

wr100 grid Metadata

Field	Description
Title	High-resolution depth model for the Williams Ridge - 100 m
Metadata Identifier	
Digital Object Identifier	
Topic Category	ELEVATION: height above or below sea level. GEOSCIENTIFIC INFORMATION: earth sciences. OCEANS: features and characteristics of salt water bodies excluding inland waters.
Keywords	bathymetry, soundings, echo sounders, multibeam sonar, Southern Ocean, Williams Ridge
Key Dates	CREATED: V1 – 06 November 2022
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Abstract	This dataset contains bathymetry (depth) products from the compilation of all available source bathymetry data within the Williams Ridge region into a ~100 m-resolution Digital Elevation Model (DEM). The Williams Ridge region in south-west Indian Ocean includes the prominent submarine Kerguelen Plateau and the extensive rock Williams Ridge extending ~400 km south-east from the central plateau. Williams Ridge appears to be the result of rifting, and breakup of tectonic plates as the Southeast Indian Ridge developed. Extensive multibeam and single beam bathymetry, seismic, magnetic and gravity data, and rock samples have been collected over Williams Ridge to confirm important new knowledge of the rifting, breakup, and initial separation of tectonic

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	<p>plates. The data and samples are also necessary for Australia to make a new or revised submission to the UN Commission on the Limits of the Continental Shelf (CLCS). The purpose is to extend Australia’s marine jurisdiction to include Williams Ridge, an extension of the central Kerguelen Plateau, under the UN Convention on the Law of the Sea (UNCLOS). Australian Hydrographic Office-supplied single beam echo sounder bathymetry data were used to develop the general depth variation across the Williams Ridge area. Deep-water multibeam bathymetry data reveal the complexity of the seafloor on Williams Ridge and the surrounding abyssal plains and basins. These multibeam surveys were conducted both as systematic surveys by Research Vessel (RV) <i>Investigator</i> and <i>Sonne</i> over Williams Ridge. Other multibeam data were obtained from transit voyages that crossed through the Kerguelen Plateau and Williams Ridge area. Austral Fisheries provided extensive crowdsourced bathymetry (CSB) data from their various blue-water fishing vessels using single beam echo sounders. These fishing vessels operate within the Kerguelen Plateau and Williams Ridge region licenced under the Conservation of Antarctic Marine Living Resources (CCAMLR). Austral Fisheries CSB data were provided to the Australian Antarctic Division (AAD) for restricted use in this project. All source multibeam and single beam bathymetry data were extensively edited as 3D point clouds to remove obvious anomalous noise, and given a consistent WGS84 horizontal datum, and where possible, an approximate MSL vertical datum prior to the grid interpolation process.</p>
<p>Purpose</p>	<p>This project aimed to develop a new high-resolution digital elevation model (DEM) for the Williams Ridge region at a grid pixel resolution of 0.001-arc degree (about 100 m). A high-resolution DEM is a critical spatial dataset used to help develop important new knowledge of the rifting, breakup, and initial separation of tectonic plates. In addition, a new grid is required to improve the geomorphic detail to make a new or revised submission to the UN Commission on the Limits of the Continental Shelf (CLCS). The new grid utilised the latest available data sourced from ship-based multibeam and single beam echo sounder surveys.</p>
<p>Data limitations (optional)</p>	<p>AUSTRALIAN HYDROGRAPHIC OFFICE NOTICE: Not to be used for navigation. This wr100 DEM product incorporates source bathymetry data reproduced under licence by permission of the Australian Hydrographic Office © Commonwealth of Australia 2021-2022.</p>

Field	Description
	ESRI raster Left 76.0005 ESRI raster Right 86.0005 ESRI raster Bottom -58.9995 ESRI raster Columns 10,000 ESRI raster Rows 8000 ESRI raster Cell Size X, Y 0.001, 0.001 ^a Cell-registered, showing coordinates for edge of cells
Temporal Extent	
Vertical extent (optional)	MINIMUM HEIGHT: -5039 m MAXIMUM HEIGHT: 117 m VERTICAL DATUM: approximates mean sea level (MSL)
Maintenance and Update Frequency (optional)	STATUS: Ongoing FREQUENCY: As required
Resource Constraints and licensing	COPYRIGHT: The content on this website is released under the Creative Commons Attribution 4.0 International Licence: https://creativecommons.org/licenses/by/4.0/ ATTRIBUTION: "Australian Hydrographic Office, Geoscience Australia, James Cook University"
Processing*	
References	
Credits and funding*	CREDITS: Anne Worden (Australian Hydrographic Office) Michael Andrew (Australian Hydrographic Service) Mark Alcock (Geoscience Australia) Mike Sexton (Geoscience Australia) Phil O'Brien (Geoscience Australia) Michele Spinoccia (Geoscience Australia) Robert Parums (Geoscience Australia) Kim Picard (Geoscience Australia) Cisco Navidad (CSIRO) Stewart Edwards (CSIRO) Nelson Kuna (CSIRO) Gabriele Uenzelmann-Neben (Alfred Wegener Institute) Simon Dreutter (Alfred Wegener Institute) Mike Coffin (IMAS, University of Tasmania) Austral Fisheries Henk Brolsma (Australian Antarctic Division) FUNDING:

Field	Description
	Geoscience Australia
Supplemental information	
Online resources	