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Relationship between Northward and Eastward propagating ISOs in the south Asian summer monsoon

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South Asian summer monsoon precipitation shows clear intraseasonal variation as large scale convective anomalies propagates northward from the equator. This northward propagation is known to be accompanied by eastward propagation of convective activity along the equator (MJO) through the Rossby wave propagation. However, it is found that the eastward and northward propagations are not coupled all the time partly because the timescale of northward propagation is relatively shorter than that of MJO propagation. When the MJO is weak or slows down, the independent northward propagation is often observed and it produces high-frequency intraseasonal variation of Asian summer monsoon precipitation. Therefore, the Indian daily rainfall and MJO phases are related in a complex way. It seems that there is another mechanism to produce northward propagation of convective activity other than Rossby wave propagation by the eastward moving MJO signal.