Australian Government

Geoscience Australia

Global Map Australia 1M 2001

Product User Guide

**National Mapping Division,
Geoscience Australia**

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About this product user guide
This product user guide sets out the fundamental concepts and characteristics of *Global Map Australia 1M 2001*. The guide begins with general information and provides more details in later sections. The overview of data content and structure will allow you to make immediate use of the data.

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1   User information

1.1   User support/contact information

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1.2   Geoscience Australia - National Mapping Division

Geoscience Australia is the national agency for geoscience research and spatial information. It serves government and supports the community through its output areas of geoscience for urban centres, oceans and coasts, and regional and rural areas.

The National Mapping Division within Geoscience Australia undertakes national mapping, remote sensing maritime boundary and land information coordination activities in support of Australia's economic and social development.

2   About Global Map Australia 1M 2001

2.1   *Global Map Australia 1M 2001 components*

Your *Global Map Australia 1M 2001* data package has two components which combine to give you a complete data product. The components are:

- **Product user guide**
  This guide describes the structure and content of *Global Map Australia 1M 2001*.

- **Data files**
  The number of files will vary with the application format of the data.

2.2   *The Global Map Australia 1M 2001 product*

Global Map Australia 1M 2001 is a digital dataset covering the Australian landmass and island territories, at a 1:1 million scale. The information is provided in the form of eight layers; four vector and four raster. The vector layers include boundaries, drainage, population centres, and transportation. The raster layers include elevation, land cover, land use, and vegetation.

Geoscience Australia's *Global Map Australia 1M 2001* product is a part of the Global Mapping Project managed by the [International Steering Committee for Global Mapping](#) (ISCGM). The Global Mapping concept was advocated by the Ministry of Construction of Japan as a response to the United Nations Conference on Environment and Development held in Brazil in 1992.

Vector data for *Global Map Australia 1M 2001* was produced by generalising Geoscience Australia's *GEODATA TOPO 250K Series 1* data. External Territory data was scanned from printed maps, then georeferenced and appropriate features where digitised. The vector layers have been checked against relevant databases and resources.

The United States Geological Survey (USGS) provided the raster images. Geoscience Australia have visually compared these images against source material from Geoscience Australia, Bureau of Meteorology, and the National Land and Water Resources Audit to identify errors in classification.

It is the ultimate intention of the ISCGM is to provide data for a Global Map at a 1:1 million scale which covers all land areas. This data will be provided to a standard specification and will be available to everyone at marginal cost.
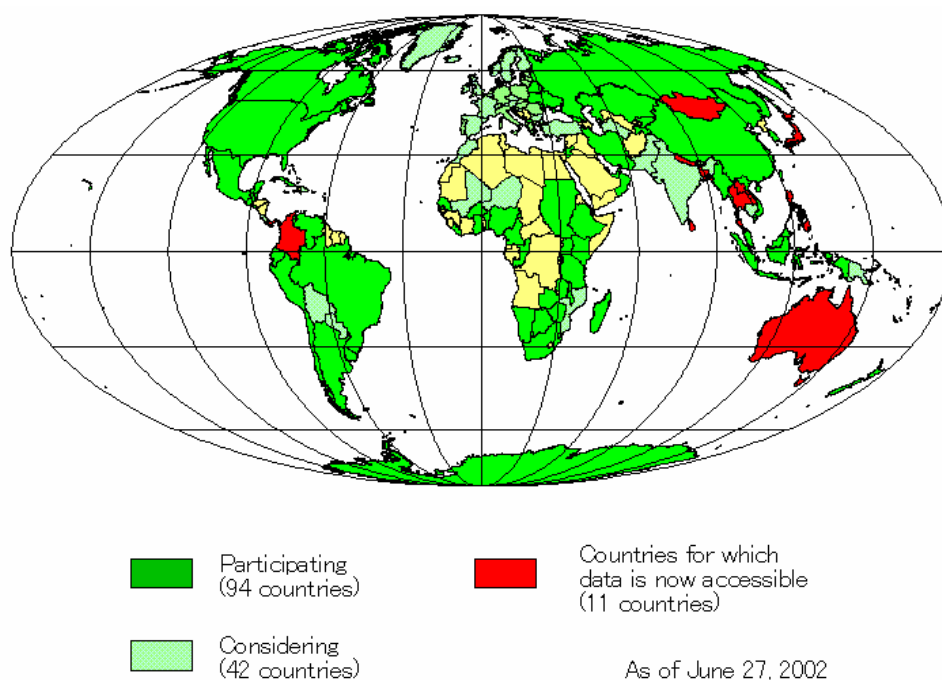
Figure 1: Participation in the Global Mapping Project as at June 2002

Click here to see the current status of participation.

Please note that *Global Map Australia 1M 2001* vector data can be displayed, manipulated and printed using the online web-mapping service through the Geoscience Australia website at http://geographynetwork.ga.gov.au

2.3   Coordinate system

Global Map Australia 1M 2001 data is available in geographical coordinates in the ITRF94 coordinate system on the GRS1980 ellipsoid. As both vector and raster files are on geographical coordinates, it is necessary to project the data before using it to calculate areas or distances.

3   Data loading

3.1   Application formats

The *Global Map Australia 1M 2001* data is supplied in five application formats, four vector and one raster:

Vector format:

- ArcInfo Export;

- ArcView Shapefile;

- MapInfo mid/mif; and

- Vector Product Format (VPF).

