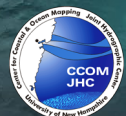
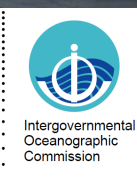
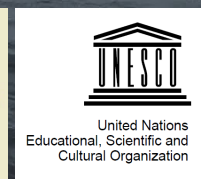
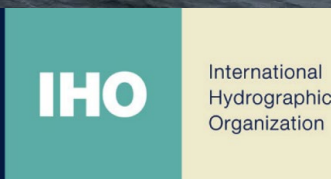


The Fifth Arctic-Antarctic and North Pacific Mapping Meeting



The Nippon Foundation-GEBCO
Seabed 2030 Project

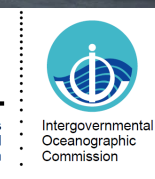
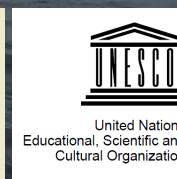
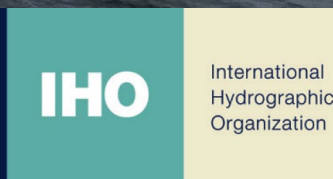


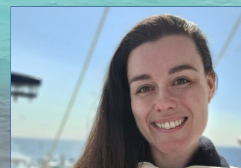
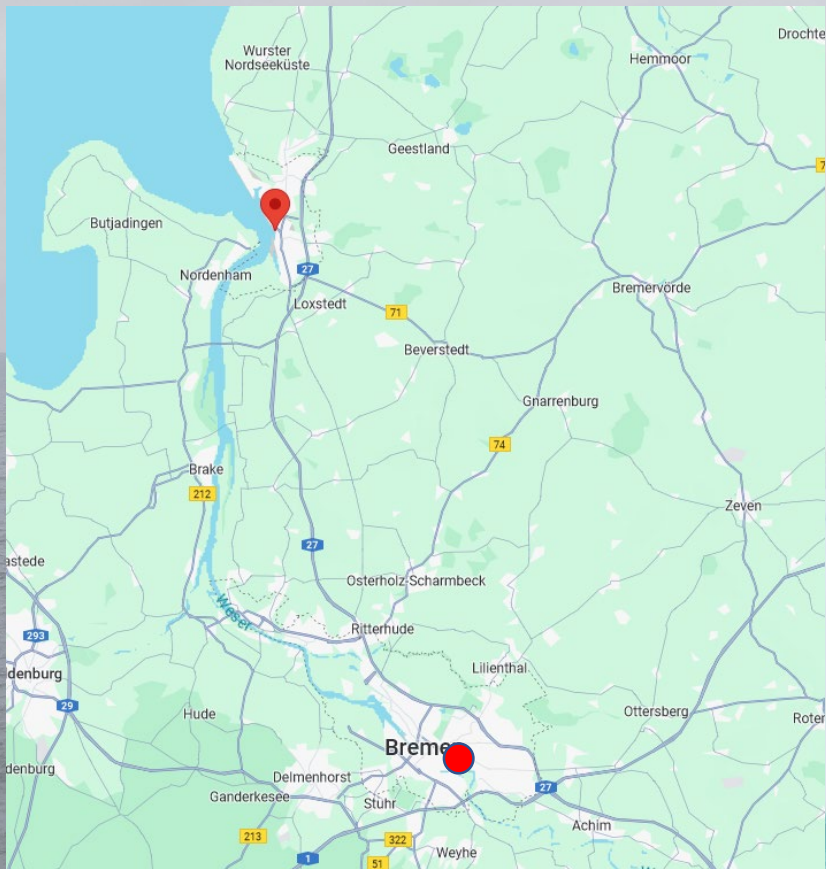
The Fifth Arctic-Antarctic and North Pacific Mapping Meeting

