Alfred Wegener Institute for Polar and Marine Research

AWI Bathymetric Chart of the Weddell Sea, Antarctica, 1 : 1 000 000 at 76°S

AWI BCWS 568 Lyddan

Legend

Depths

Metres: 0, 200, 500, 1000, 2000, 4000, 6000

Depth Contours and Grid Data

- 50 m
- 100 m
- 1000 m
- Depression
- Grid data point

Scientific Stations

- Permanently occupied station
- Summer station

Continental and Coastal Features

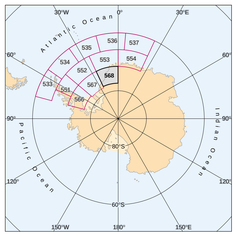
- Ice shelf
- Grounded ice
- Glacier tongue
- Coastline (with date)
- Ice front (with date)
- Flowline on ice shelf

Kilometres (76°S): 50 km, 0 km, 150 km

Nautical Miles (76°S): 10 nm, 0 nm, 100 nm

Scale: 1 : 1 000 000
Map projection: Mercator
Standard parallel: 76°S
Horizontal datum: World Geodetic System 1984 (WGS84)

Sheet Index of the AWI BCWS



Vertical reference system: Mean Sea Level (MSL)
Vertical datum: Instantaneous Sea Level

The map projection parameters are in accordance with the regulations of the IOC/IHO-GEBCO guidelines, IHB Bathymetric Publication No B-7.
One kilometre on the map at the standard parallel represents one kilometre in natural scale on earth.
Chart datum is the instantaneous sea level at the time of observation. Tidal heights are in the order of 2 m. Depths are shown in metres assuming a sound velocity in water of 1500 m/s.
Conversion parameters (nominal values): to achieve elevations in feet multiply by 3.2808 and to achieve depths in fathoms multiply by 0.5468.

Geographical names and their spelling do not necessarily reflect recognition of the political status of an area by the editor.
Reference:
- IHO/IOC Gazetteer of Geographical Names of Undersea Features, IHB Publication B-8, 2nd Edition 1997.
- Gazetteer of Antarctica, SCAR, 4th edition April 1995.
- Hydrographer of the Navy (UDA) (1974): The Antarctic Pilot, 4th edition, corrected to 2nd Sept. 1981.
- Index gf German-Language Antarctic Place Names. Institut fur Angewandte Geodäsie, Frankfurt am Main, 1994.

Multibeam survey by RV "Polarstern" carried out by Jens Focke, Rick Hagen, Klemens Heidland, Heinrich Hinze, Jürgen Monk, Fred Niederjasper, Hans Werner Schenke, Tilo Schöne and Stefan Steinmetz.

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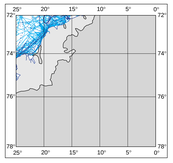
Data Sources and References



Data Source	Area	Track Line	Spot Data
GEBCO			
Hydrographic Organizations			
Scientific Organizations			
Satellite Altimetry			

1. General Bathymetric Chart of the Oceans (Data from GEBCO Digital Atlas)
IOC, IHO and BODC, 1994: "Bathymetry Data Holdings in the GEBCO Digital Atlas", published on behalf of the Intergovernmental Oceanographic Commission and the International Hydrographic Organization as part fo the General Bathymetric Chart of the Oceans (GEBCO); British Oceanographic Data Centre, Birkenhead.
GEBCO Sheets 5.15 and 5.16, bathymetric contours, track lines, and bedrock contours

2. Hydrographic Organizations

2.1 International Hydrographic Organization (IHO):
IHO-DCDB, Boulder, Colorado; U.S. NGDC, GEODAS searches on bathymetry: November 1992, April 1993.

2.2 National Hydrographic Offices: Nautical Charts (various scales):
Argentina
Commonwealth I Russia
United Kingdom

2.3 National Hydrographic Offices: Plotting Sheets (various scales)
- GEBCO Ocean Plotting Sheets (OPS) 1:1 000 000:
Argentina
Republic of South Africa
Commonwealth I
- Plotting Sheets 1:500 000:
Soviet Union I Russia

2.4 National Hydrographic Offices: Digital Data:
United Kingdom
United States of America

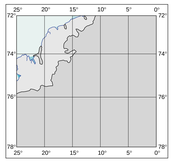
3. Scientific Organizations
- Alfred-Wegener-Institut für Polar- und Meeresforschung, Germany:
RV "Polarstern" Antarctic expeditions ANT (since 1983):
Multibeam data from Seabeam and Hydrosweep system, single beam data from navigation echo sounder, narrow beam echo sounder, PARASOUND parametric echo sounder.
- Norsk Polar Institutt, Oslo, Norway:
Norwegian Antarctic Expeditions 1929 - 1978, 1985; A. Sorheim, pers. comm.
- Sevmorgeologia, St. Petersburg, Russian Federation:
V. Kruglov and V.S. Pozdeev, digital data, pers. comm.

