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A feasibility study of a global risk pool scheme against tropical cyclones

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With increasing global economic damages due to weather-related events, insurance has even more become a valuable measure to share risks and increase resilience. Insurance solutions can be designed and implemented in various forms. Among these, cross-country insurance schemes emerged in the last years.

Natural catastrophe risk pools have the potential benefit of diversifying losses (thus lowering premiums) and of reducing administrative costs (as they are shared among countries). Currently, there are three catastrophe risk pools globally in place: the Caribbean Catastrophe Risk Insurance Facility (CCRIF), the African Risk Capacity (ARC), and the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI).

In the present work we aim to study the feasibility of establishing a global risk pool and, in particular, how countries might best be grouped together to achieve the greatest diversification. As a first step, this requires an assessment of global damages. We do this using the CLIMADA impact modeling platform and estimate worldwide damages from tropical cyclones. Then, we apply extreme value analysis and assess the diversification potential of various hypothetical pools based on measures from the systemic risk literature.