



Sea Level Change and Spatial Planning in the Baltic Sea Region: findings of the SEAREG project



Poster presentation by Johannes Klein, Michael Staudt and Philipp Schmidt Thomé

SEAREG Decision Support Frame

Modelling & GIS Application

The SEAREG project assesses the major impact zones caused by sea level rise (SLR) in the Baltic Sea Region using GIS-based methods.

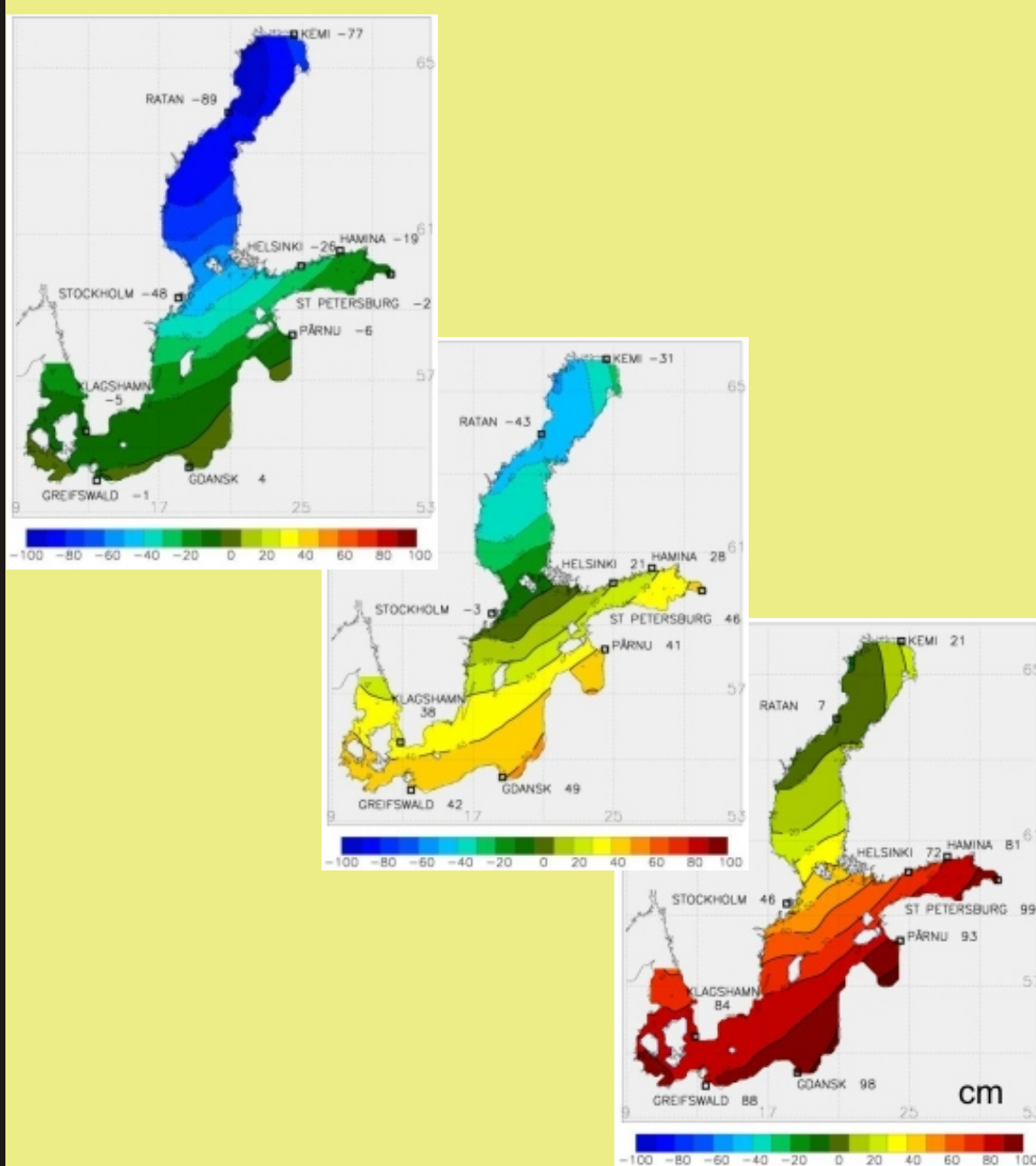


Figure 1: Three SLR scenarios: "Low Case", "Ensemble Average" and "High Case"

