



Correlation Analysis of Rainfall Occurrences and Flood damages in China from 2000 to 2015

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Global climate change significantly increases the number of extreme rainfall events, and results in more flood hazards. Global TRMM (Tropical Rainfall Measuring Mission) data from 2000 to 2015 are used to investigate the variation of different kinds of rainfall. The occurrence days of middle rain, heavy rain, and storm rain show a small increasing tendency in China during the sixteen years. The fluctuation percentages of the days of the three kinds of rain are respectively 18.3%, 27.6%, and 45.4%, which indicates that the storm events are more random than the other two. The data of flood damages including Inundated Area, Disaster-affected Area, Damaged buildings, Direct Economic loss, Percentage of GDP, and Death Toll published by China's government are correlatively analyzed with the rainfall occurrences. The correlation matrix between the rainfall occurrence days and the six indexes demonstrates that only the Direct Economic loss has a strong linear relationship with the rainfall occurrences while the other indexes show a weak dependence on them. Moreover, the correlation between the death toll and the number of damaged buildings is very strong. The results imply that the flood fatalities in China are likely due to collapse of buildings, and dominated by some specific extreme events.