

# Regional climate services - the case of Hamburg and the Elbe estuary

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## Constructions

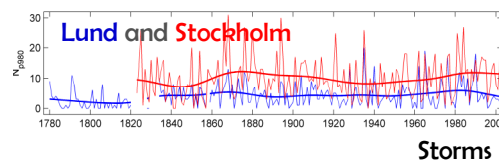
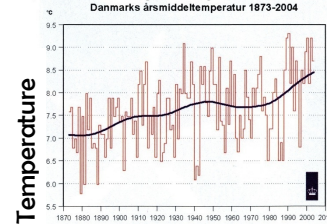
- Climate change is a „constructed“ issue. People do not really experience „climate change“.
- One construction is scientific, i.e. the analysis of an „objective“ analysis of observations and interpretation by theories.
- The other construction is cultural, in particular maintained and transformed by the public media.
- Climate science is in a post-normal phase (where interest-led utility is a significant driver, and less so “normal” curiosity)

## Two different construction of „climate change“ – scientific and cultural – which is more powerful?



Cultural: „Klimakatastrophe“

Scientific: man-made change is real, can be mitigated to some extent but not completely avoided

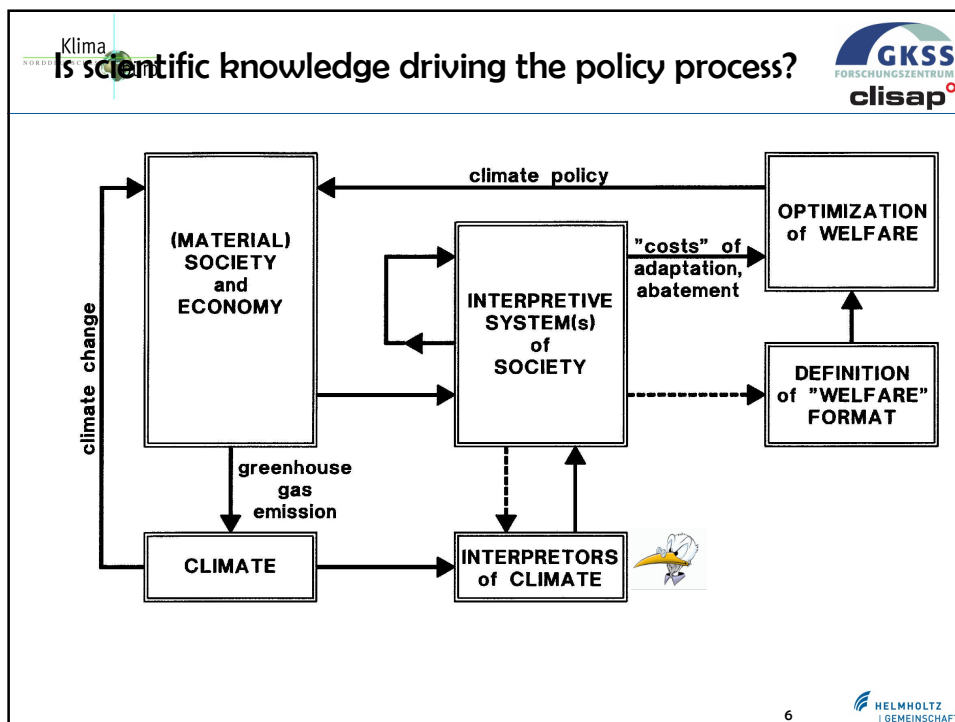
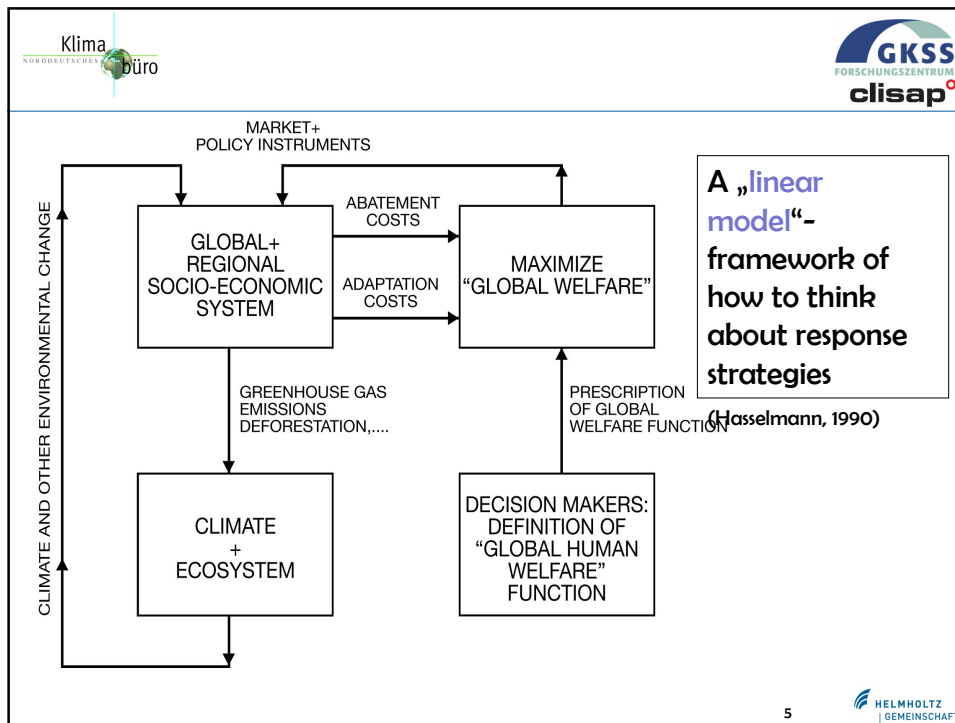


