Australian Government

Geoscience Australia

Australian Maritime Boundaries (*AMB*)

User Guide

**Petroleum and Marine Division,
Geoscience Australia**

AMB is an updated determination of Australia's maritime boundaries and replaces the Australian Maritime Boundaries Information System (AMBIS) 2001 Version 1.1 data.

This data has been designed for use in specialist Geographic Information System (GIS) software. You will need GIS software to view and manipulate the data.

User Guide Editions:
1st Edition released: January 2001 (New dataset - *AMBIS 2001*)
2nd Edition released: October 2001 (Updated dataset - *AMBIS 2001 v1.1*)
3rd Edition released: February 2002 (Minor corrections)
4th Edition released: April 2003 (Minor corrections)
5th Edition released: July 2004 (Minor corrections)
6th Edition released: February 2006 (New dataset - *AMB*)

Technical support:
For up to date information on *AMB* refer to the Geoscience Australia website:
www.ga.gov.au

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Acknowledgments:
Geoscience Australia gratefully acknowledges contributions of source data used in the development of this product. Information was supplied by the Australian Hydrographic Service and the Australian State and Northern Territory mapping agencies.

The Department of Foreign Affairs and Trade and the Commonwealth Attorney-General's Department have also provided essential support and advice.

About this product user guide
This product user guide sets out the fundamental concepts and characteristics of *AMB.* 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.

The information in this product user guide was correct at the time of publication and is subject to change. Geoscience Australia assumes no liability resulting from any statements, errors or omissions in the publication or from the use of information contained in this product user guide.

Disclaimer
AMB data is a digital representation of the territorial sea baseline and the outer limits of Australia's maritime zones. The baseline and zones are established under the *Seas and Submerged Lands Act 1973*. The data also includes a representation of the limits by which the waters adjacent to each of the Australian States and of the Northern Territory are determined under the *Coastal Waters (State Powers) Act 1980*, *Coastal Waters (Northern Territory Powers) Act 1980* and the *Petroleum (Submerged Lands) Act 1967*. In the event of an inconsistency between *AMB* data and the baselines and limits under the legislation, the latter prevails.

The AMB data also includes information on boundaries agreed in certain maritime delimitation treaties that have not yet entered into force. In the event of an inconsistency between AMB data and the limits established under such a treaty, the latter prevails.

Contents

1 General information

1.1 User support/contact information

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1.2 Geoscience Australia

Geoscience Australia is Australia's national agency for geoscience research and geospatial information. It is located within the Industry, Tourism and Resources portfolio.

Our research and information contributes to enhanced economic, social and environmental benefits to the community - by providing input for decisions that impact upon resource use, management of the environment, and the safety and well-being of Australians.

Geoscience Australia's marine and coastal activities provide data, technical information, advice and research for maritime boundary definition, regional marine planning, and environmental management. This diversity reflects Australia's long coastline (almost 60,000km in length) and large offshore jurisdiction.

1.3 Other contributors

The validation and upgrading of the Territorial Sea Baseline to its current high standard would not have been possible without the cooperation and support of the Australian Hydrographic Service and all Australian State and the Northern Territory mapping agencies. This support includes provision of both hard copy maps and charts, digital mapping and chart data, aerial photography, other coastal data and advice. As well, many maps produced by the Royal Australian Survey Corps were used in the development of this product.

The Department of Foreign Affairs and Trade, and the Commonwealth Attorney General's Department provided essential support and advice.

2   Australia's Maritime Boundaries

2.1   Australian Maritime Boundaries (AMB)

Australian Maritime Boundaries (AMB) is a digital representation of Australia's territorial sea baseline and maritime limits & boundaries as established under the *Seas and Submerged Lands Act 1973.*

The dataset has been compiled by Geoscience Australia in consultation with other relevant Commonwealth Government agencies including the Attorney-General's Department, the Department of Foreign Affairs and Trade as well as the Australian Hydrographic Office.

AMB is used by the Australian government to assist with the protection and management of Australia's marine jurisdiction. These uses include acreage release for the petroleum industry, fisheries and environmental management, surveillance and protection of jurisdictional boundaries by Customs and Defence as well as for native title claims which extend offshore.

