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Central Europe Flood June 2013 - Rapid estimation of extent and depth

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Following flooding in central Europe in June 2013, we have produced a flood footprint describing the maximum extent and depth of flooding. Rapid damage estimation for a flood event such as this is useful for the re/insurance industry, in which companies need to estimate the impact of flooding on their business. An early understanding of the geographical scope and severity of an event allows claims adjusters to be deployed effectively and an estimation of the potential loss ensures adequate release of funds to pay for claims.
Following reports of heavy rainfall in the headwaters of the Isar, Saale, Inn, and Elbe during the first week of June 2013, we began monitoring the http://www.hochwasserzentralen.de/ website and extracted peak flow for the affected gauges. Using extreme value statistical analysis of the historic flow records, we assessed the return period of the flow generated by the 2013 event for each gauged location. This return period was then interpolated along each river reach taking into consideration catchment characteristics. Then, using previously developed Germany design hazard maps containing information on the extent and depth of flooding associated with a range of return periods at 10m resolution, we pieced together a flood footprint along the course of the affected rivers and tributaries. With much of the Elbe/Danube heavily defended and regulated, we then undertook a detailed manual exercise to account for defences and any breach locations. Here georeferenced ground / aerial photographs and satellite footprint maps produced by the German Aerospace Centre (DLR) and available through the media were used to establish the integrity of defences and to validate our flood footprint.
The resulting footprint was licensed by a number of companies within the re/insurance sector and is being used by academic partners for further research into damage assessment.