**Climate-induced storminess forces major increases in future storm surge hazard in the South China Sea region**

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**Abstract**

It is vital to robustly estimate the risks posed by extreme sea levels, especially in tropical regions where cyclones can generate large storm surges and observations are too limited in time and space to deliver reliable analyses. To address this limitation for the South China Sea region, we force a hydrodynamic model with a new synthetic database representing 10,000 years of past/present and future tropical cyclone activity, to investigate climate change impacts on extreme sea levels forced by storm surges (± tides). We show that, as stronger tropical cyclones likely pass through this region and become more numerous over the next 30 years, both the spatial extent and severity of storm surge hazard increases. While extreme storm surge events thus become a more frequent occurrence generally, larger storm surges around Vietnam and China coastlines are projected to be a particular future hazard. This would acutely impact the future populations of low-lying zones such as the Red and Mekong River deltas. Sections of Cambodian and Thai coastline are also projected to face previously unseen storm surge hazards. These future hazards strongly signal that coastal flood management and adaptation in these areas should be reviewed for their resilience against future extreme sea levels.