

Examination of the Variations of NPO and Their Associations with Tropical SST Variations in CFSRR

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North Pacific Oscillation (NPO) is a major mode of sea level pressure (SLP) variations in the Extratropics and is characterized by a SLP anomaly dipole between the subpolar low and the subtropical high. Recent studies have suggested that the NPO is capable of exciting El Nino-Southern Oscillation (ENSO) events through a series of atmosphere-ocean coupling processes in the subtropics. Studies also indicate that the NPO can be forced by tropical Pacific SST variations associated with the ENSO. The NPO, therefore, may play important roles not only in channeling tropical-extratropical interactions but also in regulating the transition between ENSO events. Our recent examination of a long-term simulation with the CFS couple model indicates that the simulated NPO is able to insert significant influences into the tropics, but these influences stop short of reaching the equatorial Pacific. In this presentation, we will examine the variations of the NPO in the CFS Reanalysis to document their interactions with the tropical Pacific during the past three decades (1979-2009). The role of NPO in controlling the transitions between the Central-Pacific and Eastern-Pacific types of ENSO will also be reported.