    VPF was developed by the USA's National Image and Mapping Agency (NIMA). On November 24, 2003 the President signed the 2004 Defense Authorization Bill, a provision of which authorized NIMA to change its name to the National Geospatial-Intelligence Agency (NGA) - http://www.nima.mil/portal/site/nga01/index.jsp?front_door=true .

    It is a non-vendor specific format standard for the structure and organisation of large geographic databases. Data is stored as points, edges (ie. lines) and faces (ie. polygons). VPF allows (often free) application software to read data without prior conversion to an intermediate form. The structure of VPF is described in the Interface Standard for VPF.

    VPF data is supplied in tiles that can be identified through the file structure. These files are described using the GEOREF naming convention which is described in more detail below. The coverage of data tiles is shown in Figure 2.

Raster format:

- Band Interleaved by Line (BIL)

    This data format stores pixel information band by band for each line, or row, of the image. For example, given a three-band image, all three bands of data are written for row 1, all three bands of data are written for row 2, and so on, until the total number of rows in the image is reached. Both VPF and BIL are non-proprietary data storage formats. The cell size for the raster files is 30".

    The BIL raster images are supplied in tiles. Figure 2 depicts the available raster tiles and corresponding GEOREF information. The file names of the raster files identify the location and theme of the data. The first two letters describe the layer and the remaining four letters identify the location of the image using the following GEOREF naming convention:

> *xxyyyy*.bil where;
>
> > *xx*   el ~ elevation
> >   lc ~ land cover
> >   lu ~ land use
> >   ve ~ vegetation
> >
> > *yyyy*   the four character GEOREF identifier. These tile references can be
> >   found in the tile reference vector theme.

For example, the file name for elevation data over Tasmania is **elxdka.bil**.
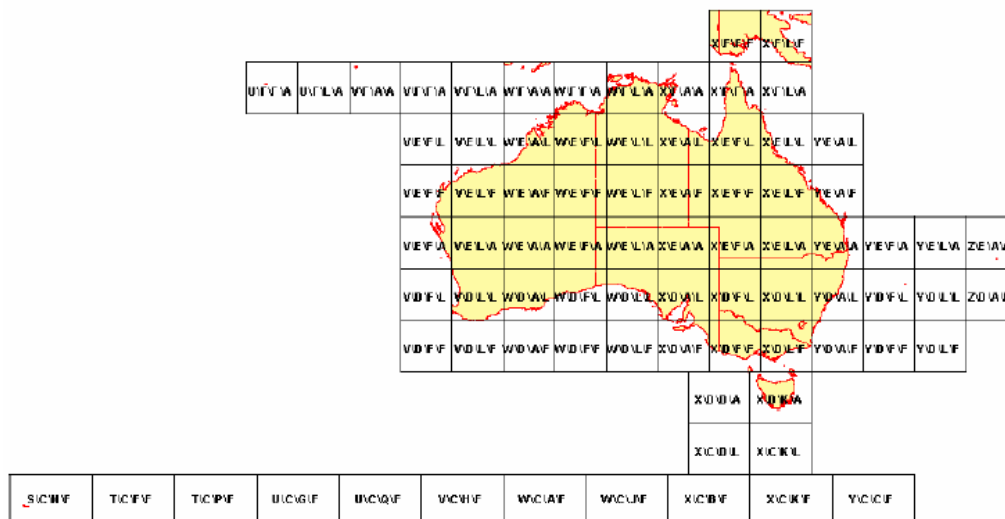
Figure 2: Available vector and raster tiles

3.2   Description of files

The downloaded *Global Map Australia 1M 2001* package contains the following files.

Table 1: *Global Map Australia 1M 2001* files

Documentation files			
File name	**File content**		
48006_user_guide.pdf	This user guide		
Data files - vector			
	ArcInfo Export (*.e00)	**ArcView Shapefile (*.dbf, *.shp, *.sbx, *.shp *.shx)**	**MapInfo mid/mif (*.mid, *.mif)**	**Vector Product Format (VPF)**
File name	**File size (KB)**	**File size (KB)**	**File size (KB)**	**File size (KB)**
Folder: boundaries				
bnd.met		3		Too many files to document
coastl	3 195	2 621	3 332	
oceansea	3 060	1 485	3 220	
polbnda	3 592	2 621	4 034	
poldndl	325	199	375	
polbndp	4	4	1	
Folder: drainage				
hydro.met		3		
aquecanl	2 354	2 519	2 034	
inwatera	19 860	15 053	18 589	
watercl	10 9523	106 496	107 622	
Folder: population				
pop.met		3		
builtupa	725	1 438	606	
builtupp	126	166	40	
mispopp	2 653	5 212	756	

Folder: tileref				
tileref	66	16	8	
Folder: transportation				
trans.met		3		
aerofacp	724	1 669	177	
railrdl	3 673	5 591	2 257	
roadl	55 164	101 069	29 212	
rryardp	463	566	156	
transtrl	16	21	6	
Total	205 523 KB 200.7 MB	246 758 KB/ 241 MB	172 425 KB/ 168.4 MB	80 794 KB/ 78.9 MB
Data files - Raster				
	Band Interleaved by Line (BIL)			
File name	**File size (KB)**			
Too many files to document	154 624 KB/ 151 MB			

It is **highly recommended** to keep the saved folder structure, especially the VPF data, as duplicate file names exist within the dataset and also because the folder structure for the VPF data is a part of the format.

