

Supporting Documentation for GEBCO Fifth Edition sheets used in the GEBCO Digital Atlas

This document contains supporting information to accompany those GEBCO Fifth Edition sheets used in the GEBCO Digital Atlas. It should be noted that the bathymetry from GEBCO sheets 5.09, 5.13 and 5.17 has now been superseded by revised bathymetry contained in GEBCO update sheets G.01 and G.08.

In the Centenary Edition of the GDA, sections of the bathymetry from the Fifth Edition sheets have been replaced by the revised bathymetry in the update sheets G.01 to G.09. The extent of this revision is indicated in parenthesis below.

Sheet 5.01 (major updating)
Sheet 5.02 (partial updating)
Sheet 5.03 (partial updating)
Sheet 5.04 (major updating)
Sheet 5.05 (major updating)
Sheet 5.06 (partial updating)
Sheet 5.07
Sheet 5.08 (major updating)
Sheet 5.10 (major updating)
Sheet 5.11
Sheet 5.12 (major updating)
Sheet 5.14 (major updating)
Sheet 5.15
Sheet 5.16 (major updating)
Sheet 5.18 (major updating)

GEBCO Sheet 5.01*

*MAJOR UPDATE NOTE: The bathymetry in the area of GEBCO sheet 5.01 from 47°N to 64°N; 0° to 6°E has been replaced by the revised bathymetry contained in GEBCO sheet G.02. North of 64°N, it has been replaced by the revised bathymetry of GEBCO sheet G.01.

GEBCO sheet 5.01 was published in April 1978 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinator: Johannes Ulrich, Institut für Meereskunde an der Universität Kiel, Germany

Cartography by:	Geoscience Mapping Unit, Canadian Hydrographic Service
Published chart:	GEBCO SHEET 5.01 (April 1978)
Projection:	Mercator Scale: 1 to 10 million at the Equator
Ellipsoid:	International 1924 (Hayford)
Southern Limit:	46°40'N
Western Limit:	000°00'E
Northern Limit:	72°00'N
Eastern Limit:	090°00'E
Digitised by:	Bureau Gravimetricque International, Toulouse, France, in collaboration with Institut Geographique National, Paris, France, and the British Oceanographic Data Centre
Geographic Area Digitized:	as for published chart
Contour Units:	bathymetric depth in corrected metres
Contours Present:	0m, 50m, 100m and at 100m intervals thereafter down to 3700m

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.01 CONTOURS

Bathymetric contours are based on collected oceanic soundings up to 1975 from the German Hydrographic Office, Hamburg, and additional data, contour maps and nautical charts from Norway, USSR, Sweden, Germany, UK and USA.

GEBCO Collected Soundings Sheets:

GEBCO Plotting Sheets 30 (1972) and 17 (1972) from UK Hydrographic Office.

GEBCO Plotting Sheets 10 (1972) and 18 (1972) from Swedish Hydrographic Office.

GEBCO Plotting Sheets 9 (1972), 3 (1972), 4 (1972) and 4A (1970) from German Hydrographic Office.

Nautical Charts:

Norwegian nautical charts No. 301 (INT 140), 307, 308, 309, 310, 311, 319, 320, 321, 322, 323, 324, 325, 551, 552, 553, 557, 558, 559.

British nautical charts No. 3180, 3181, 2963, 2962.

USSR nautical charts No. 601, 650, 696.

German nautical charts No. 1000 (INT 1401), 1001 (INT 1402), 241, 242.

International nautical charts INT 140 (Norges Sjøkartverk) and INT 1403 (Hydrografie van Nederlande).

Contour Charts and Bathymetric Maps:

Sounding map Norges Sjøkartverk (1975), unpublished.

Bathymetric chart NTNF's Continental Shelf Division, 1:1,000,000 (1975), Norway.

Contour chart Norges Sjøkartverk No. 7016, 1:250,000, NTNF's Continental Shelf Division (1974, 1975).

Data of soviet oceanographic expeditions obtained in accordance with programmes of international co-operation.

Norwegische See, Tiefenkarte 1:200,000, "Meteor" Forschungsergebnisse, Reihe A, No. 12 (1972).

Special Sounding map from Lamont-Doherty Geological Observatory, USA, unpublished.

GEBCO Sheet 5.02*

*MINOR UPDATE NOTE: The bathymetry in the area of GEBCO sheet 5.02 north of 64°N has been replaced by the bathymetry contained in GEBCO sheet G.01

GEBCO sheet 5.02 was published in March 1980 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinator:	Gleb B. Udintsev, Institute of Physics of the Earth, Moscow, USSR
Cartography by:	Geoscience Mapping Unit, Canadian Hydrographic Service
Published Chart:	GEBCO SHEET 5.02 (March 1980)
Projection: Mercator Scale:	1 to 10 million at the Equator
Ellipsoid:	International 1924 (Hayford)
Southern Limit:	46°40'N
Western Limit:	090°00'E
Northern Limit:	72°00'N
Eastern Limit:	180°00'E
Digitized by:	Head Department of Navigation and Oceanography, St. Petersburg, Russia, in collaboration with the British Oceanographic Data Centre
Geographic Area Digitized:	as for published chart
Contour Units:	bathymetric depth in corrected metres
Contours Present:	0m, 200m, 500m and at 500m intervals thereafter down to 8500m. In some areas the 50m and 100m contours are also included.
Comments:	The digitized data for this chart were edgematched with that for GEBCO sheets 5.06 and 5.03 with the result that some of the contours at the sheet boundaries may be displaced slightly from their positions on the published chart. As the digital data for GEBCO sheet 5.06 were supplied from a regularly updated data base and not digitized from GEBCO sheet 5.06, it proved difficult to achieve an edgematch with digital data for GEBCO sheet

5.02, most notably in the area of the Emperor Seamount Chain from 169° to 175°E, 46° to 47°N.

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.02 CONTOURS

a) GEBCO 1:1,000,000 COLLECTED SOUNDINGS SHEETS:

Japan: 1408N, 1409N, 1410N, 1411N, 1508N, 1509N, 1510N, 1511N, 1609N, 1610N, 1612N, 1708N, 1709N, 1710N, 1711N, 1712N, 1808N, 1810N, 1811N, 1812N, 1813N.

USA: 1909N, 1910N, 1911N, 1912N, 1913N, 2009N, 2010N, 2011N, 2109N, 2110N, 2111N, 2209N, 2210N, 2211N, 2309N.

Data obtained by research vessels of Institute of Oceanology, Academy of Sciences, USSR.

b) BATHYMETRIC MAPS:

Scholl, D., Tau Rho Alpha, Marlow, M.S., Buffington, E.G., 1974. Base map of the Aleutian-Bering Sea region, scale 1:2,500,000.

Nichols, H. and Perry, R.B., 1966. Bathymetry of the Aleutian Arc, Alaska. US Dept. of Commerce. Environmental Science Services Admin., Coast and Geodetic Survey. Mon. 3, Plate 1 and 2, scale 1:400,000.

Heezen, B.C. and Tharp, M., 1975. Map of the Arctic Region. American Geographical Society, New York, scale 1:5,000,000 at 71°N.

GEBCO Sheet 5.03*

* MINOR UPDATE NOTE: The bathymetry in the area of GEBCO sheet 5.03 north of 64°N has been replaced by the bathymetry contained in GEBCO sheet G.01

GEBCO sheet 5.03 was published in March 1979 by the Canadian Hydrographic Service under the authority of the IHO and IOC

Scientific Coordinators:	G. Leonard Johnson, Office of Naval Research Arlington, USA; and David Monahan, Canadian Hydrographic Service Ottawa, Canada
Cartography by:	Geoscience Mapping Unit, Canadian Hydrographic Service
Published Chart:	GEBCO SHEET 5.03 (March 1979)
Projection: Mercator Scale:	1 to 10 million at the Equator
Ellipsoid:	International 1924 (Hayford)
Southern Limit:	46°40'N
Western Limit:	180°00'W
Northern Limit:	72°00'N
Eastern Limit:	090°00'W
Digitized by:	NERC Unit for Thematic Information Systems, Reading, UK, in collaboration with the British Oceanographic Data Centre
Geographic Area Digitized:	as for published chart, except for the bathymetric contours in the western part of Hudson Bay from the area 90° to 95°W, 55° to 65°N. This area is covered in the digital data for GEBCO sheet 5.04.
Contour Units:	bathymetric depth in corrected metres
Contours Present:	0m, 200m, 500m and at 500m intervals thereafter down to 6000m, with two additional contours at 7000m. However, for many areas, intermediate contours are also included and the digital data set will be found to include contours at the following depths: 50m, 100m, 300m, 400m and at 200m intervals thereafter down to 6000m, with an additional contour at 4900m.

Comments: The digitized data for this chart were edgematched with that for GEBCO sheets 5.02 and 5.07 with the result that some of the contours at the sheet boundaries may be displaced slightly from their positions on the published chart.

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.03 CONTOURS

SCIENTIFIC LITERATURE:

Anonymous, Bathymetric base maps: The US Naval Oceanographic Office and Defense Mapping Agency, Hydrographic Center.

Anonymous, 1971a, Bathymetric atlas of the northeastern Pacific Ocean: Prepared by Scripps Institution of Oceanography under the direction of T.E. Chase and H.W. Menard, H.O. Pub. No. 1303, US Naval Oceanog. Office.

Anonymous, 1971b, Bathymetric atlas of the northcentral Pacific Ocean: Prepared by Scripps Institution of Oceanography under the direction of T.E. Chase and H.W. Menard, H.O. Pub. No. 1302-S, US Naval Oceanog. Office.

Barr, S.M. and Chase, R.L., 1974, Geology of the northern end of Juan de Fuca Ridge and sea-floor spreading. *Can. J. Earth Sci.*, 11, 1384-1406.

Mammerickx, J., 1970, Morphology of the Aleutian Abyssal Plain. *Geol. Soc. Amer. Bull.*, 81, 3457-3464.

Mammerickx, J. and Tayler, I.L., 1971, Bathymetry of the Pioneer Survey Area, Scripps Institution of Oceanography Sp. Chart No. 1.

Nichols, H., and Perry, R.B., 1966, Bathymetry of the Aleutian Arc, Alaska: US Dept. Commerce. Environmental Sci. Services Admin., Coast and Geod. Survey Mon. 3, scale 1:400,000, 6 maps.

Nichols, H., Perry, R.B. and Kofoed, J.W., 1964, Bathymetry of Bowers Band, Bering Sea: *Jour. Surveying and Mapping*, 24, 443-448.