Update Southern Ocean Regional Centre



The Nippon Foundation-GEBCO
Seabed 2030 Project





Boris Dorschel

Sacha Viquerat

Patrick Schwarzbach

Tea Isler

Natalie Cornish

Laura Höppner

Miao Fan

(Fynn) Warncke

Simon Dreutter

Yvonne Schulze Tenberge

scientific data

www.nature.com/scientificdata

OPEN

DATA DESCRIPTOR

The International Bathymetric Chart of the Southern Ocean Version 2

Boris Dorschel *et al.**

The Southern Ocean surrounding Antarctica is a region that is key to a range of climatic and oceanographic processes with worldwide effects, and is characterised by high biological productivity and biodiversity. Since 2013, the International Bathymetric Chart of the Southern Ocean (IBCSO) has represented the most comprehensive compilation of bathymetry for the Southern Ocean south of 60°S. Recently, the IBCSO Project has combined its efforts with the Nippon Foundation – GEBCO Seabed 2030 Project supporting the goal of mapping the world's oceans by 2030. New datasets initiated a second version of IBCSO (IBCSO v2). This version extends to 50°S (covering approximately 2.4 times the area of seafloor of the previous version) including the gateways of the Antarctic Circumpolar Current and the Antarctic circumpolar frontal systems. Due to increased (multibeam) data coverage, IBCSO v2 significantly improves the overall representation of the Southern Ocean seafloor and resolves many submarine landforms in more detail. This makes IBCSO v2 the most authoritative seafloor map of the area south of 50°S.

