

## **Seafloor bathymetry in Southern Ocean and Antarctica with OGS-Explora within the Italian Antarctic National Research Program (PNRA 1988-2017). OGS contribution to IBCSO compilation.**

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### **Abstract**

OGS-Explora started to acquire seafloor data in Antarctica within the framework of PNRA (Programma Nazionale di Ricerche in Antartide) since 1988, long before the employment of MultiBeam EcoSounder (MBES), when bathymetric information were collected essentially along tracks of multichannel and single channel seismics (Brancolini et al., 1985). After multibeam installation in 2003, R/V OGS-Explora conducted three cruises employing the hull mounted Reson MBES systems (Reson Seabed 8111 and 8150 during 2004 and 2006 surveys, Reson Seabed 8111 and 7150 in 2017). These cruises encompassed the southern Scotia Sea, the South Shetland Trench, the southwestern Antarctic Peninsula, the eastern and western Ross Sea, the Oats Land and Wilkes Land margins and Macquarie Area. The acquired MBES bathymetry datasets (except for 2017 datasets) have been published (e.g. Beaman et al., 2011; De Santis et al., 2007; Rebesco et al., 2007; Tinivella et al., 2008) and used for compilations including the IBCSO v1.0 - International Bathymetric Chart of the Southern Ocean (IBCSO) Version 1.0 (Arndt et al 2013).

In 2017 R/V OGS-Explora carried out its 11th expedition funded by the National Antarctic Research Program (PNRA), spending about 40 days circumnavigating the Ross Sea. Five projects were achieved during the 2017 cruise: three projects (WHISPERS, ODYSSEA, ANTSSS) covering 3 close areas of the Ross Sea continental slope aimed at investigating key areas where the ocean dynamics strongly influences the evolution of the continental margin and the Antarctic ice-sheet dynamics; the fourth project offshore the Cape Adare (GLEVORS) aimed at investigating the dynamics of the North Victoria Land valley-glaciers system and its interplay with the ESIS dynamics from deep past periods to the last deglaciation; and a fifth project between the Macquarie Island and the Balleny Island, to study the Antarctic-Pacific-Australian triple junction.

The data collected during the 2017 in campaign cover previously uninvestigated area revealing interesting and different morphological features, contributing to the incredible mosaic that is the Antarctic Bathymetry.

**Keywords:** Antarctica, bathymetry, IBCSO, PNRA, OGS-Explora

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