



El Niño influence on summer climate in Western Europe

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El Niño-Southern Oscillation (ENSO) is the dominant global climate mode at interannual timescales and the main source of predictability. Several studies point out that El Niño influence over European North Atlantic sector is consistent and statistically significant. Some hypotheses show that this influence, which lacks of stationarity, seems to be modulated by multidecadal oscillation of the anomalous Sea Surface Temperature (SST) over the Atlantic and Pacific basins (AMO and PDO respectively). A recent study has found how that the main El Niño teleconnection over European precipitation takes place in late winter and spring (February-March-April), being modulated by the Atlantic Multidecadal Oscillation (AMO), while in fall is the Pacific Decadal Oscillation (PDO) which appears to modulate this teleconnection. The authors of this study shows the North of Spain (where the Basque Country region is located) as a transition zone of this teleconnection, so a better analysis of the ENSO-precipitation link in this particular peninsular region needs to be clarified in order to achieve its predictability.

The present study focuses on a thoroughly analysis of the behaviour of El Niño influence on different variables -as anomalous precipitation, minimum and maximum temperature-, both for mean values and for extremes ones (calculating percentiles), in different seasons over the region of the Basque Country. We examined the atmospheric conditions and the possible teleconnection mechanism. This work is performed analysing a high resolution gridded dataset over Spain, Sea Level Pressure dataset (SLP) in the North Atlantic, European and Mediterranean region, as well as Geopotential Height at 850 hPa, 500 hPa and 200 hPa (Z850, Z500 and Z200), El Niño climate indices and SST dataset.

The results of this study show a non-stationary relationship between Basque Country precipitation, minimum and maximum temperature, and El Niño. This relation depends on the Pacific region considered and seems to be maximum in summer.