

Title: **COMBINE** (COllaborative MultiBeam InterNational Effort)

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Activity: To complete the seafloor bathymetric mapping of the entire western margin of the Antarctic Peninsula by compilation of existing national datasets and of forthcoming internationally coordinated surveys.

Objectives: The main objective is the comprehension of Antarctic depositional processes and the reconstruction of the last phases of ice sheet development.

The comprehension of the sub-marine glacial depositional processes can be achieved by studying the offshore relict glacial morphology, which is preserved by Holocene low sedimentation rate. However, the huge dimensions of the Antarctic ice streams require the acquisition of vast swath maps allowing to imagining the whole source-to-sink system. The extensive use of swath mapping technology in Antarctica was undertaken for this scope only in the recent years, but as it expands across several national marine programs, co-operative efforts are imperative. Only in this way is possible to focus upon regional coverage of important tectonic and glacial geologic features of the seafloor.

In the Antarctic Peninsula region, the highest climatically responsive Antarctic margin, a rich international multi-disciplinary data-set already exist, and a collaborative effort between Spanish, U.S., and Italian national programs has been informally agreed. Part of the data sets from *N.B. Palmer* and *Hesperides* cruises in the northern part of the Pacific margin of the Antarctic Peninsula has been already merged and presented to the IX International Symposium on Antarctic Earth Sciences in Potsdam (Domack et al, 2003). Additional data were collected during the 2004 cruise of the *OGS-Explora* and proposals for further join acquisitions in the area are pending (e.g. the Spanish IBIPOL project).

Other data sets in the same margin were collected by different national programs (e.g. *J.C. Ross* and *Polarstern* cruises). As a whole, the different national patches would make up to a total of more than 200.000 km² within a region which is about 1500 km long and 300 km wide.

During the Polar Year, an international co-ordinated effort for extensive swath mapping in the region may allow the production of a comprehensive map of the entire margin.

International Collaborations (existing and potential):

E. Domack, Hamilton College, USA

M. Canals and R. Urgeles, Universitat de Barcelona, Spain

C. Pudsey and R. Larter, BAS, UK

K. Gohl, AWI, Germany