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North Atlantic storm track variability as shown in EMULATE SLP data from 1850 to 2003

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By far the most important factor contributing to the variability of midlatitude weather are moving synoptic cyclones. For this reason, storm track intensity, its position and variability have been topics of interest for climatologists for a long time. An extended climatology of cyclone activity has been created, using a newly compiled dataset of the North Atlantic - European region from 1850 to 2003, which was developed in the European and North Atlantic daily to multidecadal climate variability project (EMU-LATE). These data consist of gridded daily mean sea level pressure fields, which are based on land and island stations, marine data as well as daily northern hemisphere fields, and have been developed using reduced space optimal interpolation (Ansell et al., submitted). However, data quality of the years 1850 to 1880 is considerably reduced, because no northern hemisphere fields are available for this period. We have computed seasonally averaged statistics of the cyclone dynamics with an objective locating and tracking system developed by Murray and Simmonds (1991). In addition, we have analysed our results with conventional statistical techniques in order to determine the dominant patterns of variability, the interannual variability and the trends over the period 1850-2003. Significant findings are a marked decreasing trend in winter cyclone activity in the western and a slightly increasing trend in the eastern Mediterranean. From 1880 to 1980, a southwestward displacement of the North Atlantic storm track is observed.