The *AMB* dataset is also used as the source for the depiction of the outer limits of Australia's maritime zones on certain charts published by the Australian Hydrographic Office. More particularly, the approximate location of the territorial sea straight baselines and outer limits of Australia's maritime zones, are shown on miscellaneous chart Aus 65950 & Aus 65951, and on appropriate Australian navigational charts of 1:150 000 or smaller scale.

Further information on Australia's maritime boundaries is available on Geoscience Australia's web site at www.ga.gov.au

2.2   Maritime boundary arrangements with other countries

Australia has entered into maritime boundaries treaties with Indonesia, Papua New Guinea, Solomon Islands, France (New Caledonia and Kerguelen), and New Zealand. These treaties have generally delimited Australia's exclusive economic zone and/or seabed boundary from those of the other party to the treaty. The agreement with Papua New Guinea also delimited the territorial sea limit in the area of Torres Strait. The area of Australia's exclusive economic zone north of the PNG / Australia seabed line in Torres Strait is referred to as Australian Fisheries Jurisdiction.

Australia has also entered into a treaty with Timor-Leste establishing the Joint Petroleum Development Area in the Timor Sea. This is a provisional arrangement under Article 83 (3) of the United Nations Convention on the Law of the Sea (UNCLOS) to enable exploration and exploitation of the continental shelf pending a permanent delimitation.

Other treaties that have been negotiated (and that have not entered into force) or that are still being negotiated are set out below.

Australia/Indonesia Treaty
Australia and Indonesia signed a Treaty on 14 March 1997 which settled a number of maritime boundaries between the two countries. They relate to areas between continental Australia and the Indonesian archipelago and the area between the Australian Territory of Christmas Island and the Indonesian island of Java. The boundaries established by the Treaty will enter into force when both countries have ratified the Treaty.

Whilst this Treaty is yet to enter into force, the seabed boundaries agreed to in the Treaty have been used in the *AMB* data to depict the outer limit of Australia's continental shelf in this area (see below).

Other
Australia has not entered into any delimitation arrangements with other countries in relation to maritime areas adjacent to the Australian Antarctic Territory. For the purposes of the AMB data, and pending the

completion of maritime boundary negotiations, these boundaries have been drawn back to the point of equidistance (median line) between the two countries.

Australia and France may have areas of overlapping continental shelf to the west of Heard / Kerguelen Islands and to the east of Norfolk Island. Therefore maritime delimitation negotiations are potentially required in these areas.

2.3   Australia's Continental Shelf

Australia intends to establish, in accordance with Article 76 of UNCLOS, the outer limits of its continental shelf beyond 200 M from the baselines from which the breadth of the territorial sea is measured. Australia is obliged to submit particulars of such outer limits to the Commission on the Limits of the Continental Shelf (the Commission), as established by UNCLOS, along with supporting scientific and technical data as soon as possible but in any case within ten years of the entry into force of UNCLOS for Australia. The Australian Government fulfilled this obligation on 15 November 2004.

Further, the Australian Government intends to proclaim the outer limits of Australia's continental shelf following the making of recommendations by the Commission pursuant to paragraph 8 of Article 76. The proclaimed outer limits will be established on the basis of those recommendations. As such, the outer limit of Australia's continental shelf depicted in *AMB* is constructed of lines drawn 200 M from the baseline, agreed treaty lines with neighbouring countries (including the 1997 Treaty with Indonesia), as well as, the outer limits submitted to the United Nations for consideration by the Commission.

2.4   About the AMB dataset

AMB is a dataset depicting the limits of Australia's maritime jurisdiction as set out under UNCLOS and relevant domestic legislation. To this extent, *AMB* provides a digital representation of the outer limit of the 12 nautical mile territorial sea, the 24 nautical mile contiguous zone, the 200 nautical mile Exclusive Economic Zone and Australia's Continental Shelf, as well as, the 3 nautical mile coastal waters. Where Australia has agreements with neighbouring countries these treaty lines are also included in the data. Treaties are provided as both point files (the actual treaty points) and line files (with additional data to ensure correct depiction – see 2.5 below).

Australia's maritime boundaries are computed from the territorial sea baseline which has been mapped by Geoscience Australia using the most reliable information available at the time it was compiled. However, it should be noted that the territorial sea baseline supplied in *AMB* is not intended to be a comprehensive coastline dataset and only contains features relevant to maritime boundary determination. Basepoints that generate the zone boundaries are supplied in separate files.