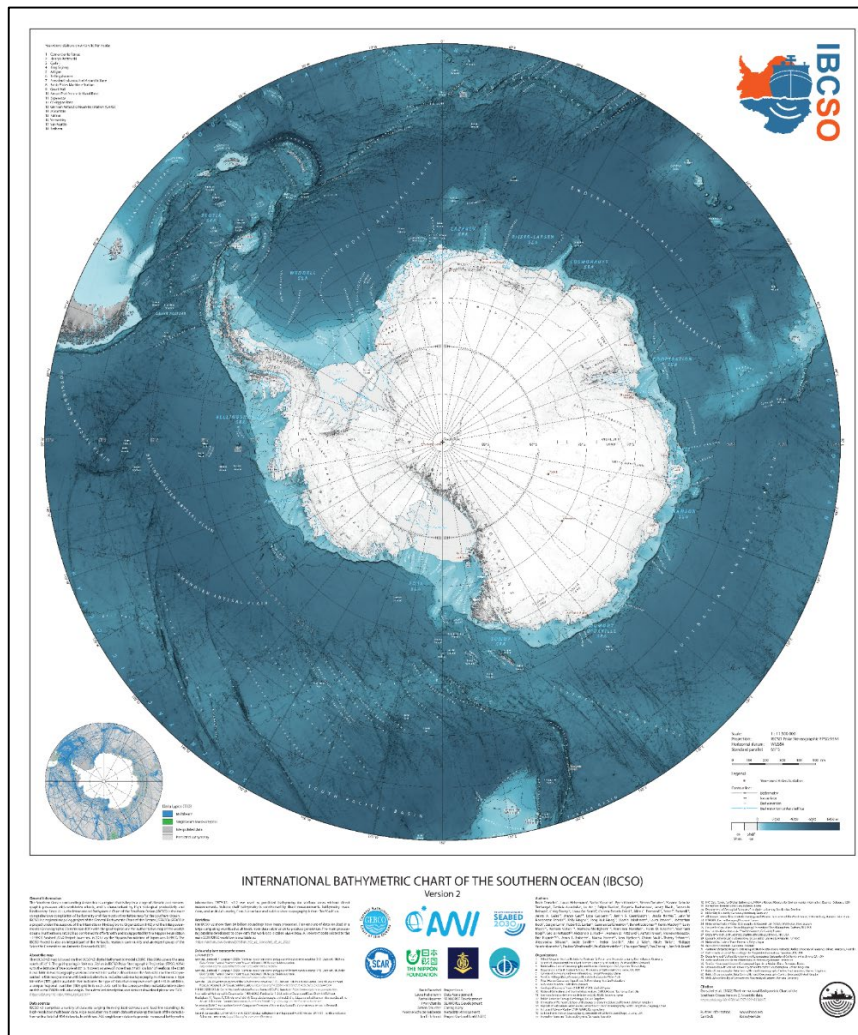
Background & Summary

The Southern Ocean is a major component of the coupled ocean-atmosphere climate system¹ and includes the largest ocean current on earth, the Antarctic Circumpolar Current (ACC). It is furthermore the most important ocean region for the uptake of anthropogenic CO₂ and heat from the atmosphere^{2,3}, and cold and dense bottom waters form on the shelves surrounding Antarctica^{4,5}. Interactions of the Southern Ocean with Antarctic glaciers and ice shelves are the main drivers of present, past, and future Antarctic ice sheet mass balance⁶ and thus global sea level change. Biologically, the Southern Ocean is a high productivity area⁷ with high biodiversity⁸. The Southern Ocean is also one of the most remote and harshest areas of the world with extensive sea-ice cover and year-round severe weather conditions. Despite its remoteness and hostility, human activities are increasingly extending into this distant part of the world, examples including research, fisheries, and tourism. Precise bathymetric information as e.g. provided by the International Bathymetric Chart of the Southern Ocean (IBCSO) and the Digital Bathymetric Model of the Drake Passage (DBM-BATDRAKE)⁹ are paramount to better understand the Southern Ocean and its processes as well as for human activities and conservation and management measures¹⁰. IBCSO aims to provide the most comprehensive compilation of bathymetric data for this region.

IBCSO was initiated in 2006 with the first version published by Arndt *et al.* in 2013¹¹. It is the southern equivalent of the International Bathymetric Chart of the Arctic Ocean (IBCAO), which was originally produced in 2000 and recently released its fourth version^{12,13}. Both initiatives are regional mapping projects of the General Bathymetric Chart of the Oceans (GEBCO). GEBCO is a project under the auspices of the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) with the goal to produce the authoritative map of the world's oceans. Furthermore, IBCSO has combined its efforts with and is supported by the Nippon Foundation – GEBCO Seabed 2030 Project launched in 2017 by the Nippon Foundation of Japan and GEBCO¹⁴. The IBCSO Project is also an integral part of the Antarctic research community and an expert group of the Scientific Committee on Antarctic Research (SCAR).

Initially, IBCSO was limited to the Antarctic Treaty area covering the area south of 60°S with a resolution of 500 m × 500 m in a Polar Stereographic projection¹⁵. Following the release of Version 1, the user community expressed the wish for an IBCSO reaching to 50°S to cover the entire ACC and the Antarctic circumpolar frontal systems. This request, the growing demand for bathymetric information of the Southern Ocean, and the