## Possible Responses to Anthropogenic Climate Change

Two classes of options for response:

- avoiding man-made changes („mitigation“) – this has different dimensions, namely avoiding elevated levels of GHG concentrations by reduced emissions; by intensified sinks; by geo-engineering the global albedo, or regional and local conditions.
- adapting to man-made changes („adaptations“) of climate.

In principle, limiting the cause of anthropogenic climate change (i.e., reduction of emissions) is preferable over adaptation, but complete mitigation seems impossible so that the best strategy is to mitigate as much as affordable and to minimize negative consequences by adaptation.




- The science-policy/public interaction is not an issue of „knowledge speaks to power“.
- The problem is not that the public is stupid or uneducated.
- Consensus on scientifically generated knowledge is not sufficient to derive (culturally acceptable) political consensus. The “linear model” does not work.
- The problem is that the scientific knowledge is confronted on the „explanation marked“ with other forms of knowledge (pre-scientific, outdated; traditional, morphed by different interests). Scientific knowledge does not necessarily “win” this competition.


1. Analysis of cultural construct, including common exaggeration in the media.
  - Determination of response options on the local and regional scale: mainly adaptation but also regional and local mitigation.
  - Two-way interaction of stakeholders and climate knowledge brokers in „Klimabureaus“.
2. Analysis of consensus on relevant issues (climate consensus reports).
3. Description of recent and present changes.
  - Projection of possible future changes, which are dynamically consistent and possible („scenarios“).








**North German Climate Office@GKSS**



An institution set up to enable **communication** between science and stakeholders

- that is: making sure that science understands the **questions and concerns** of a variety of stakeholders
- that is: making sure that the stakeholders understand the **scientific assessments** and their **limits**.



