

Looking Back on Five Years of RADOST



On June 30th, 2014, five years of RADOST research will officially come to an end. This is an unusually long time for a research project, but it is appropriate for the complexity of RADOST's undertaking: the goal of RADOST was nothing less than "designing adaptation strategies for the German Baltic Sea coast in dialogue between science, business, public administration and civil society".

At the final RADOST conference in Rostock at the beginning of April (see the article below) the RADOST team gave a report on how this mission has been accomplished, what experiences have been made and what plans exist for the future. The accumulated knowledge of five years has been made accessible to practitioners from politics and administration, businesses and non-governmental organizations in the form of four annual reports (the fifth edition is in the works), a further

21 volumes of the RADOST report series and many other publications. Even after the completion of the project, activities initiated within RADOST will be continued within a multitude of projects, discussion groups and cooperation agreements.

In this last RADOST newsletter, we once again want to give an overview of recent activities and results of this project. Furthermore, two members of the RADOST advisory board that have actively been involved in the project for the past two years will give a final appraisal of the project's successes (see page 2). Hence, we hope to encourage all participants to further engage in climate change adaptation measures and to do this in cooperation with other agents.

A big thanks goes out to all consortium and network partners that have contributed to RADOST project's success with all their dedication!

Dr. Grit Martinez
RADOST project leader

RADOST Final Conference Takes Stock, Looks Ahead

Taking place on April 1st and 2nd, 2014, the RADOST project's final conference drew 115 participants to Rostock to take stock of the research and networking created. Rostock's baroque town hall provided a suitable setting to this event. Scientists as well as partners from politics, public administration and business expressed their appreciation of the implementation and dialogue-oriented approach of the project.

In his opening speech, the Rostock Environment Senator Holger Matthäus described how the extreme weather events that took place in recent years have increased the willingness to proactively deal with climate change. Increased general awareness of climate risks, however, was not the only factor that ultimately led to the adoption of the city's framework concept for adaptation to climate ...to be continued on page 3

Content

Regional Activities

Looking Back on Five Years of RADOST	1
RADOST Final Conference Takes Stock, Looks Ahead	1
Looking Back: Comments on RADOST	2
Bay of Kiel Climate Alliance Seeks to Make the Region a Climate Conscious Vacation Destination	4
What's Next after RADOST?	4
New Web Tool: "Northern German Climate Monitor"	5

International Activities

RADOST at the European Maritime Day	6
Contributions wanted for ECCA Conference 2015	6

Publications

Communicating Adaptation to Regional Climate Change Impacts	6
New RADOST reports	7
Third Special Edition of "Coastal & Marine"	7

Events

8



RADOST flag in front of the Rostock town hall

Regional Activities

Looking Back: Comments on RADOST

“RADOST” has become a winged word – contribution from Hans-Joachim Meier, StALU MM



“RADOST” has become a winged word for the coastal area of Mecklenburg-Western Pomerania. I am a member of the RADOST advisory board and have twenty years of experience as the head of a governmental agency for agriculture and environment that is one of the major implementation partners in the RADOST project. Therefore, I can attest that the project is deeply rooted in the State of Mecklenburg-Western Pomerania.

For some citizens, the results might not be visible enough, just as the effects of climate change will only be discernible slowly. However, the KLIMZUG funding initiative has contributed substantially to society's increased engagement with potential climate change effects. This increased public awareness has made it possible to de-

clare the challenges resulting from climate change as priority tasks on the communal and political level. Municipalities and scientific institutions from the state have been actively involved in the communication process. Regular press briefings on the project's progress were part of a comprehensive public relations strategy.

On a daily basis at work, I see myself confronted with challenges due to the existence of financial constraints on the one hand, and an ever widening span of different tasks on the other. By financing an additional member of staff throughout the project duration, RADOST has substantially improved the performance of my agency. In addition, a lot of coworkers were exposed to the project's main topics and thus their awareness for the associated challenges was raised. In RADOST, a holistic approach was pursued which is not merely limited to coastal protection but also observes climate

change impacts on different relevant sectors and their interdependencies. Here I'd like to emphasize the work with relevant partners in the focus topic of agriculture, and furthermore the exchange initiated by RADOST between stakeholders from coastal protection and stakeholders from tourism. The RADOST project has created a viable building block for ongoing societal activities related to climate change adaptation and I am firmly convinced that it will continue to bear fruit long beyond the project's life span.