4. Scientific Publications
- Hinze, H. (1996): Ice thickness and bedrock elevation in Western Neuschwabenland and Berkner Island, Antarctica. Annals of Glaciology, Vol.21, 92-95, 1995.
- Huybrechts, P. (1992): The Antarctic Ice sheet and environmental change: a three-dimensional modelling study. Berichte zur Polarforschung 99, 1-241, 1992.
- Pozdeev, V.S., M.O. Kurlin (1987): Nowaja dannaja o morfologii lodowej ploschtschi i reljefe podlednogo loshe i morskogo dna w pojlenej tschasti basseyna Morja Uedddila (Sapadnaja Antarktika). Antarktika, Doklady Komissii, 26, 60-71, 1987.

5. Satellite Altimetry Geophysical Data
- Schenke, H.W., J. Schöne, J. Dietrich (1992): Die Schwerefeld im Bereich des Weddellmeeres, Antarktis. Nutzung von Altimetermessungen des GEOSAT und ERS-1. Berichte zur Polarforschung 103, 1997.

6. Topographic Data
- RADAMS Digital Topographic Antarctic Database. Version 1.94 (G.). Institut for Angewandte Geodäse, Frankfurt am Main, and Alfred-Wegener-Institut, Bremerhaven, Germany. 1994.

Accuracy of Bathymetric Depths



The bathymetric data contained in this chart is evaluated from various data sets of different quality and, therefore, of varying accuracy. Compilation and contouring are in accordance with the IHO standards (IHB S-44), applied to depth data only.
Reported, but unconfirmed or suspect depths were omitted if they conflict with morphologic evidence from other sources.

The positional accuracy of bathymetric data, contour lines and features in relation to the graticule is approximately 1 mm (or 1 kilometre on earth).
Mean positional error: horizontal accuracy e_h for contour lines of the given scale may be estimated by Koppe's empirical formula, which depends on the terrain slope α (a=50 m, b=2000 m):

$$e_h = a + b \cdot \sin \alpha.$$

A vertical accuracy of better than 2% of depth was achieved with the compilation from heterogeneous depth data. Mean depth error: accuracy e_v of a contour line is:

$$e_v = a + b \cdot \tan \alpha.$$

Mean depth error: accuracy e_v of a contour or interpolated depth value from the map may be estimated by

$$e_v = a + b \cdot \tan \alpha.$$

(a=50 m and b=2000 m).
In areas with slopes greater than 20° the error may exceed 200 m due to generalization effects.

