



## **Two centuries of observed atmospheric variability and change over the North Sea region**

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Situated in northwestern Europe, the North Sea region is under influence of air masses from subtropical to arctic origin, and thus exhibits significant natural climate variability. As the land areas surrounding the North Sea are densely populated, climate change is an important issue in terms of e.g. coastal protection, fishery and trade. This study is part of the NOSCCA initiative (North Sea Region Climate Change Assessment) and presents observed variability and changes in atmospheric parameters during the last roughly 200 years.

Circulation patterns show considerable decadal variability. In recent decades, a northward shift of storm tracks and increased cyclonic activity has been observed. There is also an indication of increased persistence of weather types. The wind climate is dominated by large multidecadal variability, and no robust long-term trends can be identified in the available datasets. There is a clear positive trend in near-surface temperatures, in particular during spring and winter. Over the region as a whole, no clear long-term precipitation trends are visible, although regional indications exist for an increased risk of extreme precipitation events.