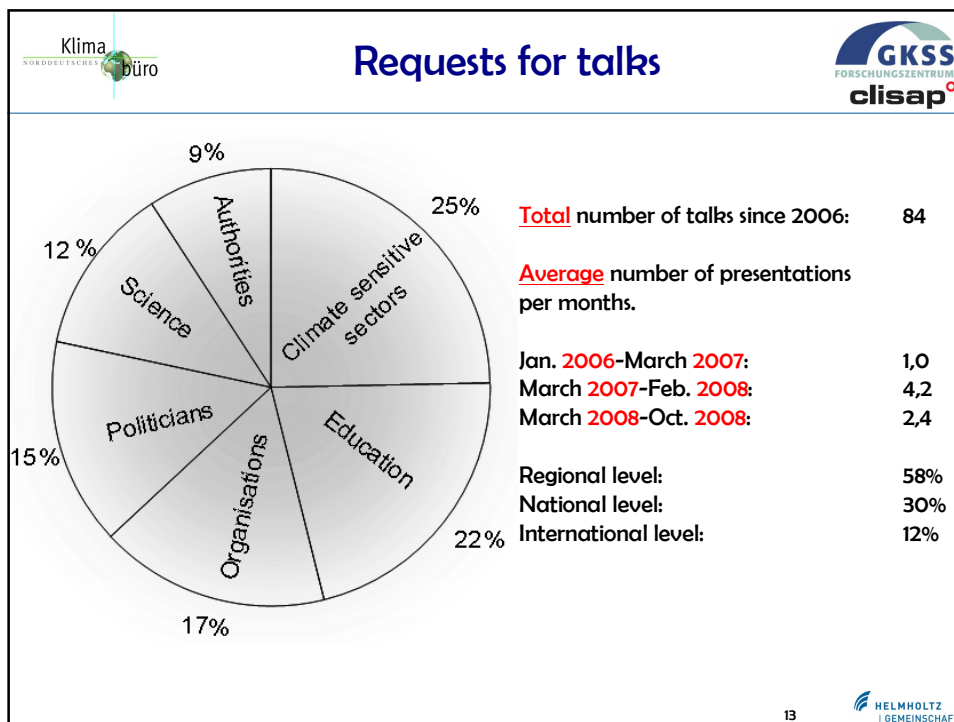
**Typical stakeholders:**  
 Coastal defense, agriculture, off-shore activities (energy), tourism, water management, fisheries, urban planning


- Climate variations are normal, why is the recent warming not normal?
- How can we talk about future climate if we are not able to forecast the weather of tomorrow?
- When do we expect the next ice age?
- Will the gulf stream slow down?
- Is there already an accelerated sea level rise?
- How much will sea level rise in future?
- Are our dikes high enough?
- Will Hamburg be flooded?
- Are there any advantages in climate change?
- What can we do?

### Flooding of North Sea coast after 5 m sea level rise


– if there would be no coastal defense!







## climate consensus reports 2

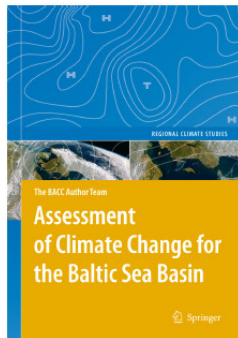



### Assessments about regional climate change

- for the recent past (200 years), for present change and possible future change
- consensus of what is scientifically documented

for

- + Baltic Sea (BACC) – BACC 1 done, BACC 2 just launched
- + Hamburg region (underway)
- + North Sea (presently initiated)



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## The Climate Change Assessment: Report for the Baltic Sea catchment - BACC

An effort to establish which scientifically legitimized knowledge about anthropogenic climate change is available for the Baltic Sea catchment.

Approximately 80 scientist from 10 countries have documented and assessed the published knowledge.

The assessment has been accepted by the inter-governmental HELCOM commission as a basis for its future deliberations.

For 2013 the publication of a second assessment report (**BACC II**) is planned.



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## Climate assessment for the metropolitan region of Hamburg

In 2007-2010 a climate assessment report about the scientifically documented knowledge of climate change in the region of Hamburg will be prepared. This is an activity of the Climate Center of Excellence CLISAP at the University of Hamburg, jointly operated with GKSS and MPI.

