



Influence of the Indian and Western Pacific oceans warming on the north atlantic weather regimes estimated from multi-model ensembles

E.Sanchez (1), **C. Cassou**(2), C. Deser(3), D.L.R. Hodson(4), N. Keenlyside(5), M. Latif(5), R. Sutton(4), Y. Okumura(3), X. Xin(6), T. Zhou(6)

(1) CNRM, France, (2)Cerfacs, France, (3)NCAR, USA, (4)University of Reading, UK, (5)IFM-GEOMAR, Kiel, Germany,(6)LASG, China.

Large-scale atmospheric circulation is frequently described in terms of a few of preferred and recurrent patterns in the atmospheric state space, the so-called weather regimes. In this work we investigate the influence of the Indian and Western Pacific oceans sea surface temperature (SST) warming, observed in the last decades, on the frequency of occurrence of North Atlantic weather regimes. The role of the ocean forcing has been addressed by a modeling approach, in which five different AGCMs have been used to perform the integrations with idealized Indian Ocean-West Pacific SST patterns. These integrations are part of coordinated experiments from the European project DYNAMITE. We analyze the North Atlantic weather regimes response for the SST warming in the Indo-Pacific basin. Results show that the model response depends on the mean state. To investigate the mechanisms of teleconnection, we have performed a space-time spectral analysis to decompose the variance of the geopotential field in fluctuating-standing and traveling waves. We observe strong discrepancies in the variance repartition for the five models, suggesting a different teleconnection mechanism.