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Title: Prediction skill of North Pacific variability in NCEP Climate Forecast System Version 2: Impact of ENSO and beyond
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Abstract:
This work examines the impact of El Niño-Southern Oscillation (ENSO) on prediction skill of North Pacific variability (NPV) in retrospective predictions of the NCEP Climate Forecast System version 2. It is noted that the phase relationship between ENSO and NPV in initial condition (IC) affects the prediction skill of NPV. For the average of lead times of 0-6 months, the prediction skills of sea surface temperature anomalies (SSTA) in NPV (defined as the NPV index) increase from 0.42 to 0.63 from the cases of out-of-phase relation between the Niño3.4 and NPV indices in IC to the cases of in-phase relation. It is suggested that when ENSO and NPV are in-phase in IC, ENSO plays a constructive role in the NPV development and enhances its signals. The physical coherence between North Pacific and the tropical central and eastern Pacific favors the model to consistently predict the anomaly in North Pacific. The situation is opposite when they are out-of-phase in IC. The ENSO may be disruptive to the NPV anomalies and, as a result, the intra-ensemble perturbations become more dominant. Nevertheless, when ENSO and NPV are out-of-phase, some pronounced positive NPV events are still predictable. In these cases, North Pacific is dominated by strong positive SSTA, which may overcome the influence from the tropical Pacific and displays predictability.
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