

Report on “Physical Geodesy Project” 1998 - 2000

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The goal for the project was the collection and analysis of physical geodesy data, for the development of a new high resolution Geoid for the Antarctic.

Regarding the key activities that were fixed at the last SCAR meeting 1998, Conception, Chile, some results were obtained.

The collation of extensive Geodetic and Gravimetry data, essential inputs to Geoid computation, were individuated in different Database already created, specifically:

- WGGGI web site related to GPS, DORIS , VLBI, Absolute Gravimetry, Tide Gages permanent observatories;
- topography surface through RADARSAT mosaic created at Polar Bird Research Institute, Ohio University within RAMP program;
- surface topography from satellite altimetry of F.Remy- Grenoble;
- bedrock surface within BEDMAP program.

Next step : we have to verify the accuracy of topography and bedrock surfaces furnished for an high resolution geoid computation.

Unfortunately a big hole was discovered in ground/airborne/satellite gravimetry data.

For this reason was tried to collaborate with IAG Commission on Gravity and Geoid to combine the efforts, following the actions arising from WG-GGI Coordinators Meeting, held in Heppenheim, Germany 26-27 July 1999.

Particularly the International Gravity and Geoid Commission (IGGC) established in 1999 at IUGG a Working Group on Antarctic Gravity and Geoid , which I was nominated as a coordinator.

Within the activity of this WG , an “Antarctic Gravity Project” , a possible 5 years effort of aerogravity over Antarctica, was created.

The basic goal is to provide airborne gravity data at 15 nm spaced profiles, for determination of long wavelength gravity anomalies to support next Gravity field satellite missions (CHAMP,GRACE,GOCE) to collect data in

Antarctica to determine the geoid in Antarctica and to provide basic background geophysical data on tregional tectonic developments.

At the “Arctic and Antarctic Gravity Project” in St. Petersburg, 7-8 June, a contact will be established with Russian researchers involved in gravity data collection.

A collaboration was established with International Geoid Service (IGeS) for the analysis of collected data for the geoid computation. Overall a study for the simulation of quality and accuracy data for a high resolution geoid computation started in collaboration with IGeS.

The collaboration with the SCAR WGs Solid Earth Geophysics, Geology, Glaciology was activated within the ANTEC GoS program.