

Intraseasonal variability in tropical Asian monsoon regions

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To understand and predict behavior of the intraseasonal variability (ISV) are central issues of Asian monsoon research, because of its severe impact on South and Southeast Asian countries. The ISV has time scales ranging from 30 to 60 days, and plays a crucial role in fluctuation of local rainfall amount. In particular, it contributes to interchange between monsoon active periods with abundant rainfall and break periods with almost no rainfall in each region. In this talk, I will describe spatiotemporal structure of atmospheric and oceanic anomaly fields associated with the ISV, with emphasis on its characteristic northward propagation from the equatorial Indian Ocean to the foot of the Himalayas. Although physical mechanism responsible for the northward propagation is still an open question, a number of studies have addressed this issue. Some proposed roles of seasonal-mean atmospheric circulation field characterizing the summer Asian monsoon, which is brought by heat contrast between the Indian Ocean and the Tibetan Plateau as well as spatial distribution of sea surface temperature. Some studies performing numerical experiments suggested the importance of air-sea interaction for the mechanism. I will briefly introduce these proposed mechanisms, and then try to discuss how observational studies over the Indian Ocean can contribute to this issue.

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