



North Atlantic summer to winter rainfall response to the Atlantic-Pacific tropical connection

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Recent observational and GCM studies have shown, following the results of Polo et al. (2008), how the Atlantic and Pacific Niños present a dynamical link during the last decades of the XX century (Rodríguez-Fonseca et al., 2009). In this way, the positive (negative) phase of the summer Pacific Niño signal has been found to be connected with a negative (positive) phase of the Equatorial Atlantic mode (EM or Atlantic Niño, Polo et al., 2008); a pattern which leads the summer Atlantic variability.

The determinant impact of this connection on the WA monsoon has been addressed by defining a global summer tropical mode accounting for more than the 60% of the rainfall variance.

The rainfall response to an isolated Pacific forcing has been documented to be a decrease of rainfall over Sahel whilst, the response associated to an isolated EM is a Guinean-Sahel rainfall dipolar pattern. Nevertheless, the rainfall response to the Pacific ENSO- Atlantic Niña forcing observed from the 70's has a unified behavior in the WA region.

In order to deeply analyse the dynamics involved in the concomitant action of the Atlantic and Pacific in summer and in the subsequent months, different sensitivity experiments have been performed separating the global Atlantic-IndoPacific contribution to the independent Pacific and Atlantic ones.

Some dynamical aspects in relation to the extratropical North Atlantic teleconnections in the following seasons are also included.