RASOR flood modelling

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Decision making in disaster management requires fast access to reliable and relevant information. We believe that online information and services will become increasingly important in disaster management. Within the EU FP7 project RASOR (Rapid Risk Assessment and Spatialisation of Risk) an online platform is being developed for rapid multi-hazard risk analyses to support disaster management anywhere in the world. The platform will provide access to a plethora of GIS data that are relevant to risk assessment. It will also enable the user to run numerical flood models to simulate historical and newly defined flooding scenarios. The results of these models are maps of flood extent, flood depths and flow velocities. The RASOR platform will enable to overlay historical event flood maps with observations and Earth Observation (EO) imagery to fill in gaps and assess the accuracy of the flood models. New flooding scenarios can be defined by the user and simulated to investigate the potential impact of future floods.

A series of flood models have been developed within RASOR for selected case study areas around the globe that are subject to very different flood hazards:

• The city of Bandung in Indonesia, which is prone to fluvial flooding induced by heavy rainfall. The flood hazard is exacerbated by land subsidence.

• The port of Cilacap on the south coast of Java, subject to tsunami hazard from submarine earthquakes in the Sunda trench.

• The area south of city of Rotterdam in the Netherlands, prone to coastal and/or riverine flooding.

• The island of Santorini in Greece, which is subject to tsunamis induced by landslides.

Flood models have been developed for each of these case studies using mostly EO data, augmented by local data where necessary. Particular use was made of the new TanDEM-X (TerraSAR-X add-on for Digital Elevation Measurement) product from the German Aerospace centre (DLR) and EADS Astrium. The presentation will describe the flood models and the flooding scenarios that can be defined by the RASOR end user to support risk management in each area. Ongoing work for three more case studies (Haiti, Po valley in Italy and Jakarta, Indonesia) will also be discussed.