Schumaker, G.M., 1976, Bathymetric map of the Aleutian Trench and Bering Sea. Map 76-821, US Geological Survey, Menlo Park, Calif.

Schumaker, G.M. 1976, Bathymetric map of the Gulf of Alaska. Map 76-822, US Geological Survey, Menlo Park, Calif.

Schumaker, G.M., 1976, Bathymetric map of the Chukchi Sea and Arctic Ocean. Map 76-823, US Geological Survey, Menlo Park, Calif.

Sharma, G.D. 1975, Contemporary Epicontinental Sedimentation and Shelf Grading in the southeast Bering Sea. *Geol. Soc. of Amer. Spec. Paper* 151, 33-48.

Stewart, R.J. 1976, Turbidities of the Aleutian abyssal plain: Mineralogy, provenance, and constraints for Cenozoic motion of the Pacific plate. *Geol. Soc. of Amer. Bull.*, 87, 793-808.

GEBCO Sheet 5.04*

*MAJOR UPDATE NOTE: The bathymetry in the area of GEBCO Sheet 5.04 from 47°N to 64°N; 37°W to 6°E has been replaced by the revised bathymetry contained in GEBCO Sheet G.02. North of 64°N, it has been replaced by the revised bathymetry of GEBCO sheet G.01. In the narrow border 46°40'N to 48°N from 0° to 13°W, the bathymetry has been replaced by data from GEBCO Sheets G.02 and G.04.

GEBCO sheet 5.04 was published in April 1978 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinators: Anthony S. Laughton, Institute of Oceanographic Sciences, Wormley, United Kingdom; and David Monahan, Canadian Hydrographic Service, Ottawa, Canada

Cartography by: Geoscience Mapping Unit, Canadian Hydrographic Service

Published Chart: GEBCO SHEET 5.04 (April 1978)

Projection: Mercator Scale: 1 to 10 million at the Equator

Ellipsoid: International 1924 (Hayford)

Southern Limit: 46°40'N

Western Limit: 095°00'W

Northern Limit: 72°00'N

Eastern Limit: 000°00'E

Note: The area from 90° to 95°W is only covered between 55° and 65°N

Digitized by: Bureau Gravimetrique International, Toulouse, France, in collaboration with Institut Geographique National, Paris, France, and the British Oceanographic Data Centre

Geographic Area Digitized: as for published chart

Contour Units: bathymetric depth in corrected metres

Contours Present: 0m, 200, 500m and at 500m intervals thereafter down to 4500m. However, for many areas, intermediate contours are also included and the digital data set will be found to include contours at the following depths: 50m, 100m, 150m and at 100m intervals from 200m down to 4900m.

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.04 CONTOURS

GEBCO 1:1,000,000 COLLECTED SOUNDINGS SHEETS:

Canada, Canadian Hydrographic Service: 1, 5C, 6, 12A, 12B, 13, 14, 25A, 25B, 26, 27, 40.

France, Service Hydrographique et Oceanographie de la Marine: 39, 40, 41, 42, 43.

Germany, Deutsches Hydrographisches Institut: 2, 3, 7, 8, 9, 14, 15, 27, 28.

Iceland Hydrographic Service: Charts 25, 26.

UK, Hydrographic Office: 7, 8, 9, 14, 15, 16, 27, 28, 29, 40, 41, 42, 43.

USA, Defense Mapping Agency: 38, 39.

UNPUBLISHED SURVEY DATA OR CONTOURS:

Canada, Canadian Hydrographic Service.

Denmark, Royal Danish Hydrographic Office.

German cruises 1970 and 1972 by R/V "Meteor" and 1971 by R/V "Komet".

UK cruises 1973 and 1974 of RRS "Shackleton" by Durham University.

UK Institute of Oceanographic Sciences, 1:1,000,000 bathymetric charts 2, 3, 7, 8, 9, 14, 15, 16, 27, 28, 29, 40, 41, 42, 43.

UK Hydrographic Department.

US Defense Mapping Agency.

USSR Cruises 11 and 15 of R/V "Kurchatov".

USSR site surveys for DSDP Leg 38.

SCIENTIFIC LITERATURE:

Egloff, J. and Johnson, G.L., 1975, Can. J. Earth Sci. 12 (12), 2111-2133.

Fleisher, U., 1969, Deutsch. Hydrog. Zeit. 22, 205-208.

Fleisher, U., 1971, Mar. Geoph. Res. 1, 314-327.

Fleisher, U., Holzkamm, F., Vollbrecht, K. and Voppel, D., 1974, Deutsch. Hydrog. Zeit. 27 (3), 97-113.

Fleischer, U., Korschunow, A., Shulz, G. and Vogt, P.R., 1973, "Meteor" Forsch-Ergebnisse C. (13), 64-84.

- Fleming, H.S., Cherkis, N.Z. and Heirtzler, J.R., 1970, *Mar. Geoph. Res.* 1, 37-45.
- Grant, A.C., 1975, *Can. Soc. Petroleum Geol. Mem.* 4, 411-431.
- Henderson, G., 1975, *Offshore Technology Conf. Paper OTC 2223 Conf.*
- Johnson, G.L. and Campsie, J., 1974, *Norsk Polarinstitut Arbok, (Oslo 1976)*, 69-81.
- Johnson, G.L., Sommerhoff, G. and Egloff, J., 1975, *Marine Geology*, 18, 175-196.
- Laughton, A.S., Roberts, D.G. and Graves, R., 1975, *Deep-Sea Research*, 22, 791-810.
- Meyer, O., Voppel, D., Fleischer, U., Closs, H. and Gerke, K., 1972, *Deutsch. Hydrog. Zeit.* 25 (5), 193-201.
- Monahan, D. and Macnab, R.F., 1974, *Geol. Surv. Can. Paper 74-30*, 207-216.
- Olivet, J-L., Le Pichon, X., Monti, S. and Sichler, B., 1974, *J. Geophys. Res.* 79 (14), 2059-2072.
- Roberts, D.G., 1975, *Phil. Trans. Roy. Soc. A.*, 278, 447-509.
- Talwani, M., Poppe, B., Hastings, J. and Aitken, T., 1974, *LDGO technical report. Lamont-Doherty Survey of the World Ocean. (Talwani ed.)*.
- Talwani, M., Windisch, C.C. and Langseth, M.G., 1971, *J. Geophys. Res.* 76 (2), 473-517.
- Ulrich, J., 1962, *Deutsch. Hydrog. Zeit.* 6, 15 pp.
- Ulrich, J., 1960, *Kieler Meeresforschungen* 16, 155-163.
- van der Linden, W.J., Fillon, R.H. and Monahan, D., 1976, *Geol. Surv. Can. Paper 75-40*, 31 pp.
- Vogt, P.R. and Avery, O.E., 1974, *J. Geophys. Res.* 79 (2), 363-389.
- Vogt, P.R. and Johnson, G.L., 1972, *Earth and Plan. Sci. Letters.* 15, 248-254.
- Vogt, P.R. and Johnson, G.L., 1975, *J. Geophys. Res.* 80, 1399-1428.
- Vogt, P.R., Johnson, G.L., Hollombe, T.L., Gilg, J.G. and Avery, O.E., 1971, *Tectonophysics* 12 (3), 211-234.

GEBCO Sheet 5.05*

*MAJOR UPDATE NOTE: The bathymetry of virtually all of the area of GEBCO sheet 5.05 has been replaced by the revised bathymetry contained in GEBCO sheet G.08. Essentially all that remains from sheet 5.05 is the bathymetry of the Red Sea.

GEBCO sheet 5.05 was published in April 1975 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinator: Anthony S. Laughton, Institute of Oceanographic Sciences, Wormley, United Kingdom

Cartography by: Geoscience Mapping Unit, Canadian Hydrographic Service

Published Chart: GEBCO SHEET 5.05 (April 1975)

Projection: Mercator Scale: 1 to 10 million at the Equator

Ellipsoid: International 1924 (Hayford)

Southern Limit: 00°00'N

Western Limit: 006°00'W

Northern Limit: 46°40'N

Eastern Limit: 100°00'E

Note: The area from 90° to 100°E is only covered between 0° and 32°N. The area 0° to 6°W is only covered between 29° and 42°N.

Digitized by: Bureau Gravimetrique International, Toulouse, France, in collaboration with Institut Geographique National, Paris, France, and the British Oceanographic Data Centre.

Contour Units: bathymetric depth in corrected metres

Contours Present: 0m, 200m, 500m and at 500m intervals thereafter down to 5000m. In some areas additional contours are also present and the digital data set will be found to include contours at the following depths: 50m, 100m and 700m.

GEBCO Sheet 5.06*

*UPDATE NOTE: The bathymetry of the area of GEBCO sheet 5.06 in the Indian Ocean (i.e. west of 99°E and south of the line joining the points 99°E, 10°N and 105°E, 0°N) and the Eastern Archipelagic Seas (south of 4°N between 115°E to 136°E) has been replaced by the revised bathymetry contained in GEBCO sheet G.08.

GEBCO sheet 5.06 was published in April 1979 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinator: Yoshio Iwabuchi, Hydrographic Department (Marine Safety Agency), Tokyo, Japan

Cartography by: Geoscience Mapping Unit, Canadian Hydrographic Service

Published Chart: GEBCO SHEET 5.06 (April 1979)

Projection: Mercator Scale: 1 to 10 million at the Equator

Ellipsoid: International 1924 (Hayford)

Southern Limit: 00°00'N

Western Limit: 090°00'E

Northern Limit: 46°47'N

Eastern Limit: 180°00'E

Digitized by: Japan Oceanographic Data Center, Tokyo, Japan, in collaboration with the British Oceanographic Data Centre

Geographic Area Digitized: The digital data in this file covers the area 90° to 180°E, 0° to 46°40'N

Please note:

- 1) The bathymetric contours for most of this area were kept updated by Dr. Iwabuchi at the Japan Oceanographic Data Center and a new compilation was produced in 1984 in the form of a paper atlas published on Mercator projection at a scale of 1:1 million covering the area 120° to 180°E, 0° to 46°40'N. Thus, rather than digitize the outdated information published as GEBCO sheet 5.06 in 1979, it was decided to make use of digital files already available from JODC.
- 2) The digital data for the area 120° to 180°E, 0° to 46°40'N were supplied by JODC from a data base, digitized from source material at a scale of 1:1 million. The source material for this area is covered in the paper atlas published in 1984 and supplied by JODC.