The file structure of *Global Map Australia 1M 2001* is depicted in the figure on the next page.
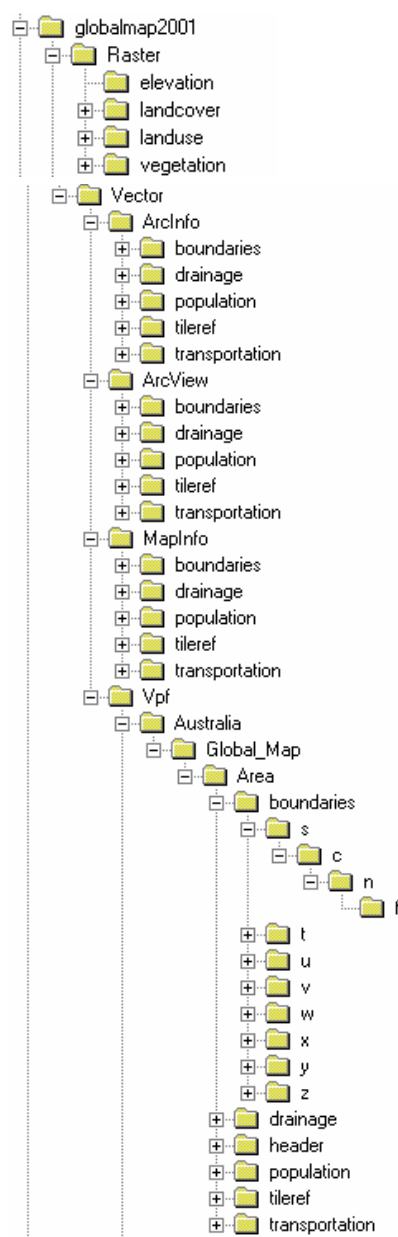
Figure 3: *Global Map Australia IM 2001* file structure

4 Data characteristics and concepts

Each feature in *Global Map Australia 1M 2001* is defined by a spatial object and an attribute object.

Spatial object
Spatial objects are the locational attributes of the feature.

Point
A *point* is a geometric representation defined by a single (x, y) coordinate couplet or a (x, y, z) triplet. Three special points are used.

- **Entity point**
  An *entity point* is used to locate point entities, or area entities represented by a point because of the scale of the source material and/or scale of the data product.

- **Polygon label point**
  A *polygon label point*, contained within every polygon feature instance, locates information about that polygon. It is linked to the bounding chains of the polygon. In proprietary GIS software packages, this point type is sometimes known as a centroid.

- **Node**
  A *node* is a junction of two or more feature instances or an end point of a feature instance. Nodes may carry attribute information.

Chain
A *chain* is a spatial object composed of a sequence of non-intersecting line segments which is bounded by nodes at each end. Chains may carry topological information such as a reference to the polygons to the left and right (with respect to the direction of digitising) and reference the start and end nodes.

A line segment is a straight line between two consecutive vertices in a chain. Each vertex is defined by a single (x, y) coordinate couplet.
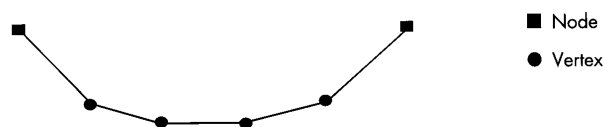

Figure 4: Chain spatial object

Polygon
A *polygon* is a bounded, continuous region consisting of an interior area, and an outer boundary defined by a set of chains. A polygon may also contain one or more non-nested inner boundaries also defined by sets of chains.
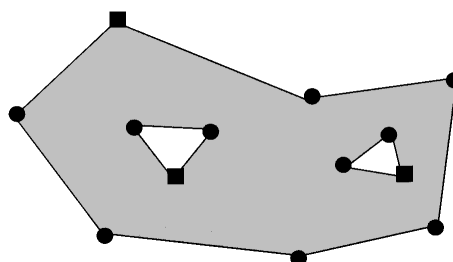

Figure 5: Polygon spatial object

5   Data structure and content

5.1   Data structure

The data structure for *Global Map Australia 1M 2001* is consistent with the Global Map Specifications set out by ISCGM.

Spatial features have been organised into thematic layers, either in raster of vector form, with each layer containing logically related geographic information. The vector data is comprised of three spatial objects: Nodes/entity points, chains, and polygons. This data is GIS ready with continuity across tile boundaries and the relationships between layers maintained.

All the layers within Global Map share the same tiling structure and coordinate system so there is no overlap or gaps between the tiles. This is shown in Table 2 below. Most of Australia is tiled into 5° x 5° tiles with the exceptions of Tasmania (5° x 6°) and sub-Antarctic territories (5° x 8°).

Table 2: Dimensions of tiling schema

Latitude	Tile size (Degrees latitude by degrees longitude)	Origin (Latitude north and south, longitude)
0° - 40°	5° x 5°	0°, 0°
40° - 50°	5° x 6°	40°, 0°
50° - 60°	5° x 8°	50°, 0°
60° - 65°	5° x 10°	60°, 0°
65° - 70°	5° x 12°	65°, 0°
70° - 75°	5° x 15°	70°, 0°
75° - 80°	5° x 20°	75°, 0°
80° - 90°	5° x 90°	80°, 0°

5.2   Data layers

Global Map Australia 1M 2001 product is divided into eight layers, four vector and four raster layers.

The vector layers are:

- **boundaries** including administrative boundaries and coastlines;

- **drainage** including rivers, streams, dams, weirs and inland water bodies;

- **population centres** including built-up areas and settlements; and

- **transportation** including roads, rail, airports, bridges and tunnels.