The sea level 100 years after present (2071 to 2100) is estimated by a high-resolution regional ocean model; taking into account local land uplift or subsidence rates. The projected sea level rise refers to the NH 60 equipotential surface. Two general circulation models (GCM) provide the boundary conditions for the regional ocean model, accomplished by using two emission scenarios (A2 and B2) by IPCC. Based on these, three different Scenarios developed for the Baltic Sea Region (see Fig. 1).

The results were processed in a GIS to outline areas of inundation and flood prone areas for each case study area.

Vulnerability Assessment

The intensity and the sort of the impacts that might affect the coastal area of Baltic Sea differ largely depending on location. The Vulnerability Assessment (VA) enables a systematic examination of a local system to highlight the most critical issues concerning future sea level rise (SLR).

As a part of the DSF the Vulnerability Assessment supports the work of local planners and decision makers and helps to take into account SLR for long-term spatial planning.



Figure 2: Map of Pärnu displaying the "High Case" SLR Scenario and 100-year Storm Surge

The VA comprises an impact and coping capacity assessment. The Vulnerability results from the level of impact and the coping capacity.

Knowledge Base

A set of reference points is needed when discussing the effects of sea level rise on planning in various localities.

Key themes include climate change and land uplift, as well as risk communication and participation of various stakeholders.

The experience from other areas can help to consider possible options of action in a user's own locality. The Knowledge Base contains examples of existing regulations and planning guidelines related to flooding, while the specific legislative references to sea level rise are still scarce in the Baltic Sea Region.

