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ARISE (ANTARCTIC REMOTE ICE SENSING EXPERIMENT) IN THE EAST: VALIDATION OF SATELLITE-DERIVED SEA-ICE DATA PRODUCTS.

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Although satellite passive-microwave remote sensing is the main source of global sea-ice information, the data products have never been adequately validated for East Antarctic conditions. An Australian-led international experiment dedicated to this task took place in September-October 2003 onboard the icebreaker RSV *Aurora Australis* in the region bounded by ~64-65 deg S and ~112-119 deg E. The main aim was to validate the primary sea-ice geophysical products (concentration, snow thickness [h_S] and ice temperature [T_I]) routinely retrieved from the Advanced Microwave Scanning Radiometers (AMSRs) onboard NASA's Aqua satellite (2002-present) and the Japanese satellite ADEOS II (2002-2003). ARISE forms a component of the NASA AMSR-EOS (-E) Validation Program (http://eospso.gsfc.nasa.gov/validation/pmval.php), the overall aim of which is to improve algorithm performance and reduce data-product uncertainty. The challenge of collecting sufficient measurements with which to adequately validate the coarse-resolution AMSR data products was addressed by means of a hierarchical approach, using detailed *in situ* measurements, digital aerial photography and other satellite data. In addition to 13 long-stations, a total of 181 h_S and T_I measurement transects were completed on “rough” and “smooth” sea ice during helicopter mini-stations. Initial results show differences between AMSR- and aerial photo-derived total concentrations of <0.5% to ~4.5%. While the AMSR-derived h_S values are significantly lower than those measured both during long stations and over rough ice during mini-stations, they are comparable to mini-station smooth-ice measurements. Further analysis is required using aerial photo-derived estimates of thin (snow-free) sea ice. Close correspondence is noted between AMSR and *in situ* ice temperatures (-5.35±1.5 deg C versus -5.42±1.8 deg C respectively) in a case study. Further analysis is necessary and underway using this unique dataset.