

# Australian Hydrological Geospatial Fabric (Geofabric) Data Product Specification

Groundwater Cartography

Version 2.0 – November 2011



**Australian Government**  
**Bureau of Meteorology**



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## Preface

This document is based upon the AS/NZS ISO 19131:2008 Geographic information - Data product specifications standard<sup>1</sup>. The document provides a framework for the completion of a Data Product Specification (DPS) for geographic data product produced as part of the Geofabric project.

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<sup>1</sup> AS/NZS, "AS/NZS ISO 19131:2008 Geographic information - Data product specifications" (AS/NZS, July 21, 2008), [www.saiglobal.com/online/](http://www.saiglobal.com/online/).

## 1 Overview

### 1.1 Data product specification title

Geofabric Groundwater Cartography

### 1.2 Reference date

2011-08-30

### 1.3 Responsible party

Contact organisation: Bureau of Meteorology

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### 1.4 Data product specification language

English

### 1.5 Terms and definitions

#### **Interim Aquifer Framework (IAF)**

In the absence of a formal National Aquifer Framework, a unified national aquifer definition has been developed for this project to allow a consistent approach to the classification of spatial groundwater datasets and resolve cross-jurisdictional boundary issues. The Interim Aquifer Framework (IAF) used in this project is a two tiered system of Geological Units aggregated to Aquifers (and sometimes aquitards) of similar hydrogeological characteristics. The Geological Units used are those mapped in the 1:1,000,000 scale surface geology dataset produced by Geoscience Australia with the addition of non-outcropping units. The IAF attempts to preserve, as much as possible, the main characteristics of the aquifer classifications developed by various State and Territory and federal jurisdictions. Some of the jurisdictions classify aquifers primarily on age (e.g. Victoria) while others on lithology (e.g. Northern Territory). Aquifers are named and classified using a combination of age or provenance, hydraulic features (porous media, fractured rock or karstic) and grain compaction (consolidated or unconsolidated). The aquifer classification attempts to preserve, as much as possible,

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aquifer definitions used by various jurisdictions. Regional aquifer mapping units are retained in the attributes of the various spatial layers produced for this project (AqSrcName).

### **Surficial Hydrogeology Unit**

The hydrogeological unit (aquifer or aquitard) at the land surface, whether saturated or unsaturated, based on geological mapping.

### **Watertable Aquifer**

The uppermost and unconfined aquifer hosting the watertable based largely on geological based on geological mapping.

### **Aquifer Boundaries**

The boundaries of unconfined and confined aquifers based on jurisdictional hydrogeological mapping.

## 1.6 Abbreviations and acronyms

AHD	Australian Height Datum
AHGF	Australian Hydrological Geospatial Fabric
ANZLIC	Australian and New Zealand Land Information Council
Bureau	Australian Government: Bureau of Meteorology
BRS	Bureau of Rural Sciences
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DfW	Department for Water, SA
DIER	Department of Infrastructure, Energy and Resources, TAS
DNRETAS	Department of Natural Resources, Environment, the Arts and Sport, NT
DOW	Department of Water, WA
DPIPWE	Department of Primary Industry, Parks, Water and Environment, TAS
DPS	Data Product Specification
DSE	Department of Sustainability and Environment, VIC
ESRI	Environmental Systems Research Institute Inc.
GA	Geoscience Australia
GAB	Great Artesian Basin
GDA94	Geodetic Datum of Australia 1994
GW	Groundwater

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ISO	International Organization for Standardization
IAF	Interim Aquifer Framework
IGW	Interim Groundwater
IGWD	Interim Groundwater Data
IGWGD	Interim Groundwater Geodatabase
MDBA	Murray–Darling Basin Authority
NGIS	National Groundwater Information System
NOW	NSW Office of Water, NSW
SDE	Spatial Database Engine
SKM	Sinclair Knight Merz
SRW	Southern Rural Water, VIC

### 1.7 Informal description of data product

The Geofabric Groundwater Cartography is a first pass national groundwater dataset bringing together existing groundwater mapping. The generation of the data was through a collaborative project between the Bureau of Meteorology (the Bureau) and Sinclair Knight Merz (SKM) called the Interim Groundwater Database (IGWGD). The aim of the project was to collect the best available groundwater information from jurisdictional agencies and integrate it into a single dataset according to a specified data model. This project was a one-off exercise to provide an interim set of national groundwater features. Future improvements to groundwater data will be realised through the Bureau's National Groundwater Information System (NGIS) project.

