



Combined impact of global river-floods and tropical cyclones on long-term economic growth

Tobias Geiger, Franziska Piontek, and Katja Frieler

Potsdam Institute for Climate Impacts Research, Potsdam, Germany (geiger@pik-potsdam.de)

Worldwide direct economic losses associated with the impact of river-floods and tropical cyclones have seen a rapid increase over time. Their nominal impact is projected to rise even further as the exposed population grows, per capita income increases, and anthropogenic climate change manifests. Beyond the immediate damage of each event, indirect economic impacts can affect growth trajectories of countries as a whole for many years after the disaster. Whether the cumulated indirect effects stimulate or hinder economic growth in the long-run is so far undecided as previous studies find contradicting results depending on the analysed hazard and the underlying methodology. We here combine two types of the costliest meteorological disasters worldwide in order to gain certainty on their joint impact in a comprehensive way. Relative affected population by country and year is determined based on historical tropical cyclone tracks (IBTrACS) and historical simulations of river-flood return periods forced by observed weather and used as a predictor for the disaster's impact on national Gross Domestic Product (GDP) time series. Controlling for various non-disaster related effects, we find a cumulated GDP deficit that remains robust for more than a decade after the event.