Coordinated Ocean Wave Climate Projections (COWCLIP)

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Coastal impacts of climate change studies receive considerable attention from the Intergovernmental Panel for Climate Change. However, in the Fourth Assessment Report the main focus was on the influence of sea-level rise and inundation effects. The IPCC Working Group II recognised that risks to coastal population and ecosystems require inclusion of a broader range of coastal drivers of change. One of such drivers, which has received insufficient attention to date, is changes in the global windwave climate. Presently, impacts studies (particularly in the coastal zone) of climate change are hampered by lack of assessments of potential changes in wave climate. In particular, the IPCC WG I noted more information on projected wave conditions were required to enable assessments of the effects of climate change on coastal erosion. Additionally, potential changes to wave climate will have implications for several offshore operations. Increasingly, research groups are aiming to address this limitation developing wave climate projections using both dynamical and statistical approaches, on both global and regional scales. These studies have several sources of uncertainty, associated e.g. with climate forcing, climate model uncertainty, downscaling methods, and wave modelling approaches. Individual studies have difficulty in adequately quantifying this uncertainty due to several reasons including the high computational effort involved. The COWCLIP project aims to provide a systematic, community-based infrastructure to support validation, intercomparison, documentation and data access for wave climate projections which are being generated using forcing from the CMIP5 datasets, to aid comprehensive assessments of the cascading uncertainty within wave climate projection experiments.