



Performance of some new Niño3.4 predictors at overcoming the spring predictability barrier.

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The El Niño-Southern Oscillation (ENSO) phenomenon is the main source of predictability skill in many regions of the world, at seasonal and interannual timescales. Improving ENSO understanding and forecast skill is still one of the main goals of the international seasonal forecast programs. A common feature found in ENSO forecast is the skill predictability barrier, that is the skill drop for forecast across the spring season. In this study ENSO variability is represented by the Niño3.4 Index. Here we will use different seasonal linear stochastic models to test the performance of some new ENSO predictors at overcoming the spring predictability barrier. The benchmark is the performance scored by the same predictive scheme when the variables are those of a basic equatorial model representing the 'recharge-discharge' oscillator paradigm. Some of the new predictors, like the Tropical South Atlantic Index, the Tropical North Atlantic Index, the Indian Ocean Dipole Mode or the Pacific Meridional Model have been pointed at by recent studies. Additionally, we propose two new predictors, that take into account the zonal sea surface temperature gradients across the tropical Pacific, the North Tropical Pacific Zonal Gradient and the South Tropical Pacific Zonal Gradient Indexes.

We intercompare the performance of the new predictors, by introducing them, one at a time, in a simple, three variables, stochastic predictive scheme. For some seasons and lags, the differences between the skill scored by some of the models that include one of these predictors are important. However, these are diminished when a Full Stochastic Mode set-up is adopted.

References.

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