The data product extent is Geographic Australia (as defined by *Acts Interpretation Act 1901*). The product will be updated periodically to reflect changed attribution and new data sources.

## 2 Specification scope

### 2.1 Scope identification

Global

### 2.2 Level

Dataset

### 2.3 Level name

Global scope

### 2.4 Level description

This is the default root level global scope used by this data product and relates to all data within the product.

### 2.5 Extent

#### 2.5.1 Description

Data for this scope relates to Australia, excluding external territories - Geographic Australia (as defined by *Acts Interpretation Act 1901*).

#### 2.5.2 Geographic extent

##### West bound longitude

112.8 °

##### East bound longitude

154.1 °

##### South bound latitude

-44.0 °

##### North bound latitude

-8.9 °

### 2.5.3 Temporal extent

**Start date**

1991-01-01

**End date**

Now

### **3 Data product identification**

#### **3.1 Title**

Geofabric Groundwater Cartography

#### **3.2 Alternate title**

Geofabric Groundwater Hydrology Cartography 2011

#### **3.3 Product ID**

ANZCW0503900106

#### **3.4 Abstract**

The Geofabric Groundwater Cartography product is a national groundwater dataset bringing together existing groundwater mapping by collating and integrating the best available, Commonwealth, State and Territory, and regional groundwater mapping datasets across Australia. Although there are gaps in the information every effort has been made to reduce or minimise inconsistencies and conflicts in overlapping and abutting datasets, and in attribution and definitions of the input datasets.

In generating the various national aquifer datasets an interim national groundwater framework has been developed to relate geological units and regional and State and Territory groundwater aquifer mapping units to a nationally consistent set of aquifers and aquitards. The purpose of this framework is to provide a transparent mapping of aquifers from geological units, State and Territory, or regional groundwater aquifer mapping (where available), and the interim national product. Such an approach was necessary to resolve inconsistencies in aquifer naming and definition across State and Territory borders.

This product contains five Geofabric feature types, including: Aquifer Boundary, Aquifer Outcrop, Contour, Water Table Aquifer and Surficial Hydrogeology Unit.

It also contains five Interim Groundwater (IGW) feature types, including: IGW Aquifer Salinity, IGW Aquifer Yield, IGW Water Table Salinity, IGW Water Table Yield, and Water Table Hydraulic Conductivity.

#### **3.5 Purpose**

The Geofabric Groundwater Cartography product has been developed to collate and integrate State and Territory and regional groundwater mapping datasets across Australia. Although there are gaps in information every effort has been made to reduce or minimise inconsistencies and conflicts in overlapping and abutting datasets, and in attribution and definitions of the input datasets.

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The dataset is intended to be used at the regional to national scale and does not support local scale groundwater conceptualisation and modelling, and has not incorporated local and regional groundwater modelling data.

Geofabric Groundwater Cartography was generated from available groundwater mapping data from the various jurisdictions. Given the interim nature of the Geofabric Groundwater Cartography product, no groundwater borehole data was collated or reviewed in its generation.

In generating the various national aquifer datasets an interim national groundwater framework was developed to relate geological units and regional and State groundwater aquifer mapping units to a nationally consistent set of aquifers and aquitards. The purpose of this framework is to provide a transparent mapping of aquifers from geological units, State and Territory, or regional groundwater aquifer mapping (where available), and the interim national product. Such an approach was necessary to resolve inconsistencies in aquifer naming and definition across State and Territory borders

### 3.5.1 Use case

Cartographic map production, groundwater hydrologic analysis and visualisation.

