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Wind waves in a changing climate projected using CMIP5 experiments

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Future climate projected under rising CO_2 concentrations is characterized by higher air and ocean temperatures. This will be accompanied by changes in the atmospheric and ocean circulation and by shifts in the global wind patterns. As a result, wind waves in the ocean may undergo concomitant changes. The ongoing Coupled Model Intercomparison Project (CMIP5) provides historical reconstruction of the past climate from 1850 until now, and several projections of the future climate changes. Here we use a global wind waves model (WAM) forced by the winds from an Earth System model (EC-Earth) calculated within the CMIP5 experiments. Our wave model simulations cover the historical part of CMIP5 experiments and run into the future as projected in an "extreme" (RCP 8.5) and a "moderate" (RCP 4.5) scenario of climate change. We will present a first analysis of trends and long-term variations in the global wave patterns.