Alfred Wegener Institute for Polar and Marine Research

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

Legend

Depths (Metres): 0, 200, 500, 1000, 2000, 4000, 6000

Depth Contours and Grid Data
- 50 m
- 100 m
- 1000 m (2000)
- Depression
- + Grid data point

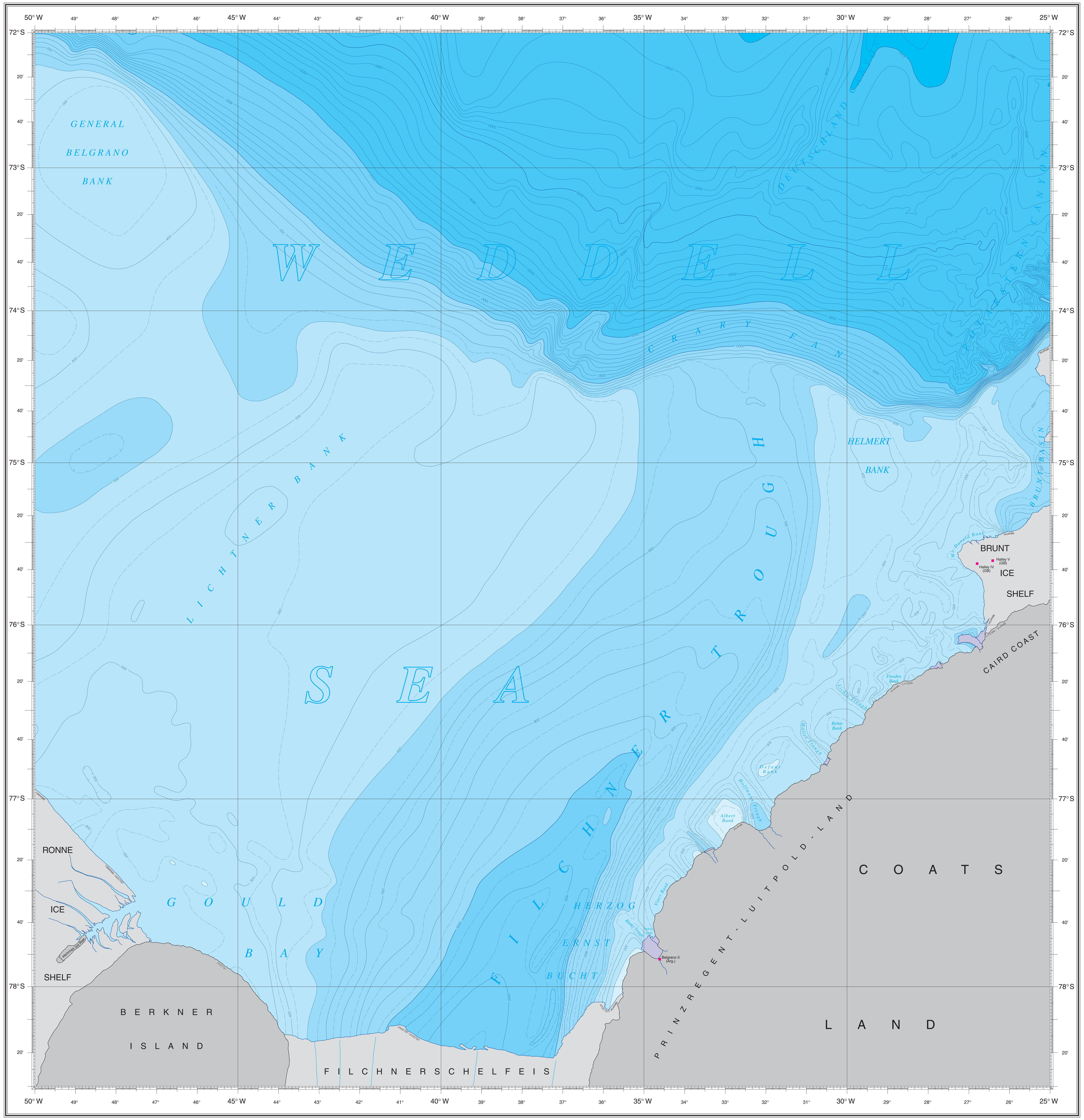
Scientific Stations
- Permanently occupied station
- Summer station