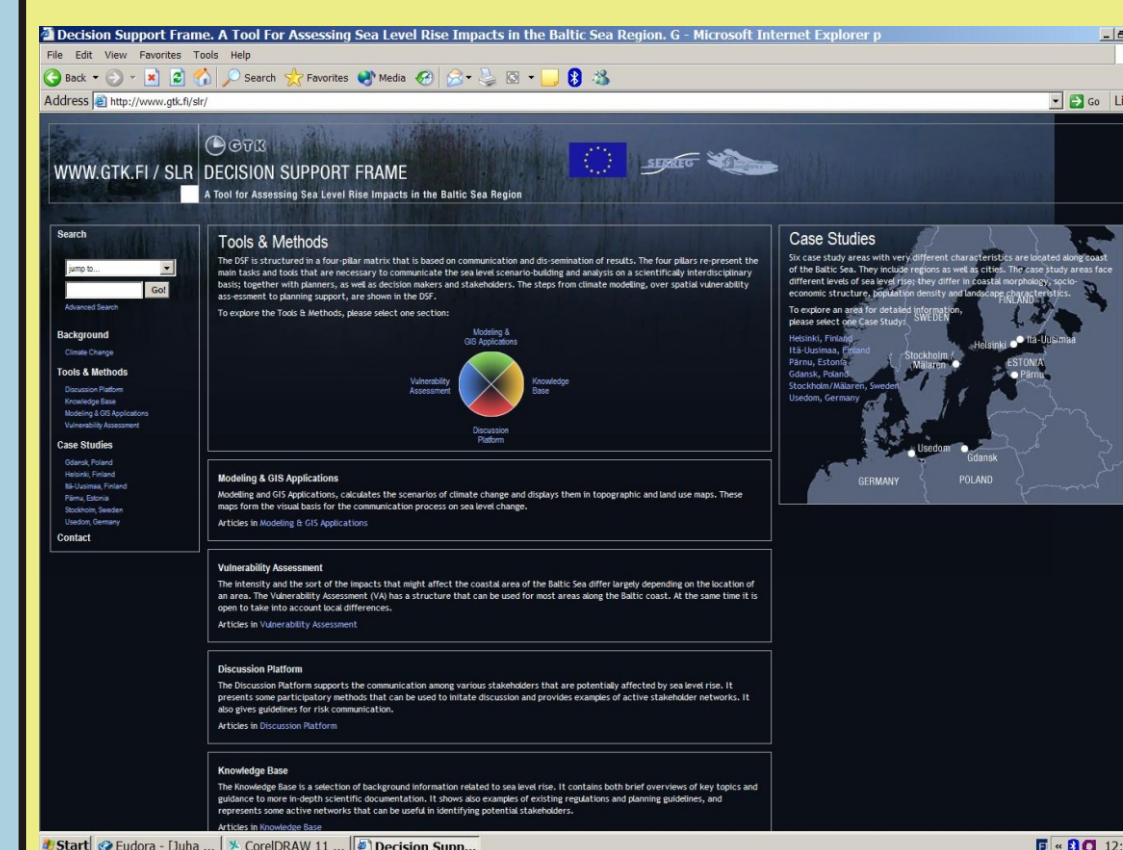


Figure 3: Screenshot of the Decision Support Frame (DSF) web application (www.gtk.fi/slr)

The Knowledge Base contains also easy to understand texts on climate change and sea level rise. It forms a basis for developing The Discussion Platforms and supports the Vulnerability Assessment (e.g. stakeholder identification).

Discussion Platform

The Discussion Platform supports the communication among various stakeholders that are potentially affected by sea level rise. It provides examples of active stakeholders networks and presents participatory methods that can be used to initiate discussion and construct stakeholders networks.

It also presents the experiences from various case study areas. For the localities that decide to take action due to future sea level rise the Discussion Platform provides guidance on risk communication in the in the form of recommendations.