- 3) A 1:1 million digital data set covering the area 100° to 120°E, 0° to 46°40'N was also supplied by JODC. Quality control work on the digital data sets supplied by JODC was carried out at BODC. The volume of data was reduced using software based on the Douglas-Peucker generalization algorithm. A lateral tolerance factor of 0.08mm was used. The use of this filtering algorithm reduced the size of the data file to approximately 11.2 percent of its original volume.
- 4) The digital data for the area 90° to 100°E, 0° to 46°40'N were digitized at BODC from GEBCO sheet 5.06 published in April 1979.
- 5) The 50m and 100m contours in the region 120° to 129°E, 23° to 39°N, i.e. the area of the East China Sea and Yellow Sea, were absent in the digital data set supplied by JODC and were digitized by BODC from GEBCO sheet 5.06.

Contour Units: bathymetric depth in corrected metres

Contours Present: 0, 200m, 500m and at 500m intervals thereafter down to 10500m. However, in some areas, the 50m and 100m contours are also included.

Comments: As the digital data for the area 100° to 180°E, 0° to 46°40'N were not digitized from GEBCO sheet 5.06, it proved difficult to achieve an accurate match at the boundaries with the surrounding GEBCO sheets. This was due to variations in the track line control shown by the GEBCO sheets and in the paper atlas supplied by JODC. This is most notable at:

- 1) 169° to 175°E, 46° to 47°N, i.e. the area of the Emperor Seamount Chain.
- 2) 150° to 151°E, 0°N
- 3) 135° to 139°E, 0°N
- 4) 9°30' to 10°N, 180°E
- 5) 34°30' to 35°30'N, 180°E
- 6) 41°30' to 43°N, 180°E

GEBCO Sheet 5.07

*MINOR UPDATE NOTE: The bathymetry of the area of GEBCO sheet 5.07 north of 15°N and east of 101°W has been replaced by the revised bathymetry contained in GEBCO Sheet G.03.

GEBCO sheet 5.07 was published in March 1982 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinators:	Jacqueline Mammerickx and Stuart M. Smith, Geological Research Division, Scripps Institution of Oceanography, La Jolla, USA
Cartography by:	Geoscience Mapping Unit, Canadian Hydrographic Service
Published Chart:	GEBCO SHEET 5.07 (March 1982)
Projection: Mercator Scale:	1 to 10 million at the Equator
Ellipsoid:	International 1924 (Hayford)
Southern Limit:	00°00'N
Western Limit:	180°00'W
Northern Limit:	46°40'N
Eastern Limit:	077°00'W
Note:	The area from 77° to 90°W is only covered south of a line joining the points 15°N 90°W and 8°16'N 77°W.
Digitized by:	NERC Unit for Thematic Information Systems, Reading, UK, in collaboration with the British Oceanographic Data Centre
Geographic Area Digitized:	as for published chart, except for the area north of Central America, i.e. the area north of a line joining the points 16°N 90°W, 8°16'N 82°W, 9°15'N, 79°W. The digital data for this area is covered in GEBCO sheet 5.08. The digital bathymetric contour data for the western part of the Gulf of Mexico, the area 90° to 98°W, 18° to 30°N, is also omitted. This area is covered in the digital data for GEBCO sheet G.03.
Contour Units:	bathymetric depth in corrected metres

Contours Present: 0, 200m, 500m and at 500m intervals thereafter down to 7000m. However, for many areas, intermediate contours are also included and the digital data set will be found to include additional contours at the following depths: 100m, 800m, 1600m, 1800m, 2100m and at 100m intervals thereafter down to 5800m, with one additional contour at 6100m.

Comments: The digitized data for this chart were edgematched with that for GEBCO sheets 5.03, 5.06, 5.10 and 5.11 with the result that some of the contours at the sheet boundaries may be displaced slightly from their positions on the published chart. As the digital data for GEBCO sheet 5.06 were supplied from a regularly updated data base and not digitized from the original sheet, it proved difficult to achieve an edgematch with the digital data for GEBCO sheet 5.07, most notably in the following areas:

- 1) 34°30' to 35°30'N, 180°W
- 2) 41°30' to 43°N, 180°W

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.07 CONTOURS

Defense Mapping Agency, Hydrographic/Topographic Center, Washington, D.C.
Hawaii Institute of Geophysics, University of Hawaii, Honolulu, Hawaii.
Lamont-Doherty Geological Observatory, Columbia University, Palisades, New York.
National Geophysical and Solar Terrestrial Data Center, Boulder, Colorado.
Naval Oceanographic Office, NSTL Station, Bay St. Louis, Mississippi.
School of Oceanography, Oregon State University, Corvallis, Oregon.
Scripps Institute of Oceanography, University of California, San Diego, California.

SCIENTIFIC LITERATURE:

Bathymetric Maps of the sea floor off the west coast of the United States, 1967-1975. US Coast and Geodetic Survey and NOAA, National Ocean Survey, Washington, D.C.

Chase, T.E., Normark, W.R. and Wilde P., 1975, Oceanographic data of the Monterey Deep Sea Fan. IMR Tech. Rept. Series TR-58, University of California, San Diego, California.

Chase, T.E., Menard, H.W. and Mammerickx, J., 1968-1969. Bathymetry of the North Pacific, sheets 3, 4, 8, 9 and 10. Scripps Institution of Oceanography and the Institute of Marine Resources, University of California, San Diego, California.

Heezen, B. and Tharp, M., 1978, Bathymetric and nodule assessment map, northeast equatorial Pacific Ocean, 15 sheets. US Geological Survey.

Juan de Fuca Plate Map, 1978, Pacific Geoscience Center, Dept. Energy, Mines and Resources, Ottawa, Canada.

Lonsdale, P., 1977, Regional shape and tectonics of the equatorial East Pacific Rise. *Mar. Geophys. Res.* 3, 195-315.

Lonsdale, P., 1977 and Klitgord, K.D., 1978, Structure and tectonic history of the Eastern Panama Basin, *Geol. Soc. Am. Bull.*, 89, 981-999.

Morton, W.T. and Lowrie, A., 1978, Regional geological maps of the Northeast Pacific. Naval Oceanographic Office, NSTL Station, Bay St. Louis, Mississippi.

Rosendahl, B.R. and Dorman, L.M., Summary of the geology and geophysics of the East Pacific Rise in the vicinity of the Siqueiros Fracture Zone in Rosendahl, B.R., R. Hekinian et al., in press. Initial Reports of the Deep Sea Drilling Project, vol. 54, Washington (US Government Printing Office) p. 23-36.

Wilde, P. et al., 1976-1979, Oceanographic data. LBL Pubs. 92, 251, 253, Lawrence Berkeley Laboratory, University of California, Berkeley, California, USA.

GEBCO Sheet 5.08*

*MAJOR UPDATE NOTE: The bathymetry of four regions within the area of GEBCO sheet 5.08 have been replaced by the revised bathymetry contained in:

- a) GEBCO sheet G.03 covering Gulf of Mexico, Caribbean and the North Atlantic off Florida and the Caribbean; from 15°N to 33°N and west of 61°W (but only 69°W north of 24°N)
- b) GEBCO sheet G.04 (essentially north of 32°N and east of 16°W covering the Bay of Biscay and the Atlantic off the Iberian Peninsula)
- c) GEBCO sheet G.05 covering an irregular area within the North East Atlantic between 18°N and 35°N; 14°W to 47°W
- d) GEBCO sheet G.06 south of 12°N and east of 22°W

GEBCO sheet 5.08 was published in January 1982 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinators: Roger C. Searle, Institute of Oceanographic Sciences Wormley, United Kingdom; David Monahan, Canadian Hydrographic Service, Ottawa, Canada; and G. Leonard Johnson, Office of Naval Research, Arlington, USA

Cartography by: Geoscience Mapping Unit, Canadian Hydrographic Service

Published Chart: GEBCO SHEET 5.08 (January 1982)

Projection: Mercator Scale: 1 to 10 million at the Equator

Ellipsoid: International 1924 (Hayford)

Southern Limit: 00°00'N

Western Limit: 098°00'W

Northern Limit: 46°40'N

Eastern Limit: 010°00'E

Note: The area from 90 to 98°W is only covered between 18 and 30°N, while the area from 0° to 10°E is only covered between 0° and 7°N.

Digitized by: Bureau Gravimetrique International, Toulouse, France, in collaboration with Institut Geographique National, Paris, France and the British Oceanographic Data Centre

Geographic Area Digitized: as for published chart; except for the area 70°W to 10°E, 0° to 7°N which is covered in the digital data for GEBCO

sheet 5.12. The digital data for the area south of Central America, i.e. the area south of a line joining the points 16°N 90°W, 8°30'N 82°W, 9°15'N 79°W, 8°16'N 77°W, is also omitted and is covered in GEBCO sheet 5.07.

Contour Units: bathymetric depth in corrected metres

Contours Present: 0m, 200m, 500m and at 500m intervals thereafter down to 8000m. However, for areas away from the Mid-Atlantic Ridge, intermediate contours are also included and the digital data set will be found to include contours at the following depths: 50m, 100m and at 100m intervals thereafter down to 6000m.

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.08 CONTOURS

SOUNDINGS ADDITIONAL TO GEBCO 1:1,000,000 COLLECTED SOUNDINGS SHEETS:

B.J. Collette, unpublished soundings.

B.C. Heezen and M. Tharp, working sheets (4 inches per degree) for GEBCO chart 5.12, 0°N to 7°N.

RRS "Discovery" cruises 54, 73, 84, 91.

Hydrographer of the Navy, Hydrographic Dept., Taunton, UK.

DETAILED SURVEYS/COMPILATIONS INCLUDED WITH LITTLE OR NO MODIFICATION:

- 1) Aumento, F., Loncarevic, B.D. and Ross, D.I., 1971, *Phil. Trans. Roy. Soc. London. A.*, 268, 623-650.
- 2) R.R.S. 'Discovery II', 1960, Unpublished survey, Institute of Oceanographic Sciences, Wormley, U.K.
- 3) Kidd, R.B., Searle, R.C., Ramsay, A.T.S., Prichard, H. and Mitchell, J., 1981, *Oceanologica Acta*.
- 4) Vogt, P.R. and Ostenso, N.A., 1966, *J. Geophys. Res.*, 71, 4389-4411.
- 5) Searle, R.C., and Laughton, A.S., 1977, *J. Geophys. Res.*, 82, 5313-5328.
- 6) Searle, R.C., 1980. *Earth Planet Sci. Lett.* 51, 415-434.
- 7) Searle, R.C., 1980, Unpublished chart, Institute of Oceanographic Sciences, Wormley, U.K.
- 8) Laughton, A.S., Roberts, D.G. and Graves, R., 1975. *Deep-Sea Res.*, 22, 791-810.

