



Forensic Disaster Analysis in Near-real Time

Michael Kunz (1,3), Jochen Zschau (2,3), Friedemann Wenzel (1,3), Bijan Khazai (1,3), Tina Kunz-Plapp (1,3), Werner Trieselmann (2,3)

(1) Helmholtz Centre Potsdam – German Research Centre for Geoscience GFZ, Germany, (2) Karlsruhe Institute of Technology (KIT), (3) Center for Disaster Management and Risk Reduction Technology (CEDIM)

The impacts of extreme hydro-meteorological and geophysical events are controlled by various factors including severity of the event (intensity, duration, spatial extent), amplification with other phenomena (multihazard or cascading effects), interdependencies of technical systems and infrastructure, preparedness and resilience of the society.

The Center for Disaster Management and Risk Reduction Technology (CEDIM) has adopted the comprehensive understanding of disasters and develops methodologies of near real-time FDA as a complementing component of the FORIN program of IRDR. The new research strategy “Near Real-Time Forensic Disaster Analysis (FDA)” aims at scrutinizing disasters closely with a multi-disciplinary approach in order to assess the various aspects of disasters and to identify mechanisms most relevant for an extreme event to become a disaster (e.g., causal loss analysis). Recent technology developments - which have opened unprecedented opportunities for real-time hazard, vulnerability and loss assessment - are used for analyzing disasters and their impacts in combination with databases of historical events. The former covers modern empirical and analytical methods available in engineering and remote sensing for rapid impact assessments, rapid information extraction from crowd sourcing as well as rapid assessments of socio-economic impacts and economic losses. The event-driven science-based assessments of CEDIM are compiled based on interdisciplinary expertise and include the critical evaluation, assessment, validation, and quantification of an event. An important component of CEDIM’s FDA is the near real-time approach which is expected to significantly speed up our understanding of natural disasters and be used to provide timely, relevant and valuable information to various user groups within their respective contexts.

Currently, CEDIM has developed models and methodologies to assess different types of hazard. These approaches were applied to several disasters including, for example, Super Typhoon Haiyan/Yolanda (Nov. 2013), Central European Floods (June 2013), Hurricane Sandy (Oct. 2012), US Droughts (Summer 2012), or Typhoon Saola in Taiwan and Philippines (July 2012).