus Hofstede from the Ministry of Energy, Agriculture, the Environment and Rural Areas presented the climate adaptation strategy of Schleswig-Holstein for coastal protection, which was laid down in the 2012 update of the state's master plan for coastal protection. As a major technical adjustment, a new dike profile was developed, including a "climate add-on" of 50 centimeters and "construction-buffer" for future further increases of the dike. Peter Fröhle of the Hamburg University of Technology presented the RADOST work on coastal defenses. Due to climate change, changes in sediment transport and increased pressure on coastal defense structures are predicted. Appropriate coastal protection strategies and possible adaptation measures have to

be developed specifically for each stretch of coast. Finally, the Bay of Kiel Climate Alliance was introduced as a pilot project of coastal communities to deal with climate change. The former mayor of Schönberg, Wilfried Zustraßen, spoke about the origins and functions of the Alliance. Following his presentation, Horst Sterr of the University of Kiel provided insights into the planned activities.

A survey among the participants revealed that a majority felt well informed about the regional impacts of climate change, while they expressed a special need for information on funding opportunities for adaptation. This topic was picked up by Ines Fauter from the "Service- und Kompetenzzentrum: Kommunal Klimaschutz" (Service and Competence Centre: Local Climate Protection). The focus was on "Kommunalrichtlinie" (municipal funding policy) and "Anpassungsrichtlinie" (adaptation funding policy), under which projects are supported by the Federal Ministry for the Environment. The municipal policy, financed by the National Climate Initiative, primarily serves to promote mitigation projects, but adaptation is taken into account in some areas. Tailored solely toward adaptation, the adaptation policy was created as part of the national adaptation strategy. One of its focuses is local "lighthouse projects."

In his summary of the event, Jörg Bülow, a board member of the SHGT, emphasized that for the first time adaptation was the main topic of the Climate and Energy Conference. He evaluated this extension of the thematic scope and the cooperation with RADOST as a success.

More information (in German):
www.klimzug-radost.de/termine/gemeindetag-SH

RADOST Event at the Darßer Arche ...continuation from page 1

In contrast, the aim of the RADOST event was to demonstrate aspects of regional climate alterations, their consequences, and related opportunities for change in various facets.

The target audience of the event was the general public, tourists, as well as experts. Among the participants were representatives of relevant institutions, such as the Federal Agency for Nature Conservation, the National Park Office of Vorpommern, and the Ministry of Agriculture, Environment and Consumer Protection of Mecklenburg-Vorpommern.

The program for the evening reflected the diversity of the project. One topic was the role and vulnerability of seagrass meadows as providers of "ecosystem services". By binding carbon, they contribute to impeding climate change. Also, they purify water by the absorption of nutrients; and they contribute to the protection of coastal erosion by attenuating wave energy and stabilizing the soil. Another part of the program showed how migratory birds could be affected by climate change and climate protection measures, such as offshore wind farms. These farms can constitute flight barriers and present collision risks.

The following discussion focused primarily on coastal protection. Conflicts between

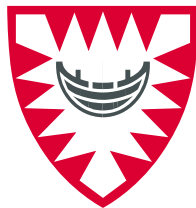
financial considerations, the protection of people and property, as well as nature conservation were highlighted. It was emphasized that the state's coastal protection is limited to built-up areas. Thus, protection of the cliffs outside of town limits is not covered by legal mandate. On the one hand, this is leading to progressive loss of land within the national park itself; on the other hand, it allows for natural dynamics and development of new valuable habitats for nature conservation. A distinct conflict between coastal protection and nature conservation objectives can be seen in the extraction of sand and gravel from the seabed for building coastal resilience. Mining law mostly holds precedence over the activity, while nature conservation is relatively weak.

During the discussion, it became clear that government-guaranteed coastal protection is always a question of political will and a trade-off between costs and residual risks. For instance, the current water level referred to when designing coastal protection structures is based on a flood which statistically occurs every two hundred years. Climate change is acknowledged by adding a supplement of 50 centimeters to this basic water level for possible future sea level rise. However, the resulting reference water level approximately corresponds to water levels that have already been reached in the past, namely during the extreme flood of 1872.



