

Japan-Germany Joint Airborne Geophysical Surveys around Syowa Station, Antarctica

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During the 2005/2006 Antarctic field season, the National Institute of Polar Research (NIPR) and the Alfred Wegener Institute (AWI) have done collaborative airborne geophysical surveys over the Eastern Dronning Maud Land, Antarctica. The objectives are to obtain detailed ground data of intermediate wavelength characteristics of the geophysical parameters between the existing short wavelength ship legs/land traverses and the long wavelength satellite altitude data (e.g. GRACE, MAGSAT) in the JARE research area. Special flights to elucidate wet-based geomorphological features of the Shirase Glacier region and to infer electromagnetic characteristics of the internal ice layers along the presumed ice flow lines are also done. For this purpose POLAR-4 (Dornier 228) of DLR hopped to S17 (inland traverse point on the ice sheet of 500 m height asl) near Syowa Station on 28 December 2005.

The equipped instruments are the LaCoste-Romberg air/sea gravimeter, EG&G three-component magnetometer, Technical University of Hamburg 17 MHz ice echo sounder, and Optech SX-501 laser altimeter, together with GPS-aided navigation and manouever recording system controlled by the central clock distributor; details are described by T. Boebel (Berichte zur Polar forshung Heft Nr. 366; 2000). At an interval of 20 km spacing of 1000 km-long north-south trending profiles, the survey covered the box area of 35-45 degrees East by 64.5-74.0 degrees South. A total of 100 hrs' flight data will help us to study the crustal evolution associated with the Gondwana breakup.