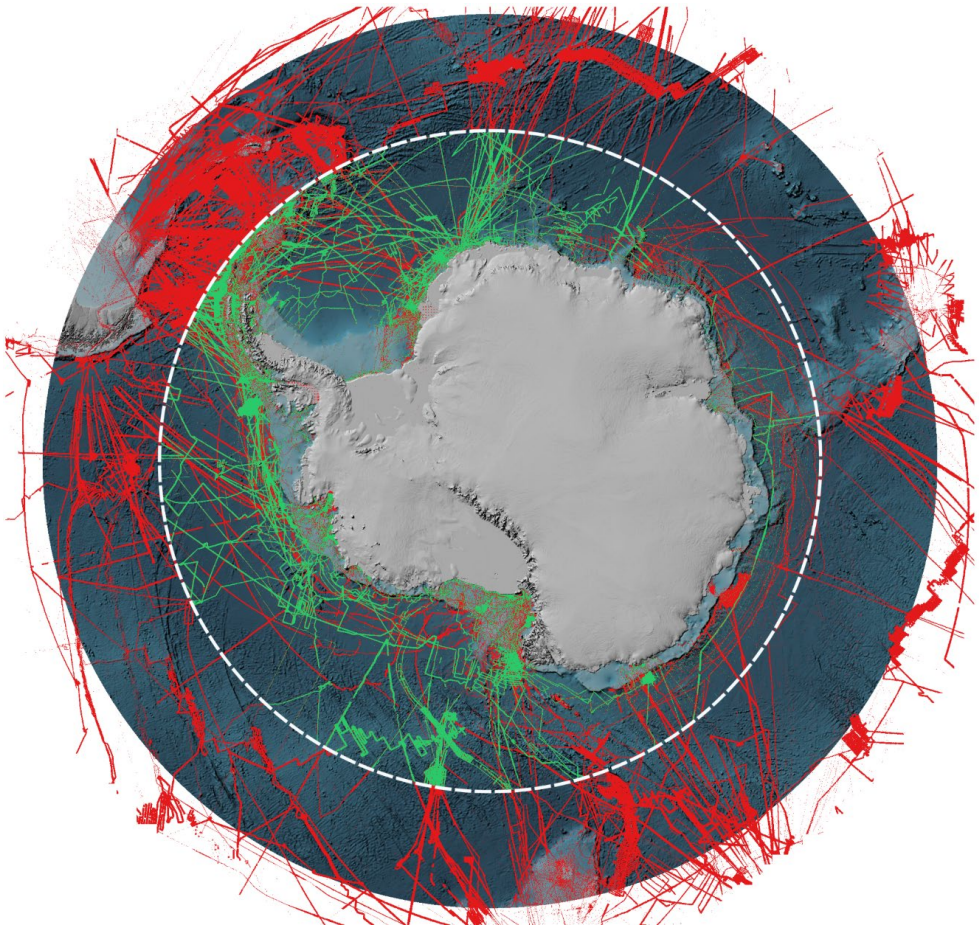
*A full list of authors and their affiliations appears at the end of the paper.



Projection	Description	IMAGE	IMAGE (Size)	Binary	Binary (Size)
IBCSO projection	IBCSO v2 digital chart			IBCSO_v2_digital_chart.pdf	48.8 Mbytes
IBCSO projection	IBCSO v2 sea-surface		151.5 Mbytes	IBCSO_v2_sea-surface.nc	703.4 Mbytes
WG584	IBCSO v2 sea-surface		54.5 Mbytes	IBCSO_v2_sea-surface_WG584.nc	242.6 Mbytes
IBCSO projection	IBCSO v2 sea-surface RGB		161.9 Mbytes		
IBCSO projection	IBCSO v2 bed		160.9 Mbytes	IBCSO_v2_bed.nc	703.4 Mbytes
WG584	IBCSO v2 bed		60.8 Mbytes	IBCSO_v2_bed_WG584.nc	242.6 Mbytes
IBCSO projection	IBCSO v2 bed RGB		169 Mbytes		
IBCSO projection	IBCSO v2 RID		23.3 Mbytes	IBCSO_v2_RID.nc	703.4 Mbytes
WG584	IBCSO v2 RID		9.2 Mbytes	IBCSO_v2_RID_WG584.nc	242.6 Mbytes
IBCSO projection	IBCSO v2 RID metadata			IBCSO_v2_metadata.xlsx	60.4 kbytes
IBCSO projection	IBCSO v2 TID		14.7 Mbytes	IBCSO_v2_TID.nc	703.4 Mbytes
WG584	IBCSO v2 TID		5.9 Mbytes	IBCSO_v2_TID_WG584.nc	242.6 Mbytes
IBCSO projection	IBCSO v2 coverage			IBCSO_v2_coverage.gpkg	505.5 Mbytes
WG584	IBCSO v2 coverage WG584			IBCSO_v2_coverage_WG584.gpkg	505.5 Mbytes
	Definition of projection			IBCSO.prj	2 kbytes

