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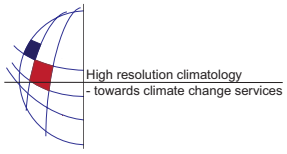

ENSO-Driven Predictability of Tropical Dry Autumns Using the Seasonal ENSEMBLES Multimodel

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The interest on running seasonal forecasting systems has grown rapidly all around the world in recent times, making necessary the development of appropriate validation methods. Here, we present a systematic and rigorous statistical procedure to assess the skill of the state-of-the-art seasonal forecasting. To that aim, the seasonal ENSEMBLES multimodel (MME), constructed from the five global coupled models within STREAM 2, is validated in the whole Globe for the period 1961-2000.

The methodology used is that introduced by Frías et al. 2010. Observations and hindcasts are divided into three categories, according to their terciles: less than normal, normal and above normal precipitation. Then, a probability is assigned to each tercile depending on the number of members forecasting it. The series with these probabilities and the real occurrence/non occurrence of the target tercile permit to calculate skill scores. Two metrics are used: the Roc Skill Area (RSA) and the Hit Rate (HIR).

In a first step, validations are performed for the whole period 1961-2000 in terms of RSA, obtaining a large predictability of the dry tercile over the tropics, especially intense in the northeastern parts of South America and Australia and in the Malay-archipelago in Autumn (at one-month leadtime). Then, since ENSO is known to affect seasonal predictability in these latitudes, validations are performed only in ENSO years, in order to check if this skill changes in the presence of this phenomenon.

Results show that skill increases strongly in the ENSO-conditioned validations, manifesting an important tropical predictability. Furthermore, a global study of ENSO-teleconnections is performed, concluding that ENSO-teleconnected areas are basically those in which predictability is largest. This fact points out the existence of a physical cause behind the skill. Finally, using HIR, it is proved that this tropical predictability has a different origin in non-ENSO years and in ENSO ones.

References:

M. D. Frías, S. Herrera, A. S. Cofiño and J. M. Gutiérrez (2010): 'Asessing the Skill of Precipitation and Temperature Seasonal Forecasts in Spain. Windows of Opportunity Related to ENSO Events', Journal of Climate.