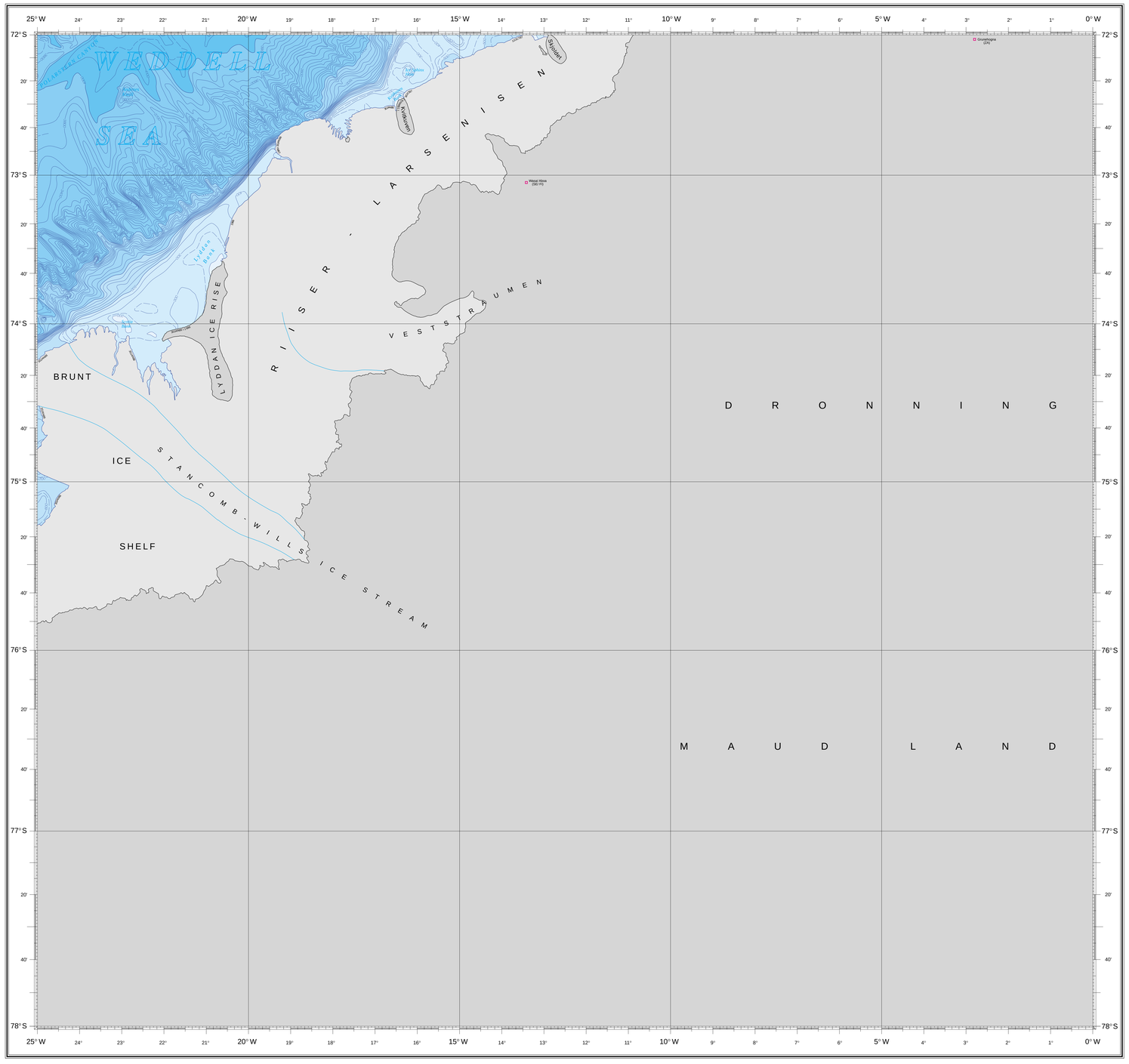
Despite an automatic accuracy estimation, a classification may reflect how closely the ideal has been approached under the existing constraints, e.g. inhomogeneous data and seabed roughness. Thus, categories for the accuracy of bathymetric depths were chosen. The map of bathymetric accuracy gives an overview of accuracies, but it does not reflect special features, e.g. canyons or seamounts. Areas with an estimated depth accuracy of worse than 200 m, better than 200 m, better than 100 m, and better than 50 m are indicated.

Reference: Hinze, H. (1994): Charting the Bathymetry of Weddell Sea, Antarctica. Marine Geodesy, Vol.17, 139-145.

Caution.
Due to incomplete survey coverage dangers may exist, particularly within the 200 metre depth contour.
For further information on navigation, magnetic variation, ocean currents, and ice in the area of this map see Sailing Directions and Routing Charts and contact the Hydrographic Offices or IHB. For further information on research cruises and geology contact the SCAR. For further informations on bathymetry contact the IHB-IOC GEBCO Committee or AWI.

Accuracy

- ± 50 m
- ± 100 m
- ± 200 m
- Worse than ± 200 m


25° W
24°
23°
22°
21°
20° W
19°
18°
17°
16°
15° W
14°
13°
12°
11°
10° W
9°
8°
7°
6°
5° W
4°
3°
2°
1°
0° W
72° S
20'
40'
73° S
74° S
75° S
76° S
77° S
78° S
WEDDELL
SEA
Filchner Ice Shelf
Ronne Ice Shelf
Berkner Island
Vahsel Bay
Gruetzmacher (GR)
Vinciguerra Bank
Dolleman Bank
Kapitan Arndt Bank
Kapitan Dikov Bank
Kapitan Khlebnikov Bank
Kapitan Tolstikov Bank
Kapitan Tscharin Bank
Kapitan Tschelnokov Bank
Kapitan Tschetschigin Bank
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