Other data included in *AMB* are the 'Scheduled Area' boundaries of the *Petroleum (Submerged Lands) Act 1967 (Cth)*. Polygon data of the various maritime zones are supplied primarily for mapping purposes.

AMB data is clearly attributed providing information about the source material used to determine the baseline and linking the baseline with the various limits. The data is available in geographical coordinates which can be referenced to the WGS84 datum which is used on charts and by mariners more generally.

The area of coverage of the *AMB* data is for the whole of the Australian marine jurisdiction which includes waters adjacent to the mainland, offshore islands and External Territories. The geographical extent is approximately between the latitude limits of 7 S to 70 S and the longitude limits 40 E to 175 E.

Greater detail about the *AMB* data is contained in the following chapters of this User Guide.

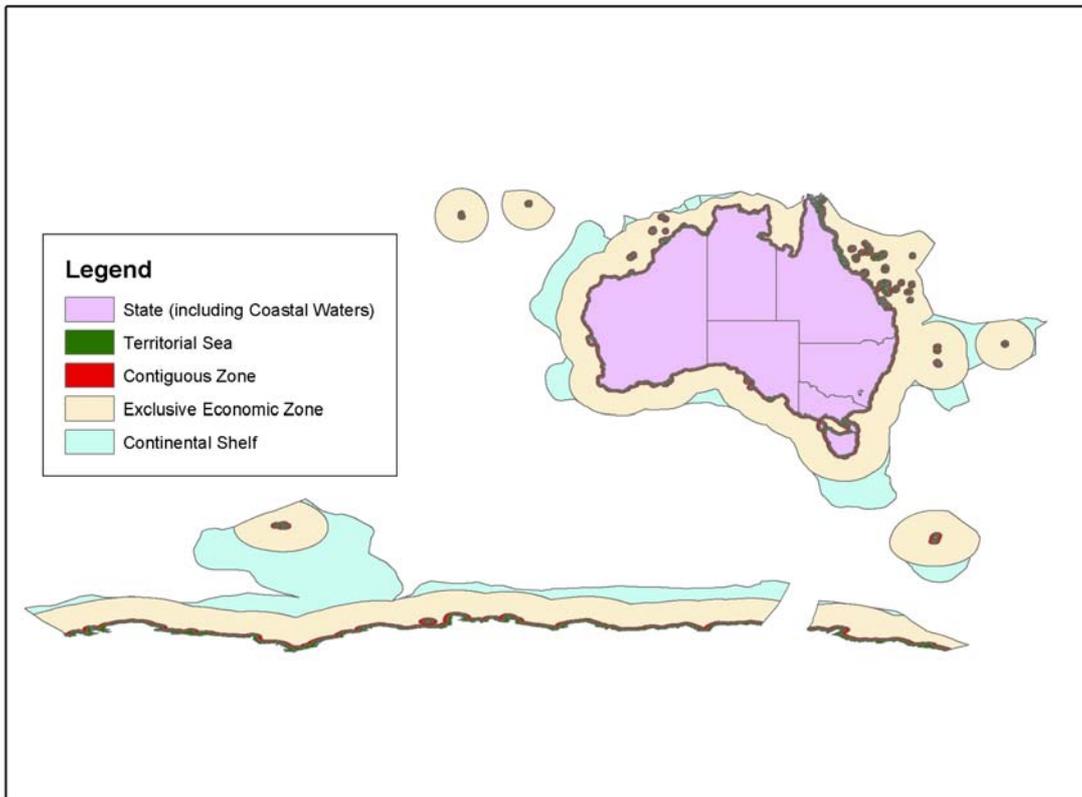Basic data available in *AMB* is illustrated in the following two figures.

