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Influence of ENSO areas in the rainfall of the NW Iberian Peninsula

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We have studied the influence of sea surface temperatures (SST) anomalies of the ocean on rainfall in NW Iberian Peninsula by means of Pearson product-moment correlation coefficient and a test for field significance. Seasonal correlations were calculated for all seasons and different lags applied on SST. We have observed certain ability of SSTA in areas of the Pacific Ocean to forecast rainfall anomalies in spring season in the studied area. These areas are related with the regions used for calculating the Niño3 and Niño1+2 indexes. The ability of these areas seems to be mediated by the appearance of a blocking high centered at North Sea, extending from Ireland and Great Britain to Central Europe.

A forecast scheme is developed to predict spring rainfall anomalies based in SST anomalies over NIÑO3 area in precedent seasons Results show significant correlation higher than 45%. In particular, 'La Niña' years almost always announce dry springs in NW Iberian Peninsula (between 83 and 100% of hit rate). However, 'El Niño' years do not anticipate the appearance of wet spring (around 55 % of hit rate).

This result is of interest with respect to potential seasonal predictability of rainfall, due to the progresses that have been made in ENSO forecast. Moreover, the results can be extended to the south west of Europe.