

The role of the strength and phase of the ENSO events on the Mediterranean precipitation

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There is an agreement on the existence of an impact of the ENSO phenomenon on the Mediterranean region precipitation. On the other hand, there is not a general agreement in evaluating the importance of such influence. Probably, the interdecadal variability in the ENSO-precipitation relationship leads contradictory results. In this work we analyze specifically the comparative influence of the different ENSO events in the precipitation in the Mediterranean area. Particularly, we analyze the role of the strength and phase (El Niño/La Niña) in the ENSO-precipitation relationship from 1900 onwards. Results show, firstly, the existence during winter and for La Niña events of a statistically significant negative precipitation anomaly pattern in southern Europe. Particularly, for the southwestern area of the Iberian Peninsula, this negative anomaly reaches 20% of the winter average precipitation. Secondly, a non-linear response to the ENSO is found in the eastern Mediterranean area: both during El Niño and La Niña events negative precipitation anomalies are found, having similar amplitude anomalies. An analysis of the sensibility of the precipitation anomalies to the strength of the ENSO events shows that, when the strength of the ENSO increases, the magnitude of the rainfall anomalies not changes but the influenced area and the coherence between events do slightly increase.