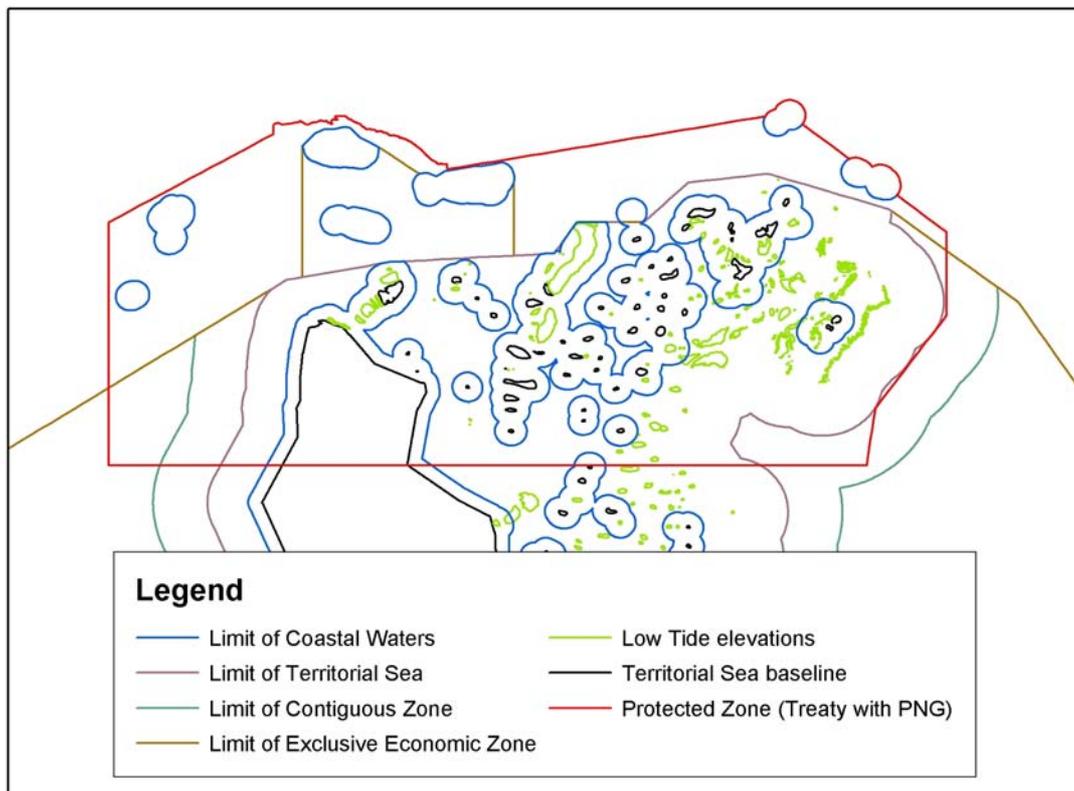**Figure 1: *AMB* data showing Australia's Maritime Zones**

Figure 2: *AMB* data showing various maritime boundaries in the Torres Strait

2.5   Changes from previous version

AMB is an updated release of the *AMBIS 2001 version 1.1* data (released in October 2001) and incorporates a number of corrections and improvements to the data. The major amendments are:

- The straight baseline sections of the Territorial Sea Baseline (the baseline) have been updated to match more recent mapping and charting. As a consequence, the various outer limits of Australia's zones have been updated.

- New baseline data has been used where available. In particular, areas around the Tasmanian coastline and the reefs and islands of Queensland have been updated with significantly more reliable data.

- The data includes a depiction of the maritime zone boundaries adjacent to the Australian Antarctic Territory.

- Australia's continental shelf is depicted in the *AMB* data for the first time. This includes areas of continental shelf beyond 200 M from the baseline as submitted by the Australian Government to the United Nations on 15 November 2004 for consideration by the Commission (as outlined above).

- The geographical coordinates of 'basepoints' and 'treaty points' have been included as attributes in these files making it easier for the user to reference this information.

- Intermediate points have been inserted along long boundary and treaty lines. This will ensure that these lines plot correctly (generally within one metre) regardless of the projection used.

- The attributes associated with the spatial data have changed significantly in all files and provide clearer information to the user.

- The data quality table has been removed and the most significant attributes (source description, scale and date) have been added to the baseline features. This has significantly simplified the data structure.

2.6   Disclaimer

AMB data is a digital representation of the territorial sea baseline and of the outer limits of Australia's maritime zones. The baseline and zones are established under the *Seas and Submerged Lands Act 1973*. The data also includes a representation of the limits by which the waters adjacent to each of the Australian States and of the Northern Territory are determined under the *Coastal Waters (State Powers) Act 1980, Coastal Waters (Northern Territory Powers) Act 1980* and the *Petroleum (Submerged Lands) Act 1967*. In the event of an inconsistency between *AMB* data and the baselines and limits under the legislation, the latter prevails.

