



## **Earth Observation contributions to Disaster Management of Floods – Status quo, gaps and ways forward**

Stella Hubert (1), Guenter Strunz (1), Michael Nyenhuis (2), and Stephanie Göbel (2)

(1) German Aerospace Center, DLR, (2) University of Bonn

Disaster risk and vulnerability are increasing in many regions of the world due to global change and human activities. Especially hydro-meteorological hazards including floods pose a major threat with regard to loss of lives as well as economic losses worldwide. To support disaster management it is essential to provide information through coordinated systems which contribute to monitoring, prediction, risk assessment, early warning, mitigation, and response measures to hazards. While numerous projects, e.g. funded by the European Commission and the ESA, have investigated improvements in the field of disaster management for floods, a stronger co-ordination and cooperation as well as the incorporation of Earth Observation data could further improve efforts to reduce disaster-induced losses.

The intergovernmental Group on Earth Observation (GEO) aims at setting up a global earth observation system of system (GEOSS). GEOSS tries to improve the availability of Earth Observation data for decision makers and scientists worldwide by linking different Earth observation systems of member states, improving and facilitating data access and exchange, identifying gaps and requirements as well as building capacities. In this context the FP7 funded project EUGENE aims at fostering collaboration between pan-European organisations in the field of Earth observation and at strengthening the coordination of national and regional programmes and organisations in their work towards GEOSS by establishing an appropriate coordination process. The underlying goal is the establishment of a strong and sustained European Earth observation component as part of GEOSS. Within the EUGENE project, strategic documents dealing with recommendations for a structured, European approach for selected GEO Societal Benefit Areas (SBAs) are being developed.

This paper presents an analysis of the Earth observation contributions to services dealing with different phases of disaster management (forecasting, early warning, response, and risk management) for floods. Special emphasis is put on the spatial coverage and the operational capabilities of these services. European as well as world-wide systems are taken into account. Linkages of different systems and different stages of the disaster management cycle (e.g. forecasting services and emergency response services) are investigated and recommendations for improvement to ensure a fast and efficient reaction in case of a disaster are derived.

This analysis sets the basis for the investigation of implications for GEOSS on ways to benefit from existing Earth observation systems and services. Besides the general advantages of using existing systems and services (e.g. cutting costs, supply platforms for discussion between the user community and service providers and avoid double work), the success of GEOSS relies on the contributions of its participants.