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Study on the Change Trend of Flood Risk for Flash Flood-prone Areas in China under Climate Change Scenarios

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China is a country frequently hit by torrential rainstorms and flash flood disasters. Flash flood disaster in mountainous areas in China has the characteristics of wide-range distribution, disastrous consequences and hard to predict and prevent. In recent years, flash flood disaster in China is particularly serious in the context of global climate change, and it has become the subject of flood damage. This paper presents the method for dividing flash flood prone areas in China based on the index of critical rainfall coefficient that is the ratio between the 6-hour mean rainfall and 6-hour critical rainfall. As a result, the flash flood prone areas in China are divided into three levels, namely high, medium and low level. In this study, based on the IPCC Special Report on Emissions Scenarios (SRES) A2 and B2 scenarios, the UK Hadley Centre for Climate Prediction and Research regional climate model system PRECIS was used to project the daily rainfall time series data of $0.5^{\circ} \times 0.5^{\circ}$ for the years of 2020 to 2050 in China. By analyzing the positive correlation between the daily rainfall and 6-hour rainfall, the change trend of the critical rainfall coefficient was identified, and then it was analyzed of flood risks of the flash flood-prone areas in China under the future scenarios of climate change. The paper concludes that the risk of flash flood-prone area of China will increase. And the results of this research could provide the scientific basis for the Government to take adaptation measures for addressing climate change.