The AMB data also includes information on boundaries agreed in certain maritime delimitation treaties that have not yet entered into force. In the event of an inconsistency between AMB data and the limits established under such a treaty, the latter prevails.

3   Data loading

3.1   Application formats

This data has been designed for use in specialist GIS software, and is available in three popular GIS formats. Users without access to GIS software can access free GIS viewing software that will allow them to display and print the data. Refer http://www.ga.gov.au/bridge/product_support.jsp#download

The *AMB* data is supplied in three application formats:

- ArcInfo Export;
- ArcView Shapefile; and
- MapInfo.

The data was developed using ESRI's ArcInfo v8.3 and is stored as 'coverages'. The ArcView Shapefiles and Mapinfo application formats are a translation of the ArcInfo data.

3.2   Description of files

According to the format selected when downloading the product, the *AMB* package contains the following files.

Table 1: *AMB* files

Documentation files				
File name	**File content**			
amb_userguide.pdf	This user guide.			
Data files				
	ArcInfo Export (*.e00)	**ArcView Shapefile (*.dbf, *.shp, *.shx)**	**MapInfo mid/mif (*.mid, *.mif)**	
File name	**File size (KB)**	**File size (KB)**	**File size (KB)**	**File content**
Folder: baseline				
Together, the following four files form a complete picture of Australia's Territorial Sea Baseline (TSB)				
isl_pt_bln	302	187	132	Island features that are part of the TSB but are too small to show to scale.
lte_bln	10,593	4,944	5906	The line of lowest astronomical tide around low tide elevations (LTE) which form part of the TSB.
lte_pt_bln	773	502	367	LTE features that are part of the TSB but are too small to show to scale.
mld_isl_bln	66,335	27,562	37,472	The line of lowest astronomical tide around the Australian mainland, islands and territories including straight, bay and river closing lines.

File name	ArcInfo Export (*.e00) File size (KB)	ArcView Shapefile (*.dbf, *.shp, *.shx) File size (KB)	MapInfo mid/mif (*.mid, *.mif) File size (KB)	File content
Folder: basepoints				
cs_basept	109	50	41	The actual points along the baseline which contribute to the generation of the 3, 12, 24 and/or 200 nautical mile limits.
cw_basept	11,463	5,625	4,572	
cz_basept	2,636	1,276	1,086	
eez_basept	244	113	106	
ts_basept	4,819	2,331	1,964	
Folder: boundaries				
cs_limit	919	467	504	Outer limit of Australia's Continental Shelf (including areas beyond 200M as submitted to the Commission on the Limits of the Continental Shelf).
cw_limit	21,109	15,991	9,764	Outer limit of coastal waters for each Australia State and the Northern Territory.
cz_limit	6,032	4,069	3042	Outer limit of Australia's Contiguous Zone
eez_limit	1,202	675	649	Outer limit of Australia's Exclusive Economic Zone
ts_limit	10,134	7,114	5,080	Outer limit of Australia's Territorial Sea
Folder: map_data				
cs_poly	4,154	1,488	2,386	Maritime jurisdictional zones built as polygons for cartographic purposes. The cw_state_poly file depicts the combined land and marine areas for each State.
cw_state_poly	6,099	2,495	3,996	
cz_poly	5,967	2,138	3,430	
eez_poly	4,306	1,540	2,467	
ts_poly	78,691	25,269	40,544	
Folder: psla_boundary				
psla_bdy	365	170	201	Schedule boundaries defined in the *Petroleum (Submerged Lands) Act* as amended to 2002. These boundaries are used to define the adjacent areas for each State for the purpose of this Act.
Folder: treaties				
Sub-folder: france				
frn_ker_ln	15	12	8	Australia-France delimitation treaty 1982 in the vicinity of Heard and Kerguelen Islands (lines)
frn_ker_pt	8	9	4	Australia-France delimitation treaty 1982 in the vicinity of Heard and Kerguelen Islands (points)
frn_nc_ln	36	24	21	Australia-France delimitation treaty 1982 in the vicinity of New Caledonia (lines)
frn_nc_pt	16	15	8	Australia-France delimitation treaty 1982 in the vicinity of New Caledonia (points)