## 3.6 Topic category

003 – boundaries

006 – elevation

007 – environment

008 – geoscientific information

012 – inland water

## 3.7 Spatial representation

vector

## 3.8 Spatial resolution

### 3.8.1 Spatial denominator

25,000 – 250,000

### 3.8.2 Resolution distance

1,000 – 10,000 metres

### 3.9 Geographic bounding box

#### 3.9.1 West bound longitude

112.8 °

#### 3.9.2 East bound longitude

154.1 °

#### 3.9.3 South bound latitude

-44 °

#### 3.9.4 North bound latitude

-8.9 °

### 3.10 Geographic identifier

#### 3.10.1 Identifier authority

ANZLIC – the Spatial Information Council

#### 3.10.2 Identifier code

AUS

#### 3.10.3 Code space (register URL)

ANZLIC Australia

[asdd.ga.gov.au/asdd/profileinfo/anzlic-allgens.xml](http://asdd.ga.gov.au/asdd/profileinfo/anzlic-allgens.xml)

### 3.11 Reference to specification scope

Global

## 4 Data content and structure

### 4.1 Description

Geofabric Groundwater Cartography includes the following feature classes:

#### **Surficial Hydrogeology Unit**

The hydrogeological unit (aquifer or aquitard), at the land surface whether saturated or unsaturated. This involved aggregation of the Geoscience Australia (GA) national surface geology dataset to aquifers or aquitards of similar hydrogeological characteristics. Attribution of the features has been derived from the GA national geology dataset, State and Territory and regional groundwater mapping (WA, NT, Great Artesian and Murray–Darling Basins), the Victorian Aquifer Framework, and liaison with State and Territory agency groundwater teams.

#### **Watertable Aquifer**

Interpretation of the Surficial Hydrogeology Unit dataset (above), to identify the uppermost unconfined aquifer. Attribution of the features has been derived from the GA national geology dataset, State and Territory and regional groundwater mapping (WA, NT, Great Artesian and Murray–Darling Basins), the Victorian Aquifer Framework, and liaison with State agency groundwater teams.

#### **Watertable Hydraulic Conductivity**

This dataset depicts hydraulic conductivity and specific yield for various Groundwater Flow Systems defined as part of the CSIRO Commercial Environmental Forestry program. In some cases, the Groundwater Flow System contains a number of different component geologies which have different hydraulic characteristics. Therefore, the stated aquifer hydraulic conductivity and specific yield are indicative only and should be considered to be representative of the dominant geology contained within each Groundwater Flow System.

#### **Watertable Salinity**

Collation of watertable salinity mapping (where available), at State and Territory and regional scale. The watertable aquifer has been defined by the source datasets. Units are mg/L.

#### **Watertable Yield**

Collation of watertable yield mapping (where available), at State and Territory and regional scale. The watertable aquifer has been defined by the source datasets. Units are L/s.

#### **Aquifer Boundaries**

Collation of available aquifer extent boundaries (where available), at State and Territory and regional scale. The extent of the dataset relates to the availability of data. The aquifers defined in the source groundwater mapping have been retained and have been related to the IAF.

### **Aquifer Salinity**

Collation of aquifer salinity mapping (where available) at State and Territory and regional scale for confined and unconfined aquifers in the Aquifer Boundary dataset. The aquifers defined in the source groundwater mapping have been retained and related to the IAF aquifers. Units are mg/L.

### **Aquifer Yield**

Collation of underlying aquifer yield mapping (where available) at a regional scale. The aquifers defined in the source groundwater mapping have been retained and have been related to the IAF. Units are L/s.

### **Aquifer Structure Contours**

Collation of available elevation contours for the top and bottom of aquifers (where available), mapped at regional scale. The presence and absence of contours relates to the availability of data. Units are elevation in metres Australian Height Datum (mAHD). The aquifers defined in the source groundwater mapping have been retained and have been related to the IAF aquifers.

### **Aquifer Outcrop**

Outcropping portion of aquifers which are confined for at least some of their extent. The outcrop can be considered to be the intake areas for rainfall recharge to the otherwise confined aquifers. The Aquifer Outcrop and the Watertable Aquifer polygons are co-incident where the aquifer is unconfined.

## **Vector data**

The data is available as an ESRI File Geodatabase: Geofabric Groundwater Cartography. The ESRI File Geodatabase reflects the stored environment of the data in a spatial database engine (SDE) export format. In its native File Geodatabase format, Geofabric Groundwater Cartography consists of one dataset/theme – GW\_Cartography – containing ten feature classes. The geodatabase structure provides greater efficiencies in the management and revision of source topographic data which are now reflected in a more sophisticated data product suitable for a range of hydrological applications.