Continental and coastal features
- Ice shelf
- Grounded ice
- Glacier tongue
- Coastline (13MAR88) } with date
- Ice front (07OCT87) } with date
- Flowline on ice shelf

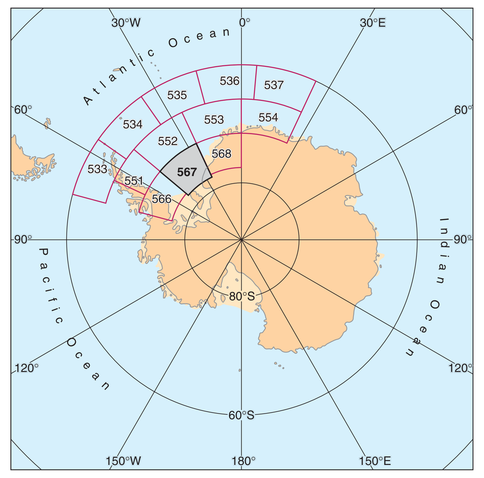
Kilometres (76°S): 50 km, 0 km, 150 km

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

Scale: 1 : 1 000 000
Map projection: Mercator
Standard parallel: 76° S
Horizontal reference system: Geodetic Reference System 1980 (GRS80)
Horizontal datum: World Geodetic System 1984 (WGS84)



Sheet Index of the AWI BCWS



Scale 1 : 80 000 000

Sheet Index of the AWI Bathymetric Chart of the Weddell Sea, Antartica (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 millimetre on the map at the standard parallel represents one kilometre in natural scale on the 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.
References:
- IHO/IOC Gazetteer of Geographical Names of Undersea Features. IHB Publication B-8, 1994.
- Gazetteer of the Antarctic. DMA, 4th edition April 1990.
- Hydrographer of the Navy (USA) 1974: The Antarctic Pilot. 4th edition, corrected to 2nd Sept. 1981.
- Index of German-Language Antarctic Place Names. Institut für Angewandte Geodäsie, Frankfurt am Main, 1993.

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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Bathymetric Chart of the Weddell Sea, Antarctica, 1:1 000 000 at 76°S
(AWI BCWS 567, Filchner Trough). Alfred-Wegener-Institut, Bremerhaven,1996.

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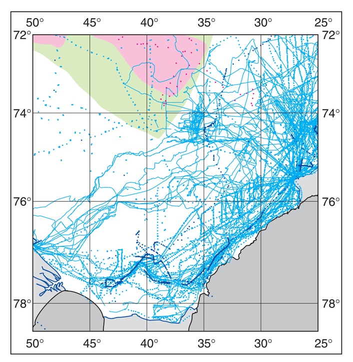
Source Data Diagram



Scale 1 : 10 000 000

Data from	Area	Track Line	Spot Data
GEBCO	(pink)		(pink dots)
Hydrographic Institutions		(line)	(dots)
Scientific Institutions	(blue)	(line)	(dots)
Satellite Altimetry	(green)		

Original and interpreted data, digital data and digitized data

1. General Bathymetric Chart of the Oceans (Data from GEBCO Digital Atlas)
IOC, IHO, and BODC, 1994, 'Supporting Volume to the GEBCO Digital Atlas', published on behalf of the Intergovernmental Oceanographic Commission (of UNESCO) and the International Hydrographic Organization as part to the General Bathymetric Chart of the Oceans (GEBCO); British Oceanographic Data Centre, Birkenhead.
GEBCO Sheets 5.16 and 5.18, bathymetric contours, track lines, and bedrock contours

2. Hydrographic Institutions

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
Soviet Union / Russia
United Kingdom

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

2.4 National Hydrographic Offices: Digital Data
United Kingdom
USA

3. Scientific Institutions

3.1 Scientific Research Institutes
- 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, and Parasound sediment echo sounder.
- Norsk polar institutt, Oslo, Norway:
NARE expedition data 1977, 1979, 1985. A. Solheim, pers. comm.
- Sevmorgeologia, St. Petersburg, Russian Federation:
V. Krukov and V.S. Pozdeev, digital data, pers. comm.

