

Instruments for advising on regional climate change

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The spectrum of responses to the prospect of man-made climate change includes apart of the reduction of greenhouse gas emissions also modifications of the local and regional environment. The intention of these modifications is 1.) to influence regional and local climate (mitigation), as well as 2.) to reduce regional and local vulnerability (“adaptation”). Even in the case of a successful climate policy leading to significant reductions of greenhouse gas emissions, knowledge about regional and local manifestations of anthropogenic climate change is needed for appropriate adaptation measures.

Any communication with stakeholders, be they public or private, needs to acknowledge the competition of knowledge claims within society. At the Institute of Coastal Research, the strategy for regional and local interaction with stakeholders is based on the insight (e.g., von Storch, 2009):

- The stakeholders, including the media and the public at large interpret the science in their cultural framework. Scientific knowledge undergoes many transformations before entering the public sphere. Vested interests, political as well as economical, play a role in this transformation. To fully comprehend this transformation social and cultural sciences are needed.
- Only to a limited extent do scientists understand the concerns among stakeholders and the public at large. Some of these concerns are not rational, some are even outlandish, but because they prevail in the social arena. Nevertheless, they influence the political decision process. Science needs to be aware of the full spectrum of issues that the public is concerned about.
- Comprehensive analyses of the regional and local climate, as well as climate impacts, are not the only requirement. In addition, basic concepts — such as natural climate variability, detection of human-induced change and attribution to causes, scenarios and uncertainty — need to be explained to the public.

In a first step a comprehensive data set on regional climate change was opened to the public in 2006. It is describing recent, ongoing and possible future climate change and impacts on marine weather. The data set has been compiled with the help of a cascade of climate and climate impact (storms, storm surges and waves). This data set has been named CoastDat (www.coastdat.de; Weisse et al., 2009) and is widely used by a variety of public and private stakeholders.

Soon it turned out that there was not only a demand on regional climate change data but also on direct and understandable answers to regional specific questions on climate change. Based

on the abovementioned insights (von Storch, 2009), the “Norddeutsches Klimabüro” (North German Climate Office; (<http://www.norddeutsches-klimabuero.de/>)) has been established by the Institute of Coastal Research in 2006 for pursuing an adequate exchange of knowledge, questions and answers with local stakeholders (von Storch and Meinke, 2008). The North German Climate Office is making use of the scientific products of the Institute of Coastal Research, incl. its transdisciplinary cooperation with cultural and social scientists. There is also a close cooperation to the KlimaCampus at the University of Hamburg. The North German Climate Office addresses mostly regional and local stakeholders in policy, authorities and public or private companies. The North German Climate Office is also feeding back its understanding of stakeholder concerns and questions into the scientific process. Exchange on regional climate change is needed e.g. for coastal defense strategies, energy and water supply and for the tourism management.

The portfolio of the regional climate office encompasses talks, direct consulting and press work as well as regional climate assessment reports (von Storch and Meinke, 2008). Based on the method of the IPCC assessment, reports for past, ongoing and possible future climate change are generated for certain regions. In addition to the regional climate change also the impact on the ecosystem and the economy in that particular region is focused. A first report was published for the Baltic Sea catchment in 2008 (BACC author team, 2008). This “BALTEX Assessment of Climate Change for the Baltic Sea basin“ (BACC; <http://www.baltex-research.eu/BACC/>) was accepted in March 2007 by the Helsinki Commission (HELCOM) for the Baltic Sea as the basis for political deliberations. An update of the BACC report is planned for 2012. A similar regional climate report is currently compiled for the metropolitan region of Hamburg. It is expected to be published in 2010.

Other regional climate offices have been set up by other research centers within the Helmholtz Association of German Research Centers (HGF) in Bremerhaven, Leipzig and Karlsruhe.

See also:

The BACC author team, 2008: *Assessment of Climate Change in the Baltic Sea Basin.*, Springer Verlag Berlin - Heidelberg; ISBN 978-3-540-72785, 473 pp

von Storch, H., 2009: Klimaforschung und Politikberatung - zwischen Bringeschuld und Postnormalität. *Leviathan, Berliner Zeitschrift für Sozialwissenschaften* 2/2009, in press

von Storch, H. and I. Meinke, 2008: Regional climate offices and regional assessment reports needed. *Nature geosciences* 1 (2), 78, doi:10.1038/ngeo111

Weisse, R., H. von Storch, U. Callies, A. Chrastansky, F. Feser, I. Grabemann, H. Günther, A. Plüss, T. Stoye, J. Tellkamp, J. Winterfeldt and K. Woth, 2009: Regional meteo-marine reanalyses and climate change projections: Results for Northern Europe and potentials for coastal and offshore applications, *Bull. Amer. Meteor. Soc.*, doi: 10.1175/2008BAMS2713.1