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DFG Priority Program (SPP-1889) Regional Sea Level Change and Society ('SeaLevel')

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The Priority Program (SPP-1889) 'Regional Sea Level Change and Society (SeaLevel)', funded by the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG), aims to perform a comprehensive, interdisciplinary analysis to advance our knowledge on regional climate-related local sea level change (SLC), while taking into account the associated human-environment interactions and socio-economic developments in the coastal zone. The SeaLevel program consists of 20 projects from 23 German research institutions and integrates natural and social sciences research, bringing together over 80 researchers from a wide range of disciplines such as physical oceanography, geophysics, geodesy, hydrology, marine geology, coastal engineering, geography, sociology, economics and environmental management. SeaLevel will provide a scientific basis for the assessment and development of adaptation policies to cope with coastal SLC by focusing in two study regions: the North and Baltic Seas with potential impacts on Germany, and the South-East Asia region, which encompasses several coastal megacities, low-lying islands and delta regions. The selected regions contrast developed and developing countries, and thus differ fundamentally in their regional societal impact, cultural, political and socio-economic contexts, adaptation potential and response strategies towards SLC.

Among the main scientific objectives of SeaLevel are to: (1) improve the physical knowledge of regional climate-related SLC, and (2) projections of SLC on a regional-to-local scale, (3) investigate which socio-institutional factors enable/hinder coastal societies to cope with changing SL, (4) determine the natural and social coastal systems' responses to future SLC, and (5) assess strategies to adapt to SLC under given technical, economic, cultural, social and political constraints. To perform those integrated analyses, SLC information (local SL projections, storm surges, waves and extremes), uncertainty and risk measures need to be provided at the coastlines.

SeaLevel is organized along three work packages (WP), depending on the spatial scale, geographic foci and required natural or social sciences' participation: A) Origin of regional sea level changes at annual to multi-decadal scale, which focuses on the mechanisms of SL variability, B) Regionalization of Decadal Sea Level projections, which aims to establish reliable local projections of SL trends and estimates of future coastal SLC in the study regions, and C) Socio-economic Impacts and Risk Governance, which focuses on coastal human-environment interactions and impacts, adaptation pathways, policies and risk management strategies. A two-way, interactive approach, results from each WP will feed into the other WPs, advancing our understanding on processes influencing regional SL and creating a knowledge base for quantitative, integrated coastal zone management (CZM) studies both in the study regions but also applicable to many other endangered places around the globe.