

DPETNA: Dynamics and Predictability of the ENSO teleconnection to the Tropical North Atlantic

Description

This project aims at exploring the El Niño-Southern Oscillation (ENSO) influence on the tropical North Atlantic (TNA) sea surface temperature (SST). The SST variability in the TNA region has been observed to affect weather and climate in surrounding areas, including European heatwaves, tropical Atlantic hurricane activity, the West African monsoon, and rainfall over north-eastern Brazil. Fishery production in the subtropical Atlantic is, likewise, closely related to TNA SST anomalies. Hence, better understanding the predictability sources of the TNA SST variability is of major relevance, not only for the climate forecasting community but also for different socio-economic sectors.

The scientific objective of this project is to advance understanding of the simulation and prediction of TNA SST at seasonal-to-interannual timescales. The main goals are to gain insight into the dynamical mechanisms at work, and to assess the ability of current seasonal forecast systems in representing the ENSO-TNA remote connection. Climate model deficiencies and biases, which lead to uncertainties in their forecasts, will also be addressed. Concrete plans for society outreach, enabling the impact and dissemination of results, will be undertaken in a targeted work-package.

The novelties of this project are (i) the evaluation of a new teleconnection mechanism to explain the timing of the intertropical relationship, (ii) the assessment of the ENSO contribution to SST skill over the TNA region, and (iii) the use of the most complete set to date of operational seasonal forecast systems. The latter, in particular, ensures that the outcomes derived from this fellowship will contribute to meet users needs.

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