The raster layers include information on:

- **elevation** above or below mean sea level;

- **land cover** including evergreen broad leaf forests, closed and open shrublands, savannas, croplands, urban and built-up areas, snow and ice, barren lands and waterbodies;

- **land use** including forests, grasslands/shrubs, agricultural areas, wetlands, barren lands, built-up areas, drainage, water and oceans; and

- **vegetation** including rainforests, grasslands, deserts, forests, waterbodies, ice and snow and wetlands.

5.3   Data dictionary

Attributes which are common to all features:

- **Source country (soc)**
  An attribute value of 'AUS' which represents Australia as the source country for the data

Vector data attributes

Table 3: Attribute table of *Global Map Australia 1M 2001* vector data

Feature	Description	Object	Attribute	Attribute values
Transportation layer				
AIRPORT	A defined area of land or water used for landing, take-off and movement of aircraft including associated buildings and facilities	Point	FACC FEATURE CODE (f_code)	GB005
			ICAO DESIGNATOR (iko)	Null = *Not applicable* Actual value (eg. YSCB)
			NAME (nam)	UNK = *Unknown* Actual value (eg. CANBERRA)
			USAGE (use)	0 = *Unknown* 8 = *Military/Defence* 22 = *Joint Military/Defence/Civilian* 49 = *Civilian/Public* 999 = *Other*
			AIRFIELD/AERODROME ELEVATION (zv3)	29999 = *Unknown* -400 to 9999 (in meters)
RAIL YARD	A system of tracks within defined limits, and associated features, provided for loading/unloading and assembling trains. (Includes Railway stations)	Point	FACC FEATURE CODE (f_code)	AN060
RAILROAD	A rail or set of parallel rails on which a train or tram	Chain	FACC FEATURE CODE	AN010

Feature	Description	Object	Attribute	Attribute values
	runs.		(f_code) EXISTENCE CATEGORY (exs)	2 = *Doubtful*
				5 = *Under Construction*
				28 = *Operational*
				55 = *Unexamined/Unsurveyed*
				59 = *Not useable*
			FEATURE CONFIGURATION (fco)	0 = *Unknown*
				2 = *Multiple*
				3 = *Single*
ROAD	An open way maintained for vehicular use.	Chain	FACC FEATURE CODE (f_code)	AN030
			ACCURACY CATEGORY (acc)	1 = *Accurate*
				2 = *Approximate*
			EXISTENCE CATEGORY (exs)	2 = *Doubtful*
				5 = *Under Construction*
				28 = *Operational*
				55 = *Unexamined/Unsurveyed*
			SURFACE (rst)	0 = *Unknown*
				1 = *Paved*
				2 = *Not paved*
			MEDIAN CATEGORY (med)	0 = *Unknown*
				1 = *With median*
				2 = *Without median*
			ROUTE INTENDED USE (rtt)	0 = *Unknown*
				14 = *Primary route*
				15 = *Secondary route*
				16 = *Limited access route (freeway)*

Feature	Description	Object	Attribute	Attribute values
			SEASONAL AVAILABILITY (rsu)	999 = *Other* 0 = *Unknown* 1 = *All year* 2 = *Seasonal*
STRUCTURES (BRIDGE)	A man-made structure spanning and providing passage over a body of water, depression, or other obstacles.	Chain	FACC FEATURE CODE (f_code)	AQ040
			TRANSPORTATION USE CATEGORY (tuc)	3 = *Railroad* 4 = *Road*
STRUCTURES (TUNNEL)	An underground or underwater passage, open at both ends, and usually containing a road or railroad.	Chain	FACC FEATURE CODE (f_code)	AQ130
			TRANSPORTATION USE CATEGORY (tuc)	3 = *Railroad* 4 = *Road*
Boundaries layer				
POLITICAL BOUNDARY	An area controlled by administrative authority.	Point	FACC FEATURE CODE (f_code)	FA001
			STATE/PROVINCE/ PREFECTURE NAME (nam)	Null = *Not applicable* Actual value (eg. ASHMORE & CARTIER ISLANDS)
			COUNTRY CODE (coc)	Actual value (eg. AUS)
			LOCAL ADMINISTRATIVE AREA NAME (laa)	Null = *Not applicable* Actual value
COAST LINE	The line where a land mass is in contact with a body of water.	Chain	FACC FEATURE CODE (f_code)	BA010
			ACCURACY CATEGORY (acc)	0 = *Unknown* 1 = *Accurate* 2 = *Approximate*
			EXISTENCE CATEGORY (exs)	0 = *Unknown* 1 = *Definite*

Feature	Description	Object	Attribute	Attribute values
				44 = *Approximate/About*
				46 = *Man-made*
				55 = *Unexamined/Unsurveyed*
				60 = *Indefinite (Shoreline*)
POLITICAL BOUNDARY LINE	A line of demarcation between controlled areas.	Chain	FACC FEATURE CODE (f_code)	FA000
			ACCURACY CATEGORY (acc)	1 = *Accurate* 2 = *Approximate*
			USAGE (use)	23 = *International* 26 = *Primary ie. state* 30 = *Secondary ie. local*
OCEAN/SEA	An area of water which normally has tidal fluctuations.	Polygon	FACC FEATURE CODE (f_code)	BA040
POLITICAL BOUNDARY AREA	An area controlled by administrative authority.	Polygon	FACC FEATURE CODE (f_code)	FA001
			NAME (STATE/PROVINCE/ PREFECTURE) (nam)	Null = *Not applicable* Actual value (eg. QUEENSLAND)
			COUNTRY CODE (coc)	Actual value (eg. AUS)
			LOCAL ADMINISTRATIVE AREA (laa)	Null = *If not applicable* Actual value
Drainage layer				
AQUEDUCT	A pipe or artificial channel des igned to transport water from a remote source, usually by gravity. A man-made or improved natural waterway used for transportation. An open, inclined channel which carries water for use in such operations as mining or logging. A pipeline or channel generally used by hydroelectric plants or water mills to transport water by gravity or under pressure.	Chain	FACC FEATURE CODE (f_code)	BH000