- 9) R.R.S. 'Discovery II', 1971, Unpublished survey, Institute of Oceanographic Sciences, Wormley, U.K.
- 10) H.M.S. 'Dalrymple', 1955, and H.M.S. 'Owen', 1957, Unpublished surveys, Hydrographic Department, Taunton, U.K.
- 11) H.M.S. 'Ormonde', 1933, Unpublished survey, Hydrographic Department, Taunton, U.K.
- 12) Hydrographer of the Navy, U.K., 1969, Chart C.6101 Hydrographic Department, Taunton, U.K.
- 13) Black, M., Hill, M.N., Laughton, A.S. and Matthews, D.H., 1964, Q.J. Geol. Soc. Lond., 120, 477-517.
- 14) R.R.S. 'Discovery II', 1958, Unpublished survey, Institute of Oceanographic Sciences, Wormley, U.K.
- 15) Black, M. et al., 1964, Q.J.Geol. Soc. Lond., 120, 477-517.
- 16) R.R.S. 'Discovery II', 1960, Unpublished survey. Institute of Oceanographic Sciences, Wormley, U.K.
- 17) Laughton, A.S., Berggren, W.A. et al., 1972, Initial Reports of the Deep Sea Drilling Project, 12, Washington D.C., p.755.
- 18) Berthois, L., and Brenot, R., 1966, Cartes bathymetriques du talus du plateau continental, editees par L. Bertois avec le concours du CNRS, Inst. Sci. et Tech. des Peches Marit. Subsequent modifications by Institut Francais du Petrole.
- 19) Phillips, J.D., and Fleming, H.S., 1978, GSA MC-19, Geol. Soc. Amer., Boulder, Colorado.
- 20) Fox, P.J., Schroeder, F.W., Moody, R.H., Pitman III, W.C., and Hoose, P.J., 1978, The Bathymetry of the Oceanographer Fracture Zone and Mid-Atlantic Ridge at 35°N with implications for central North Atlantic plate motion. Unpublished manuscript.
- 21) Litvin, V.M., Marova, N.A., Rudenko, M.V. and Udintsev, G.B., 1972, Oceanology, 12, 527-534.
- 22) Rona, P.A. and Gray, D.F., 1980, Geol. Soc. Amer. Bull., 91, 485-494. Also: McGregor, B.A. and Rona, P.A., 1975, J. Geophys. Res., 80, 3307-3314; and: Rona, P.A., Harbison, R.N., Bassinger, B.G., Scott, R.B. and Nalwalk, A.J., 1976, Geol. Soc. Amer. Bull., 87, 661-674.
- 23) Van Andel, H.Tj. and Bowen, C.O., 1968. J. Geophys. Res., 73, 1279-1298.
- 24) Collette, B.J., 1980, unpublished soundings, contoured by Searle, R.C. Also: Collette, B.J., Slotweg, A.P. and Twilight, W., 1979, Earth Planet Sci. lett. 42, 103-

108; and: Collette, B.J., Verhoef, J., and de Mulder, A.F.J., 1980, *J. Geophys.*, 47, 91-98.

- 25) Van Andel, Tj.H., Von Herzen, R.P. and Phillips, J.D., 1971, *Mar. Geophys. Res.*, 1, 261-283.
- 26) Ludwig, W.J. and Rabinowitz, P.D., 1980, *Mar. Geol.* 35, 99-110.
- 27) Francis, T.J.G., 1977. In: M. Angel (ed), 'A Voyage of Discovery', sup. to *Deep-Sea Res.*, Pergamon Press, Oxford, 637-645.
- 28) Martin, L., 1970. *Inst. of Geol. Sciences, London, Report No. 70/16*, 105-119. Also: Martin, L., 1977. *Travaux et Documents de l'O.R.S.T.O.M.*, No. 61, Paris, 265 pp.
- 29) Ruffman, A., Meagher, L.J. and Stewart, J.McG., 1977, *Canadian Hydrographic Service Map 839-A.*, Ottawa.
- 30) Edelmann, P., 1979, *Topography-Morphology of the Continental Margin of Senegal and Mauritania*. Unpublished survey, University of Kiel.
- 31) Wissmann, G., 1978, *Bathymetry of Tioulit canyon and sea knoll (Mauritania)*. Unpublished survey, Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover.
- 32) Lowrie, A., Egloff, J. and Jahn, W.H., 1978, *Mar. Geol.*, 26, M29-M35.
- 33) Rona, P.A. and Fleming, H.S., 1973, *Mar. Geol.*, 14, 239-252.
- 34) Von Rad, U. and Wissmann, G., 1978, *Northwest Africa, Bathymetry and morphology of the Cape Bojador Continental Margin*. Unpublished survey, Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover.
- 35) Laughton, A.S., 1962., *Pap Seamount*, Unpublished Survey, Institute of Oceanographic Sciences, Wormley, U.K.
- 36) Belderson, R.H., and Laughton, A.S., 1966, *Sedimentology*, 7, 103-116
- 37) Ulrich, J., 1969, In: Closs, H., Dietrich, G. et al. *Reisebericht, "Meteor" Forschungsergebnisse, Reihe A*, no. 5, 21-23.
- 38) Defant, A., 1939, In: Defant, A. and Helland-Hansen, Bj., *Abhandlungen der Preussischen Akademie der Wissenschaften, Physikalisch-mathematische Klasse*, Nr. 5, 40-45.
- 39) Searle, R., 1977, *Mar. Geol.*, 25, 299-320.
- 40) Heezen, B.C., and Johnson, G.L., 1963, *Deutsche Hydrographische Zeitschrift*, 16, 269-272.
- 41) Weiland, D., 1976, *Erarbeitung und Diskussion einer topographisch-morphologischen Meeresbodenkarte im Seegebiet nordlich Dakar/Senegal*. Geogr. Inst. Univ. Kiel.

- 42) Twight, W., Sloomweg, A.P. and Collette, B.J., 1979, Mar. Geophys. Res. 4, 91-104.
- 43) Asquith, S.M., 1979, Mar. Geol., 32, 165-190.
- 44) Bush, P.A., 1976, Deep Sea Res., 23, 1105-1113; Also: Embley, R.W. and Jacobi, R.D., 1977, Mar. Geotechnology 2, Marine Slope Stability, Crane, Russak and Co., Inc. 205-227.
- 45) Flood, R.D., 1978, Ph.D. Thesis, Wood's Hole Oceanographic Institute, 394 pp.
- 46) Johnson, G.L., and Vogt, P.R., 1971, Deep Sea Res., 18, 605-617. Also: Kumar, N., and Embley, R., 1977, Geol. Soc. of Amer. Bull., 88, 683-694.
- 47) Moody, R., Hayes, D.E. and Connary, S., 1979. Bathymetry of the Continental Margin of Brazil, Amer. Assoc. of Petrol. Geol., Tulsa, Oklahoma, U.S.A. Also: Rabinowitz, P.D. and Ludwig, W.J., 1980, Mar. Geol., 35, 243-275; and: Rona, P.A., Schneider, E.D. and Heezen, B.C., 1967, Deep Sea Res., 14, 625-633.
- 48) Shipley, T.H., 1975, Ph.D. Thesis, Rice Univ., Houston, Texas, 156 pp. Also: Taylor, P.T., Stanley, D.J., Simkin, T. and Jahn, W., 1975, Mar. Geol., 19, 139-157.
- 49) Tucholke, B.E., and Ewing, J.I., 1974, Geol. Soc. of Amer. Bull., 85, 1789-1802.
- 50) Flanagan, J.P., Gilg, J.G., Jones, C.R., Marchant, F.L., Murchison, R.R., Rebmon, J.H., Snodgrass, L.W., Sorenson, F.H. and Whitney, J.C., 1981, Caribbean Bathymetry, USGS Open File Map.
- 51) Sorenson, F.H., Snodgrass, L.W., Rebmon, J.H., Murchison, R.R., Jones, C.R. and Martin, R.G., 1975. USGS Open File Map 75-140.
- 52) Canadian Hydrographic Service, 1970-1980, Natural Resources Maps, 1:250,000

MATERIAL CONSULTED OR INCLUDED WITH MAJOR MODIFICATIONS:

- Bosshard, E. and Macfarlane, D.J., 1970, J. Geophys. Res., 75, 4901-4918.
- Closs, H., Dietrich, G., Hempel, G., Schott, W. and Seibold, E., 1969. Reisebericht bearbeitet "Meteor" Forschungsergebnisse, Reihe A, 5, 83 pp.
- Embley, R.W. and Jacobi, R.D., 1977. Mar. Geotechnology 2, Mar. Slope Stability, Crane, Russak and Co., 205-227.
- Gorini, M.A., 1977. Ph.D. Thesis, Columbia University.
- Grant, A.C., 1979. Tectonophysics, 59, 71-81.
- Kumar, N., and Embley, R., 1977. Geol. Soc. Amer. Bull., 88, 683-694.
- McGregor, B.A., Betzer, P.R. and Krause, D.C., 1973. Mar. Geol., 14, 179-190.

Pasenay, H., 1973. Schriften des Geogr. Inst., Univ. Kiel. Bd. 3G.

Purdy, G.M. and Rabinowitz, P.D., 1978. In: Melson, W.G., Rabinowitz, P.D. et al., Initial Reports of the Deep Sea Drilling Project, 45, Washington, D.C.

Rabinowitz, P.D. and Ludwig, W.J., 1980. Mar. Geol., 35, 243-275.

Rabinowitz, P.D. and Purdy, G.M., 1980. Eastern Kane Fracture Zone, unpublished chart.

Robb, J.M., Schlee, J. and Behrendt, J.C., 1973. Jour. Res. US Geol. Survey 1, 5, 563-567.

Rona, P.A., 1980. NOAA Atlas 3. US Dept. of Commerce, NOAA Environmental Res. Lab., Washington D.C., 99 pp.

Rona, P.A., Harbison, R.N. and Bush, S.A., 1974. Mar. Geol. 16, 275-292.

Rona, P.A., Schneider, E.D. and Heezen, B.C., 1967. Deep Sea Res., 14, 625-633.

Taylor, P.T., Stanley, D.J., Simkin, T. and Jahn, W., 1975. Mar. Geol., 19, 139-157.

Uchupi, E., 1978. Woods Hole Oceanographic Inst. Ref. No. 71-72, 2 pp and 10 charts.

