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[Abstract Title]

Global mortality risk from river flooding under climate change

[Abstract]

With the global warming, the frequency and intensity of floods caused by extreme precipitation also change accordingly. The total population of the world also shows an increasing trend. It is of great significance for risk management and disaster prevention and reduction to explore the impact of future flood disasters on population death. Based on future flooding inundation dataset for different representative concentration pathway (RCP4.5 and RCP8.5) produced by CaMa-Flood model, projected population dataset for different shared socioeconomic pathways (SSP2 and SSP5), historical deaths data and other data, this study assessed future mortality risk for different combination scenarios (RCP4.5-SSP2 and RCP8.5-SSP5). The results show that global death tolls are about 10.5k persons for RCP4.5-SSP2 and about 9.9k persons for RCP8.5-SSP5 in 2030s, which increase by 1.05 times and 0.93 times respectively compared with the historical period. By 2050, the death tolls are about 14.8k persons for RCP4.5-SSP2 scenario and about 16.4k persons for RCP8.5-SSP5 scenario, which increase by 1.89 times and 2.20 times respectively compared with the historical period. The study is helpful to human beings to



understand the potential threat of flood disaster to human life under the climate change.

[Keywords]

River flooding, mortality risk, vulnerability, contribution rate, globally