Hans-Joachim Meier is Head of the Staatliches Amt für Landwirtschaft und Umwelt (State Agency for Agriculture and Environment of Central Mecklenburg – StALU MM) in Rostock. He is a member of the RADOST advisory board. As a partner in the RADOST project, StALU MM has its focus on developing climate adaptation strategies for coastal protection.

The RADOST Network has Proven to be Effective – Contribution from Wolfgang Vogel, LLUR



Through its five years of research and structured knowledge management, the RADOST project has substantially contributed to determining the possible consequences of climate change in the Baltic Sea region and has helped develop appropriate measures for adaptation to climate change. Concrete options for action were identified in many areas, as well as precautionary measures and recommendations available for inclusion in ongoing activities.

Within RADOST, the Schleswig-Holstein State Agency for Agriculture, Environment and Rural Areas conducted research focusing on potential climate-related changes in the shallow water ecosystems of the Ger-

man Baltic coast, which are areas of high ecologic and economic importance. Environmental changes influenced by climate change are of particular importance to the assessment of water quality under the EU Water Framework Directive, and constitute a driver for costly measures in the Baltic Sea drainage area. The findings gained from RADOST will help adapt and optimize assessment methods and measures.

Numerous events initiated by project partners have demonstrated the effectiveness of the RADOST network, and contributed to further development of network structures. Activities like the Climate Pavilion in Schönberg or the “RADOST Tour” along the German Baltic Coast have proven to be effective tools in transferring knowledge and enhancing communication between stakeholders, researchers and the public. The RADOST

network has fully and completely lived up to its claims of creating bottom-up and top-down information flows. Knowledge made available through events and publications has also reached an international audience.

From the RADOST project, new, promising concepts and structures arose, such as the Kiel Bay Climate Alliance, which will continue to operate even after RADOST is completed.

Wolfgang Vogel is Director of the State Agency for Agriculture, Environment and Rural Areas of Schleswig-Holstein (LLUR) and a member of the RADOST advisory board. As a partner in the RADOST project, LLUR has its focus in the area of water management and is responsible for the implementation project “Quality Components of the Water Framework Directive: Fostering Eelgrass and Bladderwrack Populations”.

RADOST Final Conference Takes Stock, Looks Ahead

...continuation from page 1



Excursion in Rostock focusing on examples of flood-resilient building

change; the initiative of highly committed individuals was equally important, as there is no administrative department specifically responsible for adaptation to climate change.

Gerald Schernewski of the Institute for Baltic Sea Research in Warnemünde and coordinator of scientific research in RADOST declared the idea that close application is contrary to the claim of high-ranking, international research is a “myth”. On the contrary, research results were usually checked more thoroughly by decision-makers from politics and administration than by international peer-reviewers. Research that has passed this test subsequently also received international attention.

Looking back at the research undertaken in RADOST, scientists involved in the project remarked that several initial assumptions and expectations had to be revised. Uncertainties, complex interactions, and the effects of small-scale variations in local conditions had initially been underestimated. In the course of the project, it became clear that the greatest challenges were not posed by slow, gradual changes in mean climate conditions, but rather by an increase in extreme weather events.

With regard to aquaculture, Peter Krost (Coastal Research & Management, CRM) put forth that the idea of being able to cultivate Mediterranean species in the Baltic Sea was “not only naïve, but completely wrong”. While summers will get hotter, cold winters will also occur in the future, thus narrowing the spectrum rather than allowing a shift in the direction of thermophilic species.

For some areas, it turned out that the effects of climate change are significant, but not the decisive determinant. The future water quality of the Baltic Sea in the foreseeable future will depend more on changes in land use and corresponding policy guidelines. Business players such as the port industry or manufacturers of wind power and photovoltaic systems already tend to take the effects of extreme events into account in their planning and development, due to their economic relevance. As Heiko Wenzel of Competence in Ports and Logistics (CPL) stressed, however, working together on an adaptation strategy for the port of Lübeck has considerably helped the parties involved in getting a better notion of the scope and dimension of possible effects of climate change.

For the area of coastal protection, Peter Fröhle (Hamburg University of Technology) emphasized the added value provided by discussions with the local population. He observed that RADOST had been received with great interest in the region; local inhabitants had often been surprised at the extent of the risks arising from coastal erosion and flooding. In a similar vein, representatives of the local tourism industry consider that popularizing scientific findings on climate change and raising awareness of possible changes among tourists and the tourism industry is an essential task.

