

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

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A set of decadal hindcasts has been designed for CMIP5 to explore the effect of initializing the coupled models with information about the current state of the climate system. Some skill for the next year-to-decade may be gained if one can predict aspects of natural climate variability in addition to the anthropogenic trend. We explore the performance of the hindcasts over South Eastern South America (SESA), focusing mainly on precipitation. Over the 20th Century, this region experienced large trends, showed decadal-scale variability, and also exhibited strong seasonal-to-interannual variability, mainly due to an ENSO teleconnection.

Using a subset of CMIP5 initialized decadal hindcasts 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 the fidelity of the annual cycle, and particularly its timing, may be one factor in the better performance of these models. However, a better performance at seasonal-to-interannual timescales does not necessarily lead to more accurate decadal predictions or a better representation of the multi-decadal trends. The properties of the resulting 15-member multi-model ensemble will also be presented.