View of the bay from Wieck

Bay of Kiel Climate Alliance Supports Adaptation Strategy of the City of Kiel



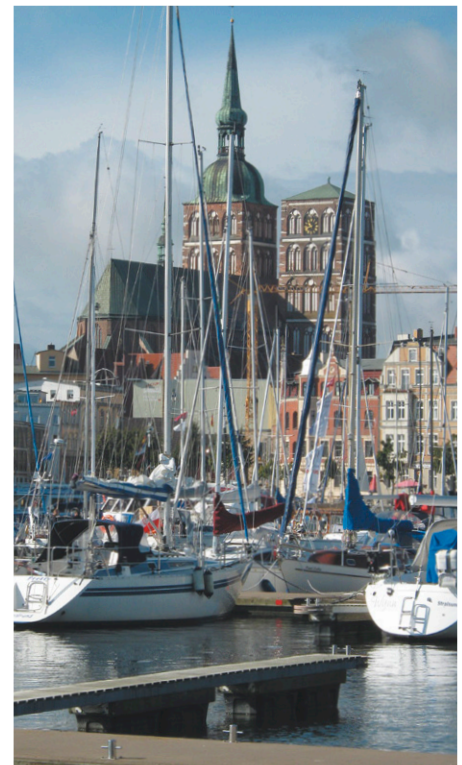
Started in 2010 as a RADOST implementation project, the Bay of Kiel Climate Alliance (KBKB) will help the city of Kiel to develop a local adaptation strategy for the next two to three years. The process began at a workshop held on 28 August 2013 at the University of Kiel, which also served as the kick-off event for the new project period of the KBKB. Follow-up funding to the KBKB provided by the Federal Ministry of the Environment started in April 2013 (see RADOST Newsletter 1/2013). Senior staff of the relevant departments of the city of Kiel met with representatives from academia, state government ministries, regional planners, and surrounding communities to discuss further steps towards practical recommendations for local decision making. Previously in March 2012, the city council of Kiel decided to develop an adaptation strategy. This process is now underway with the scientific support of KBKB and the Climate Service Center. In addition to the adjacent coastal communities of KBKB, the meeting was also attended by representatives from communities involved in developing the "Rahmenplan Kieler Förde", a framework plan defining objectives and actions for the future development of the Kiel Fjord region.

Following presentations on the effects of climate change, related technical support services, and the process of developing

a climate change adaptation strategy for the state of Schleswig-Holstein, the local representatives were asked: Which field of action do you foresee in the short and medium term being affected by climatic events? From the point of view of the city of Kiel, key aspects were city drainage and risk communication with the public. Emphasis was placed on the fact that adaptation and mitigation measures can be combined. However, not every climate adaptation measure serves the dual purpose of climate change mitigation; for example, installation of air conditioning to cope with higher summer temperatures consumes more energy and thereby could contribute more emissions. From the surrounding communities' perspective, the conservation of beaches, disposal of beach debris, and tourism continue to be the priority issues.

In the future, the KBKB will conduct workshops on various areas of interest. In addition to representatives from the city of Kiel and other communities involved in the Climate Alliance, local experts who have already gained experience with concrete adaptation measures will be invited. Geography students will also complete internships and thesis projects analyzing the available data relevant to adaptation, such as firefighting operations after heavy rains or damage potential analyses.

"Nothing Stays the Same" – RADOST at the BWK Federal Congress



View of the harbor and old town of Stralsund

This year's Congress of the Association of Engineers for Water Management, Waste Management and Land Improvement (BWK) was held from 19 to 21 September 2013 in Stralsund, which is located in the RADOST region. RADOST took the opportunity during this meeting to present project results in a variety of ways. At the same time, RADOST project partner StALU MM (State Agency for Agriculture and Environment of Central Mecklenburg) had a leading role in organizing the event. Under the theme "Nothing Stays the Same – Opportunities and Risks for the Coastal Area", the issues of change and adaptation on the Baltic coast were discussed.