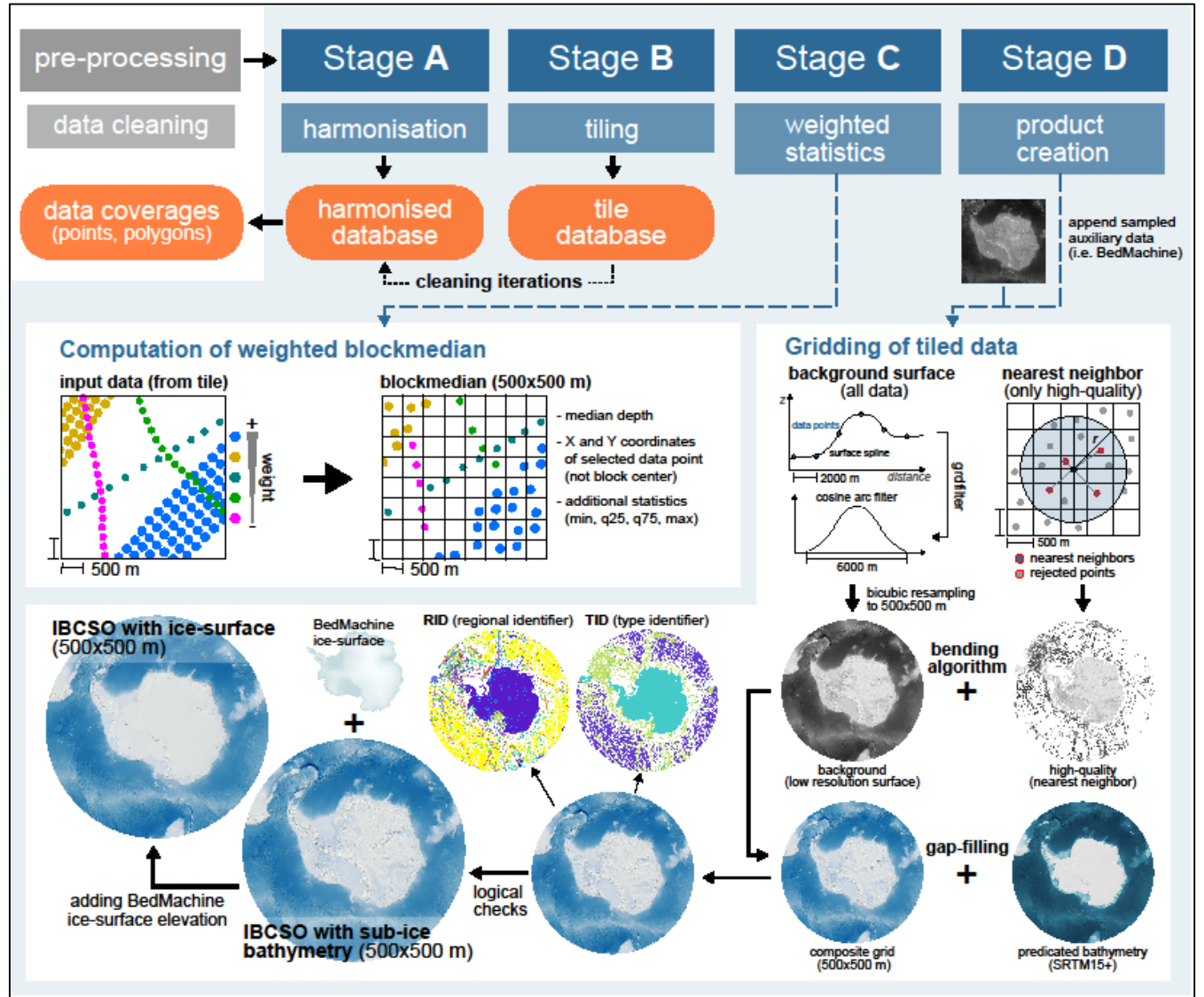
<https://doi.org/10.1038/s41597-022-01366-7>

<https://doi.org/10.1594/PANGAEA.937574>



■ MB data coverage IBCSO v1
■ MB data coverage IBCSO v2

SEAHORSE





Thank you!