

**CLIVAR-SPAIN contributions: The role of the Euro-Atlantic region in the Atlantic-Pacific connection and its impacts.**

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Previous works have reported how the interannual processes of the Tropical Atlantic and Pacific seem to be connected since early 70's, so a summer Atlantic Niño is able to develop a Pacific la Niña next winter. The present study shows how this relationship could also modify gradually the mean state of both basins, showing how a warmer Atlantic could produce a cooler Pacific in early 80's. Also, the principal modes of variability of the Pacific SST before and after the change in the background state, point out the alteration of the interannual variability of the Pacific during last two decades. For this period, convergence (divergence) of the anomalous wind stress in the southeastern Pacific basin appears associated with positive (negative) anomalies of SST in the east and negative (positive) ones in the west during summer, triggering the thermodynamic and dynamic processes involved in the development of El Niño (la Niña) phenomenon next winter. The heat balance analysis relies on the changes in the oceanic processes involved in the development of ENSO events since 1980, so the net heat fluxes and horizontal advection favor the origin and development of these phenomena, but the creation of the Pacific cold tongue is only due to the vertical advection. The number, type and intensity of these events have been also altered. An increase of Niños and Niñas frequency favoring the Eastern Pacific (EP) ones is observed since 1980. A strengthening of ENSO phenomena, with positive trends, 0.01°C/decade and 0.001 °C/decade is presented for warm and cold phases, respectively. The origin of these interbasin connection seems to be related with changes in the South Atlantic subtropical high and with a tripole-like pattern in the North Atlantic, highlighting the important role of the SST anomalies in the western of the Tropical Atlantic during the previous summer. KEY WORDS: CLIVAR-SPAIN, CLIMATE VARIABILITY AND CHANGE, SOUTHWESTERN EUROPE, ATLANTIC-PACIFIC