Feature	Description	Object	Attribute	Attribute values
			EXISTENCE CATEGORY (exs)	0 = *Unknown*
				1 = *Definite*
				5 = *Under Construction*
				6 = *Abandoned/Disused*
			LOCATION CATEGORY (loc)	0 = *Unknown*
				4 = *Below Surface/Submerged Underground*
				8 = *On ground surface*
				25 = *Suspended or Elevated Above Ground or Water Surface*
WATER COURSE	A natural flowing watercourse.	Chain	FACC FEATURE CODE (f_code)	BH140
			HYDROLOGICAL CATEGORY (hyc)	0 = *Unknown*
				6 = *Non-Perennial/ Intermittent/Fluctuating*
				8 = *Perennial/Permanent*
			NAME (nam)	UNK = *Unknown*
				Actual value (eg. MURRAY)
INLAND WATER	Any known inland waterway body, such as: lake/pond, reservoir, river/stream, etc. requiring separation into individual features due to status/type grouping that is currently indeterminable.	Polygon	FACC feature code (f_code)	BH000
			HYDROLOGICAL CATEGORY (hyc)	0 = *Unknown*
				6 = *Non-Perennial/ Intermittent/Fluctuating*
				8 = *Perennial/Permanent*
			NAME (name)	UNK = *Unknown*
				Actual value (eg. LAKE JINDABYNE)
Population centres layer				
BUILT-UP AREA	An area containing a concentration of buildings and other structures.	Point	FACC FEATURE CODE (f_code) NAME (nam)	AL020 UNK = *Unknown* Actual value (eg. PERTH)
MISCELLANEOUS POPULATION	A concentration of small dwellings.	Node/Entity Point	FACC FEATURE CODE (f_code)	AL105

Feature	Description	Object	Attribute	Attribute values
			NAME (nam)	UNK = *Unknown* Actual value (eg. CEDUNA)
BUILT-UP AREA	An area containing a concentration of buildings and other structures.	Polygon	FACC FEATURE CODE (f_code)	AL020
			NAME (nam)	Actual value (eg. PERTH)

Raster data layers

Table 4: Layer table of *Global Map Australia 1M 2001* raster data

Layer	Definition	Value	Value meaning
ELEVATION	Elevation above mean sea level.	-407 to 8752 (-9999 for areas masked as sea)	
VEGETATION	Global Map Vegetation Classification (Modified Walter)	10 = *Tropical rainforest*	Evergreen forest which has high rainfall and high humidity throughout the year. This class has an upper canopy formed by trees from 30 to 40m tall and may have occasional emerging trees taller than the upper canopy.
		20 = *Hydrotropic forest*	Deciduous broad-leaved trees which are defoliated in dry season and foliate in rainy season.
		30 = *Grassland in tropical or sub-tropical zone*	Grassland which has a long dry season and is heavily dried. Trees are only sparsely distributed. Plant density depends on dryness.
		40 = *Semi desert in tropical or sub-tropical zone*	Plants are sparsely distributed in the area which has a little rainfall and is heavily dried
		50 = *Desert in tropical or sub-tropical zone*	Plants are very sparsely distributed in the area which has a little rainfall and is extremely dried.
		60 = *Evergreen thick-leaved forest*	Forest which has high rainfall in the rainy season and is relatively dried in summer. Trees which have evergreen thick and hard leaves dominate this forest.
		70 = *Evergreen broad-leaved forest*	Forest in the warm temperate zone which has high rainfall in summer, or is humid throughout the year. Broad-leaved trees which have a little larger leaves than evergreen thich-leaved trees are the main component of this forest.
		80 = *Deciduous broad-leaved forest*	Forest which mainly consists of trees defoliated in winter. This forest appears in the area which has sufficient rainfall in cool temperate zone.
		90 = *Grassland in*	Grassland in drier climates in temperate zone. No trees grow.