## **Geofabric Product Guide**

This Geofabric Product Guide describes the Geofabric Groundwater Cartography product, particularly the geodatabase format, with the aim of describing:

- important and common geospatial data characteristics
- geodatabase components and data concepts
- hierarchy of feature structure and attributes
- accuracy of the data.

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### Licence agreement Creative Commons

The licence agreement details the conditions of use for the data including any referencing requirements.

## 4.2 Feature information

### 4.2.1 Application schema

Refer to Geofabric Groundwater Cartography – Geodatabase Product Schema V2.0 2011 available from [www.bom.gov.au/water/geofabric/documentation.shtml](http://www.bom.gov.au/water/geofabric/documentation.shtml)

### 4.2.2 Feature catalogue

The following table lists the feature classes, their geometry and AHGF feature type number for Geofabric Groundwater Cartography.

**Table 1 - Product Feature Type Registry for Geofabric Groundwater Cartography**

<b>GW_Cartography - Feature Class/TableName.Subtype(Type)</b>	<b>Feature Class Geometry</b>	<b>AHGF Feature Type Number</b>
AHGFAquiferBoundary	polygon	66
AHGFAquiferOutcrop	polygon	67
AHGFAquiferContour.AHGFAquiferContourTop	line	68
AHGFAquiferContour.AquiferContourBottom	line	69
AHGFAquiferContour.BedrockContourTop	line	73
AHGFSurficialHydrogeologicUnit	polygon	70
AHGFWaterTableAquifer	polygon	71
IGWAquiferSalinity	polygon	na
IGWAquiferYield	polygon	na
IGWWaterTableSalinity	polygon	na
IGWWaterTableYield	polygon	na
IGWWaterTableHydraulicConductivity	polygon	na

Highlighted text indicates a Bureau created feature.

## 4.3 Reference to specification scope

Global

## **5 Reference systems**

### **5.1 Spatial reference system**

#### **5.1.1 Name**

GDA94

#### **5.1.2 Code**

4283

#### **5.1.3 Code space**

EPSG\_v65

### **5.2 Temporal reference system**

Gregorian calendar

### **5.3 Vertical reference system**

Metres AHD

### **5.4 Reference system scope**

Global

## 6 Data quality

### 6.1 Data quality scope

#### 6.1.1 Scope code

Dataset

#### 6.1.2 Extent

Australia (excluding external Territories)

#### 6.1.3 Scope description

The data quality metadata relates to the entire dataset comprising this data product.

### 6.2 Data quality lineage

#### 6.2.1 Lineage Statement

Geofabric Groundwater Cartography is part of a suite of Geofabric products produced by the Australian Bureau of Meteorology. The geometry of this product is derived from the Interim Groundwater Data (IGWD) V1.0 built from multiple sources derived from Commonwealth, State and Territory jurisdictions. It consists of Aquifer Boundaries, and associated Outcrop, Contour, Salinity and Yield as well as Surficial Hydrogeology Units and Water Table Aquifers, and associated Water Table Salinity, Yield and Hydraulic Conductivity. The feature class terminology for Geofabric Groundwater Cartography components has been modified to distinguish it in terms of the product's underlying data model.

#### Data sources and processing of the IGWGD

##### AHGFAquiferBoundary

##### Data sources

- Basin in a Box (MDBA)
- Groundwater Status Report (MDBA)
- Southern Victorian Groundwater mapping (SRW)
- Daly Basin groundwater mapping (DNRETAS)
- GAB hydrogeological mapping (BRS)
- Divertible Water Allocation Information Database aquifers (DOW)

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- coastline from Geodata v3 framework dataset (GA).

### Processing steps

Grid to polygon conversion for Southern Victoria and where defined aquifer boundaries did not generate closed polygons, addition arcs have been generated using the extent of corresponding structure contours. Datasets were combined into a single ArcInfo coverage and adjusted to align with the national coastline, and then converted to a single file geodatabase feature class.

