

COSMO-SKYMED DATA FOR OPERATIONAL CRISIS MANAGEMENT DURING EARTHQUAKES: DEMONSTRATION THROUGH THE ASI-SIGRIS PILOT PROJECT

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In the framework of the National Space Programme, and of the European GMES Programme, the Italian Space Agency (ASI) has funded several pilot projects aimed at demonstrating the full potential of Earth Observation data in the monitoring and management of natural hazards.

The SIGRIS (Earth Observation System for Seismic Risk Management) pilot project has developed a hardware/software infrastructure for the generation of decision support products for the seismic risk management.

A pre-operational demonstration of the SIGRIS system is being carried out since June 2009 and various products to be used by civil protection authorities in either the Knowledge & Prevention or Crisis Management phases of seismic risk management, have been generated.

SIGRIS products for the Crisis Management phase are focused on the quick generation of value added information needed to develop damage or event scenarios during the emergency, and typically consist of: damage assessment maps from high resolution optical and SAR data (Pacifici et al., 2009), co-seismic displacements maps from DInSAR analysis (Atzori et al.,

2009b, Stramondo et al., 2008), seismic source models (Atzori et al., 2009a), maps of earthquake-induced environmental effects as landslides, surface fractures, etc. (Moro et al., 2007).

For all these products a near-real time capability is required and new constellations, as COSMO-SkyMed, can now provide the necessary temporal revisit to fulfil this need. The SIGRIS system is therefore mainly exploiting COSMO-SkyMed imagery, but also other SAR satellites, to ensure a faster and better coverage of the disaster areas: ENVISAT, Radarsat, TerraSar X, ALOS (Figure 1).

We will present examples of the operational SIGRIS decision support products based on the integration of Earth Observation and ground data, and discuss important issues related to disaster applications, as EO data programming, fast data access, data archival.

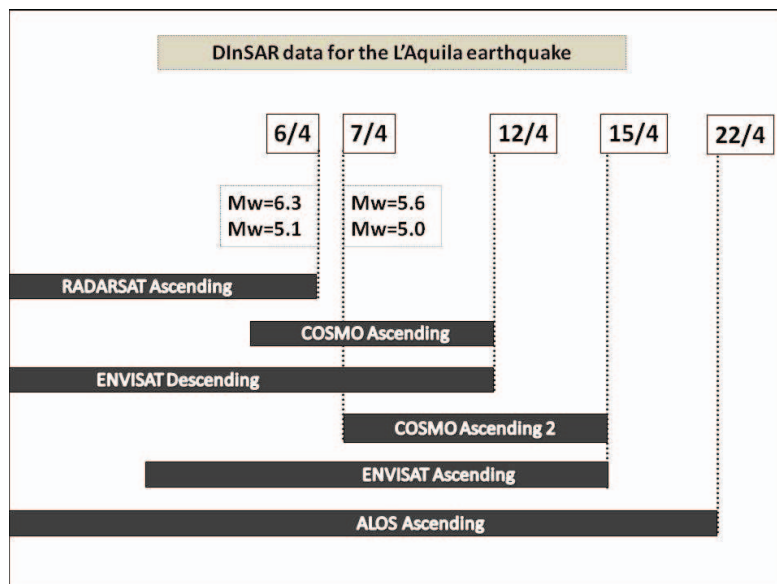


Figure 1 - Interferometric pairs acquired by the SIGRIS monitoring system during the L'Aquila earthquake crisis for the operational generation of decision support products.

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