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Decadal Trends of Storm Track Statistics over the North-Atlantic: A Comparison of Analyses based on Reanalysis Data, Transient Climate Model Simulations, and Synoptic Weather Maps

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A cyclone tracking algorithm (Blender et al., 1997) is applied to the mean sea level pressure field of the ERA40 reanalysis data set and of transient climate simulations using the MPI Earth System Model (Roeckner et al., 2003; Marsland et al., 2003). Trends of cyclone tracks, lifetimes and intensities as well as frequencies of cyclone occurrence, cyclogenesis and cyclolysis in the North Atlantic region are studied. In addition, the statistics based on different data sets are compared. The results are also compared to a manually derived time series of the number of extreme low-pressure events (core pressure lower than 950 hPa) as analysed by Franke (1994). Furthermore, correlations between the storm track statistics and the North Atlantic Oscillation Index are analysed.

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