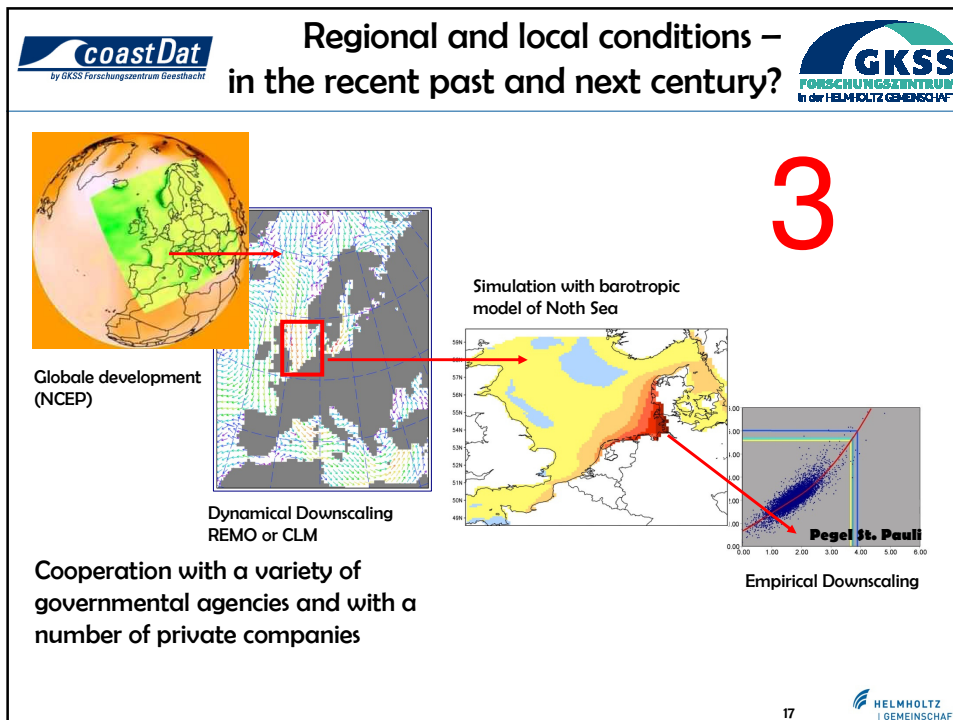
The effort is supported by the Senate of Hamburg and by the Environmental Ministry of Schleswig Holstein.



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by GKSS Forschungszentrum Geesthacht

# www.coastdat.de



FORSCHUNGSZENTRUM  
in der HELMHOLTZ GEMEINSCHAFT

The CoastDat data set:

- Long (50 years) and high-resolution reconstructions of recent offshore and coastal conditions mainly in terms of wind, storms, waves, surges and currents and other variables in N Europe
- Scenarios (100 years) of possible consistent futures of coastal and offshore conditions
- extension – ecological variables, Baltic Sea, E Asia, Laptev Sea

Clients:

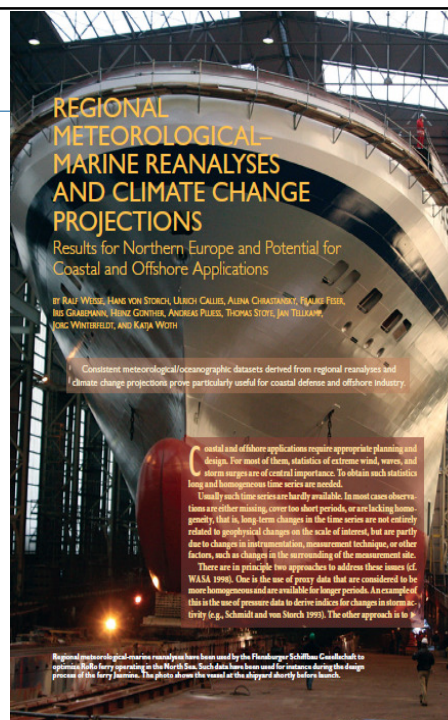
- Governmental: various coastal agencies dealing with coastal defense and coastal traffic
- Companies: assessments of risks (ship and offshore building and operations) and opportunities (wind energy)
- General public / media: explanations of causes of change; perspectives and options of change

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## Summary: Climate science in society

- Climate science is no longer an effort driven solely or mostly driven by curiosity.
- Instead, climate science is a resource for the society in dealing with climate change.
- In doing so, science has to better understand how to deal with questions, concerns and needs in the society.
- Science should establish the degree of consensus, including the consensus on dis-sensus.
- Useful data sets for risk analysis, impact analysis and adaptation planning need to be established.
- Science must act against surging politicization of itself.