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Satellite nighttime lights reveal increasing human exposure to floods worldwide

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River floods are the first cause of human fatalities and economic losses among natural disasters. Floods claim thousands of lives every year, but effective and high-resolution methods to provide a spatially and temporally detailed analysis of the human exposure to floods at the global scale are still lacking. To this aim, we use satellite nightlight data to prove that nocturnal lights close to rivers are consistently related to flood damages. First, we analyse the temporal evolution of nightlights along the river network all over the world from 1992 to 2012 and obtain a global map of nightlight trends, which we associate with increasing human exposure to floods, at 1 km2 resolution. Then, we correlate global data of economic losses caused by flooding events with nighttime lights and find that increasing nightlights are associated to flood damage intensification. Our results show an enhancement of exposure to floods worldwide, particularly in Africa and Asia. Therefore our analysis argues for the development of valuable flood preparedness and mitigation strategies, also associated to the projected effects of climate change on flood-related losses.