Scientists and practitioners thus agreed that RADOST has made an important contribution to increase regional awareness of the impacts of climate change. In future work, however, it will be all the more important not to address climate adaptation in isolation but to consider adaptation aspects when dealing with day-to-day problems. Furthermore, it was stated that climate change mitigation and adaptation issues should not be artificially separated from each other.

An accompanying exhibition showed not only posters, but also illustrative material from activities such as mussel farming, sea-state measurements, and generation of geothermal energy in the beach area. Specially for this event, the model of a beach section manufactured by Miniatur Wunderland in Hamburg was transferred to Rostock, which can be seen in the climate information pavilion in Schönberg near Kiel during the holiday season, informing tourists and locals about the challenges of climate change as well as adaptation options. At an excursion to the Rostock Petri district, which is currently being restructured, the conference participants had the opportunity to see examples of flood-resilient building.

The presentations and further information on the conference are available at: <http://klimzug-radost.de/termine/radost-abschlusskonferenz>

Regional Activities

Bay of Kiel Climate Alliance Seeks to Make the Region a Climate Conscious Vacation Destination



Geography students present their project on the development of an 'audio guide' for the climate pavilion to interested representatives from municipalities and the tourism industry.

On March 25th, the Bay of Kiel Climate Alliance held a kick-off conference in the Hütener Berge Nature Park in Schleswig-Holstein, which officially launched their "Bay of Kiel: A Climate Conscious Vacation Destination" initiative. The Globetrotter Lodge, an ecologically designed establishment committed to sustainability situated on the Aschberg, was the perfect venue for this event. Sixty-five experts from local councils, tourist associations, and environmental groups gathered to discuss the impact of climate change on vacation destinations, and gave presentations on existing or planned projects. In addition, findings of a study commissioned by the Climate Alliance were released to the public. Wolfgang Günther of the Institute for Tourism Research in Northern Europe (NIT) unveiled the survey results of Baltic Sea tourists who were asked their opinions on climate change and on climate conscious holiday options. Additionally, geography students presented several projects, describing development of specific climate education offers for visitors in the region.

A series of workshops will be held in the next two years to develop concrete con-

cepts for projects and initiate their implementation. A workshop entitled, "Tourism and 'Natural' Beaches – A Contradiction?" was held on April 14th in Eckernförde, and attracted 50 participants. Similar future events will address, among others issues, the idea of developing the Kiel Fjord area



Visible results of the workshop on "Tourism and 'Natural' Beaches"

into an e-Bike region, and the promotion of local food products. The ultimate goal of the project, which is sponsored by the German Federal Environment Ministry, is to create a model region for climate adaptation.

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What's Next after RADOST?

As of June 2014, the RADOST project will have officially ended. Individual consortium partners will continue their project activities until the end of the year. However, a number of parallel research projects have begun which will incorporate the project results in the coming years and continue the work RADOST has started. One such project is **SECOS** (The Service of Sediments in German Coastal Seas), operated by the Leibniz Institute for Baltic Sea Research, Warnemünde (IOW) and the Institute for Ecological Economy Research (IÖW), along with other partners. **SECOS** explores the ecosystem services of sediments in the coastal waters of the German Baltic Sea.

