

TerraSAR-X Calibration Status – 2 Years in Flight

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Abstract

As TerraSAR-X, launched in June 2007, is an operational scientific mission with commercial potential, product quality is of paramount importance. The success or failure of the mission is essentially dependent on the calibration of the TerraSAR-X system ensuring the product quality and the correct in-orbit operation of the entire SAR system.

Based on the excellent calibration results achieved during the commissioning phase after launch, continuing calibration guarantees a stable product quality and monitors the correct operation of the entire SAR system during whole life time of TerraSAR-X. Therefore, one essential task is long term system monitoring (LTSM) performed by periodic measurements over rainforest and permanently deployed reference targets, to ensure stable antenna patterns and constant radiometric accuracy of the instrument.

In addition to regular LTSM measurements, an extended re-calibration of the TerraSAR-X system was performed in July 2009. In contrast to the nominal LTSM task several beams for a wide range of incidence angles have been measured against a multitude of reference targets. Due to this great amount of different measurements precise results based on reliable statistics have been achieved.

The paper describes the different activities performed for LTSM and re-calibration of TerraSAR-X and discusses the results.