Layer	Definition	Value	Value meaning
		temperate zone	
		100 = *Semi-desert in temperate zone*	Heavily dried area in the temperate zone. Grasses, such as mugwort and pigweed cover this area.
		110 = *Desert in temperate zone*	Extremely dried area in temperate zone. Grasses, such as mugwort and pigweed cover this area.
		120 = *Northern coniferous forest*	Coniferous trees in semi-frigid zone which has very cold and long winter. Trees in this forest are usually evergreen.
		130 = *Tundra*	Plant colony consists of shrub, grass with broad leaves, moss and lichen. Trees cannot become tall due to severe cold.
		140 = *Water body*	Water surfaces, such as rivers and lakes.
		150 = *Ice and snow*	Area which is covered with snow and ice throughout the year.
		210 = *Wetland*	Vegetated area with waterlogged soils or surface water for significant periods of the year.
		220 = *Mixed forest*	Forest containing a mixture of types. Usually deciduous and coniferous.
		230 = *Mixed land*	Area containing a mosaic of other types.
		240 = *Non natural*	Cultivated, urban or otherwise modified vegetation.
		250 = *Unclassified*	Areas not included in other classifications. For example, baren land.
LAND COVER	International Geosphere Biosphere Programme Land Cover Classification (DISCOVer data set)	1 = *Evergreen Needleleaf Forest*	Lands dominated by trees with a percent canopy cover >60% and height exceeding 2 meters. Almost all trees remain green all year. Canopy is never without green foliage.
		2 = *Evergreen Broadleaf Forest*	Lands dominated by trees with a percent canopy cover > 60% and height exceeding 2 meters. Almost all trees remain green all year. Canopy is never without green foliage.
		3 = *Deciduous Needleleaf Forest*	Lands dominated by trees with a percent canopy cover > 60% and height exceeding 2 meters. Consists of seasonal needleleaf tree communities with an annual cycle of leaf-on and leaf-off periods.
		4 = *Deciduous Broadleaf Forest*	Lands dominated by trees with a percent canopy cover > 60% and height exceeding 2 meters. Consists of seasonal broadleaf tree communities with an annual cycle of leaf-on and leaf-off periods.
		5 = *Mixed Forest*	Lands dominated by trees with a percent canopy cover > 60% and height exceeding 2 meters. Consists of tree communities with interspersed mixtures or mosaics of the other four forest cover types. None of the forest types exceeds 60% of the landscape.
		6 = *Closed Shrublands*	Lands with woody vegetation less than 2 meters tall and with shrub canopy cover > 60%. The shrub foliage can be either evergreen or deciduous.
		7 = *Open Shrublands*	Lands with woody vegetation less than 2 meters tall and with shrub canopy cover between 10-60%. The shrub foliage can be either evergreen or deciduous.
		8 = *Woody Savannas*	Lands with herbaceous and other understory systems, and with forest canopy cover between 3-=60%. The forest cover height exceeds 2 meters.

Layer	Definition	Value	Value meaning
		9 = *Savannas*	Lands with herbaceous and other understory systems, and with forest canopy cover between 10-30%. The forest cover height exceeds 2 meters.
		10 = *Grasslands*	Lands with herbaceous types of cover. Tree and shrub cover is less than 10%.
		11 = *Permanent Wetlands*	Lands with a permanent mixture of water and herbaceous or woody vegetation that cover extensive areas. The vegetation can be present in either salt, brackish, or fresh water.
		12 = *Croplands*	Lands covered with temporary crops followed by harvest and a bare soil period (e.g., single and multiple cropping systems). Note that perennial woody crops will be classified as the appropriate forest or shrub land cover type.
		13 = *Urban and Built-Up*	Land covered by buildings and other man-made structures.
		14 = *Cropland/Natural Vegetation Mosaic*	Lands with a mosaic of croplands, forests, shrublands, and grasslands in which no one component comprises more than 60% of the landscape.
		15 = *Snow and Ice*	Lands under snow and/or ice cover throughout the year.
		16 = *Barren or Sparsely Vegetated*	Lands with exposed soil, sand, rocks, or snow and never has more than 10% vegetated cover during any time of the year.
		17 = *Water Bodies*	Oceans, seas, lakes, reservoirs, and rivers. Can be either fresh or salt water bodies.
LAND USE	Global Map Land use classification	10 = *Forest*	Area dominated by trees higher than shrubs with a canopy cover greater than or equal to 10 percent.
		20 = *Mixture*	Area where more than two classes are mixed including Non-vegetated area, Agricultural area, Grassland/Shrub and Wetland. This class is not applied where one class dominates.
		30 = *Grassland/shrub*	Area covered by trees with canopy cover less than 10 percent.
		40 = *Agricultural area*	Area where agricultural activities are implemented constantly.
		50 = *Wetland*	Area where underground water level is near the ground surface, or area with humid soil.
		60 = *Barren area*	Non-vegetated area where no artificial structures exist.
		70 = *Built-up area*	Area where artificial structures occupy significant surfaces.
		80 = *Drainage/water*	Area inside coastline forming water surface.
		90 = *Ocean*	Area outside coastline forming water surface.

6   Data quality information

Lineage
Vector data was produced by generalising Geoscience Australia's GEODATA TOPO 250K Series 1 data and updated using Series 2 data where available in January 2001. Raster data was sourced from USGS and updated using GEODATA 9 Second DEM Series 2, 1:5 million and Vegetation - Post-European Settlement (1988) and National Land and Water Resources data. However, updates have not been subjected to thorough vetting. A more detailed land use classification for Australia is available at http://www.nlwra.gov.au

Positional accuracy
The data complies with the following statement of horizontal accuracy:

> *90% of points have an absolute horizontal accuracy of ± 2km. In the case of data obtained from satellite images, the maximum error is ± 0.5km. The vertical accuracy is notionally ± 150 metres for 90% of points.*

Attribute accuracy:
For the *Global Map Australia 1M 2001* product, attribute accuracy is a measure of the degree to which the attribute values of features agree with the information on the source material. There is a maximum error in attribute accuracy of 5%, at a 99% confidence level.

Logical consistency
Logical consistency was validated by tests to check that table and file names are set out as in the Data Dictionary. Graphical tests checking details such as intersections, polygon closure, minimum sizes of polygons and length of linear features were also carried out.

Completeness
All instances of a feature and its attribute values that meet the selection criteria and appear on the source materials are captured. The data is generalised so the selection of features is to some extent subjective.

Appendix A: Metadata

Note: This dataset description is metadata (data about data) which describes the actual dataset in accordance with the ANZLIC (Australia New Zealand Land Information Council) Core Metadata Guidelines Version 2.

