

## **Improving the Prediction of the East Asian Summer Monsoon: New Approaches**

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East Asian summer monsoon (EASM) prediction is difficult because of weak and unstable linkage with ENSO, the interdecadal variability, and a complicated association with high latitude processes. Two statistical prediction schemes were developed in considering the interannual increment approach (Fan et al., 2008) to improve the seasonal prediction of the EASM strength. The schemes were applied to three models (i.e., CNRM, UKMO and ECMWF) and the Multi-models Ensemble (MME) from the Development of a European Multi-model Ensemble System for Seasonal to Interannual Prediction (DEMETER) results for 1961-2001. The inability of the three dynamical models to reproduce the weakened East Asian monsoon at the end of the 1970's leads to low prediction skills of the interannual variability of the EASM. Therefore, the interannual increment prediction approach was applied to overcome this issue. Scheme-I contained the EASM in the form of year-by-year increments as a predictor that is derived by the direct outputs of the models. Scheme-II contained not only the EASM but also the western North Pacific circulation as the two predictors in the form of year-by-year increments. Both the cross-validation test and the independent hindcast experiments showed that two prediction schemes have a much better prediction skill for the EASM than the original scheme. This research provides an efficient approach for the prediction of the EASM.

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