Regional wave model climate projections for coastal impact assessments under a high greenhouse gas emission scenario

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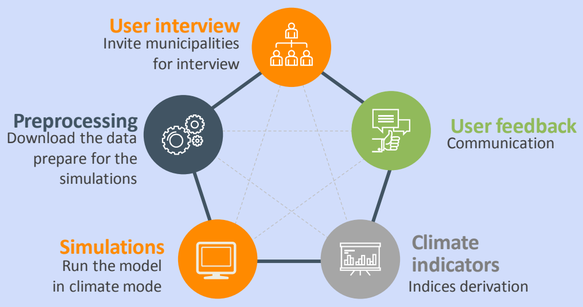
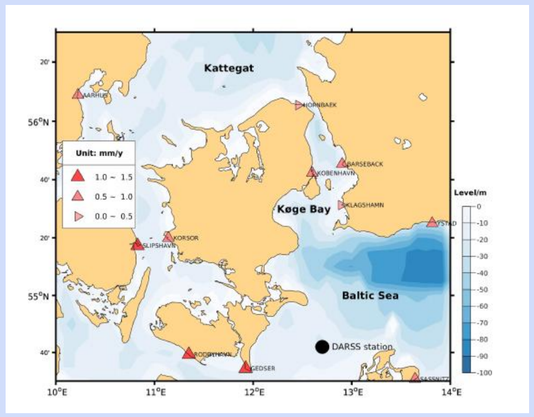
Motivation – Understand the interaction between SLR, storm surge and wind wave in the future

Communication End to end user interactions

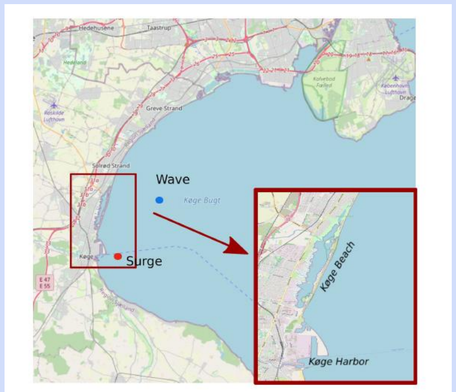


(Madsen, et al., 2019)

SLR and study area – Køge Bay, south of Copenhagen

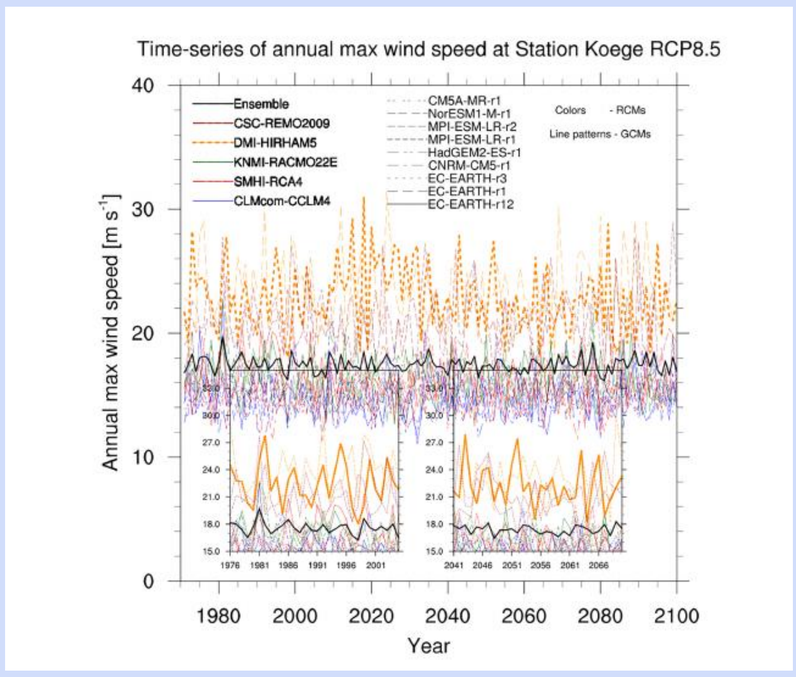


Observation and model of sea level



Selecting RCM forcing

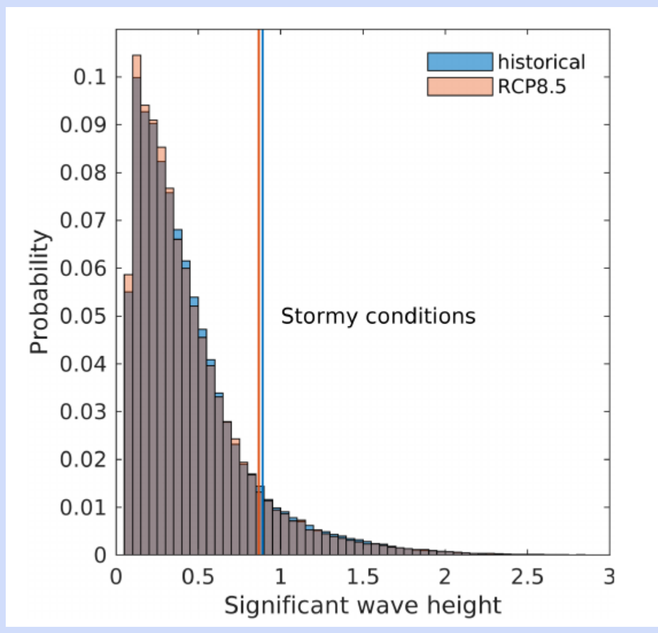
EURO-CORDEX annual max wind



No trends in all data

Stormy conditions (without SLR)