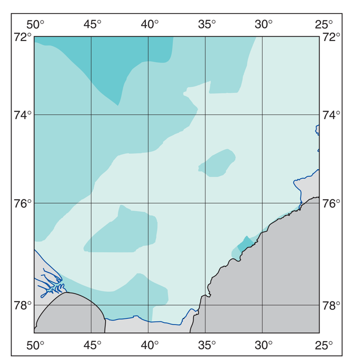
3.2 Scientific Publications
- Hoppe, H., F. Thyssen 1988: Ice thickness and bedrock elevation in Western Neuschwabenland and Berkner Island, Antarctica. Annals of Glaciology, vol.11, 42-45, 1988.
- Huybrechts, P. 1992:
The Antarctic ice sheet and environmental change: a three-dimensional modelling study. Berichte zur Polarforschung 99, 1992
- Pozdeyev, V.S., R.G. Kurinin 1987: Nowyje dannyje o morfologii ledowoj tolschtschi i reljefe podlednogo losha i morskogo dna w jushnoj tschasti bassejna Morja Ueddella (Sapadnaja Antarktika). Antarktika, Doklady Komissii, 26, 66-71, 1987.

3.3 Other Sources
- Doake, C.S.M., BAS, UK:
Filchner-Ronne Ice Shelf oversnow traverse gravity data, calculation by B. Harrods, pers. comm.
- Hinze, H., AWI, Germany:
Southern Ocean and Antarctica collected depth and bedrock data. Internal report.
- Huber, B., LDEO, USA:
Weddell Ice Drift Station depth data. Joint US-SU expedition 1992, pers. comm.

4. Satellite Altimetry Geophysical Data
Gravity Anomalies
- Schöne, T. , 1996:
Ein Beitrag zum Schwerefeld im Bereich des Weddellmeers, Antarktis. Nutzung von Altimetermessungen des GEOSAT und ERS-1. Berichte zur Polarforschung 220, 1996.

5. Topographic Data
- IFAG/AWI: Digital topographic Antarctic database; Version 1.94 (G.). Institut für Angewandte Geodäsie, Frankfurt am Main, and Alfred-Wegener-Institut, Bremerhaven, Germany, 1994.

Accuracy of Bathymetric Depths



Scale 1 : 10 000 000

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

The bathymetry contained in this chart is evaluated from various data sets of different quality, and is therefore of varying accuracy. Compilation and contouring are in accordance with the IHO standards (IHB S-44), applied to Antarctic waters.
Reported but unconfirmed or suspect depths were omitted if they conflicted with morphologic evidence from other sources.
Reference: Hinze, H., 1994: Charting the Bathymetry of Weddell Sea, Antarctica. Marine Geodesy, vol.17, 139-145.

The positional accuracy of bathymetric data, contour lines and features in relation to the graticule is approximately 1 mm (or 1 kilometre on the 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):
$e_h = b + a \cdot \cot \alpha$;

A vertical accuracy of better than 2% of depth was achieved with the compilation from heterogeneous depth data. However, some suspect data still may be present within the map.
Mean depth error: accuracy e_d of a contour or interpolated depth value from the map may be estimated by
$e_d = a + b \cdot \tan \alpha$;
a=50 m and b=500 m.
In areas with slopes greater than 20° the error may exceed 200 m due to generalisation 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 1 : 10 000 000 inset map of bathymetric accuracy gives an overview of accuracies, but it does not reflect special features, e. g. canyons or seamounts. Areas with depths estimated worse accurate than 200 m, better than 200 m, better than 100 m, and better than 50 m are given.

Caution.
Due to incomplete survey coverage dangers may exist, particularly within the 200 metre depth contour. Vessels should therefore navigate with due caution.
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 stations and glaciology contact the SCAR. For further informations on bathymetry contact the IHB-IOC GEBCO Committee or AWI.

AWI BCWS 567