

Compound weather events in a changing climate

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Abstract

Many climate risks are not caused by single or univariate weather and climate hazards, but rather by the interplay of multiple hazards and drivers known as compound events. Such events can be the simultaneous occurrence of different hazards, the occurrence of a hazard after some preconditioning, the concurrence of several events across space, and the clustering of hazards in time. Climate change may affect drivers of compound events, the actual hazards themselves as well as the dependence between hazards. Here I will first present a typology of compound events, illustrated by brief examples. Second, I will discuss three examples of compound events in a changing climate in detail: the global hazard of compound coastal flooding, i.e., concurrent storm surges and high precipitation events; an event of about 3000 landslides in Austria triggered by heavy precipitation falling on moist soil; and hot and long drought events over Europe.