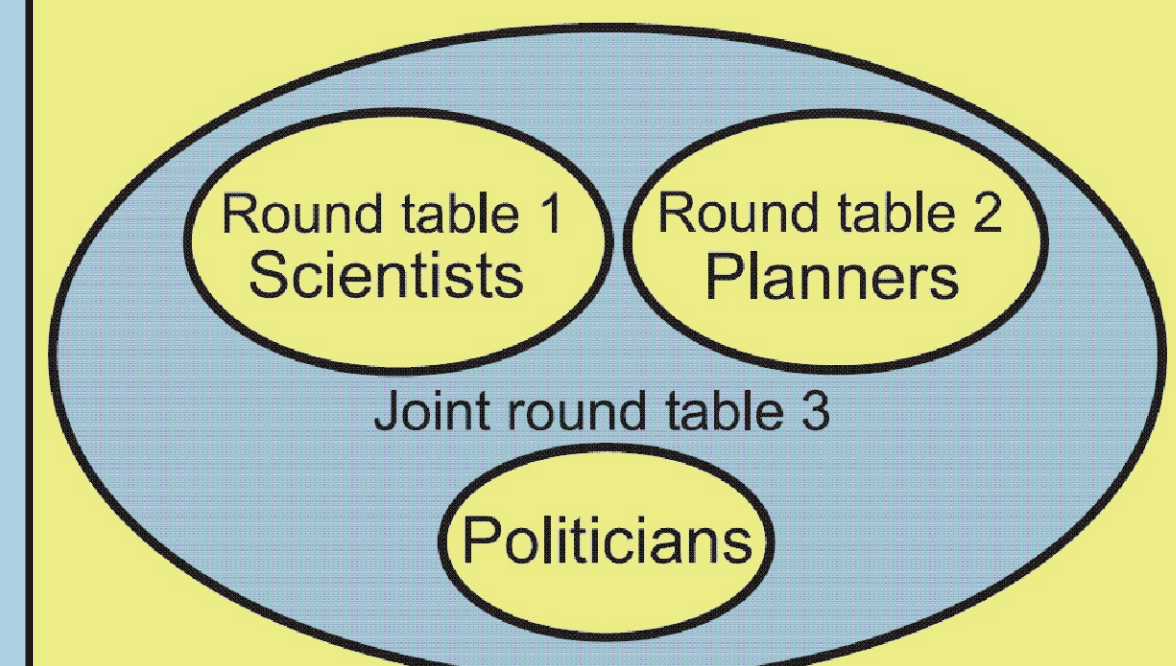
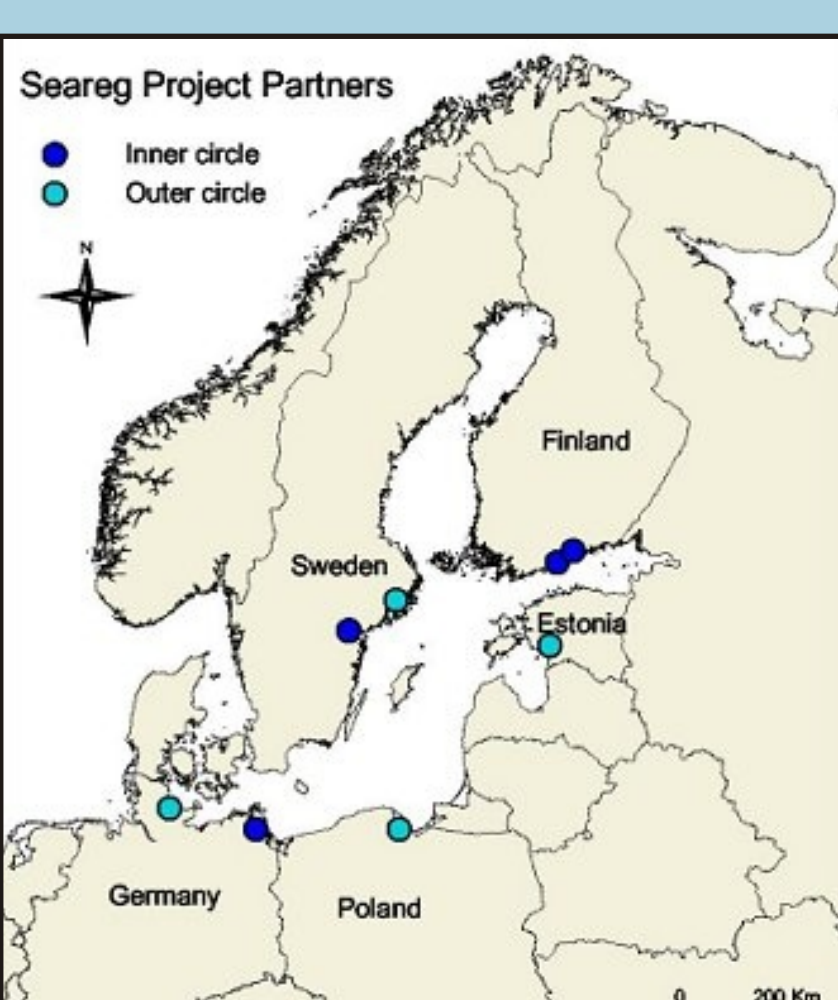


Figure 4: Structure of the Round Table Discussions

Co-operation, Participation, Learning



SEAREG case study areas:

- Gdansk region (Poland)
- Pärnu region (Estonia)
- Stockholm region (Sweden)
- Helsinki, Porvoo and Loviisa region (Finland)
- Greifswald region (Germany)

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Center for Urban and Regional Studies (CURS/YTK)
Swedish Meteorological and Hydrological Survey (SMHI)
University of Greifswald
Regional Council of Itä-Uusimaa

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