Dataset citation

ANZLIC unique identifier: ANZCW0703005241

Title: Global Map Australia 1M 2001

Custodian

Custodian: Geoscience Australia

Jurisdiction: Australia

Description

Abstract:

Global Map Australia 1M 2001 is a digital dataset covering the Australian landmass and island territories at 1:1 million scale. This data is part of the Global Mapping Project managed by the International Steering Committee for Global Mapping (ISCGM). The ultimate intention of the project is to provide data for all land areas to assist global monitoring of environmental change.

It consists of eight layers of information: four vector (administrative boundaries, drainage, transportation, and population centres) and four raster (elevation, vegetation, land cover and land use).

ANZLIC search words:
- BOUNDARIES Mapping
- FORESTS Mapping
- HERITAGE Natural Mapping
- HUMAN ENVIRONMENT Mapping
- LAND Mapping
- LAND Geography Mapping
- LAND Topography Mapping
- MARINE Coasts Mapping
- TRANSPORTATION Mapping
- TRANSPORTATION Air Mapping
- TRANSPORTATION Land Mapping
- VEGETATION Mapping
- WATER Mapping
- WATER Hydrology Mapping
- WATER Lakes Mapping
- WATER Rivers Mapping

Geographic extent name:

AUSTRALIA EXCLUDING EXTERNAL TERRITORIES - AUS - Australia - Australia

Note: The format for each Geographic extent name is: `Name - Identifier - Category - Jurisdiction` (as appropriate) See GEN Register

Geographic bounding box:
North bounding latitude: -9°
South bounding latitude: -44°
East bounding longitude: 154°
West bounding longitude: 112°

Data currency

Beginning date: 1999-07-01

Ending date: 2001-06-30

Dataset status

Progress: Complete

Maintenance and update frequency: Not planned

Access

Stored data format:
>**Digital:** ArcInfo
>**Digital:** Raster

Available format type:
>**Digital:** ArcInfo Export
>**Digital:** ArcView Shapefile
>**Digital:** MapInfo mid/mif
>**Digital:** Vector Product Format (VPF)
>**Digital:** Band Interleaved by Line (BIL)

Access constraints:
>The data are subject to Copyright. Data files may be downloaded from Geoscience Australia's website at www.ga.gov.au/download. A licence agreement is required.

Data quality

Lineage:
>Vector data was produced by generalising Geoscience Australia's GEODATA TOPO 250K Series 1 data and updated using Series 2 data where available in January 2001. Raster data was sourced from USGS and updated using GEODATA 9 Second DEM Series 2, 1:5 million and Vegetation - Post-European Settlement (1988) and National Land and Water Resources data. However, updates have not been subjected to thorough vetting. A more detailed land use classification for Australia is available at http://www.nlwra.gov.au

Positional accuracy:
>The data complies with the following statement of horizontal accuracy:
>90% of points have an absolute horizontal accuracy of ± 2km. In the case of data obtained from satellite images, the maximum error is ± 0.5km. The vertical accuracy is notionally ±150 metres for 90% of points.

Attribute accuracy:
>For the *Global Map Australia 1M 2001* product, attribute accuracy is a measure of the degree to which the attribute values of features agree with the information on the source material. There is a maximum error in attribute accuracy of 5%, at a 99% confidence level.

Logical Consistency:
>Logical consistency was validated by tests to check that table and file names are set out as in the Data Dictionary. Graphical tests checking details such as intersections, polygon closure, minimum sizes of polygons and length of linear features were also carried out.

Completeness:
>All instances of a feature and its attribute values that meet the selection criteria and appear on the source materials are captured. The data is generalised so the selection of features is to some extent subjective.

Contact information

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Metadata information

Metadata date: 2003-04-02

Additional metadata

Metadata reference XHTML: http://www.ga.gov.au/meta/ANZCW0703005241.html

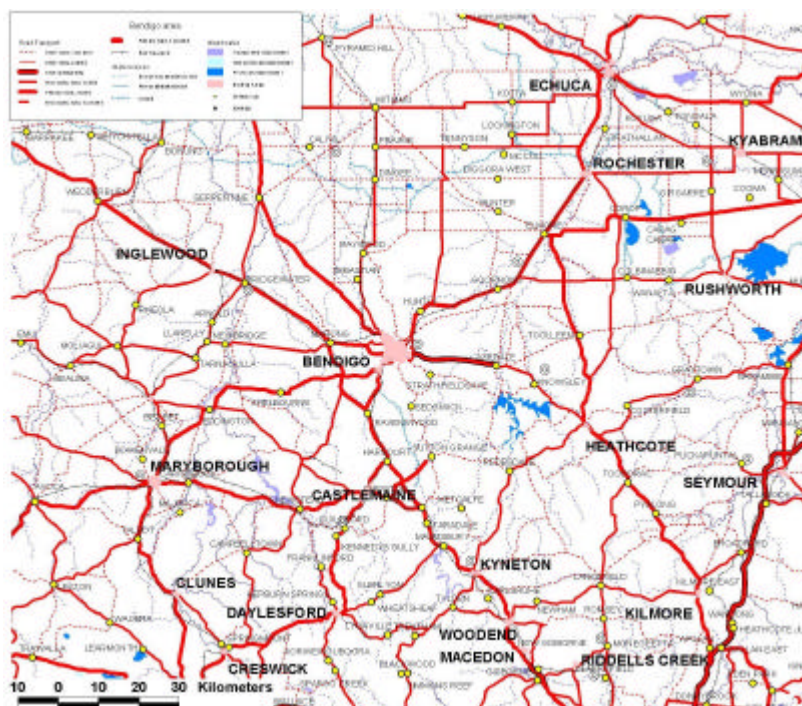**Metadata reference XML:** http://www.ga.gov.au/meta/ANZCW0703005241.xml