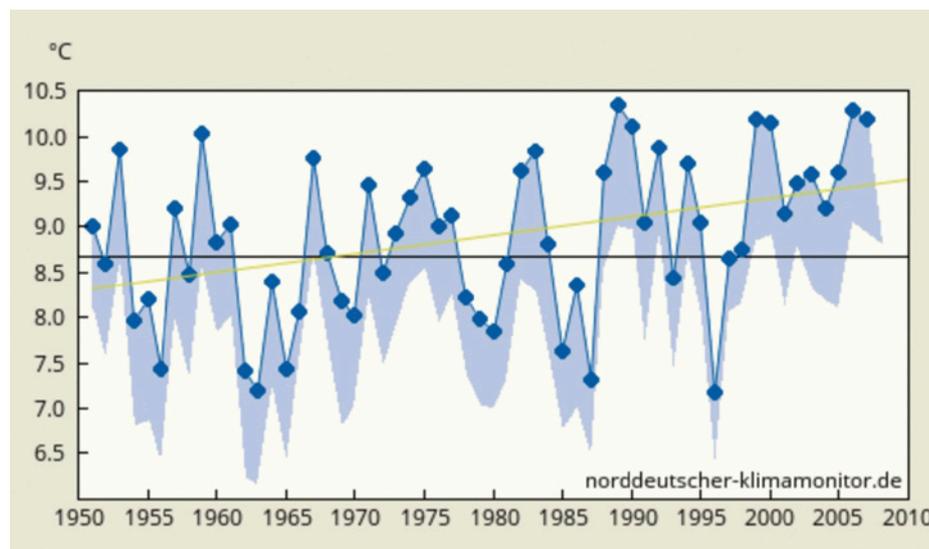
Furthermore, the Helmholtz-Zentrum Geesthacht and the IOW continue work on RADOST themes within the project **MOSSCO** (Modular System for Shelves and Coasts), which is developing a modular data and model system for shelf seas and coasts that combines existing model systems. The modular concept will be tested in an application to the entire German North Sea and Baltic Sea, and will include physical, biological, chemical, and geological parameters. Inter alia, sediment and nutrient fluxes along the coast will be studied. (For more information on both projects, see: www.deutsche-kuestenforschung.de)

At the European level, Ecologic Institute is involved in several relevant projects, such as **BASE** (Bottom-Up Climate Adaptation Strategies for a Sustainable Europe), which supports measures for sustainable climate adaptation in Europe, including by evaluating case studies from the Baltic Sea region (<http://base-adaptation.eu>). The project **Risckit** (Resilience-Increasing Strategies for Coasts Toolkit) aims at reducing risks from meteorological events on European coasts (www.risckit.eu). In addition to these projects, the Baltic Sea research project Soils-2Sea is working towards the reduction of

nutrient emissions from agricultural soils via ground and river waters in the region (www.soils2sea.eu).

The **North German Climate Office** will continue to specifically showcase climate research results with relevance to the coastal area. Even after RADOST has ended, the established network will be used to disseminate information and invite members to relevant events. Furthermore, the dossier **Climate Change in Northern Germany** within the 'Climate Navigator' website (www.klimanavigator.de) provides an overarching information platform in which RADOST results have been incorporated among other sources. Finally, documents from RADOST and the other KLIMZUG projects will be permanently available in a KLIMZUG Archive via Climate Navigator.

New Web Tool: "Northern German Climate Monitor" Shows the Effects of Climate Change in Northern Germany



Graphic from the Climate Monitor showing temperature development of the past

Ongoing sources of up-to-date information include the following newsletters:

Coastal and marine research:

Küsten Newsletter

www.eucc-d.de/newsletter.html

INPRINT

www.loicz.org/products/publication/inprint_latest/index.html

Baltic Earth Newsletter

www.baltex-research.eu/publications/newsletter.html

Climate impacts and adaptation:

Bay of Kiel Climate Alliance

www.klimabuendnis-kieler-bucht.de

KomPass-Newsletter

www.umweltbundesamt.de/themen/klima-energie/klimafolgen-anpassung/kompass/kompass-newsletter

CSC-News-Scan

www.climate-service-center.de/011607/index_0011607.html.de

BASE-Newsletter

<http://base-adaptation.eu/contact>

Ever wonder how climate in Northern Germany has changed since 1951? Find the answer with the help of the "Northern German Climate Monitor" webpage developed by the Northern German Climate Office at Helmholtz-Zentrum Geesthacht (HZG) and the German Weather Service (DWD)'s Hamburg Regional Climate Office.

The Northern German Climate Monitor is the first tool of its kind for the region, which allows users to analyse and observe Northern Germany's climate from the last 60 years (1951-2010). By using this new interactive tool, a wide range of information pertaining to the regional climate is available for perusal, displaying information including the sunniest part of the region (Cape Arkona on Rügen) and the area with the highest average rainfall and coldest annual average temperature (The Brocken Peak).

Additionally, the Northern German Climate Monitor allows users to compare regional climate scenarios with how climate in the region has actually evolved in the past. This allows users to see whether previous climate changes can be attributed to natural

causes or whether they may reflect the consequences of anthropogenic greenhouse gas emissions.

The tool's database is provided by meteorological data from the DWD Measurement Network, related area-data sets as well as reanalysed data from the coastDat data set for Northern Germany. Beyond usual climate parameters of temperature and precipitation, the tool also includes information regarding wind, humidity, cloudiness, and average sunshine.

