

Impacts of Boreal Summer Intraseasonal Oscillation on the Western North Pacific Typhoons and Rainfall in Taiwan

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This study discusses the boreal summer intraseasonal oscillation (BSISO) impact on the western North Pacific (WNP) typhoons and the summer rainfall in Taiwan. The real time BSISO1 and BSISO2 indices are created using the first two and the third and fourth principal components of the multivariate empirical orthogonal function analysis, based on outgoing long-wave radiation and zonal wind at 850 hPa from Lee et al. (2013). The results show that heavy rainfall in Taiwan and the associated WNP typhoon frequency patterns are closely related to the 10 - 30 days BSISO2 phases during the typhoon season (July - October). Taiwan has larger rainfall during BSISO2 phases 3, 4, and 5 when the major BSISO2 convection moves northwestward from the Philippine Sea to the Taiwan area. During phases 3 and 4 the anomalous low-level cyclonic flow and the increased typhoon frequency directly result in larger rainfall in Taiwan. For the phase 5, enhanced low-level southwesterly flow which transports the moisture to Taiwan is responsible for more summer rainfall in Taiwan.

Keywords: Typhoon, BSISO, Taiwan