IWRM2018-39
8th International Water Resources Management Conference of ICWRS

Analysis of typhoon Hato's rainfall process and features based on PERSIANN estimated precipitation

Jiayang Zhang and Yangbo Chen
School of Geography and Planning, Sun Yat-sen University, Guangzhou, China (1094201476@qq.com)

Abstract:Typhoon is one of the weather systems bringing heavy rain, the regions that typhoon passed can produce 150 mm to 300 mm rainfall, some typhoons can produce directly or indirectly more than 1000 mm heavy rainfall. The storms caused by typhoon landing can result in a huge loss to people's lives and property. Due to the lack of automatic station observation on the sea and some lands areas, it isn't convenient to research and predict typhoon precipitation phenomenon. So we use PERSIANN satellite precipitation data to study heavy rainfall process that typhoon "Hato" brings.Typhoon Hato formed above northwest Pacific Ocean about 760 miles southeast of Taiwan province at 14:00 on 20 August 2017, and landed in the southern coastal area of Zhuhai at 12:50 on 23 August at STY level of 14(45 m/s). It is the strongest typhoon landed China in 2017. Typhoon Hato has caused 16 people died and direct economic loss of 12.18 billion yuan. Fujian, Guangdong, Guangxi, Guizhou, Yunnan provinces are affected. Precipitation of Jiangmen and Maoming in Guangdong and Yulin in Guangxi reached 250mm and 361mm, storm surge in coastal areas of Pearl river estuary reached 50cm to 310cm. It caused significant losses in Macao that included 8 deaths and 8.31 billion direct economic loss in pataca. This study analyzes the temporal and spatial feature of precipitation induced by Typhoon Hato by using that estimated by the PERSIANN algorithm. The results show that precipitation's spatial evolutions concluded from PERSIANN are similar to the typhoon path. It was spiral rain bands on the Ocean while the structure was broken with typhoon landing, heavy rainfall regions moved westward from ocean to Yunnan province. Precipitations of Guangdong and Guangxi's most areas were intense. Heavy storms appeared before typhoon landing and lasted three days until typhoon disappeared. Studying the typhoon rainfall distribution features will provide reference value of precipitation estimation.