GEBCO Sheet 5.10*

*MAJOR UPDATE NOTE: The bathymetry in the area of GEBCO sheet 5.10 south of 24°S and west of 167°W has been replaced by revised bathymetry contained in GEBCO sheets G.08 and G.09.

GEBCO sheet 5.10 was published in March 1982 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinators: David Monahan, Canadian Hydrographic Service, Ottawa, Canada; Robin H.K. Falconer, New Zealand Oceanographic Institute, Wellington, New Zealand; and Marie Tharp, Lamont-Doherty Geological Observatory, Columbia University, Palisades, New York, USA

Cartography by: Geoscience Mapping Unit, Canadian Hydrographic Service

Published Chart: GEBCO SHEET 5.10 (March 1982)

Projection: Mercator Scale: 1 to 10 million at the Equator

Ellipsoid: International 1924 (Hayford)

Southern Limit: 46°40'S

Western Limit: 110°00'E

Northern Limit: 00°00'S

Eastern Limit: 160°00'W

Digitized by: NERC Unit for Thematic Information Systems, Reading, UK, in collaboration with the British Oceanographic Data Centre

Geographic Area Digitized: as for published chart

Contour Units: bathymetric depth in corrected metres

Contours Present: 0m, 200m, 500m and at 500m intervals thereafter down to 10500m. However, for many areas, intermediate contours are also included and the digital data set will be found to include contours at the following depths: 50m, 100m, 300m, 400m, 4600m, 4800m and at 100m intervals thereafter down to 5900m.

Comments: The digitized data for this chart were edgematched with that for GEBCO sheets 5.06, 5.07, 5.11 and 5.14 with the

result that some of the contours at the sheet boundaries may be displaced slightly from their positions on the published chart. As the digital data for GEBCO sheet 5.06 were supplied from a regularly updated data base and not digitized from the original sheet, it proved difficult to achieve an edgematch with the digital data for GEBCO sheet 5.10, most noticeably in the following areas:

- 1) 135° to 139°E, 0°N
- 2) 150° to 151°E, 0°N

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.10 CONTOURS

CONTOUR CHARTS AND BATHYMETRIC MAPS:

Mammerickx, J., Fisher, R.L., Emmel, F.J. and Smith, S.M., 1977: Bathymetry of the East and Southeast Asian Seas. 1:6,442,194. Geological Soc. America, Maps & Charts Series, MC 17.

Kroenke, L.W., Moberly Jr., R., Winterer, E.L. and Heath, G.R., 1971: Bathymetry of the Ontong Java Plateau, In: Lithologic Interpretation of Continuous Reflection Profiling. Deep Sea Drilling Project, Vol. VII, Part 2 p. 11717. Hawaii Institute of Geophysics, University of Hawaii.

Mammerickx, J., Chase, T.E., Smith, S.M. and Taylor, I.L., 1971-1974: Bathymetry of the South Pacific (in fathoms - interpolated to metres by D. Monahan). IMR Technical Reports 44A, 45A & 46A. Scripps Institution of Oceanography, La Jolla, California.

Winterer, E.L., Lonsdale, P.P., Matthews, J.L. and Rosendahl, R.B., Bathymetry of the Manihiki Plateau. In: Structure and Acoustic Stratigraphy of the Manihiki Plateau. Deep Sea Research, 21 p. 793-814.

Hawkins, J.W., 1974, Geology of the Lau Basin, A Marginal Sea Behind the Tonga Arc, In: Geology of Continental Margins, C. Burke & C. Drake editors p. 505-520.

New Zealand Oceanographic Institute, 1971, Oceanic Chart Series, 1:1,000,000. Bathymetry of the Tonga Trench.

Halunen Jr., A.J., 1979, Ph.D. Thesis, Columbia University Charts of the North Fiji Basin.

Hawkins, J., Mammerickx, J., Lawver, L. and Batiza, R., 1981 (in prep.). Geology of the Louisville Ridge, Scripps Institution of Oceanography.

Carter, L., 1980. New Zealand Region Bathymetry. 1:6,000,000, 2nd ed., New Zealand Oceanographic Institute, misc. series, 15.

Ringis, J. and Hayes, D.E., 1972. Bathymetry of the Tasman Sea. Unpub. map, Lamont-Doherty Geological Observatory.

Hayes, D.E. and Conolly, J.R., 1972. Morphology of the Southeast Indian Ocean. In: D.E. Hayes (ed.) Antarctic Oceanology II. Antarctic Research Series Volume 19, American Geophysical Union. 125-146.

Tharp, M., 1979. Compilation of Bathymetry.

Fisher, R.L., 1981. GEBCO 5.09, this series for area 110°E to 116°E.

SCIENTIFIC LITERATURE:

Burns, R.E., Andrews, J.E., Van Der Lingen, G.J., Churkin, M., Galehouse, J.S., Packham, G.H., Davies, T.A., Kennett, J.P., Dumitrica, P., Edwards, A.R. and Von Herzen, R.P., 1973; "Initial Reports of the Deep Sea Drilling Project, Leg 21" National Science Foundation, University of California, La Jolla. 931 pp.

Carter, L., 1980; New Zealand Region Bathymetry 1:6,000,000 (2nd ed.). N.Z. Oceanogr. Inst. Chart, Miscellaneous Series 15.

Carter, L., Eade, J.V., Mitchell, J.S. and Rees, B.J., 1977; A Morphologic Guide to the Continental Oceanic Crustal Boundary Around New Zealand, New Zealand Oceanographic Institute. Summary 13: 18 pp.

Conolly, J.R., 1969; Western Tasman Sea Floor. N.Z. Jl. Geol. Geophys. 12: 310-43.

Davey, F.J., 1977; Marine Seismic Measurements in the New Zealand Region, New Zealand Journal of Geology and Geophysics, 20: 719-777.

Deighton, I., Falvey, D.A. and Taylor, D.J., 1976; Depositional Environments and Geotectonic Framework: Southern Australian Continental Margin Australian Petroleum Exploration Association Journal: 25-36.

Halunen Jr., A.J., 1979; Tectonic History of the Fiji Plateau. Unpublished Ph.D. Thesis. University of Hawaii.

Hayes, D.E. and Conolly, J.R., 1972; Morphology of the Southeast Indian Ocean. In: D.E. Hayes (Editor) Antarctic Oceanology II. The Australian-New Zealand Sector. Antarctic Research Series Volume 19, American Geophysical Union. 125-146.

Hayes, D.E., Frakes, L.A. et al., 1975; Initial Reports of the Deep Sea Drilling Project, Volume 28: 1017 pp.

Hayes, D.E. and Talwani, M., 1972; Geophysical Investigations of the Macquarie Ridge Complex. In: Hayes, D.E. (ed.) Antarctic Oceanology II. The Australian-New Zealand Sector 19. American Geophysical Union p. 211-234.

Heezen, B.C., Tharp, M. and Bentley, C., 1972; Morphology of the Earth in Antarctic and Sub-Antarctic. In: Antarctic Map Folio Series, 15, American Geographical Society, 16 pp, 8 pl.

Karig, D.E. and Mammerickx, J., 1972; Tectonic Framework of the New Hebrides Island Arc. Mar. Geol. 12: 187-205.

Kennett, J.P. 1977; Cenozoic Evolution of Antarctic Glaciation, The Circum-Antarctic Oceans and their Impact on Global Paleoceanography. *Journal of Geophysical Research* 82: 3843-3860.

Mammerickx, J., Chase, T.E., Smith, S.M. and Taylor, I.L., 1971; Bathymetry of the South Pacific Charts 11-13, 1:4,300,000. Scripps Institution of Oceanography.

Molnar, P., Atwater, T., Mammerickx, J. and Smith, S.M., 1977; Magnetic Anomalies, Bathymetry and the Tectonic Evolution of the South Pacific Since the Late Cretaceous. *Geophysical Journal Royal Astronomical Society*, 40: 383-420.

Packham, G.H. and Terrill, A., 1975; Submarine Geology of the South Fiji Basin. Pp. 617-45 in "Initial Reports of the Deep Sea Drilling Project, Leg 30". National Science Foundation, University of California, La Jolla.

Terrill, A. and Packham, G.H., 1974; Bathymetry of the South Fiji Basin 1:1,700,000. Department of Geology and Geophysics, University of Sydney, Australia.

Weissel, J.K. and Hayes, D.E., 1977; Evolution of the Tasman Sea reappraised. *Earth and Planetary Science Letters*, 36: 77-84.

Weissel, J.K., Hayes, D.E. and Herron, E.M., 1977; Plate Tectonic Synthesis: the Displacements Between Australia, New Zealand and Antarctica Since the Late Cretaceous. *Marine Geology*, 25: 231-277.

GEBCO Sheet 5.11

GEBCO sheet 5.11 was published in March 1980 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinators:	Jacqueline Mammerickx, Stuart M. Smith, Geological Research Division, Scripps Institution of Oceanography, La Jolla, USA
Cartography by:	Geoscience Mapping Unit, Canadian Hydrographic Service
Published Chart:	GEBCO SHEET 5.11 (March 1980)
Projection:	Mercator Scale: 1 to 10 million at the Equator
Ellipsoid:	International 1924 (Hayford)
Southern Limit:	46°40'S
Western Limit:	160°00'W
Northern Limit:	00°00'S
Eastern Limit:	070°00'W
Digitized by:	NERC Unit for Thematic Information Systems, Reading, UK, in collaboration with the British Oceanographic Data Centre
Geographic Area Digitized:	as for published chart
Contour Units:	bathymetric depth in corrected metres
Contours Present:	0m, 200m, 500m and at 500m intervals thereafter down to 8000m. However, for many areas, intermediate contours are also included and the digital data set will be found to include contours at the following depths: 100m, 1200m, 1600m, 1700m, 1800m, 2200m, 2400m and at 100m intervals thereafter down to 5700m.
Comments:	The digitized data for this chart were edgematched with that for sheets 5.07, 5.10, 5.15 and 5.16 with the result that some of the contours at the sheet boundaries may be displaced slightly from their positions on the published chart.

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.11 CONTOURS

SOURCES OF DETAILED SURVEYS:

Atlantic Oceanographic Laboratory, Dartmouth, Nova Scotia, Canada.
Centre National pour l'Exploitation des Océans, Brest, France.
Hawaii Institute of Geophysics, University of Hawaii, Honolulu, Hawaii, USA.
Lamont-Doherty Geological Observatory, Columbia University, Palisades, New York, USA.
National Geophysical and Solar Terrestrial Data Centre, Washington, D.C., USA.
Ocean Research Institute, University of Tokyo, Tokyo, Japan.
School of Marine and Atmospheric Science, University of Miami, Miami, Florida, USA.
School of Oceanography, Oregon State University, Corvallis, Oregon, USA.
Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California, USA.
Shirshov Institute of Oceanology, Academy of Science, Moscow, USSR.
Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, USA.

