IBCSO - Discovering Antarctica's present-day bathymetry

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The IBCSO project

The aim of the International Bathymetric Chart of the Southern Ocean (IBCSO) project is to create high resolution bathymetric compilations for the Southern Ocean to support scientific activieties and investigations in Antarctic waters. Due to its huge size, the area's remoteness and harsh ice conditions, the project is strongly relying on international collaboration. IBCSO was inaugurated as a SCAR expert group in 2004. IBCSO is also a regional mapping project of the General Bathymetric Chart of the Ocean (GEBCO) under the joint auspices of the Intergovernmental Oceanographic Commission (IOC) (of UNESCO) and the International Hydrographic Organization (IHO). In 2013, the first version of IBCSO was published in the Journal Geophysical Research Letters (Arndt et al., 2013).

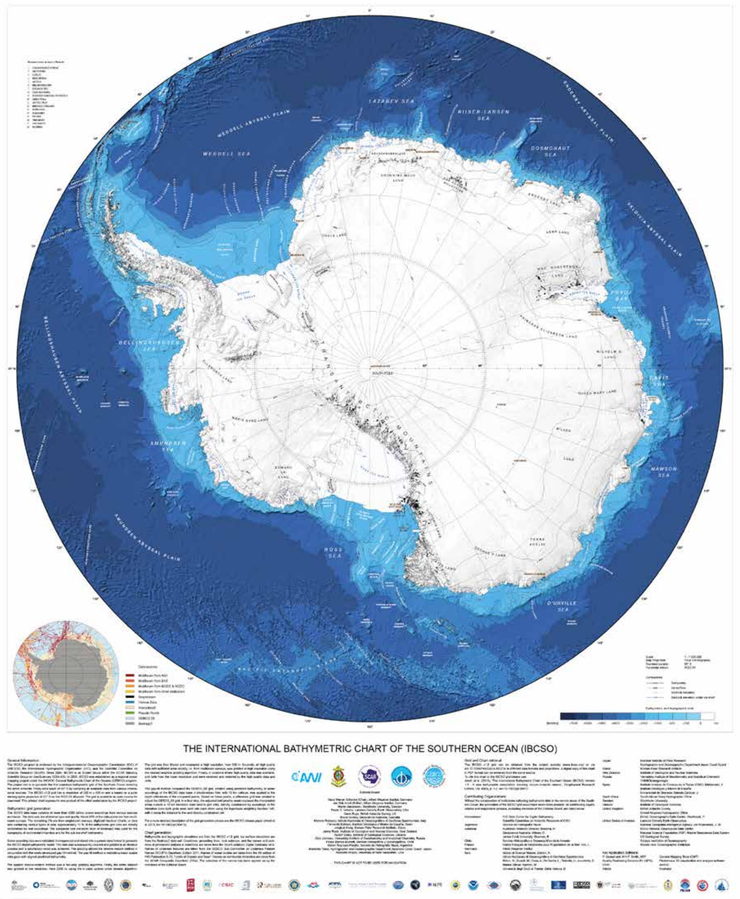

Figure 1: *IBCSO Version 1.0 printable chart; original size 1 x 1.2 m; scale 1 : 7,000,000*

IBCSO Version 1.0

The first version of IBCSO is a prime example for an international collaboration in Antarctic Science. Over 30 institutions from 15 countries contributed data and shared their expertise to generate the, so far, largest database of bathymetric data of the Southern Ocean. From this database, a digital bathymetric model (DBM) was produced with state of the art gridding algorithms. The DBM covers the entire Antarctic Treaty area south of 60° S with a resolution of 500 x 500 m. The DBM significantly improves our knowledge of the seafloor (Fig. 2). Three types of DBM are available in several formats and projections (Fig. 3). In addition, a new printable chart of the Southern Ocean and Antarctica has been created from this data (Fig. 1). Both, the DBMs and the chart, can be downloaded free of charge from the IBCSO website (www.ibcso.org).