The Northern German Climate Monitor was conceived as an open system in which additional indicators can be integrated if need be. The German Weather Service's Hamburg Regional Climate Office and the Northern Germany Climate Office at the Helmholtz-Zentrum Geesthacht welcome suggestions for new indicators. Furthermore, the records contained in the tool are regularly updated.

All the information pertaining to this tool can be obtained for free online at: www.norddeutscher-klimamonitor.de

RADOST at the European Maritime Day

The European Maritime Day (EMD) took place from 18 to 20 May 2014 in Bremen. Central to the event was the two day international conference with a focus on innovation and maritime technologies under the motto "Innovation Driving Blue Growth".



RADOST presents research results at the public day of the European Maritime Day.

RADOST project leader Grit Martinez presented research results in the workshop "Ports and Coasts at Threat", where the threat of coastal infrastructure from extreme events was discussed and courses of action were presented for, among others, the ports of Kiel, Hamburg, and Bremen. Martinez stressed research activities across disciplinary boundaries and involving local, relevant stakeholders as essential for the reduction of coastal risks, with RADOST as an example of such a research approach.

Before the conference, a "public day" for EMD was held along the banks of the Weser River on May 18th. On this "Research Alley", research organizations presented their results to the public. RADOST partners, such as EUCC – The Coastal Union Germany and Ecologic Institute, presented their research and took the opportunity to discuss the results from RADOST with locals from Bremen and the surrounding region.

Further information:

<http://ec.europa.eu/maritimeaffairs/maritime-day/>

Communicating Adaptation to Regional Climate Change Impacts



Adaptation can only be implemented in due time by successfully communicating future climate changes and their possible consequences – but how can this be done? Which communication method is suitable for which target group? Is spreading horror scenarios an appropriate means to instigate change? How can today's young minds be made aware of the interaction between climate change mitigation and adaptation?

A new collection summarizes the experiences in the field of communicating adaptation that were gained within RADOST and the other projects funded under the initiative "KLIMZUG – Climate Change in Regions". A total of 50 authors share proven methods in addition to theoretical approaches and practical examples, ranging from online databases to innovative concepts for events, films and ways of conveying knowledge in a playful manner, and further to art and culture projects. RADOST contributions to the volume in-

Contributions wanted for ECCA Conference 2015

The second European Climate Change Adaptation (ECCA) Conference on "Integrating climate adaptation action in science, policy, practitioners, and business", an initiative of the European Commission, will take place in Copenhagen from 12-14 May 2015.

At this stage, the program is still wide open. All interested parties are invited to submit proposal for sessions, workshops, and other activities on climate change adaptation.

Science and implementation of adaptation (including cross-over with mitigation) will be at the core of the program.

Specifically, there are three types of conference sessions, including science (to exchange latest research results); science, policy, and practice interfaces (to discuss common issues related to adaptation); and science, policy, and business (which focuses on the facilitation of public-private-partnerships).

More information can be found on the ECCA website: www.ecca2015.eu

clude a summarized analysis of the various stakeholder surveys conducted in the project with a focus on their perceptions of climate change, a comparative study of two coastal communities, and an evaluation of the RADOST Tour carried out during the fall 2012 with regard to the effect of its communication strategy.

The book is available for €44.95 at oekom publishing, or as an e-book (€35.99) on www.ciando.com.

New RADOST reports

In the past months, more RADOST research results from different topic areas were made public in the form of reports. RADOST report no. 23 presents the results of a survey with port authorities and port businesses. The Institute for Ecological Economy Research (IÖW) carried out the survey to create an overview of the current vulnerability of German ports at the Baltic Sea with regard to extreme weather conditions such as storm flooding, heavy rain, heat waves and cold waves, and of the implemented and planned adaptation measures for the first time. On the basis of this, critical base components for adaptation measures are being developed in RADOST in cooperation with the port management.

Two new RADOST reports deal with the effects of climate change on eelgrass and bladderwrack, which have critical ecosystem functions in the coastal waters of the German Baltic Sea. RADOST report no. 24 gives an overview of how different environmental factors influenced by the climate, such as water temperature and nutrient loads, can affect both plant species, and it further considers indirect effects such as changes of species composition in the habitat. RADOST report no. 25 (in English) lays a special focus on bladderwrack and analyzes how the repeated and combined appearance of different stressors affects the mortality rate of the plants in their early life stages.