SCIENTIFIC LITERATURE:

Brodie, J.W., Summerhayes, C.P. and Kibblewhite, A.C., 1966-1969, Bathymetry, Island Chart Series, AITUTAKI, ATIU, MANGAIA, MANNUAE, MANGAIA, MAUKE, RAROTONGA. 1:200,000. New Zealand Oceanographic Institute.

Herron, E., 1978, Bathymetry of the Chile Rise, Chile Trench triple junction, unpublished manuscript.

Lonsdale, P., 1977, Regional shape and tectonics of the equatorial East Pacific Rise, Marine Geophysical Researches, 3, 295-315.

Lonsdale, P. and Klitgord, K.D., 1978. Structure and tectonic history of the Eastern Panama Basin. Geological Society of America Bulletin, 89, 981-999.

Mammerickx, J., Anderson, R.N., Menard, H.W. and Smith, S., 1975, Morphology and tectonic evolution of the East Central Pacific. Geological Society of America. Bulletin, 86, 111-118.

Monti, S. and Pautot, G., 1974, Bathymetrie du Pacifique Sud, feuilles Mururoa, Hao, Marquises, Tahiti, Roroia. 1:1,000,000. Centre Oceanologique de Bretagne, Brest, France.

Prince, R.A., Schweller, W.J., Ness, G.E., Coulbourn, W.T., Shepherd, G.L., Masias, A., 1978, Bathymetry of the Peru-Chile Trench and Continental Margin. (9 sheets) Geological Society of America Map Series.

Rea, D.K., 1976, Changes in the axial configuration of the East Pacific Rise near 6°S during the past 2 m.y. Journal of Geophysical Research, 81, 1495-1504.

Rea, D.K., 1976, Analysis of a fast spreading rise crest: the East Pacific Rise, 9° to 12°S. *Marine Geophysical Researches*. 2, 291-313.

Rea, D.K., 1977, Local axial migration and spreading rate variations, East Pacific Rise, 31°S. *Earth and Planetary Science Letters*, 34, 78-84.

Rea, D.K., 1978, Asymmetric sea-floor spreading and a nontransform axis offset: the East Pacific Rise 20°S survey area. *Geological Society of America. Bulletin*, 89, 839-844.

GEBCO Sheet 5.12 (Revised)*

*UPDATE NOTE: The bathymetry of two regions within the area of GEBCO sheet 5.12 (revised) have been replaced by the revised bathymetry contained in GEBCO sheets G.06 (off equatorial Africa; east of 22°W north of the equator and east of 3°E north of 8°S) and G.08 (south-east Atlantic; south of 24°S and east of 12°W)

The revised version of GEBCO sheet 5.12 was published in 1994 by the Canadian Hydrographic Service under the authority of the IHO and IOC. The sheet was published directly from material digitized by BODC from contour compilations provided in hard copy form by the scientific coordinators.

Scientific Coordinators: Norman Cherkis, Naval Research Laboratory, Washington, USA; Gleb Udinstev, Vernadsky Institute of Geochemistry Geochemistry, Moscow, Russia; Robin Falconer and Jane Handley, GeoResearch Associates, Waikanae, New Zealand; Carl Brenner, Lamont-Doherty Geological Observatory, Columbia University, New York; and Peter Hunter, Institute of Oceanographic Sciences Deacon Laboratory, Wormley, UK

Digitized by: The British Oceanographic Data Centre

Geographic Area Digitized: The digital data covers the area 70°W to 20°E, 7°N to 50°S and was prepared from bathymetric contours compiled on Mercator charts at a scale of 1:5,737,447 at the equator.

Contour Units: bathymetric depths in corrected metres

Contours Present: 0, 200m, 500m and at 500m intervals thereafter down to 7000m. However in some areas bathymetric contours at the following depths are found: 10m, 20m, 40m, 50m, 60m, 80m, 100m, 300m, 400m, 1200m and at 200m intervals thereafter to 6000m. Additional contours are also found at 1300m, 2300m and at 100m intervals from 2900m down to 6100m.

Originators of Bathymetric Contours:

- 1) Norman Cherkis: 00°00'S to 40°00'S; 70°00'W to 20°00'E
- 2) Carl Brenner: 40°00'S to 50°00'S; 70°00'W to 20°00'E
- 3) Gleb Udintsev: 00°00'N to 05°00'N; 24°00'W to 36°00'W
- 4) Robin Falconer and Jane Handley: Interpolation of contours at 500 metre intervals for 03°00'S to 40°00'S; 70°00'W to 20°00'E

- 5) The bathymetric contours for 00°00'N to 07°00'N; 10°00'E to 40°00'W, not covered by any of the above, were taken from GEBCO sheet 5.08.
- 6) Additional contours were compiled by Peter Hunter.

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.12 CONTOURS

BATHYMETRY BETWEEN 03°00'S AND 40°00'S BASED ON:

Cherkis, N.Z., Fleming, H.S. & Brozena, J.M., 1989. Bathymetry of the South Atlantic Ocean 03°00'S to 40°00'S. Map and Chart Series MCH-069, The Geological Society of America, Boulder, Colorado, USA.

DETAILED SURVEYS AND COMPILATIONS:

1. Damuth, J.E., Flood, R.D., Kowsmann, R.O., Belderson, R.H. and Gorini, M.A., 1988. Anatomy and growth pattern of Amazon deep-sea fan as revealed by long-range side-scan sonar (GLORIA) and high-resolution seismic studies. American Association of Petroleum Geologists Bulletin, 72 (8), 885-911.
2. Udintsev, G.B., 1988. R/V "Akademik Nikolai Strakhov" cruises: 7-1988, 11-1990 and 12-1991, Equaridge Programme (Multi-beam surveys). Russian Academy of Sciences, Moscow.
3. Martin, L., 1970. Institute of Geological Sciences, London, Report No. 70/16, 105-119; and: Martin, L., 1977. Travaux et Documents de l'O.R.S.T.O.M., No. 61, Paris, 265 pp.
4. Thomas, M.V., 1989. A Geophysical Study of the Romanche Transform and Surrounding Areas of the Mid-Atlantic Ridge. PhD Thesis, Department of Geological Sciences, University College of London, September 1989, 402 pp.
5. R/V "Robert D. Conrad" cruise RC3003, 10 February to 12 March 1989 (Seabeam survey).
6. R/V "Robert D. Conrad" cruises: RC2515, RC2601 and RC2602, 26 December 1984 to 26 February 1985 (Seabeam surveys).
7. R/V "Robert D. Conrad" cruises: RC2905, 3 April to 26 May 1988 and RC3003, 10 February to 12 March 1989 (Seabeam surveys).
8. R/V "Robert D. Conrad" cruise RC2905, 3 April to 26 May 1988 (Seabeam survey).
9. Pogrebitskiy, Y.Y. and Naryshkin, G.D., 1989. Angol - Brazil Geotraverse Bathymetric Chart. Head Department of Navigation and Oceanography, Ministry of Defence and North Branch for Marine Geological Exploration 'Sevmorgeologia' - PGO 'Sevmorgeologia' of the USSR Ministry of Geology, USSR. (This chart was used to verify other information.)

10. Grindley, N.R., Fox, P.J. and Vogt, P.R., 1992. Morphology and Tectonics of the Mid-Atlantic Ridge (25°S to 27°30'S) from Sea Beam and Magnetic Data. *Journal of Geophysical Research*, 97 (B5), 6983-7010.
11. Batiza, R., Fox, P.J., Vogt, P.R., Cande, S.C., Grindley, N.R., Melson, W.G. and O'Hearn, T., 1989. Morphology, Abundance and Chemistry of Near-Ridge Seamounts in the vicinity of the Mid-Atlantic Ridge (26°S). *Journal of Geology*, 97 (2), 209-220.
12. Fox, P.J., Grindlay, N.R. and MacDonald, K.C., 1991. The Mid-Atlantic Ridge (31°S to 34°S): Temporal and Spatial Variations of Accretionary Processes. *Marine Geophysical Researches*, 13 (1), 1-20.

GEBCO Sheet 5.14*

*MAJOR UPDATE NOTE: The bathymetry in the area of GEBCO sheet 5.14 west of 170°E (and west of 167°W north of 57.5°S) has been replaced by the revised bathymetry contained in GEBCO sheets G.08 and G.09.

GEBCO Sheet 5.14 was published in November 1981 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinators: Robin K.H. Falconer (supported by the Bedford Institute of Oceanography, Dartmouth, Canada, and the New Zealand Oceanographic Institute, Wellington, New Zealand) and Marie Tharp, Lamont-Doherty Geological Observatory, New York, U.S.A.

Cartography by: Geoscience Mapping Unit, Canadian Hydrographic Service

Published Chart: GEBCO SHEET 5.14 (November 1981)

Projection: Mercator Scale: 1 to 10 million at the Equator

Ellipsoid: International 1924 (Hayford)

Southern Limit: 72°00'S

Western Limit: 110°00'E

Northern Limit: 46°40'S

Eastern Limit: 160°00'W

Digitized by: Bureau Gravimetrique International, Toulouse, France, in collaboration with Institut Geographique National, Paris, France, and the British Oceanographic Data Centre

Geographic Area Digitized: as for published chart

Contour Units: bathymetric depth in corrected metres

Contours Present: 0, 200, 500, 1000m and at 500m intervals thereafter down to 6000m.

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.14 CONTOURS

Contour Charts and Bathymetric Maps:

Johnson, G.L. and Vanney, J.R., 1980. GEBCO 5.18. This series.

Carter, L., 1980. New Zealand Region Bathymetry. 1:6,000,000 2nd. ed., New Zealand Oceanographic Institute misc. series 15.

Hayes, D.E. and Conolly, J.R., 1972. Morphology of the Southeast Indian Ocean. In: D.E. Hayes (ed.) Antarctic Oceanology II. Antarctic Res. Ser., 19, Amer. Geophys. Union, 125-145.

Ringis, J. and Hayes, D.E., 1972. Bathymetry of the Tasman Sea. Unpub. map, Lamont-Doherty Geology Observatory.

Mammerickx, J., Chase, T.E., Smith, S.M. and Taylor, I.L., 1974. Bathymetry of the South Pacific. Scripps Institution of Oceanography.

