Climate Atlas view on sea level change in future

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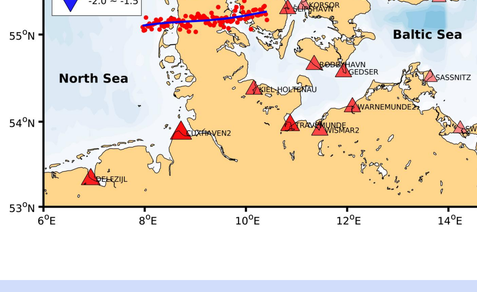
'Danish Climate Atlas' – New national climate service initiative

- Informing municipal planning about climate variability and change, impacts, and response options
- DMI prepares a climate dataset for temperature, precipitation, extreme rainfall, sea level and storm surge
- The climate data is on the basis of the DMI's observational and operational dataset and climate scenarios based on IPCC reports
- The use of climate data will follow the guide 'Vejledning i anvendelse af udledningsscenarier' by DMI & Miljøstyrelsen, Sep 2018



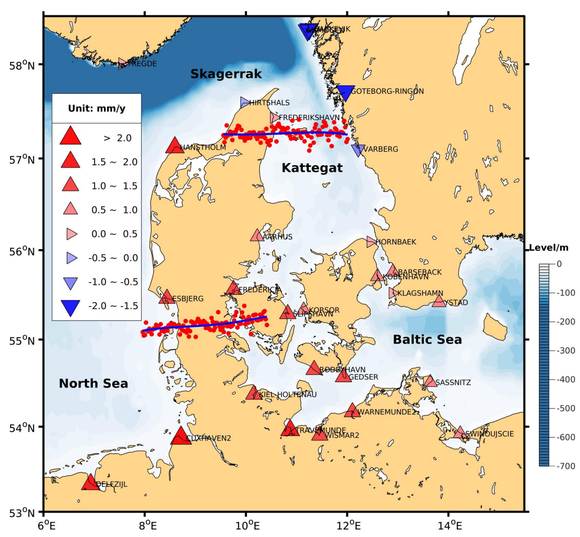
Storm surge wall in town of Lemvig, Denmark

The datasets of sea level and storm surge

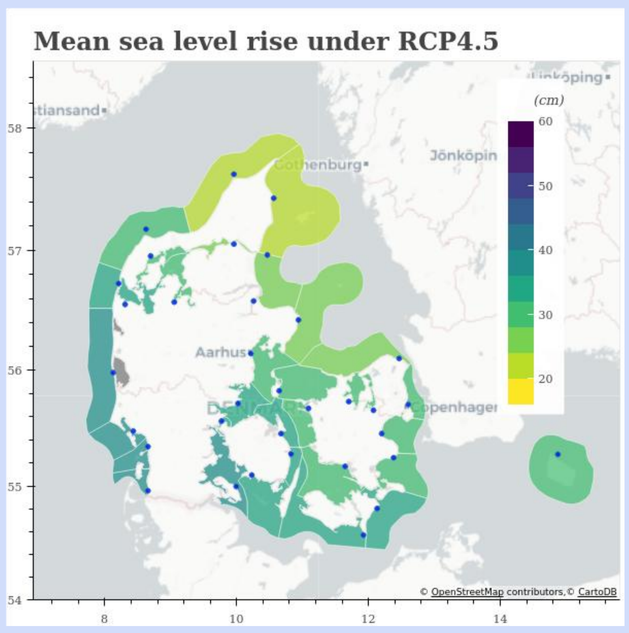
- Considering regional variations, at mid-sea level.
- Statistics for storm surges in the form of 20, 50, 100 and 10000-year return values.
- In addition, the scope and statistics for worst-case storm-flood events are used in connection with securing the climate threat of particularly important infrastructure.
- The uncertainty of the storm surge estimation in future was calculated by ocean climate models, including, ensemble of RCMs, statistical methods and scenarios.