RADOST report no. 26 addresses the question of how climate change might affect the prospects of aquaculture in the Baltic Sea. Higher temperatures, rising sea levels, acidification and the degree of salinity of sea water are of special importance in this case. The report analyzes what changes can be expected regarding currently cultivated algae, fish and mussel species and what species could be cultivated in the future. In the report's conclusion, the concept of a sustainable, climate adapted aquaculture is introduced. This concept has already been partly realized in the fjord of Kiel.

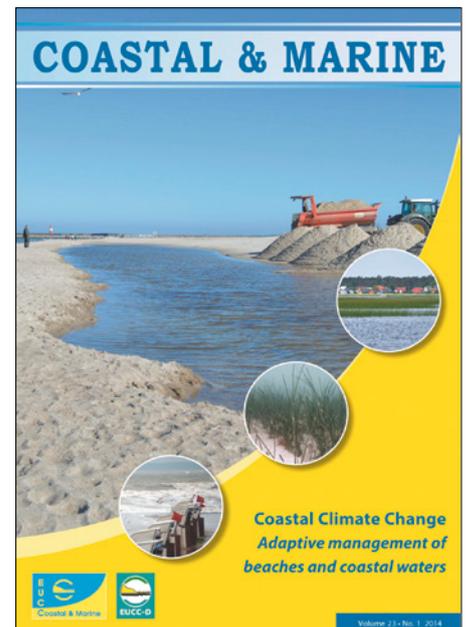
Free download at:

<http://klimzug-radost.de/publikationen/berichtsreihe>

Third Special Edition of „Coastal & Marine“: Adaptive Management of Beaches and Coastal Waters

For the third edition of the special series on climate change adaptation, „Coastal & Marine“ has chosen as its focus the management of beaches and coastal waters; results from national and international research projects are presented to the general public. The magazine contains information about adaptation strategies for the management of tourist beaches and shows findings and prognoses on the development of water quality and eutrophication.

Some of the contributions come from RADOST research or are related to the work RADOST has undertaken. The Bay of Kiel Climate Alliance, an initiative that was launched within RADOST, is presented on the topic of beach management. In regard to the topic of water quality and eutrophication, the issue presents conclusions from RADOST research on the question of how



climate change affects the definition of water management objectives. Furthermore, it describes the “controlled drainage” pilot project implemented by the University of Rostock with support from RADOST, which has the goal of reducing nutrient inputs from agriculture.

This international magazine also invites the reader to take a look beyond the borders. It reports on a study examining the feasibility of a multifunctional reef, which could offer benefits for coastal protection, as well as bathing and surfing tourism, on a stretch of beach in the Azores. A similar concept was previously explored by RADOST for the coast of the Probstei region, in Schleswig-Holstein. Another contribution analyses common challenges faced by the Baltic and Black Seas with regard to tackling eutrophication in a changing climate.

This special series is published by EUCC – The Coastal Union Germany e.V. together with its international parent organization, the Coastal & Marine Union. Another edition dedicated to the topic of biodiversity and nature conservation is planned for 2014 with further contributions from RADOST.

A PDF version is available at:

www.eucc-d.de/coastal-and-marine.html

Termine

Climate Adaptation in the Coastal Region - 3rd Regional Conference of the Federation and the Northern German coastal states
5 June 2014, Lübeck, Germany
<http://bit.ly/1m8N096>

South Baltic Conference on New Technologies and Recent Developments in Flood Protection
5 – 6 June 2014, Gdansk, Poland
http://en.southbaltic.eu/news/?lang_id=2&id_news=1343

Adapting to Change: From Research to Decision-making
Third Nordic International Conference on Climate Change Adaptation
25 – 27 August 2014, Copenhagen, Denmark
<http://nordicadaptation2014.net>

Littoral Conference 2014
23 – 26 September 2014, Klaipeda, Lithuania
<http://balticlagoons.net/littoral2014/>

Deltas in Times of Climate Change II – Opportunities for People, Science, Cities and Business
24 – 26 September 2014, Rotterdam, Netherlands
www.climatedeltaconference2014.org/

„Our Climate – Our Future, Regional perspectives on a global challenge“
6 – 9 Oktober 2014, Berlin, Germany
<https://reklim-conference-2014.de/>

European Climate Change Adaptation Conference (ECCA) 2015
12 – 14 Mai 2015, Copenhagen, Denmark
www.ecca2015.eu/

Imprint

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