



Linking flood impact forecasting and satellite rapid mapping in Europe

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Early warning and satellite monitoring systems are nowadays widely used in flood risk management. Two examples operating at European scale are the European Flood Awareness System (EFAS), providing flood predictions for the major European rivers, and the Rapid Mapping (RM) component of the Copernicus Emergency Management Service (EMS), used for satellite-based flood mapping and monitoring.

Here, we present a recently developed procedure to improve timeliness and precision of EMS satellite mapping using flood forecasts. Specifically, EFAS daily streamflow forecasts are used to derive event-based flood hazard maps, which are then combined with exposure and vulnerability information to evaluate expected impacts of the forecasted flood events. Areas with high potential impact are identified and used to pre-task and prioritize acquisition and processing of satellite images for monitoring flood events.

The procedure is operational since 2017 and it has been applied in recent flood events, such as the 2018 floods in France and Spain. These applications demonstrated that the EFAS-RM integration can improve acquisition time and precision of satellite images, thus helping emergency response in case of severe floods.