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## PALSAR Radiometric and Geometric Calibration

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### Abstract

This paper summarizes the geometric and radiometric calibration results of the PALSAR achieved during the ALOS initial calibration phase, which covers five months between May 16, 2006, and October 23, 2006, and the half year of the operational phase. All the PALSAR modes, FBS (fine beam single), FBD (Fine beam dual), SCANSAR, DSN (band limited SAR), and PLR (Full polarimetry) were calibrated and validated using in-total 500 calibration points collected worldwide and distributed target data from the Amazon. Through the characterization of the PALSAR, antenna pattern determination, and polarimetric calibration, we performed the adjustments of the PALSAR radiometric and geometric model installed on the SAR processor (SIGMA-SAR). Using the reference points, we finally confirmed that the geometric accuracy of the FBS, FBD, DSN, and PLR modes is 9.3 m, that of SCANSAR is 70 m, and radiometric accuracy is 0.64 dB. Polarimetric calibration was successful that amplitude balance of VV/HH is 0.025 dB and the phase balance is 0.32 degrees.

Keywords: PALSAR, CALVAL, synthetic aperture radar, ALOS, POLCAL

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