



## **Is El Niño impact over the European rainfall modulated by natural multidecadal variability ?**

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Several studies have found a consistent and statistically significant ENSO impact over the North Atlantic European Sector (NAES), which could lead to an improvement of the poor skill of current seasonal forecast systems over Europe. This ENSO signal seems to be nonstationary on time and, as some authors suggest, it could be modulated by low frequency variability. Hence, the seasonal climate predictability could be variable and only effective for selected time periods. This study point to the fact of considering the changes in the ocean mean state as a possible modulator of ENSO-NAES teleconnection at interannual timescales. Specifically, a long control run of the CNRM-CM5 model have been studied to analyze the internal effect in this modulation, and to compare it with the observations. The model is able to reproduce the leading rainfall mode over the Euro-Mediterranean region, and its changing link with El Niño. This nonstationary teleconnection have been identified in coincidence with changes of the zonal mean flow at upper levels, which could influence the propagation of the waves from tropics to extratropics through the atmosphere, and hence explain the changing impact over Europe. However, other explanation could be related to the observed changes in the ocean forcing signal itself. The results obtained here suggest, for both hypotheses, an important role, although not unique, of the natural internal variability of the SSTs. Nevertheless, sensivity experiments with General Circulation Models should be done in the future to better understand the underlying mechanisms.