

## Exploring the SST error growth during ENSO developing phase by using BCC\_CSM1.1(m)

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Here we assess the ENSO prediction errors as a function of lead time using the seasonal hindcast of the Beijing Climate Center System Model, BCC\_CSM1.1(m). The ensemble mean forecasts seems to be more challenging during the developing years of ENSO, compared with those made towards the decay phase. The composites of SST prediction errors are significantly negative and cover a large area in central-eastern tropical Pacific, thus limiting the model in forecasting the onset and intensity of El Niño. The large-scale errors, at their early stage, are generated gradually by negative anomalies in the subsurface temperature of the central-western equatorial Pacific, a process similar to El Niño decay and then transition to La Nina growth phase. Our results support others' work of "sensitive areas" for ENSO predictions, and emphasize the essential accuracy of initial fields and their early evolution, providing information for further improving the forecasting skill of ENSO.

Keywords: El Nino prediction, error evolution, sea surface temperature