

Project title: **ClimXtreme: Climate Change and Extremes
(ClimXtreme)**

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When heavy precipitation causes serious flooding, when strong wind cause severe damage or disrupt traffic systems, or when a series of very hot summer days leads to fatalities, it is often speculated if the severity and frequency or the basic occurrence of the meteorological extreme events is related to anthropogenic climate change. In fact, torrential rains, heavy wind gusts, heat waves or winter storms do not occur “out of the blue”, but are embedded into a large scale atmospheric-oceanic-cryospheric environment prone for their occurrence. Thus, changes in the larger scale environment can in principle lead to changes of extremes. The overall aim of the coordinated BMBF funded project ClimXtreme is to address the following two questions and propose scientifically sound answers to them: **Has past climate change caused more extreme weather events?** and **Will future climate change modify the occurrence of extreme weather events?**

The project represents a major German contribution to the World Weather Research Program (WWRP) High Impact Weather Project (HIWeather), the World Climate Research Program (WCRP) Grand Science Challenge “Understanding and Predicting Weather and Climate Extremes” and the WCRP Global Land/Atmosphere System Study (GLASS). Therein it is stated that the information on future occurrence of extremes is necessary both on seasonal to decadal time scales and on longer term for adaptation and mitigation measures. Information about and analysis of past occurrences can be used to augment the resilience of society and ecosystems against extremes.