

TerraSAR-X and TanDEM-X: Revolution in Spaceborne Radar

Abstract— Commercially available imagery is and will remain indispensable to civilian and military organizations gathering various types of geo-spatial information. Whether fulfilling international agreements, providing military contingents in international peacekeeping or humanitarian missions, or conducting joint technical exercises with other countries – a reliable access to timely, high resolution remote sensing data is an essential basis for well-informed decision making, particularly in time-critical situations.

Today, organizations with those needs customarily resort to high resolution data acquired by optical sensors - often a lengthy operation. The radar satellite TerraSAR-X, and at a later stage together with TanDEM-X with its complementary near-real time data acquisition capabilities, offer a whole new approach to the use of space-borne datasets for mapping purposes in time-critical situations.

Keywords: TerraSAR-X, TanDEM-X, spaceborne radar satellite, X-band, high-resolution imagery, single pass SAR interferometry, digital elevation model, near-real-time.