Opening the conference, Till Backhaus, Minister for Agriculture, Environment and Consumer Protection of Mecklenburg-

Vorpommern, stated that coastal areas always have been dynamic regions and consequently it is not possible to achieve coastal protection that is 100 percent protective. However, given the enormous importance of the coastal regions, the state must undertake all possible efforts to achieve coastal protection.

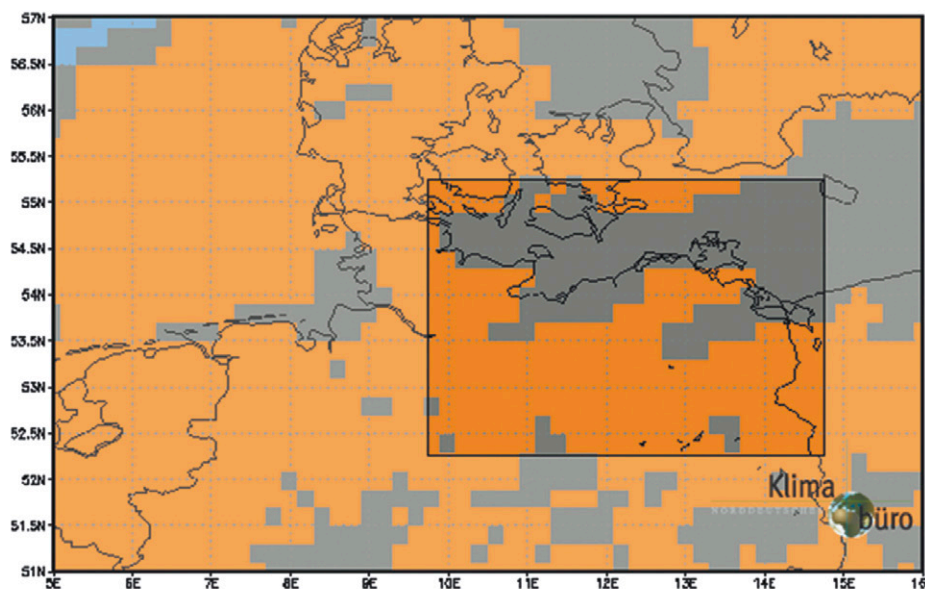
RADOST partners presented their research findings during different panel sessions, as well as in the accompanying exhibition. In a departure from the mainly engineering-focused topics, project manager Grit Martinez presented a comparative study that utilized a historical and social lens to examine strategies for coping with climate change in two coastal communities, Timmendorfer Strand and Ummanz.

In addition to consideration of coastal and flood protection options, the conference – and RADOST partner contributions – also focused on possible methods of sustainable energy production. The H.S.W. engineering company presented results from a RADOST implementation project investigating the geothermal use of the coastal zone. GICON presented a concept for floating foundations for offshore wind turbines, which is already in the testing phase. The Institute of Applied Ecology (IfaÖ) stressed the question of how much wind farming can be tolerated in the Baltic Sea from a species and ecosystem conservation point of view.

As part of the international exchange program of RADOST, a delegation of the University of Maryland visited the conference. An extensive program of events and excursions completed the conference, including a visit to one of the largest flood protection structures in Mecklenburg-Vorpommern, a flood barrier currently under construction to protect the city of Greifswald.

More information (in German):
www.klimzug-radost.de/termine/bwk-bundeskongress

Concordance Maps in the North German Climate Atlas



Possible change in precipitation in summer until the mid-21st Century (2051–2080) compared to the past reference period (1961–1990). In the Baltic Sea region (box), all climate calculations show concordance with each other for 60% of the area. They show less precipitation (orange).

