

IMAGE QUALITY AND CALIBRATION OF RADARSAT-2

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Abstract

RADARSAT-2 has 177 operational imaging modes. Versions of each of these modes are available either for left-looking or right-looking imaging, and most modes allow images to be generated for any of the four linear polarization combinations (HH, VV, HV and VH). To support these modes there are currently a total of 1816 sets of beam coefficients and 16 digitized pulse forms stored on the spacecraft. The radar system also employs a significant variety of SAR techniques in addition to the more established Stripmap and ScanSAR of RADARSAT-1. These techniques include alternating transmit polarization, Dual-Receive (separately on the two antenna wings) and Stitched Pulse.

All these factors that provide the versatility for the system also increase the complexity of the task to establish and maintain image quality and calibration. This paper will cover some of the methods that were used to achieve an efficient image quality and calibration campaign during the first four months of the mission, and to maintain and upgrade image quality since that period. The SAR commissioning campaign had been carefully planned in advance of launch, with provision for modifications and additions to the data collection schedule depending on the characteristics observed in early imaging. The paper will include information on the areas of the image quality work where the planned methods worked exactly as planned, and also on aspects that required modification during the campaign.