



Northern Hemisphere atmospheric patterns associated with maximum variance in European Winter precipitation

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The present study pursues the identification of the Northern Hemisphere atmospheric patterns that explain maximum variance in European precipitation during the period 1900 through 2010. Extended winter (October to March) anomalies of precipitation, mean sea level pressure and 500-hPa geopotential height are computed, across the European continent (west of 30E) for precipitation, and in the Northern Hemisphere (north of 20N) for the other variables. Principal Component Analysis and Empirical Orthogonal Teleconnections Analysis, targeting on European precipitation as predictor, are applied to these fields in order determine the atmospheric structures connected with maximum precipitation variance. It is found that about one third of the variance of the extended winter European precipitation anomalies can be explained by a couple of atmospheric patterns. The study also investigates the Sea Surface Temperature anomalies associated with those atmospheric patterns.