“What is the most likely climate prediction?” This frequently asked question points to a significant barrier against using scientific evidence on climate change in planning processes. Many planning processes are still based upon a defined number, a certain threshold, or a hundred-year event. Since the climate of the future cannot be predicted in the same way as tomorrow’s weather, climate scientists have to work with different scenarios, all of which are plausible but uncertain from today’s perspective. No scenario is more likely than another. Adaptation measures to climate change therefore require planning and design for a wide range of potential climate developments. For such planning, the North German Climate Atlas now shows how all basic climate scenarios correspond to one another and which parameters are (still) unclear for certain regions in the different scenarios.

For the next 30 years, for example, all regional climate scenarios show that it could become warmer. They all match as well re-

garding changes in thermal derived quantities, such as summer days, hot days, frost days, and ice days. A different picture emerges for the changes in annual precipitation, where the climate scenarios on a national scale do not match. Some scenarios show increases, while others show decreases in annual rainfall. This also applies to seasonal rainfall in the next few decades. From the middle of the century, however, all scenarios primarily show a decrease in summer precipitation and an increase in winter precipitation for Germany (see Chart).

It thus becomes evident for decision makers how robust a climate statement is for a particular timeframe, when a particular statement will become robust, or whether it remains unclear.

Further Information:
www.norddeutscher-klimaatlas.de

International Activities/Publications

“Adaptation to Climate Change in Mountain & Coastal Areas” – a Follow-up Transatlantic Dialogue



The workshop participants during a field trip in Aspen/Colorado

After a successful initial workshop focusing on “Adaptation to climate change in mountain and coastal areas”, held from 16 to 19 April at the Climate Service Center in Hamburg (see RADOST Newsletter 2/2013), the dialogue on the topic was continued in a second workshop held at the Global Change Institute in Aspen, Colorado, from 13-16 August. As part of the international exchange program of the RADOST project, Ecologic Institute and Duke University assisted as co-organizers of these events.

As in the first meeting, the RADOST project sought to bring together local stakeholders

from communities, business, government, and academia, representing different geographical and cultural regions. They shared their experiences and insights on issues like the perception of climate change, acceptance of adaptation measures, dealing with uncertainties, the availability of resources and the political basis for action in the U.S. and in Europe. Different adaptation measures from coastal regions in the southern Baltic Sea and the Chesapeake Bay, as well as from mountain regions in Austria and Colorado were presented and discussed with an eye towards success factors and potential transferability to other regions.

Once more, participants had the opportunity to learn about adaptation measures on the ground, with the nearly 40 participants visiting the “Roaring Fork Valley” in Colorado. There, they discussed with local experts how ski tourism can adapt to changing snow conditions.

Further information:

www.klimzug-radost.de/en/events/dialogue-mountain-coastal-2

“Die Zeit” Reports on RADOST

On 17 October 2013, the German weekly newspaper “Die Zeit” dedicated a six-page special section to “science at the forefront” in Germany. RADOST is stated among the examples. The article emphasizes the inter-linkage between fundamental and applied science research carried out in close cooperation by different

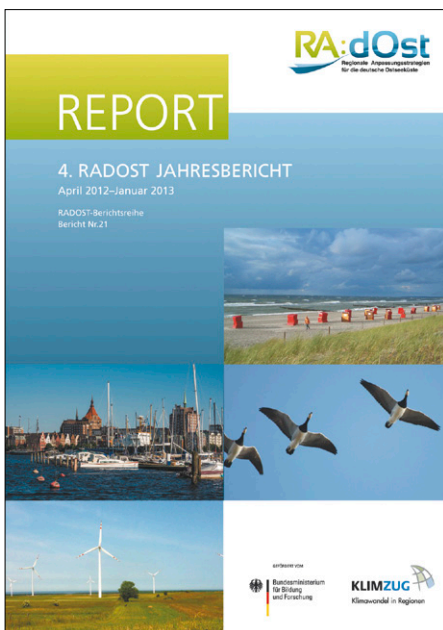
scientific disciplines, administration, and engineering offices. Examples of RADOST implementation projects are described, such as future strategies for aquaculture or concepts for artificial reefs. In addition, the article highlights the continuous dialogue with decision makers and local inhabitants as an essential feature of the project.

