

## **Sensitivity of Tropical Cyclone Rainfall to Different Warming Scenarios**

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Heavy rainfall and flooding associated with tropical cyclones (TCs) are responsible for a large number of fatalities and economic damage worldwide. Despite their large socio-economic impacts, research into heavy rainfall and flooding associated with TCs has received little attention, and still represents a major challenge. Recent studies into climate model projections of heavy rainfall associated with TCs are particularly worrisome. Projected increases in TC rainfall of up to 20% in a warmer climate and an expected increase in frequency of heavy rainfall events will result in increases in flooding in some regions.

Our capability of adapting to future changes in heavy rainfall and flooding associated with TCs is inextricably linked to, and informed by our examination of the sensitivity of TC rainfall to different warming scenarios. The authors will use a set of climate model outputs produced as part of the U.S. CLIVAR Hurricane Working Group activity to examine changes in TC rainfall due to the doubling of CO<sub>2</sub> and/or 2-K increases in global sea surface temperature. Analyses will be performed at the global, hemispheric and ocean basin scales, allowing the assessment of similarities and differences across different regions in response to the selected warming scenarios.