

# Seasonal-to-Interannual Variability of Southeastern South America in CMIP5 Decadal Hindcasts

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To face the increasing demand of near-term climate information, CMIP5 has designed a set of decadal hindcasts that explore the effect of initializing the models with information about the current state of the climate system. The idea is that some skill for the next year-to-decade may be gained if one can predict aspects of the natural internal variability of the climate system in addition to the anthropogenic trend. Preliminary results suggest that these hindcasts have some additional skill in the North Atlantic Ocean, which is likely associated with Atlantic multi-decadal variability, and in the tropical Pacific Ocean, which may reflect the decadal-scale component of ENSO.

Southeastern South America (SESA) is a potentially interesting region to explore in these hindcasts, especially for precipitation. Over the 20<sup>th</sup> century this region experienced large trends, showed decadal-scale variability, and also exhibited strong seasonal-to-interannual variability, mainly due to an ENSO teleconnection. In this presentation we will discuss whether near-term climate projections for the area can benefit from initialized decadal hindcasts. In particular, we will explore if the hindcasts capture the main features of seasonal-to-interannual variability in SESA, even if we cannot expect to predict the exact timing of this variability years in advance.

The decadal hindcasts created using CFSv2 at COLA are compared with a subset of CMIP5 runs from different modeling centers. We show that some models are better able than others to predict ENSO-related teleconnections over this region, even at several years lead time. There is a suggestion that fidelity of the annual cycle, particularly the timing of the annual cycle, may be one factor in the better performance of these models. However, better performance at seasonal-to-interannual timescales does not necessarily lead to more accurate decadal predictions or representation of multi-decadal trends.

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