## Impact of Coupled Initialization on Long-lead SST Prediction in PNU Atmosphere-Ocean Coupled Model

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New coupled initialization scheme has been developed to improve long-lead SST prediction and applied to Pusan National University (PNU) Atmosphere-Ocean coupled model. Retrospective forecast data have been produced using PNU coupled model with old initialization (PNU V1.0) and new initialization (PNU V1.1) initiated from January, April, July, and October for the period of 1994-2008. Retrospective forecast from NCEP Climate Forecast System (CFS) is also used to compare with two PNU forecast data.

While PNU V1.0 has difficulty in capturing annual cycle and standard deviation of equatorial monthly SST particularly over the Pacific, PNU V.1.1 is capable to capture them realistically and has comparable performance with NCEP CFS. The coupled initialization plays a crucial role on improving SST forecast over the Pacific, but it has little impact over the Indian Ocean. There is a seasonal dependency on impact of initialization. The new initialization is most effective with April initial condition but least effective with October initialization. The temporal correlation coefficient (TCC) skill for NINO 3.4 SST using PNU V1.1 (PNU V1.0) reaches 0.8 (0.5) with April initial condition and 0.85 (0.75) with October initial condition at five-month lead.

The improved SST forecast with new coupled initialization leads to the better forecast of upper-level atmospheric circulation including the Pacific North American (PNA) pattern.

Keywords: Atmosphere-ocean coupled model; Coupled initialization; Long-lead prediction

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