

EGU2020-6538

<https://doi.org/10.5194/egusphere-egu2020-6538>

EGU General Assembly 2020

© Author(s) 2020. This work is distributed under the Creative Commons Attribution 4.0 License.



Daily Precipitation Threshold for Rainstorm and Flood Disaster in the Mainland of China: An Economic Loss Perspective

Wenhui Liu^{1,2}, Jidong Wu^{1,2}, Rumei Tang^{1,2}, Mengqi Ye^{1,2}, and Jing Yang^{1,2}

¹Key Laboratory of Environmental Change and Natural Disaster, Ministry of Education, Beijing Normal University

²Faculty of Geographical Science, Beijing Normal University

Exploring precipitation threshold from an economic loss perspective is critical for rainstorm and flood disaster risk assessment under climate change. Based on the daily gridded precipitation dataset and direct economic losses (DELs) of rainstorm and flood disasters in the mainland of China, this paper first filtered a relatively reasonable disaster-triggering daily precipitation threshold (DDPT) combination according to the relationship between extreme precipitation days and direct economic loss (DEL) rates at province level and then comprehensively analyzed the spatial landscape of DDPT across China. The results show that (1) the daily precipitation determined by the combination of a 10 mm fixed threshold and 99.3th percentile is recognized as the optimal DDPT of rainstorm and flood disasters, and the correlation coefficient between annual extreme precipitation days and DEL rates reached 0.45 ($p < 0.01$). (2) The optimal DDPT decreases from southeast (up to 87 mm) to northwest (10 mm) across China, and the DDPTs of 7 out of 31 provinces are lower than 25 mm, while 5 provinces are higher than 50 mm on average. These results suggest that DDPTs exist with large spatial heterogeneity across China, and adopting regional differentiated DDPT is helpful for conducting effective disaster risk analysis.