Scientific Literature:

Carter, L., Eade, J.V., Mitchell, J.S. and Rees, J., 1977. A morphologic guide to the continental oceanic crustal boundary around New Zealand. New Zealand Oceanographic Inst. Summary 13: 18 pp.

Christoffel, D.A. and Falconer, R.K.H., 1972. Marine magnetic measurements in the southwest Pacific Ocean and the identification of new tectonic features. In: D.E. Hayes (Ed.) Antarctic Oceanology II: Antarctic Res. Ser. 19, Amer. Geophys. Union, 187-200.

Christoffel, D.A. and Falconer, R.F., 1973. Magnetic measurements in the Macquarie Ridge region. In Oceanography of the South Pacific 1972. R. Fraser (compiler) New Zealand National Committee for UNESCO, 233-240.

Davey, F.J., 1977. Marine Seismic measurements in the New Zealand region. New Zealand Journ. of Geol. and Geophys. 20: 719-777.

Davey, F.J., 1981 (in press). Geophysical studies in the Ross Sea region. Jour. of Royal Society of New Zealand, 11 (4).

Deighton, I., Falvey, D.A. and Taylor, D.J., 1976. Depositional environments and geotectonic framework: Southern Australian continental margin. Australian Petroleum Exploration Assoc. Journ. 25-36.

Falconer, R.K.H. and Falconer, R.F., 1981 (in press). Seismicity, Fracture zones and poles of rotation of the Pacific-Antarctic and Indian-Antarctic plate boundaries. Third Antarctic Geology and Geophysics Symposium. University of Wisconsin Press.

Hayes, D.E., Frakes, L.A. et al., 1975. Initial Reports of the Deep Sea Drilling Project, Volume 28: 1017 app.

Hayes, D.E. and Talwani, M., 1972. Geophysical investigation of the Macquarie Ridge Complex. In: D.E. Hayes (Ed.) Antarctic Oceanology II. Antarctic Res. Ser. 19, Amer. Geophys. Union. 211-234.

Heezen, B.C., Tharp, M. and Bentley, C., 1972. Morphology of the Earth in the Antarctic and Subantarctic. In: Antarctic Map Folio Series, 15, Amer. Geographic Soc., 16 pp, 8 pl.

Kennett, J.P., 1977. Cenozoic evolution of Antarctic glaciation, the circum-Antarctic oceans and their impact on global paleoceanography. *Jour. of Geophys. Res.*, 82: 3843-3860.

Johnson, G.L., Vanney, J.R. and Hayes, D.E., 1981 (in press). *The Antarctic Continental Shelf. Third Antarctic Geology and Geophysics Symposium* University of Wisconsin Press.

Molnar, P., Atwater, T., Mammerickx, J. and Smith, S.M., 1977. Magnetic anomalies, bathymetry and the tectonic evolution of the south Pacific since the late Cretaceous. *Geophys. Journ. Royal Astronom. Soc.*, 40: 383-420.

Vanney, J.R., Falconer, R.K.H. and Johnson, G.L., 1981. Geomorphology of the Ross Sea and adjacent oceanic provinces. *Marine Geol.*, 41: 73-102.

Weissel, J.K. and Hayes, D.E., 1977. Evolution of the Tasman Sea reappraised. *Earth and Planetary Sci. Letters*, 36: 77-84.

Weissel, J.K., Hayes, D.E. and Herron, E.M., 1977. Plate tectonic synthesis; the displacements between Australia, New Zealand and Antarctica since the late Cretaceous. *Marine Geol.*, 25: 231-277.

GEBCO Sheet 5.15

GEBCO Sheet 5.15 was published in March 1982 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinators:	Jacqueline Mammerickx, Isabel L. Taylor, Scripps Institution of Oceanography, La Jolla, U.S.A.; and Steve Cande, Lamont-Doherty Geological Observatory, New York, U.S.A.
Cartography by:	Geoscience Mapping Unit, Canadian Hydrographic Service
Published Chart:	GEBCO SHEET 5.15 (March 1982)
Projection: Mercator Scale:	1 to 10 million at the Equator
Ellipsoid:	International 1924 (Hayford)
Southern Limit:	72°00'S
Western Limit:	160°00'W
Northern Limit:	46°40'S
Eastern Limit:	062°00'W
Digitized by:	Bureau Gravimetrique International, Toulouse, France, in collaboration with Institut Geographique National, Paris, France, and the British Oceanographic Data Centre
Geographic Area Digitized:	as for published chart but with an eastern limit of 78°W. The digitized contours for the region 62° to 78°W may be found in the digitized version of GEBCO Sheet 5.16.
Contour Units:	bathymetric depth in corrected metres
Contours Present:	0, 200, 500, 1000m and at 500m intervals thereafter down to 5500m, plus additional contours at 100m intervals between 2800m and 5300m in the following areas: i) North of 52°S; 78° to 140°W ii) North of 60°S; 78° and 108°W iii) 58° to 65°S; 106° to 118°W

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.15 CONTOURS

Mammerickx, J., Chase, T.E., Smith, S.M. and Taylor, I.L., 1973-1974, Bathymetry of the South Pacific. I.M.R. Technical Reports: 51A, 52A, 53A & 54A.

Molnar, P., Atwater, T., Mammerickx, J. and Smith, S.M., 1975, Magnetic Anomalies, Bathymetry and the Tectonic Evolution of the South Pacific since the Late Cretaceous. *Geophys. J.R. Soc.* 40: 383-420.

Cande, S.C., Herron, E.M. and Hall, B.R., 1981, The Early Cenozoic Tectonic History of the Southeast Pacific, *Journal of Geophys. Research* (in press).

The bathymetry east of longitude 78°W was taken from GEBCO sheet 5.16 and the bathymetry south of latitude 65°S was taken from GEBCO sheet 5.18.

GEBCO Sheet 5.16*

*MAJOR UPDATE NOTE: Much of the bathymetry in the area of GEBCO sheet 5.16 has been replaced by the revised bathymetry contained in GEBCO sheets G.07 (Weddell Sea) and G.08. All that remains from the original sheet are the following areas:

- a) 66°-72°S; 66°-78°W: b) 60°-66°S; 75°-78°W: c) 60°-64.5°S; 12°-15°W:
d) 56°-60°S; 20°-78°W: e) 50°-56°S; 12°-78°W: and f) 46°40'-50°S; 70°-78°W

GEBCO Sheet 5.16 was published in June 1981 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinators: John La Brecque, Philip D. Rabinowitz and Carl Brenner,
Lamont-Doherty Geological Observatory, New York,
U.S.A.

Cartography by: Geoscience Mapping Unit, Canadian Hydrographic
Service

Published Chart: GEBCO SHEET 5.16 (June 1981)

Projection: Mercator Scale: 1 to 10 million at the Equator

Ellipsoid: International 1924 (Hayford)

Southern Limit: 72°00'S

Western Limit: 078°00'W

Northern Limit: 45°00'S

Eastern Limit: 020°00'E (40°S for east of 5°W)

Digitized by: Bureau Gravimetrique International, Toulouse, France, in
collaboration with Institut Geographique National, Paris,
France, and the British Oceanographic Data Centre

Geographic Area Digitized: as for published chart, except for the area north of a line
joining the points 78°W 46°40'S, 70°W 46°40'S, 70°W
50°S, 20°E 50°S. This area is covered by the digital data
in GEBCO sheet 5.12.

Contour Units: bathymetric depth in corrected metres

Contours Present: 0, 200, 500, 1000m and at 500m intervals thereafter down
to 8000m plus the following:

- i) 20, 40, 60, 80 and 100m on the continental shelf east
of Argentina

- ii) 750, 1250 and 1750m on the Falkland Plateau and off the Continental Shelf east of Argentina
- iii) 3600, 3700, 3800, 3900 and 4100m west of Chile and north of 48°S
- iv) at 250m intervals from 250m to 4750m for the chart area south of 64°S and east of 55°W

Comments:

On the published chart there is an erroneous chain of seamounts in the area 65.5° to 67°S; 22.5° to 25.5°W sometimes referred to as the Islas Orcadas seamounts. These have been found to be non-existent and their contours have been removed from the digitized data set.

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.16 CONTOURS

Lamont-Doherty Geological Observatory, Columbia Univ. Palisades, New York, 10964, USA.

Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, 02543, USA.

Scripps Institution of Oceanography, La Jolla, California, 92093, USA.

Defense Mapping Agency, Sutland, Maryland, USA.

National Geophysical and Solar-Terrestrial Data Centre, Boulder, Colorado, 80302, USA.

University of Cape Town, Rondebosch 7700 Cape Town, South Africa.

Instituto Hidrografico de la Armada, Casilla 324, Valparaiso, Chile.

Servicio de Hidrografia Naval, Avenida Montes de Oca 2124, 1271 Buenos Aires, Argentina.

University of Birmingham, P.O. Box 363, Birmingham, UK.

Hydrographic Office, Ministry of Defence, Taunton, TA1 2DN, UK.

Scientific Literature:

Barker, P.F., 1972a. A spreading centre in the East Scotia Sea, *Earth and Planet. Sci. Lett.*, 15, 123-132.

Barker, P.F., 1972b. Magnetic lineations in the Scotia Sea, Adie, R.J., (Ed.) *Antarctic Geology and Geophysics*, Universitetsforlaget, Oslo, 17-26.

Barker, P.F., A possible southern extension of the South Sandwich Arc during the Mid-Cenozoic, *Antarctic Geoscience*, Univ. of Wisconsin Press.

Barker, P.F. and Burrell, J., 1977. The opening of Drake Passage, *Marine Geology*, 25, 15-34.

Barker, P.F. and Griffiths, D.H., 1972. The evolution of the Scotia Ridge and Scotia Sea, *Phil. Trans. Roy. Soc. London, Ser. A*, 271, 151-183.

Barker, P.F. et al., 1976. Evolution of the Southwestern Atlantic Ocean Basin: Results of Leg 36, Deep Sea Drilling Project, Initial Reports of the Deep Sea Drilling Project, 36, US Government Printing Office, Washington, D.C., 993-1014.

Barrett, D.M., 1977. Agulhas Plateau off southern Africa: A geophysical study, *Geol. Soc. Amer. Bull.*, 88, 749-763.

Barron, E.M., Harrison, C.G.A. and Hay, W.W., 1978. A revised reconstruction of the Southern continents, *EOS Trans. Amer. Geophys. Union*, 59, 436-449.

Bergh, H.W., 1971. Sea floor spreading in the southwest Indian Ocean, *J. Geophys. Res.*, 76, 6276.

Bergh, H.W., 1977. Mesozoic sea floor off Dronning Maud Land, Antarctica, *Nature*, 269, 686-687.

