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SYNTHETIC APERTURE RADAR (SAR) AND DISASTER MANAGEMENT

**Abstract**

Synthetic Aperture Radars (SARs) are particularly suitable to monitor disaster. The observation can be made through clouds and the combination of amplitude and phase allow the production of accurate change measurement of the order of millimeters.

Despite more than two decades of utilization of SAR data for disaster management there remains two main issues; the latency in the acquisition, transmission and processing of the data which often prevent the timely production of maps required by the civil security and the development of accurate map to discriminate pre-disaster land and water level and post-disaster change of terrain and water coverage. A third issue that can be mentioned is the coverage of the flood event from preparedness to recovery. The Satellite coverage, such as acquisition made by the International Charter Space and Major Disasters are often limited to disaster response. Disaster mitigation and warning will require frequent coherent change map and faster revisit time. The future fleet of SAR satellites shall allow more frequent production of those maps as well as daily observation on most of the affected areas in the world.

This paper will describe the different international initiatives under GEO, CEOS and in the commercial sectors to evolve the utilization of SAR data to a Near-Real-Time observation to support disaster mitigation, warning, response and recovery on a global basis for major disasters. Several projects address this objective such as: the Caribbean Satellite Disaster Pilot, the African Flood and Health Pilot and the Geohazard Supersite Initiative. This paper will discuss how SAR data contributes to those projects and will develop a prospective for the future use of SAR satellites in development for an end-to-end Disaster management system.