Generated single multipart features using the dissolve function. Perth – Yarragadee North and Perth – Yarragadee South have been merged to Perth Yarragadee. Yarragadee, Leederville and Birdrong have been created by dissolving salinity features for these aquifers. Features which were merged have been indicated with FeatureSource = 'Sinclair Knight Merz' and the TextNote = 'Generated by SKM from inputs sourced for the IGWGD'. Lower and Upper Renmark boundaries have been aligned to the extent of salinity mapping for these aquifers. The Calivil and Parilla aquifer boundaries have been merged and related to salinity mapping for the combined area.

### AHGFAquiferContour

#### Data sources

- GAB Hydrogeological mapping (BRS): Structure contours of aquifers, confining beds and equivalents. Compiled by B.R. Senior & Associates Pty Ltd (1996).
- Basin in a Box (MDBA); with the following notes:
  - Edge matching - there are significant discrepancies at some mapsheets boundaries
  - Contour intervals - not all contours are closed, and the intervals between contours are not consistent across the whole theme
  - Contour values - in areas of steep gradients some contour values change through the length of the line
  - Contour branching – in areas of steep gradient some contours fork:
    - Alice Springs Groundwater (DNRETAS)
    - Daly Basin Groundwater (DNRETAS)
    - Southern Victoria Groundwater mapping (SRW).

### Processing steps

Grid to contour conversion for southern Victoria. Correction of attribute for some contours sourced from the Basin in a Box datasets. Datasets were combined into a single ArcInfo coverage and adjusted to align with the national coastline and then converted to a single file geodatabase feature class. Overlapping contours were clipped to their respective aquifer boundary polygon.

### AHGFSurficialHydrogeologyUnit

#### Data sources

- National geology (statewide datasets), 090609 (GA)
- NT\_Aquifers\_r.shp (DNRETAS)
- TasKarstv3 (DPIPWE)
- gw\_pros.shp (DIER)
- Hydrogeology\_WA\_statewide-DOW\_HGU.shp (DOW)
- Victorian Aquifer Framework (SKM 2009).

### Processing steps

State and Territory shapefiles were collated into a single national surface geology ArcInfo coverage. Tasmanian karst areas were intersected with this dataset. The IAF was developed to relate geological units mapped in this dataset to a set of aggregated aquifers/aquitards. The main sources of information for the aquifer classification in the various jurisdictions are:

- Victoria: based on the Victorian Aquifer Framework (Sinclair Knight Merz, 2009)
- New South Wales, Queensland and South Australia: based on classifications of the surface and underlying geology undertaken in this project guided by local aquifer classifications in the Great Artesian Basin (GAB) and State and Territory jurisdictions (especially the Murray–Darling Basin 1:250,000 hydrogeological map series)
- Western Australia: Based on State aquifer mapping undertaken by Department of Water (WA)
- Northern Territory: Based on the Northern Territory Groundwater Map produced by DNRETAS
- Tasmania: Based on the Tasmania Groundwater Map developed by DIER.

## **IGWAquiferSalinity**

### **Data sources**

- Basin in a Box (MDBA)
- Southern Victoria Groundwater mapping (SRW)
- Geodata v3 framework dataset (GA)
- Groundwater salinity, Superficial and Confined Aquifers (DOW).

### **Processing steps**

Grid to polygon conversion for Southern Victoria. Datasets were combined into a single ArcInfo coverage and adjusted to align with the national coastline and then converted to a single file geodatabase feature class. Overlapping salinity polygons were clipped to their respective aquifer boundary, typically slivers resulting from digitising errors. Where underlap slivers existed, the polygons were extended to match the aquifer boundary.

## **IGWAquiferYield**

### **Data sources**

- Basin in a Box (MDBA)
- Southern Victoria Groundwater mapping (SRW)
- Geodata v3 framework dataset (GA).

### **Processing steps**

Grid to polygon conversion for Southern Victoria. Datasets were combined into a single ArcInfo coverage and adjusted to align with the national coastline, and then converted to a single file geodatabase feature class. Overlapping yield polygons were clipped to their respective aquifer boundary, typically slivers resulting from digitising errors. Where underlap slivers existed, the polygons were extended to match the aquifer boundary.

