Antarctic Bed Relief and Ice Sheet (ABRIS)

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Objectives:
New initiative succeeds the international Project BEDMAP (Bed Topography of the Antarctic) (completed in 2000) and suggests the creation of advanced ice surface, ice thickness and bedrock elevation data bases using available and forthcoming radar and seismic materials, with the purpose to compile new more detailed small-scale maps for the entire Antarctica, and medium/large-scale maps for its individual regions with relatively dense observations.

Rationale:
Bedrock topography of Antarctica is a valuable source of information for interpretation of subglacial environments and crustal tectonic fabric, as well as for modeling glacial processes and understanding the causes responsible for Cenozoic glaciation in the Southern hemisphere. In BEDMAP Project most of the existing radio-echo sounding data sets that had originally been acquired with different observation density were converted into a uniform (50x50 km) grid. As a consequence, the resulting 1:10,000,000 map portrayed only generalized bedrock morphology.

Anticipated outcome:
The Project suggests creation of new more detailed grids in which the intervals between ice thickness/bedrock elevation point values will vary depending on the density of original observations. This will enable compilation of both an overview small scale bedrock topography map and a set of more detailed maps for the areas with better data coverage (5-20 km line spacing), such as the Lambert Glacier region, Enderby Land, western Dronning Maud Land and some others; special attention must be given to recognition of ice grounding line in coastal areas from original radio-echo sounding records. The optimal scale of map compilations will be defined during the implementation stage.

International cooperation:
The new initiative requires a broad international cooperative effort of many countries holding the already existing relevant data, and/or intending to acquire new data during the next years including IPY 2007/08. ABRIS is linked with several IPY proposals submitted to ICSU IPY PG (GigaGAP – Australia/Germany, GAMBIT – USA, IDEA – Germany, Airborne Geophysical Surveys over the East Antarctic Highland – Russia).

Timeframe:
2006-2009