EOS Aqua AMSR-E Arctic Sea Ice Validation Program

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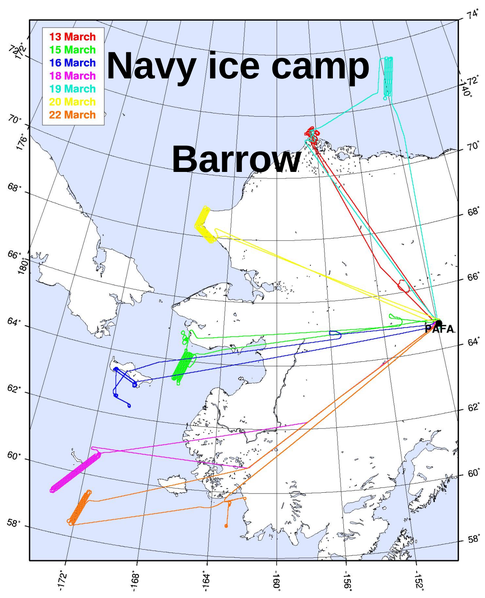
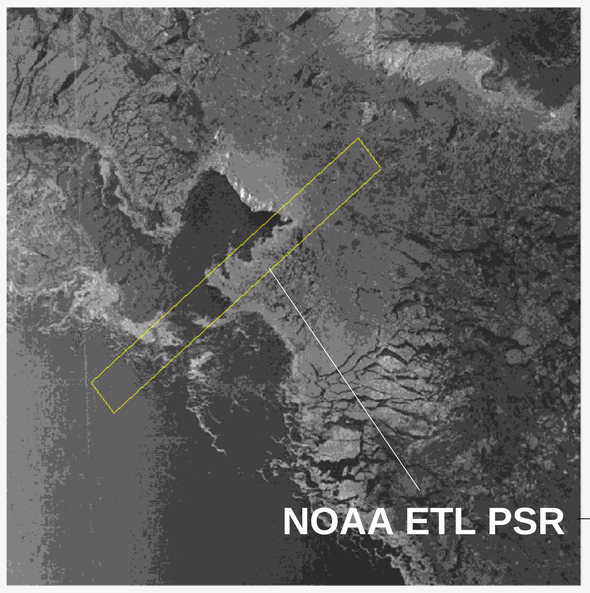
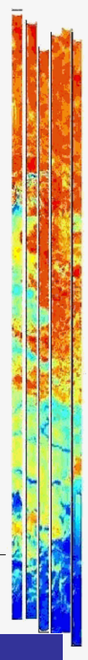
NASA Wallops P- 3B in Fairbanks, AK

An Arctic sea ice field campaign using the NASA P- 3B aircraft was successfully completed in March 2003. The goal was to validate the Earth Observing System (EOS) Aqua Advanced Microwave Scanning Radiometer (AMSR-E) sea ice products including snow depth on sea ice, sea ice concentration and temperature. The primary instrument on the P- 3B was the NOAA ETL Polarimetric Scanning Radiometer (PSR) covering the same frequencies and polarizations as the AMSR-E. Seven aircraft flights were completed and coordinated with overpasses by Landsat 7, Aqua, and Radarsat. Two of the flights were coordinated with surface measurements made at Barrow and at a Navy ice camp.

