



ENSO teleconnection over the Euro-Mediterranean region and the role of PDO modulation: an update

Marianna Benassi (1), Stefano Materia (1), Paolo Ruggieri (1), Silvio Gualdi (1,2)

(1) CMCC FOUNDATION, CSP, Lecce, Italy (marianna.benassi@cmcc.it), (2) INGV, Istituto Nazionale di Geofisica e Vulcanologia, Italy

At the interannual time scale El Nino Southern Oscillation (ENSO) represents the major driver of climate variability at the global scale. The shape and the intensity of ENSO influence over the Euro-Mediterranean domain has been widely discussed in the literature. Indeed the detection of this signal is made difficult by the large variability which characterizes the atmospheric circulation in the North Atlantic and European sector.

Different processes have been proposed as involved in the propagation of ENSO signal from low to mid latitude, and in this work we want to investigate if and how the low frequency variability of North Pacific sea-surface temperature (SST) may affect the efficacy of these mechanism. In particular, we study how the different phases of the extratropical Pacific Decadal Oscillation (PDO) interacts and modulates the ENSO fingerprint over the Euro-Mediterranean region.

With the idealized sensitivity experiments designed in the framework of the MEDSCOPE project, we have identified the ENSO teleconnection over the Euro-Mediterranean domain and we have managed to characterize the modulating role of the different phases of the extratropical PDO SST forcing. In order to place this process in a dynamical framework, a tropospheric pathway has been proposed. The propagation of planetary waves from low to mid latitude has been investigated, by looking at the sensitivity of this mechanism to different underlying mean state.

These results allow to gain a deeper understanding of the links between mid latitude climate variability and tropical forcing, and of the processes driving the low-mid latitude teleconnection. Moreover, a clearer insight of these processes may lead to a new comprehension of possible sources of predictability for the European domain over different time scales.