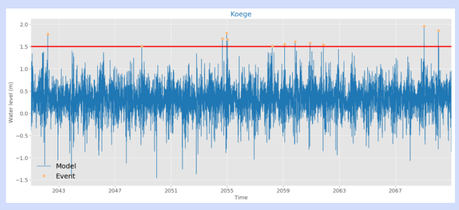
Stormy - exceeding 90th percentile of wave heights

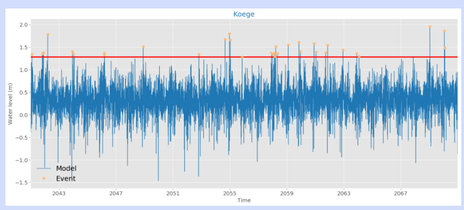


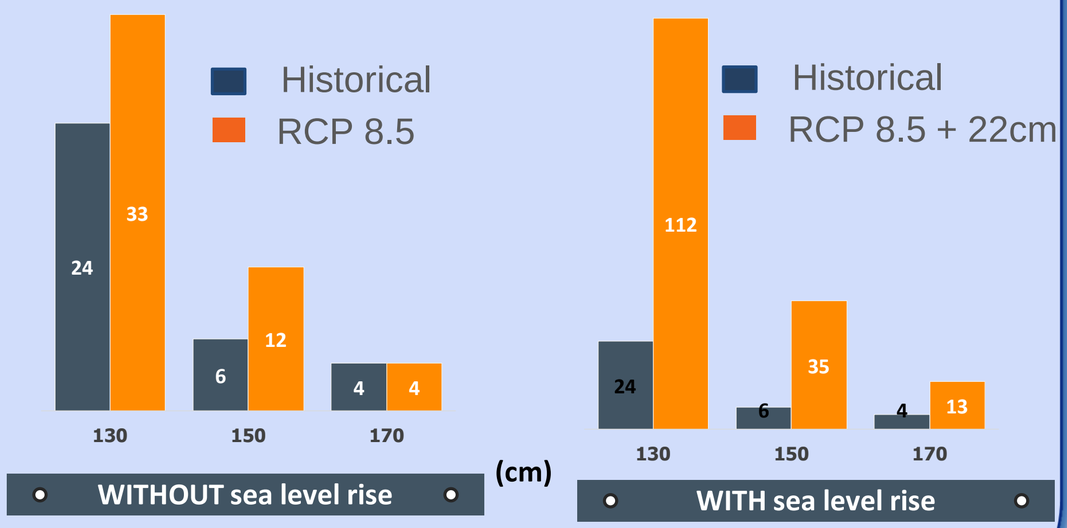
No big change

Storm surge conditions

Storm surge - exceeding 20 years storm surge events



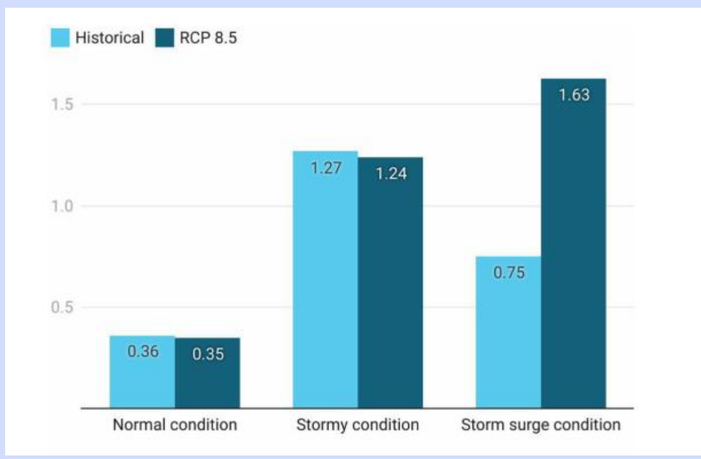




Storm surge change due to SLR

Risk of wave in future from SLR + storm surge

Wave height change under stormy and storm surge conditions



The risk management of wave impact should focus on storm surge change in the future due to sea level rise

Madsen, K. S., Murawsky, J., Blokhina, M., & Su, J., 2019. Sea level change: Mapping Danish municipality needs for climate information. Frontiers in Earth Science, 7, 81.

Su J, Murawski J, Nielsen JW and Madsen KS (2022) Regional wave model climate projections for coastal impact assessments under a high greenhouse gas emission scenario. Front. Mar. Sci. 9:910088. doi: 10.3389/fmars.2022.910088