You can find the complete article (in German) in the RADOST website’s press section:

www.klimzug-radost.de/presse/2013/10/17/spitzenforschung

4th RADOST Annual Report

The fourth RADOST annual report is now available online and in print. It provides a comprehensive overview of the activities and results of the RADOST project in the period from April 2012 to January 2013. As in previous years, this richly illustrated volume describes the state of applied research network activities in the six focus topics: Coastal Protection, Tourism and Beach Management, Water Management and Agriculture, Ports and Maritime Economy, Conservation and Land Use, and Renewable Energies. Additionally, the report informs about research activities in the natural and engineering sciences and socio-economics as well as activities in national and international exchange and project dissemination undertaken during the reporting period.



The report is addressed to a wide circle of stakeholders in Schleswig-Holstein and Mecklenburg-Vorpommern, as well as interested members of the regional and national public-at-large.

The report (in German) can be downloaded free of charge at: www.klimzug-radost.de/bericht21/4-radost-jahresbericht

Adaptation Strategy for the Ports of Lübeck – Part 1: Future Scenarios and Climate Risks



Skandinavienkai in Lübeck

A new RADOST report contains the first part of a climate change adaptation strategy for the public ports of Lübeck, which is being developed within the framework of the RADOST project. The consulting bureau Competence in Ports and Logistics (CPL) gives a preview of the possible developments for freight and passenger flows, and highlights potential climate risks for the ports of Lübeck. The second part of the report will include a detailed analysis of the need for adaptation actions and formulate an adaptation strategy. The strategy is being developed by CPL together with the Institute for Ecological Economy Research (IÖW), the Lübeck Port Authority (LPA) and the Lübecker Hafen-Gesellschaft mbH (LHG). The findings are also intended to serve as a practical blueprint for the development of adaptation strategies in the other German Baltic ports.

The report (in German) can be downloaded free of charge at: www.klimzug-radost.de/bericht20/anpassungsstrategie-luebecker-hafen-teil1



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Events

KLIMZUG Final Conference: "Pathways to Climate Adaptation – Using Regional Networks to Succeed"
26 – 27 November 2013, Berlin, Germany
www.klimzug.de/de/1206.php

13th Forum Catastrophe Precautions – Catastrophe Precautions between old structures and new challenges
11 – 12 December 2013, Hamburg, Germany
<http://www.dkkv.org/upload/editor/13.%20Forum/Forum%202013%20Programm.pdf>

National Dialogue on "Infrastructure and Climate Change"
28 – 29 January 2014, Dessau-Roßlau, Germany
www.umweltbundesamt.de/service/termine/infrastrukturen-im-klimawandel

Towards climate adapted and resilient regions – CLARR 2013
24 – 25 February 2014, Bremen, Germany
www.clarr2014.nordwest2050.de/

Climate Change in Cities and Regions – Conference 2013
26 – 27 March 2014, Berlin, Germany
www.bbsr.bund.de/BBSR/DE/Aktuell/Veranstaltungen/Programme2013/2013_Klimawandel_info.html

Adaptation in Societal Transformations: Dynamics – Governance – Participation.
7th Workshop of the Social Science Adaptation Research Network
31 March – 1 April 2014, Wuppertal, Germany
<http://wupperinst.org/info/details/wi/a/s/ad/2393/>

RADOST Final Conference
1 – 2 April 2014, Rostock, Germany
<http://klimzug-radost.de/en/events/radost-final-conference>

Climate Change – The environmental and socio-economic response in the southern Baltic region
12 – 15 May 2014, Szczecin, Poland
<http://www.baltex-research.eu/SZC2014/index.html>

Imprint

Overall coordination



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Berlin, November 2013

Project Partners