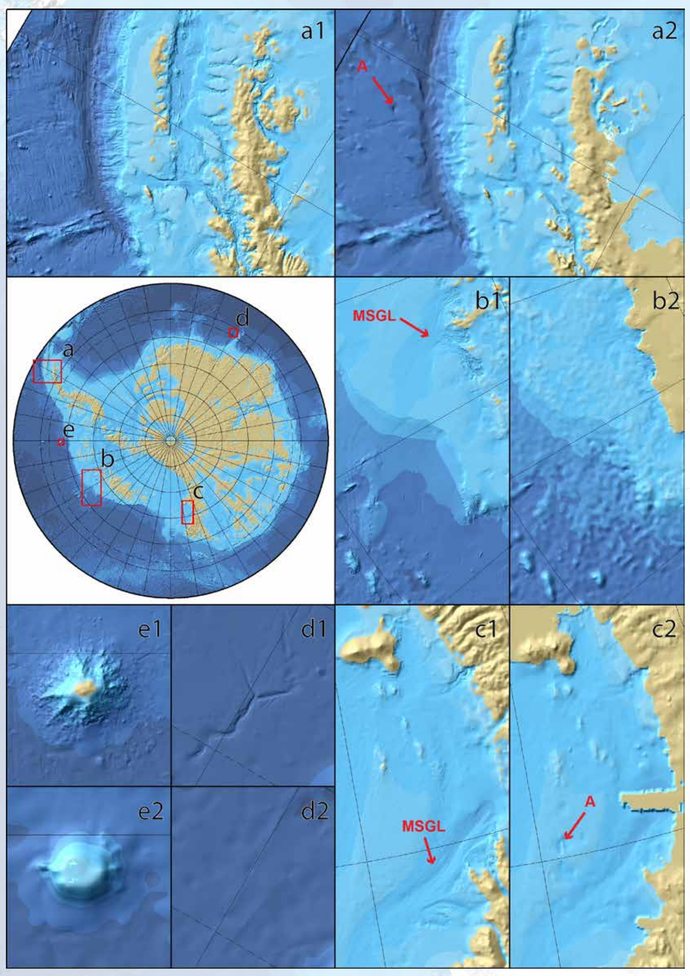

Figure 2: *Comparison of (1) IBCSO Version 1.0 to (2) GEBCO_08 (from Arndt et al. 2013)*

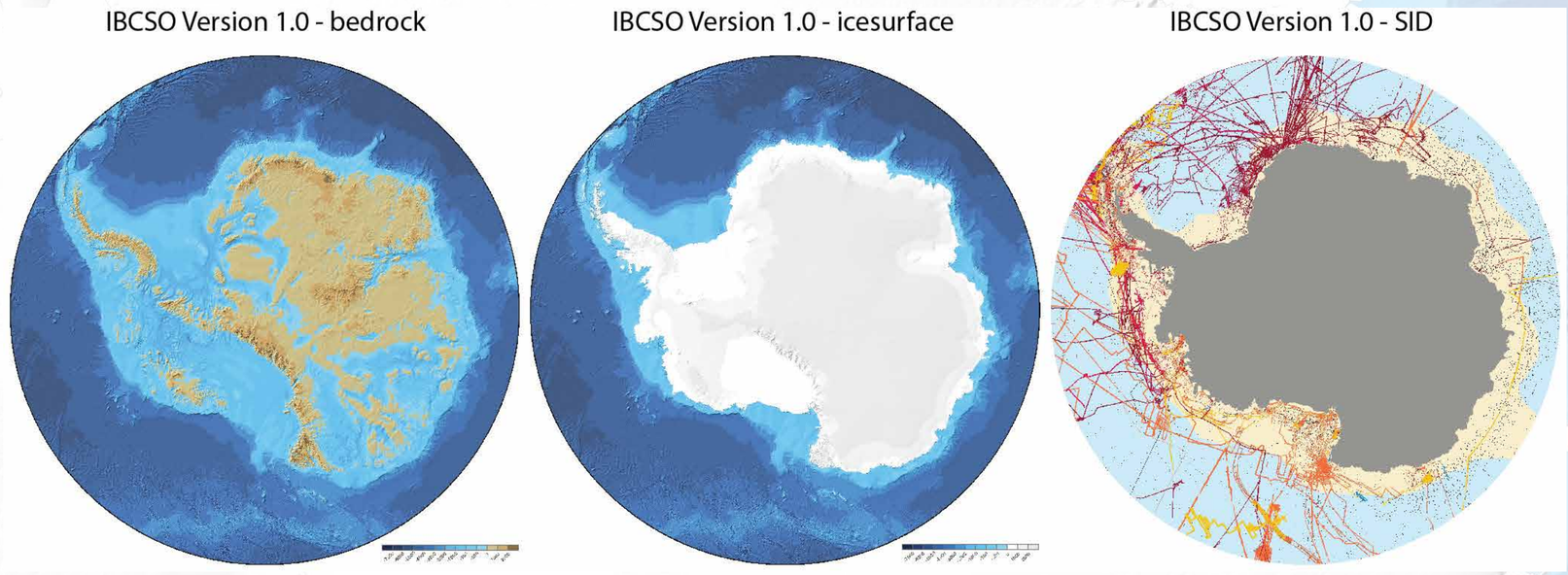

Figure 3: *Different types of IBCSO Version 1.0; all types are available as NetCDF - GMT, sd - Fledermaus, or GeoTIFF - ArcGIS file; the Source Identifier Grid (SID) shows the origin of the base data*

Data Access: www.ibcso.org

Reference: Arndt et al. 2013 "The International Bathymetric Chart of the Southern Ocean (IBCSO) Version 1.0 - A new bathymetric compilation covering circum-Antarctic waters", Geophysical Research Letters, doi: 10.1002/grl.50413

IBCSO Version 1.0

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The future of IBCSO ► Version 2.0

In IBCSO Version 1.0, about 83 % of the modelled grid cells are not directly constraint by measurements. In the aftermath of the production and release of Version 1.0, additional bathymetric data have been collected and more institutes offered to contribute their data. This data will improve an upcoming 2nd version, especially in the so far sparsely mapped waters offshore East Antarctica. In a working meeting of IBCSO Editorial Board members during the XXXIII SCAR meeting in Auckland, NZ, we furthermore agreed that a new version should have an increased extent to cover the area south of 50°S to include all ocean pathways of the Antarctic Circumpolar Current (ACC). This nearly doubles the modelled area. As the quality and reliability of the bathymetric compilation is highly depending on data contributions we would like to ask you:

If you have additional bathymetric data south of 50°S

↓ please contact us! ↓

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