Regional sea level rise

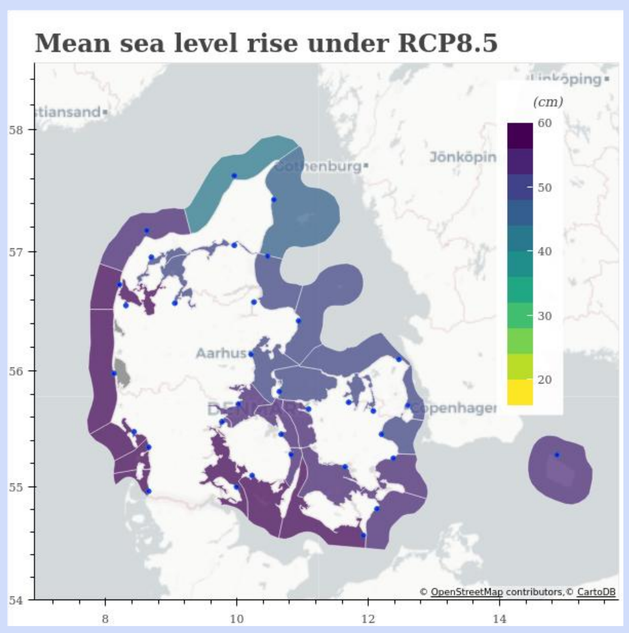
Present climate



End 21st century RCP4.5

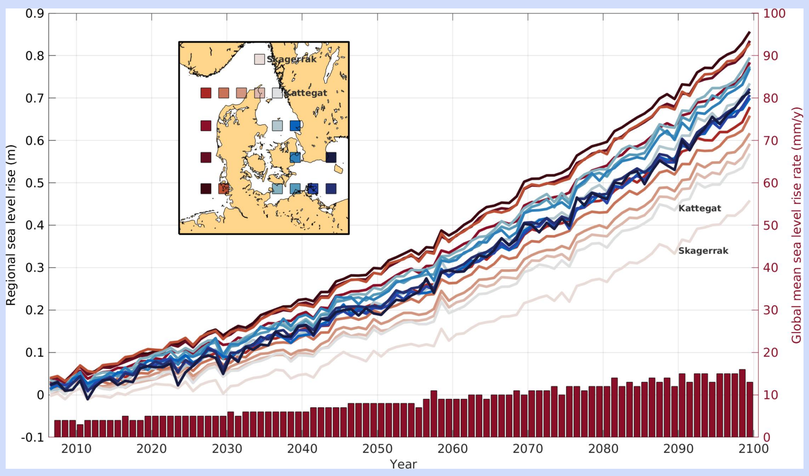


End 21st century RCP8.5

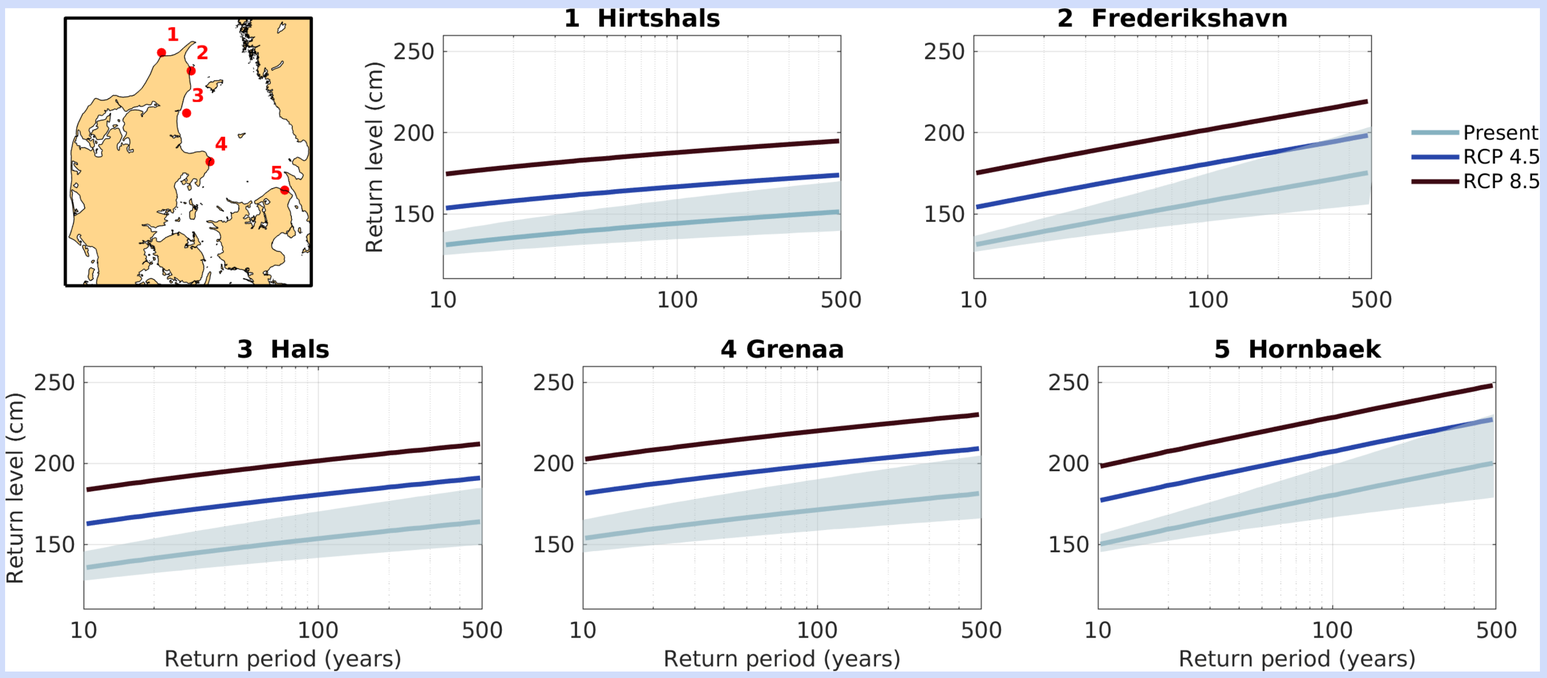


Using the dataset with caution:

- Ocean dynamics on local scales
- Land uplift in future
- Interpretation of extreme sea levels
- Uncertainty and next centuries.



Storm surge in future



Su J., Andrée E., Nielsen, J.W., Olsen, S.M., Madsen, K.S., 2021. Sea level projections from new IPCC report call for a new climate adaptation strategy in the Skagerrak-Kattegat Seas, *Frontier in Marine Science*, doi: 10.3389/fmars.2021.629470

The expected extreme sea level (ESL, cm) with the corresponding return period at x-axis at 5 tide gauge locations in Skagerrak-Kattegat in present and future conditions (in 2070–2100). The gray lines are based on tide gauge observations, and the gray bands refer to the 5–95% uncertainty range in the fit of the extreme value distribution to observations from IPCC SROCC.