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North atlantic weather regimes, NAO and precipitation and temperature extremes over Europe

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Two datasets developped within the European EMULATE project (see http://www.cru.uea.ac.uk/cru/projects/emulate) are used to investigate the relationships between daily weather regimes, the NAO and extremes in precipitations and temperatures from 1850 to 2003. A comparison of results from different clustering techniques applied to mean-sea-level-pressure daily anomalies for the december to febrauary season is first presented. Then the relationships between station-based, seasonally defined NAO indices and variability and trends in the daily atmospheric circulation patterns is investigated. Their influence on the frequency and intensity of precipitation and temperature extremes is then investigated using simple analyses (correlation and composites) as well as more sophisticated ones, following recent developpments on the use of covariates in the estimation of the Generalized Pareto Distribution parameters.