

ANALYSIS OF THE CHANGE OF INDIAN MONSOON USING SATELLITE DATA

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ABSTRACT:

Indian monsoon is significant for the Indian agriculture. But in the recent decade there are much news about the change of Indian monsoon and its influence on the agriculture and even the Indian economy. Change of Indian annual monsoon is happening, and its influence has shown up gradually. It is necessary to find out what is happening on the Indian monsoon. In this paper we propose a methodology using the satellite data to observe the monsoon and analyze the monsoon anomaly in 2009 and the monsoon change in the recent decade.

First we define the local monsoon parameter, instead of the general monsoon parameter suitable for the whole subcontinent, to analyze the monsoon. In a traditional way the onset of Indian summer Monsoon over Kerala (MOK) heralds the rainy season of the whole Indian. The India Meteorological Department determined the date of MOK operational every year. Many researches have been done to predict the monsoon onset date in Indian. But due to the control of different monsoon and the different local conditions, different areas in Indian have different monsoon onset date. The local monsoon parameters are more meaningful when analyzing the monsoon change in Indian. The local monsoon parameters include the date of monsoon commence, monsoon leaving, and the precipitation the monsoon brings in the local area, such as one pixel area. The paper proposed a method to retrieve the local monsoon onset, and map the distribution of the parameters using the satellite data. The method is validated using the precipitation data observed from the ground weather station.

Using the local monsoon parameters we analyze the monsoon anomaly happened in 2009 in Indian and the characteristic of Indian monsoon change in the recent decade using MODIS and TRMM satellite data from 2000 to 2009. The results show the areas where the serious monsoon anomaly happened in 2009, and also the areas where an obvious vibration on the monsoon parameter happened in the recent decade.