NAO as a source of seasonal predictability of ocean surface wind waves.

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Due to the short-term nature of wind, storms and surface ocean waves dynamics, the seasonal prediction of ocean wave requires a robust prediction system which can realistically represent the variably of sea level pressure and wind on a seasonal scale. The seasonal prediction system based on the mixed resolution CMIP5 version of the Max Planck Institute for Meteorology Earth System Model (MPI-ESM MR) provides a skilful seasonal prediction of sea level pressure and wind. The system is initialised every six months by reanalysis and observations in the atmospheric, ocean and sea ice components of the model. The seasonal prediction system was extended by the wave model WAM, which is running offline, using the wind re-forecast provided by the MPI-ESM MR. Our 30-member wave re-forecast over the period from 1982 to 2013 demonstrates a skilful prediction of the wave height up to 2-4 months in the Pacific, Equatorial Atlantic and Indian Ocean depending on the season. The role of winter NAO as a source of predictability of ocean surface wind waves will be demonstrated. We evaluate our re-forecast by statistical metrics such as the anomaly correlation, spread-error ratio, and root-mean-square-error using the ERA-Interim forced wave reanalysis and buoys measurements as a reference.