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Larsen, Morten Andreas Dahl; Halsnæs, Kirsten

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Integrating physical pressures, hazard prevention and urban development in the COHERENT project

Morten A.D. Larsen[1]*, Kirsten Halsnæs[2]

1+2: DTU, Management Engineering.
*Corresponding author email: madla@dtu.dk

The COHERENT project, funded by Innovation Fund Denmark, was instigated on Nov. 1 and addresses risks in the coastal zone of both natural and anthropogenic origin and the interplay between them. The project is highly multidisciplinary spanning natural, social and economic sciences as well as time scales from the immediate hazard response to longer term adaptation and management and with a high degree of cross-work package dependencies and coordination. This enables a 'COHERENT' approach in line with the session topic of 'smart livable cities.

The presentation will focus on the impact of inland/watershed hydrology on natural hazards in the coastal zone, most often flooding events on coastal cities, and the interactions with adaptation practices, urban development and management. The topic is highly relevant due to projected increases in frequencies and magnitudes of natural hazards in the coastal zone under current climate change potentially resulting in high social and economic costs.

The physical impact of coastal flooding is made up of mainly the impact of the storm surge itself as well as waves, tides and a general increase in sea level and the assessment of potential adaptation measures can be complex. The vulnerability can however increase for the fluvial part with higher stream flow and groundwater level, with temporal scales in the order of days to seasons. Another influence comes from the pluvial side when rainfall events occur simultaneously, with temporal scales in the order of minutes to days. A key objective of the work is therefore to assess the influence of inland-watershed hydrology on the risk hazards for current and future conditions within the three cases of the project; Skive, Ringkøbing and Aabenraa municipalities. A key objective is a close interaction with municipalities and stakeholders to reflect applied conditions and assess true projected urban development goals.