



## Case-based damage assessment of storm events in near real-time

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Damage assessment in times of crisis is complex due to a highly dynamic environment and uncertainty in respect of available information. In order to assess the extent of a disaster in near real-time, historic events and their consequences may facilitate first estimations. Events of the past, which are in the same category or which have similar frame conditions like imminent or just occurring storms, might give preliminary information about possible damages. The challenge here is to identify useful historic events based on little information regarding the current event. This work investigates the potential of drawing conclusions about a current event based on similar historic disasters, exemplarily for storm events in Germany.

Predicted wind speed and area affected can be used for roughly classifying a storm event. For this purpose, a grid of equidistant points can be used to split up the area of Germany. In combination with predicted wind speed at these points and the predicted number of points affected, respectively, a storm can be categorized in a fast manner. In contrast to investigate only data taken by the observation network, the grid approach is more objective, since stations are not equally distributed. Based on model data, the determined storm class provides one key factor for identifying similar historic events. Further aspects, such as region or specific event characteristics, complete knowledge about the potential storm scale and result in a similarity function, which automatically identifies useful events from the past.

This work presents a case-based approach to estimate damages in the event of an extreme storm event in Germany. The focus is on the similarity function, which is based on model storm classes, particularly wind speed and area affected. In order to determine possible damages more precisely, event specific characteristics and region will be included. In the frame of determining similar storm events, neighboring storm classes will be considered as well. The aim is to estimate upper and lower limits for damaged buildings and direct loss. The research activities are part of CEDIM's Forensic Disaster Analysis (FDA), which is concerned with near real-time analyses of disasters and their impacts.