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## **Interannual variability of the seesaw mode of the interface between the Indian and East Asian summer monsoons**

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The relation between the seesaw mode of the Interface between the Indian summer monsoon and East Asian summer monsoon (IIE) and the South China Sea summer monsoon trough (SCSSMT) and the Indian summer monsoon trough (ISMT) is investigated using two atmospheric reanalyses together with outgoing longwave radiation, sea surface temperature (SST), and gridded precipitation datasets. Canonical correlation analysis combined with empirical orthogonal functions, correlation, and composite analysis are employed. Results indicate that a stronger ISMT and SCSSMT resulting from colder SST over the tropical Indian Ocean and tropical east-central Pacific cause the IIE to deviate from its normal position in an anticlockwise direction, with a node at around 22°N. This leads to heavier than normal summer rainfall over the north-central Indian subcontinent and South China Sea, but weaker than normal from the low and middle reaches of the Yangtze River and South Korea to central Japan. A weaker ISMT and SCSSMT resulting from warmer SST over the tropical Indian Ocean and tropical east-central Pacific causes the IIE to deviate from its normal position in a clockwise direction, and the anomalous summer rainfall pattern is the opposite of that for the stronger troughs. Further analysis indicates that the SCSSMT plays a crucial role in the evolution of the IIE seesaw mode. The latitudinal difference between the IMST and SCSSMT may be one of the most important reasons for the formation of the IIE seesaw mode.