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COSMO-SKYMED TANDEM-LIKE SAR INTERFEROMETRIC DEM: ANALYSIS AND AVALUATION

**Abstract**

COSMO-SkyMed (Constellation of small Satellites for Mediterranean basin Observation) is conceived as a Dual-Use (Civilian and Defence) Earth Observation System aimed to establish a global service supplying provision of data, products and services. The system comprises four mid-sized satellites, each equipped with a multimode SAR operating at X-band. The Tandem Like interferometric configuration, i.e. 24 hours temporal baseline between 2nd (SAR2) and 3rd (SAR3) satellite, allow accurate interferometric products generation, with particular reference to Digital Elevation Model (DEM). A fundamental topic in DEM generation is the baseline calibration concept; COSMO-SkyMed (CSK) tandem-like interferometric mission started on July 27 2013 and accomplished on October 14 2013; the goal was to maintain SAR2-SAR3 baseline of around 150 m. In this paper results will be shown on the baseline control and interferometric processing of COSMO-SkyMed data pair acquired in Stripmap and Spotlight mode and in tandem-like (one day) configuration during the interferometric mission. Particularly, the spotlight image mode is critical in interferometric processing, because of its peculiarity; classic (StripMap) interferometric technique as implemented in Delft Object-oriented Radar Interferometric Software (DORIS) has been used. Results are presented for different test areas: Uluru in Australia for Spotlight data and southern California in USA for Stripmap data.