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## **North Sea surface winds in the past and future climates**

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Large scale exploitation of the North Sea wind power is planned with the first phase commencing in the near future. This study contributes toward improved understanding of the North Sea past and possible future surface wind climates, considering in particular its intra-annual to inter-annual variability. Surface wind speed over the last half century has been obtained from the NCEP/NCAR global reanalysis and dynamically downscaled datasets. Significant patterns of surface wind speed variability over North Sea are related to the regional circulation patterns obtained from the Sea Level Pressure (SLP). The circulation indices are defined to characterize the climate states which are used to examine the ability of the global climate model to reproduce the important circulation pattern features in the hindcasts. The future climate scenarios simulations are then examined to detect the signal of climate change.