## **AHGFAquiferOutcrop**

### **Data sources**

- WaterTableAquifer
- AquiferBoundary
- 1:1,000,000 scale National surface geology.

### **Processing steps**

For significant confined aquifers the AquiferBoundary layer was intersected with either the corresponding surface geology from the 1:1,000,000 scale national surface geology layer or the corresponding aquifer with the same Interim Aquifer Classification as the WaterTable Aquifer layer. The portions of the aquifer which are co-incident in this intersection were then defined as the outcropping portions of the aquifer. Where the aquifer name was explicitly defined in the surface geology layer, the intersection with the surface geology was used, otherwise the WaterTable Aquifer was used.

## **AHGFWaterTableAquifer**

### **Data sources**

- National geology (statewide datasets), 090609 (GA)
- NT\_Aquifers\_r.shp (DNRETAS)
- TasKarstv3 (DPIPWE)
- gw\_pros.shp (DIER)
- Hydrogeology\_WA\_statewide-DOW\_HGU.shp (DOW)
- Victorian Aquifer Framework (SKM 2009).

### **Processing steps**

State geology shapefiles were collated into a single national surface geology ArcInfo coverage. State-wide hydrogeological mapping datasets (TAS, WA, NT), have been intersected with the geology and the source aquifer names retained (SrcAqName), and related to the IAF entities. Tasmanian karst areas were integrated with the dataset. For remaining areas, geological units have been assigned to IAF entities according to regional mapping (GAB, MDB, Southern Victoria), and liaison with State groundwater management agencies.

## **IGWWaterTableSalinity**

### **Data sources**

- Basin in a Box (MDBA)
- Southern Victoria Groundwater mapping (SRW)
- GAB Hydrogeological mapping (BRS)
- NSW Groundwater Vulnerability mapping inputs (NOW)
- Geodata v3 framework dataset (GA)
- NT Groundwater Salinity mapping (DNRETAS)
- Tasmanian Groundwater Prospectivity map (DIER)
- Victorian Beneficial Use mapping (DSE)
- Groundwater Salinity, statewide (DOW)
- Irrigat\_suit\_1\_02.shp and Salinity\_less\_3000.shp (DfW).

### **Processing steps**

Grid to polygon conversion for Southern Victoria. In some parts of NSW where the source data mapped salinity classes as 1,500 – 5,000, the 3,000 line was interpolated and included to enable the above and below 3,000 classification to be complete. Datasets were combined into a single ArcInfo coverage and adjusted to align with the national coastline and State boundaries, where applicable, and then converted to a single file geodatabase feature class.

## **IGWWaterTableYield**

### **Data sources**

- Basin in a Box (MDBA)
- Southern Victoria Groundwater mapping (SRW)
- NSW Groundwater Vulnerability mapping inputs (NOW)
- Geodata v3 framework dataset (GA)
- NT\_Aquifers\_r.shp (DNRETAS).

### **Processing steps**

Grid to polygon conversion for Southern Victoria. Datasets were combined into a single ArcInfo coverage and adjusted to align with the national coastline, and then converted to a single file geodatabase feature class.

## **IGWWaterTableHydraulicConductivity**

### **Data sources**

Groundwater flow systems (MDBA) defined as part of the CSIRO Commercial Environmental Forestry program.

### **Processing steps**

Shapefiles were imported into a single Geodatabase feature class and attribution completed.

### **Geofabric processing steps:**

1. IGWGD dataset is received and loaded into the Geofabric development GIS environment.
2. Feature classes from IGWGD are recomposed into composited Geofabric Groundwater dataset feature classes in the Geofabric Maintenance Geodatabase.
3. Re-composited feature classes in the Geofabric Maintenance Geodatabase Groundwater Dataset are assigned unique Hydro-IDs using ESRI ArcHydro for Surface Water (ArcHydro: 1.4.0.180 and ApFramework: 3.1.0.84).
4. Feature classes from the Geofabric Maintenance Geodatabase Groundwater dataset are extracted and reassigned to the Geofabric Groundwater Cartography Feature Dataset within the Geofabric Groundwater Cartography Geodatabase.

