PALSAR CALVAL updated 2009 and change detections at the Forest and the polar regions

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Abstract
During almost three years after the ALOS launch on Jan. 24, 2006, PALSAR has been activated based on the calibration plan, which was mainly active in the initial calibration phase (eight months after the ALOS launch), and the basic mission operation plan that serves for the image requests from the powered users, PIs of the ALOS Research announcement, and requirements from the JAXA's science project, Kyoto and Carbon initiatives for monitoring the forest deforestation and degradation. By now, it collected the PALSAR data more than 1,000,000 scenes, which corresponds to 12 times global coverage of the world. The calibration results using the one year data set shows that PALSAR has an excellent performance of the radiometric accuracy of 0.6 dB using all the corner reflectors associated with the calibration experiments and 0.17 dB using the Swedish 5m sized corner reflectors, the geometric accuracy with 9.3 m (RSS). The polarimetric performance is that the amplitude variation of the VV/HH channels is 0.3 dB and phase is 0.3 degrees. Although the number of the calibration data is 600 during 6 months, the temporal dependence is not clearly detected. One of the reasons is that the duration of the data collection is too short. After the initial calibration phase (After Oct. 23 2006), the number of the calibration experiments was reduced. However the calibration dataset are collected (although the data are small). Using he corner reflectors, we have monitored the accuracies ad the temporal variation of the accuracies. We have also conducted the antenna pattern variation and the stabilities using the Amazon rain forest data. The analysis showed that the data antenna pattern is stable and the FBD343 antenna has been newly calibrated and that the HH pattern is the same as the one conducted using the FBS343HH and FBS343HV is newly calibrated. Dual polarization has been calibrated using the distortion matrix derived from the PLR215.
Other than the calibration, the validation of the high level products and research products are being conducted. The products are ortho rectified PALSAR data, Interferometric height information, and mosaics of the PALSAR images over the continent, the change detection of the forest, surface deformation using the differential SAR interferometry.

Change detection at the forest and the Polar Regions
Current basic observation plan observes the global land surfaces twice a year frequency, for both dry and wet seasons. The orthorectified 50 meter spaced PALSAR mosaic is being generated for covering the world. As a core for the Asian region, JAXA is responsible for the products generation for Asian continents. The products consist of FBS, FBD, SCANSAR, and Polarimetry modes. In addition to this slow starting products generation, quick data distribution of the browse mosaic data over the Amazon using the SCAN SAR is being distributed to the Brazilian agency for monitoring the deforestation. Polar regions are also monitored by using the fine beams and the SCANSARs (Fig. 1 for Greenland).

Conclusions
This presentation describes the updated PALSAR calibration in 2009, deforestation status, and changes in the polar regions.

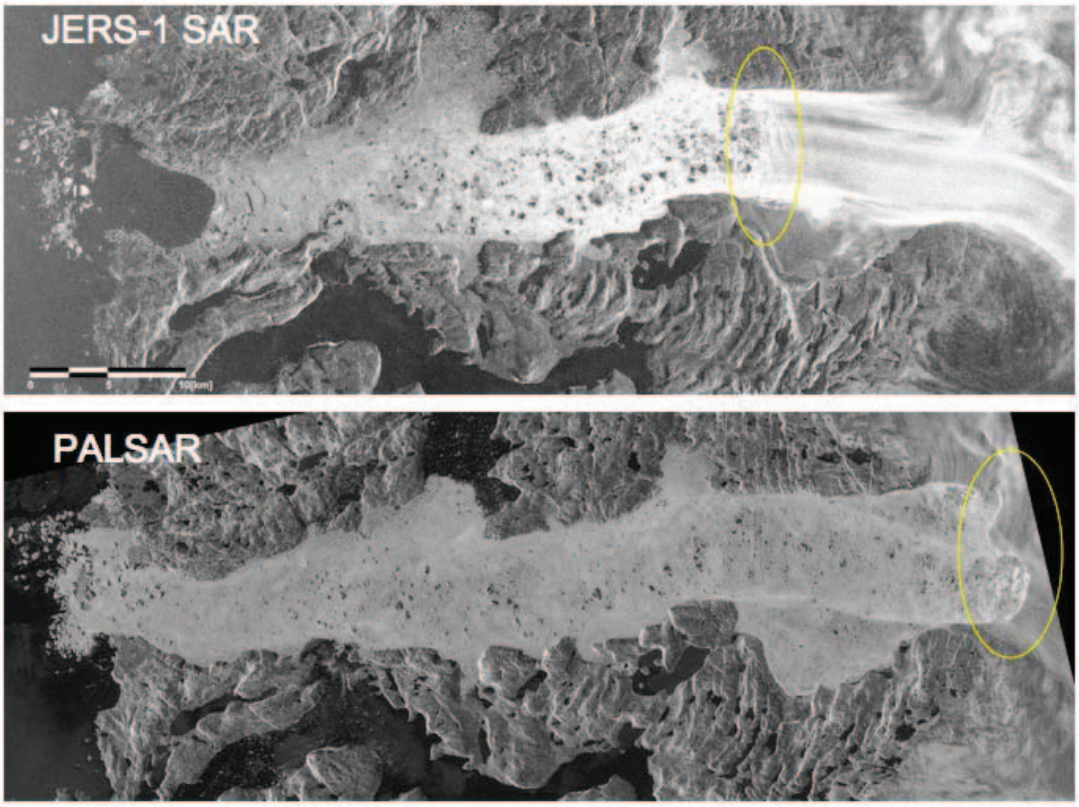

Fig. 1 13 year change of the Jakobshavn Glacier, Greenland,