Bergh, H.W. and Norton, I.O., 1976. Prince Edward Fracture Zone and the evolution of the Mozambique Basin, *J. Geophys. Res.*, 81, 5221-5239.

Bruhn, R.L. and Dalziel, I.W.D., 1977. Destruction of the Early Cretaceous marginal basin in the Andes of Tierra del Fuego, Talwani, M. and Pitman, W.C., III (Eds.) *Back Arc Basins*, Maurice Ewing Series 1, Amer. Geophys. Union, Washington D.C., 395-405.

Dalziel, I.W.D., 1974. Evolution of the margins of the Scotia Sea, Burk, C.A. and Drake, C.L., (Eds.) *The Geology of Continental margins*: New York, Springer-Verlag New York Inc., 567-579.

Dalziel, I.W.D. and Elliot, D.H., 1973. The Scotia Arc and Antarctic margin, Nairn, A.E.M. and Stehli, F.G., (Eds.) *The ocean basins and margins: I. The South Atlantic*, Plenum Press, New York, 171-245.

Dalziel, I.W.D., de Wit, M.J. and Palmer, K.F., 1974. A fossil marginal basin in the Southern Andes, *Nature*, 250, 291-294.

de Wit, M.J. 1977. The evolution of the Scotia Arc as a key to the reconstruction of southwestern Gondwanaland, *Tectonophysics*, 37, 53-81.

du Plessis, A., 1977. Sea floor spreading south of the Agulhas Fracture Zone, *Nature*, 270, 719-721.

du Plessis, A. and Simpson, E.S.W., 1974. Magnetic anomalies associated with the southeastern continental margin of South Africa, *Marine Geophys. Res.*, 2, 99-110.

Emery, K.O., Uchupi, E., Bowen, C.O., Philips, J. and Simpson, E.S.W., 1974. Continental margin off Western Africa: Cape St. Francis (South Africa) to Walvis Ridge (Southwest Africa), *Bull. Am. Assoc. Petr. Geol.*, 59, 2-59.

Forsyth, D.W., 1975. Fault plane solutions and tectonics of the South Atlantic and Scotia Sea, *J. Geophys. Res.* 80, 1429-1443.

Griffiths, D.H. and Barker, P.R., 1972. Review of marine geophysical investigations in the Scotia Sea, Adie, R.J. (Ed.) Antarctic Geology and Geophysics, Universitetsforlaget, Oslo, 3-11.

Harrington, P.K., Barker, P.F. and Griffiths, D.H., 1972. Crustal structure of the South Orkney Islands area from seismic refraction and magnetic measurements, Adie, R.J. (Ed.) Antarctic Geology and Geophysics, Universitetsforlaget, Oslo, 27-32.

Herron, E.M., Cande, S.C. and Hall, B.R. An active spreading center collides with a subduction zone: a geophysical survey of the Chile margin triple junction. Submitted to the Nazca Plate volume, Amer. Geophys. Union.

Herron, E.M., Bruhn, R., Winslow, M. and Chuaqui, L., 1977. Post-Miocene tectonics of the margins of southern Chile, Talwani, M., Pitman, W.C., III (Eds.) Island Arcs, Deep Sea Trenches and Back-Arc Basins, Maurice Ewing Series 1, Amer. Geophys. Union, 273-284.

Herron, E.M. and Tucholke, B.E., 1976. Sea floor magnetic patterns and basement structure in the southeastern Pacific, Hollister, C.D., Craddock, C. et al.

GEBCO Sheet 5.18*

*MAJOR UPDATE NOTE: The bathymetry in the area of GEBCO sheet 5.18 between 0°W and 66°W has been replaced by the revised bathymetry contained in GEBCO sheet G.07. The only bathymetry from sheet 5.18 that remains in the GEBCO Digital Atlas is that for the South Pacific region south of 72°S between 160°E and 66°W.

GEBCO Sheet 5.18 was published in August 1980 by the Canadian Hydrographic Service under the authority of the IHO and IOC.

Scientific Coordinators: G. Leonard Johnson, Office of Naval Research, Arlington, U.S.A.; and Jean-Rene Vanney, Universite Pierre et Marie Curie, Paris, France

Cartography by: Geoscience Mapping Unit, Canadian Hydrographic Service

Published Chart: GEBCO SHEET 5.18 (August 1980)

Projection: Polar Stereographic Scale: 1 to 6 million at 75°S

Ellipsoid: International 1924 (Hayford)

Southern Limit: 90°00'S

Western Limit: 180°00'W

Northern Limit: 64°00'S

Eastern Limit: 180°00'E

Digitized by: Bureau Gravimetrique International, Toulouse, France, in collaboration with Institut Geographique National, Paris, France, and the British Oceanographic Data Centre

Geographic Area Digitized: the published chart was only digitized south of 72°S.

Contour Units: bathymetric depth in corrected metres

Contours Present: 0, 200, 400, 500, 600m and at 200m intervals thereafter down to 4400m.

DATA SOURCES USED IN THE COMPILATION OF SHEET 5.18 CONTOURS

Scientific Literature:

Falconer, R.K.H., 1974. Geophysical studies in the southwest Pacific. Primarily studies of crustal structure between New Zealand and Antarctica. Ph.D. thesis, Victoria University of Wellington, New Zealand.

Falconer, R.K.H. and Falconer, R.F., 1979. Seismicity, fracture zones and poles of rotation of the Pacific-Antarctic and Indian-Antarctic plate boundaries. Third Antarctic Geology and Geophysics Symp. University of Wisconsin Press, in press.

Goodell, H.G., Houtz, R. et al., 1973. Marine Sediments of the Southern Ocean. In: Antarctic Mem Folio Series, 17, American Geographic Association, 18 pp, 9 pl.

Hayes, D.E., Frakes, A. et al., 1975. Initial Reports of Deep Sea Drilling Project, vol. 28: 1017 p.

Heezen, B.C., Tharp, M. and Bentley, C., 1972. Morphology of the Earth in the Antarctic and Subantarctic. In: Antarctic Map Folio Series, 16, American Geographical Society, 16 pp. 8 pl.

Hollister, C.D. and Heezen, B.C., 1967. The floor of the Bellingshausen Sea. In: J.B. Hersey (Ed.), Deep-Sea Photography. The Johns Hopkins Press, Baltimore (The Johns Hopkins Oceanographic Studies, 3): 117-189.

Hurley, D.E. and Krause, D.C., 1976. Hjort bathymetry. New Zealand Oceanographic Institute Chart, Oceanic Series, 1:1,000,000.

Jacobs, S.S., Bruchhausen, P.M., Rosselot, F.L., Gordon, A.L., Amos, A.F. and Belliard, M., 1972. Hydrographic stations, bottom photographs, current measurements, nephelometer profiles. USNS Eltanin Reports, Cruises 37-39 (1969), 42-46 (1970). Technical Report TR-1-CU-1-71, Lamont-Doherty Geological Observatory of Columbia University, 490 pp.

Johnson, G.L., Vanney, J.R. and Hayes, D.E., 1980 in press. The Antarctic continental shelf. Third symposium on Antarctic Geology and Geophysics, Nat. Acad. of Sciences, Wash., D.C.

Kennet, J.P., Burns, R.E. et al., 1972. Australian-Antarctic continental drift, palaeo-circulation changes and Oligocene deep-sea erosion. Nature Phys. Sci., 239 (91): 51-55.

Lisitzin, A.P. and Zhivago, A.V., 1959. Marine geological work of the Soviet Antarctic Expedition, 1955-1957. Deep-Sea Res., 6(1): 77-87.

Molnar, P., Atwater, T., Mammerickx, J. and Smith, S.M., 1975. Magnetic anomalies, bathymetry and the tectonic evolution of the South Pacific since the Late Cretaceous. Geophys. J. Roy. Astron. Soc., 40: 383-420.

Rose, K.E., 1979. Radio echo studies of bedrock in Marie Byrd Land, Antarctica. Third Antarctic Geology and Geophysics Symp. University of Wisconsin, in press.

Vanney, J.R., Dangeard, J. and Johnson, G.L., 1972. Contribution a l'etude des fonds de la mer de la Scotia et de ses abords (Atlantique Austral). Rev. Geogr. Phys. Geol. dynam., 14(5): 465-484.

- Vanney, J.R. and Johnson, G.L., 1976a. Geomorphology of the Pacific Continental Margin of the Antarctic Peninsula. In: C.D. Hollister, C. Craddock et al. (Edit.), Initial Reports of the Deep-Sea Drilling Project, vol. 35: 279-289.
- Vanney, J.R. and Johnson, G.L., 1976b. The Bellingshausen-Amundsen basins (Southeastern Pacific): Major Sea Floor Units and Problems. *Mar. Geol.*, 22(2): 71-101.
- Vanney, J.R. and Johnson, G.L., 1976c. The floor of the Ross Sea and adjacent oceanic provinces. *US Antarctic J.*, 11(4): 231-233.
- Vanney, J.R. and Johnson, G.L., 1979. The sea floor morphology seaward of Terre Adelie (Antarctica). *Deut. Hydro. Zeit.*, 32(2): 77-87.
- Vanney, J.R., Falconer, R.K.L. and Johnson, G.L., 1981 (in press). Geomorphology of the Ross Sea and adjacent oceanic provinces. *Mar. Geol.* Volokitina, L.P., 1975. Some features of the relief on the underwater margin of East Antarctica. *Oceanology*, 15(3): 323-326.
- Watkins, N.D. and Kennett, J.P., 1977. Erosion of deep-sea sediments in the Southern Ocean between longitude 70°E and 190°E and contrasts in manganese nodule development. *Mar. Geol.*, 23(1-2): 103-111.
- Weissel, J.K., Hayes, D.E. and Herron, E.M., 1977. Plate tectonics synthesis: the displacement between Australia, New Zealand and Antarctica since the Late Cretaceous. *Mar. Geol.*, 25(1-3): 231-277.
- Zhivago, A.V., 1961. Marine geophysical and geomorphological researches. *Proc. Sov. Antarc. Exped., Third Antarctic Cruise R/V Ob*, vol. 19.
- Zhivago, A.V. and Evteev, S.A., 1970. Shelf and Marine Terrace of Antarctica. *Quaternaria*, 12: 89-114.
- Zhivago, A.V. and Lisitzin, A.P., 1957. New data on the bottom, and submarine deposits in the Eastern Antarctic (in Russian). *Izv. Akad. Nauk S.S.S.R. (ser. geogr.)*, 1: 19-35.