A complete set of data mappings, from input source data to Geofabric Products, is included in the Geofabric Product Guide, Appendices, which is available at [www.bom.gov.au/water/geofabric/documentation.shtml](http://www.bom.gov.au/water/geofabric/documentation.shtml)

## **6.3 Quality scope**

Global

## **7 Data capture**

### **7.1 Data capture Statement**

All features are derived from the IGWGD.

### **7.2 Data capture scope**

Global

## **8 Data maintenance**

### **8.1 Maintenance and update frequency**

Irregular

### **8.2 Other maintenance information**

The product will be updated periodically, as deemed necessary, to reflect changed attribution and new data sources.

### **8.3 Maintenance scope**

Global

## **9 Portrayal information**

### **9.1 Portrayal information**

Not applicable.

### **9.2 Portrayal scope**

Global

## 10 Data Product Delivery

### 10.1 Delivery format

#### 10.1.1 Format name

ESRI ArcGIS File Geodatabase

#### 10.1.2 Format version

ArcGIS v9.3

#### 10.1.3 Language used within the dataset

English

#### 10.1.4 Character set coding

Utf8

### 10.2 Delivery medium

#### 10.2.1 Units of delivery

National dataset

#### 10.2.2 Estimated size of a unit in the specified format

GW\_Cartography.gdb = 793 MB

#### 10.2.3 Medium name

onLine

#### 10.2.4 Online delivery URL

[www.bom.gov.au/water/geofabric/download.shtml](http://www.bom.gov.au/water/geofabric/download.shtml)

### 10.3 Other delivery information

Also supplied as ESRI Shapefiles (requires written request to [ahgf@bom.gov.au](mailto:ahgf@bom.gov.au)).

ESRI File Geodatabase and ESRI shapefiles are also available on DVD from the Bureau.

### 10.4 Delivery scope

Global

## 11 Additional information

### 11.1 Additional information

#### Licensing and access constraints

Licensed for use under [Creative Commons Australia Attribution.](#)

We request attribution as © Commonwealth of Australia (Bureau of Meteorology) 2011.

#### Special features of the supplied data product or its component parts

Spatial data in the ESRI File Geodatabase, Geofabric Product Guide, and Geofabric Data Product Specifications.

#### Limitation or constraints on product use

As per [Creative Commons Australia Attribution licence.](#)

#### Layer files or queries that operate on the data product

Geofabric\_Groundwater\_Cartography.lyr

#### Related data products:

- Geofabric Surface Cartography
- Geofabric Surface Network
- Geofabric Surface Catchments
- Geofabric Hydrology Reporting Catchments
- Geofabric Hydrology Reporting Regions.

### 11.2 Additional information scope

Global

## 12 Metadata

### Metadata format requirements

Metadata compliant with ANZLIC Metadata Profile Version 1.1 of AS/NZS ISO 19115 was produced for this data product. The metadata profile is available at dataset level. Feature level metadata is provided within the ArcGIS ArcCatalog's FGDC Stylesheet for all feature types included within this product and describes the lineage of feature.

### Metadata encoding requirements:

ArcGIS FGDC and ANZLIC compliant feature Metadata.

### References to Metadata for data product and component parts:

An ISO 19115 compliant XML file of the Geofabric Groundwater Cartography metadata statement accompanies the Product (GW\_Cartography.xml), and is viewable using either the ArcGIS ISO 19139 ArcCatalog metadata style sheet or the ANZMet Lite version 1.0 metadata creation tool available from

[www.osdm.gov.au/Metadata/ANZLIC+metadata+resources/ANZMet+Toolkit+%28final+draft+-+07.2009%29/default.aspx](http://www.osdm.gov.au/Metadata/ANZLIC+metadata+resources/ANZMet+Toolkit+%28final+draft+-+07.2009%29/default.aspx)



Through the *Water Act 2007*, the Australian Government has given the Bureau of Meteorology responsibility for compiling and delivering comprehensive water information across Australia.

**For more information**

Visit our website at [www.bom.gov.au/water](http://www.bom.gov.au/water)

Send an email request to [waterinfo@bom.gov.au](mailto:waterinfo@bom.gov.au)



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