Size of dataset: 78.9 - 241 MB depending on the format
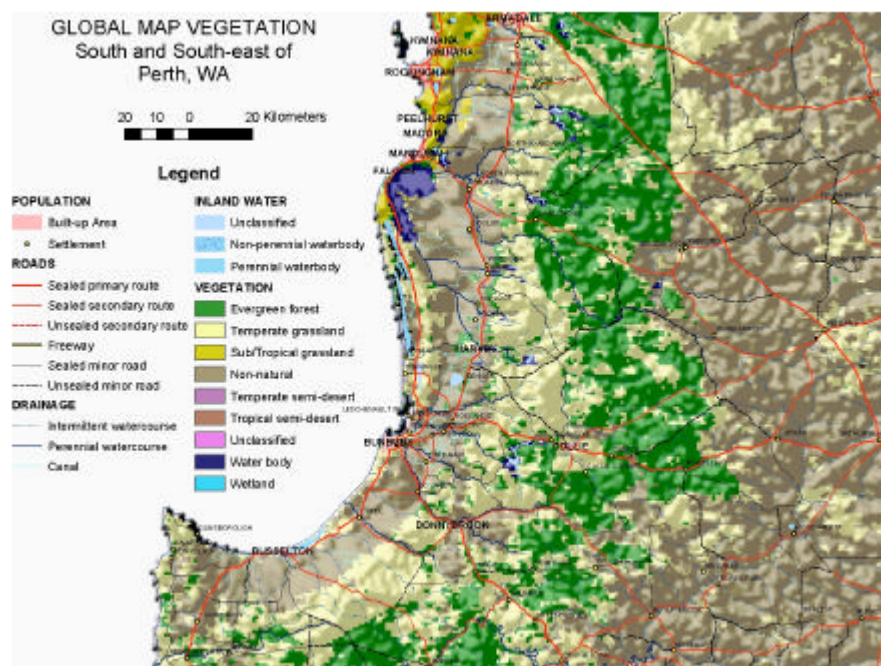
Scale/resolution: 1: 1 million

Projection/datum: Geographical coordinates in the ITRF94 coordinate system on the GRS1980 ellipsoid.

Appendix B: Graphic examples

The example below displays some of the features available from the vector data.

The example below displays vector information overlaying the vegetation raster layer.

Glossary

Attribute
A descriptive characteristic of a feature. An attribute has a defined set of attribute values.

Attribute object
The attribute object holds the non-locational or semantic information about the feature instance.

Chain
A line composed of a sequence of non-intersecting line segments bounded by nodes. Chains reference the polygons to the left and right of the chain.

Entity
A real world phenomenon which cannot be divided into phenomena of the same type.

Entity point
An entity point is used to locate point entities represented by a point because of the scale of the source material.

Feature
A feature is the cartographic or digital representation of a class of entity.

Feature instance
A single occurrence of a feature which has a unique set of spatial and attribute object values.

Generalisation
A process which may involve the selection, displacement, simplification, exaggeration or aggregation of features from their true position for the sake of cartographic clarity.

GEODATA
Geoscience Australia's brand of high quality digital data products for use in Geographic Information Systems (GIS).

Geographical coordinates
A position given in spherical coordinates commonly known as latitude and longitude.

Geographic Information System (GIS)
A spatial database which is manipulated via a set of spatial operators or commands.

Georeference
Georeferencing is the process of aligning a map image or a map feature with a particular geographical coordinate system.

Latitude
The latitude of a feature is its angular distance on the Meridian, measured northwards or southwards from the terrestrial Equator.

Layer
The features in a theme are subdivided into one or more layers on the basis of the spatial objects used to represent the features. Linear networks, polygons and point features are placed in separate layers.

Linear network
A layer consisting of linear features which are connected and which form a pathway along which movement is possible.

Longitude

An angular distance measured east or west from a reference meridian (usually Greenwich) on the earth's surface.

Node
A point that is a junction of two or more chains or which is the end point of a chain. Connectivity of chains is indicated by the sharing of nodes at their intersections.

Point
A geometric representation defined by a single (x,y) coordinate pair or an (x,y,z) triplet.

Polygon
A continuous area defined by a set of bounding chains. There is only one external polygon and there may be one or more internal, non-nested inner boundaries.

Polygon label point
A point within a polygon feature instance used to locate labels or information about that polygon. This point is sometimes known as a centroid.

Positional accuracy
Statistical estimate of the degree to which planimetric coordinates and elevations of features agree with their real world values.

Projection
Any systematic way of representing the meridians and parallels of the earth upon a plane surface or map.

Raster data
Raster data is made up of picture elements, or pixels, each having a discrete value and ordered together in terms of a grid. In terms of spatial data, each pixel represents an area of the earth's surface at a specific location.

Segment
A direct line between a pair of points or a point and a node.

Spatial object
The spatial object holds the locational information of a feature instance. It is composed of either a point, chain or polygon.

Theme
The information contained in map production material can be divided into themes which contain logically related geographic information. Each theme is capable of being used as a dataset in its own right.

Tile
The area of a spatial database included in a data transfer.

Vector data
Vector data uses points and straight lines (vectors) to describe features on, or characteristic of, the earth's surface. Vector data can also include polygons, which are areas enclosed by a number of vectors. To record additional information, data attributes can be attached to individual vector features.

Vertex
The connecting point of two line segments.