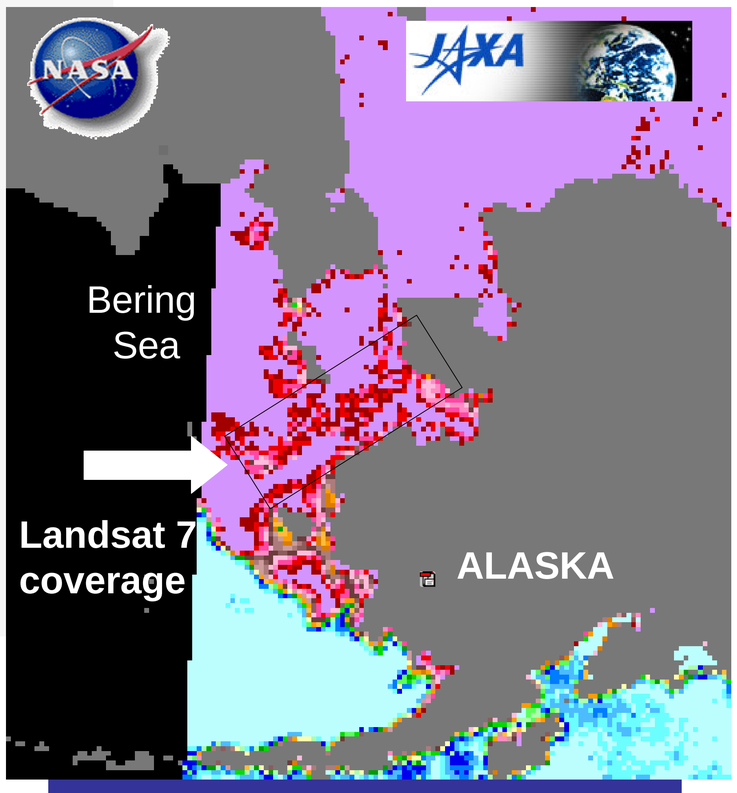
P-3 Study Areas



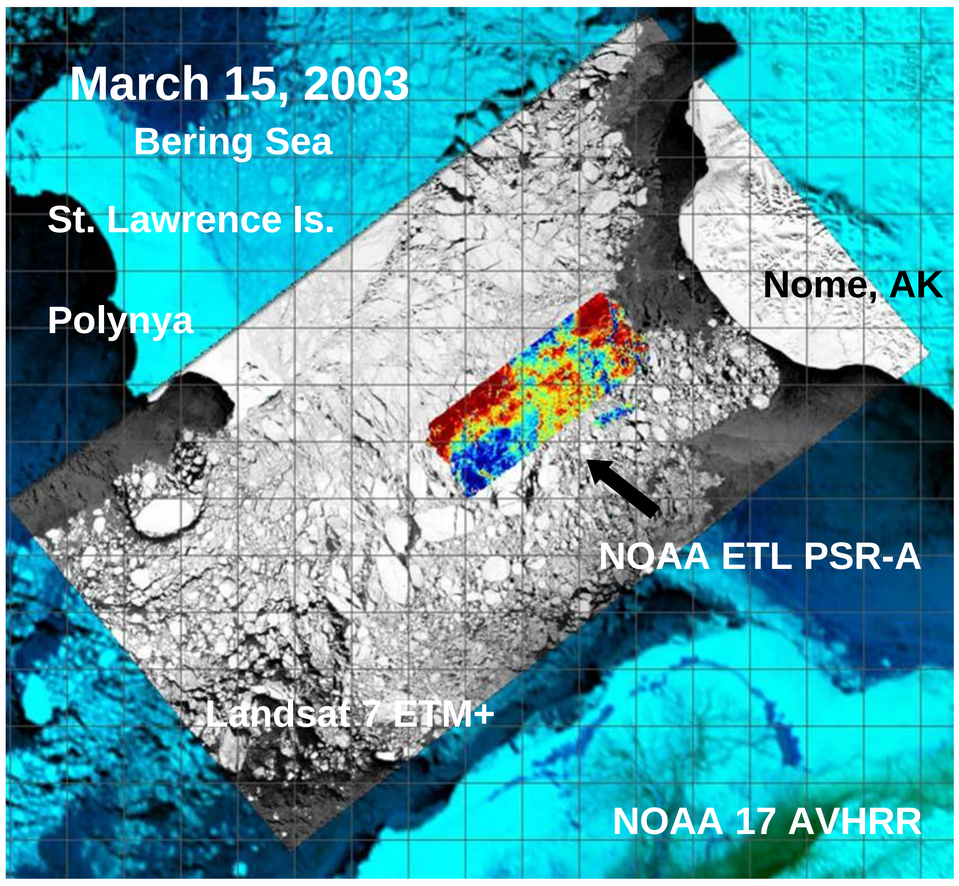


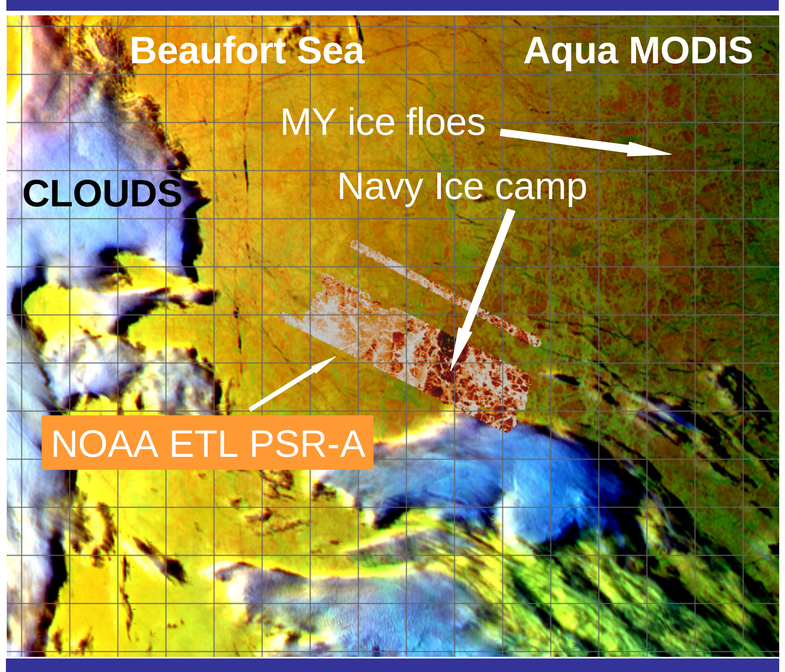


Radarsat image of the Bering Sea for March 18 (courtesy of the Canadian Space Agency) with PSR coverage indicated. The color-coded PSR mosaic to the right shows ice features and ice types also seen in the radarsat image.



AMSR-E Sea Ice Concentration March 15, 2003

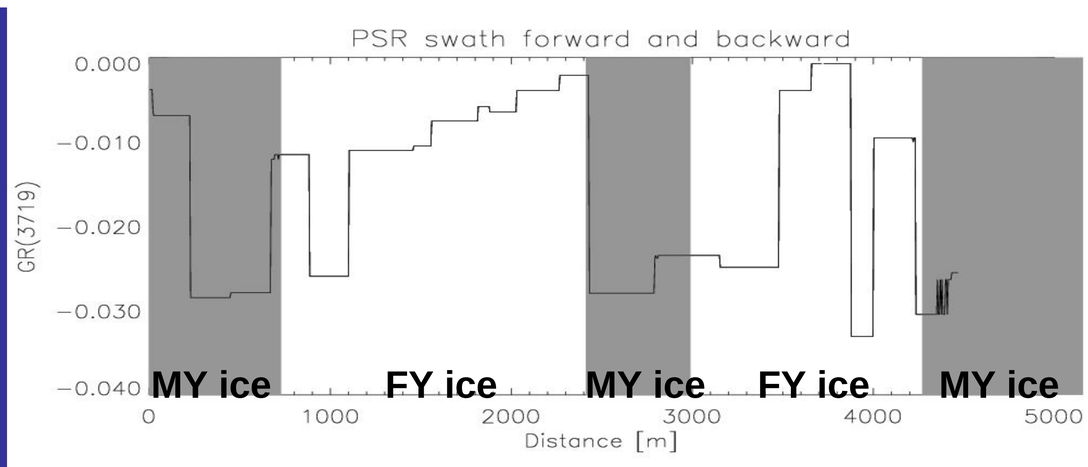


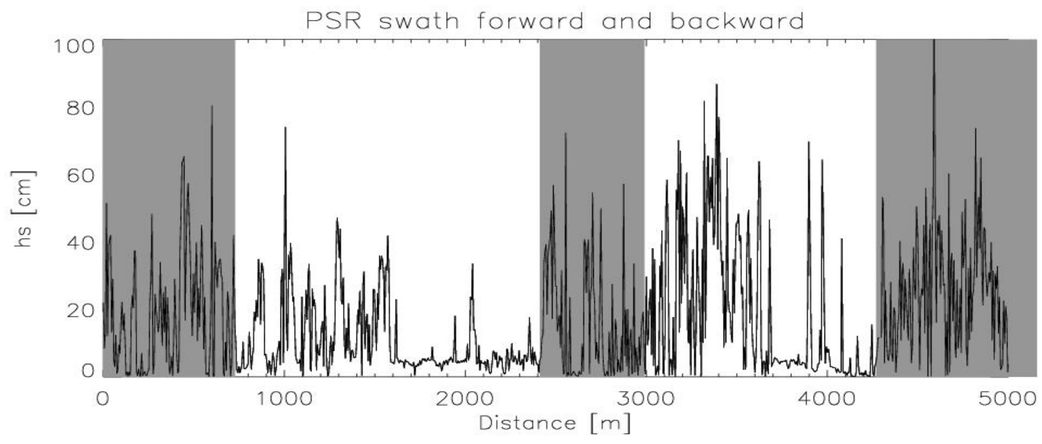


EOS Aqua MODIS Image (bands 3, 5, & 7) for March 19, 2003 with the NOAA ETL PSR-A (37 V) mosaic overlain. MY ice floes are apparent in both.

Comparison of Navy ice camp in-situ snow depth measurements with PSR GRV(3718) data is shown to the right for March 19,2003.

Other comparisons are underway between satellite-satellite data sets, aircraft-satellite data sets, and in situ-aircraft data sets to provide the statistics needed to validate the AMSR-E sea ice products. All validation data sets will be archived at the National Snow and Ice Data Center in Boulder, CO.





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