File name	ArcInfo Export (*.e00) File size (KB)	ArcView Shapefile (*.dbf, *.shp, *.shx) File size (KB)	MapInfo mid/mif (*.mid, *.mif) File size (KB)	File content
Sub-folder: indonesia				
ind_71sb_ln	15	12	8	Australia-Indonesia delimitation treaty 1971 - seabed boundary (lines)
ind_71sb_pt	10	10	5	Australia-Indonesia delimitation treaty 1971 - seabed boundary (points)
ind_72sb_ln	21	15	11	Australia-Indonesia delimitation treaty 1972 - seabed boundary (lines)
ind_72sb_pt	13	12	8	Australia-Indonesia delimitation treaty 1972 - seabed boundary (points)
ind_97ez_ln	107	72	62	Australia-Indonesia delimitation treaty 1997 - exclusive economic zone (lines)
ind_97ez_pt	64	50	38	Australia-Indonesia delimitation treaty 1997 - exclusive economic zone (points)
ind_97sb_ln	65	45	37	Australia-Indonesia delimitation treaty 1997 - seabed boundary (lines)
ind_97sb_pt	42	33	24	Australia-Indonesia delimitation treaty 1997 - seabed boundary (points)
ind_mou_ln	103	70	63	Australia-Indonesia Memorandum of Understanding concerning traditional fishing in the vicinity of Ashmore Reef (the Box) (lines)
ind_mou_pt	8	9	4	Australia-Indonesia Memorandum of Understanding concerning traditional fishing in vicinity of Ashmore Reef (the Box) (points)
ind_pfsel_ln	138	94	85	Australia-Indonesia Provisional Fisheries Surveillance and Enforcement Agreement (lines)
ind_pfsel_pt	33	25	20	Australia-Indonesia Provisional Fisheries Surveillance and Enforcement Agreement (points)
Sub-folder: new_zealand				
nz_treaty_ln	87	51	51	Australia-New Zealand treaty delimiting areas of seabed and exclusive economic zone (lines)
nz_treaty_pt	37	30	22	Australia-New Zealand Treaty delimiting areas of seabed and exclusive economic zone (points)
Sub-folder: papua_new_guinea				
png_fsh_ln	56	36	34	Australia-Papua New Guinea delimitation treaty 1985 - fisheries jurisdiction (lines)
png_fsh_pt	27	22	17	Australia-Papua New Guinea delimitation treaty 1985 - fisheries jurisdiction (points)
png_prz_ln	72	44	44	Australia-Papua New Guinea delimitation treaty 1985 - Protected Zone (lines)
png_prz_pt	12	11	6	Australia-Papua New Guinea delimitation treaty 1985 - Protected Zone (points)
png_sb_ln	38	24	22	Australia-Papua New Guinea delimitation treaty 1985 - seabed line (lines)
png_sb_pt	18	15	10	Australia-Papua New Guinea delimitation treaty 1985 - seabed line (points)
png_ts_ln	291	188	177	Australia-Papua New Guinea delimitation treaty 1985 - territorial sea (lines)
png_ts_pt	221	156	139	Australia-Papua New Guinea delimitation treaty 1985 - territorial sea (points)

File name	ArcInfo Export (*.e00) File size (KB)	ArcView Shapefile (*.dbf, *.shp, *.shx) File size (KB)	MapInfo mid/mif (*.mid, *.mif) File size (KB)	File content
Sub-folder: solomon_islands				
sol_treaty_ln	7	8	3	Australia-Solomon Islands delimitation treaty 1989 - sea and seabed boundaries (lines)
sol_treaty_pt	5	7	2	Australia-Solomon Islands delimitation treaty 1989 - sea and seabed boundaries (points)
Sub-folder: timor-leste				
tl_jpda_ln	18	15	9	Australia-Timor Lesté Timor Sea Treaty 2002 - 'Joint Petroleum Development Area' (lines)
tl_jpda_pt	11	12	6	Australia-Timor Lesté Timor Sea Treaty 2002 - 'Joint Petroleum Development Area' (points)
Total	237,846 KB 238 MB	105,132KB 105 MB	124,657 125 MB	

4   Data characteristics and concepts

4.1   GIS data concepts

Geographical Information System (GIS) data is a digital representation of the real world. The digital data is composed of both a spatial and attribute component. The spatial element is equivalent to a digital map and the attribute provides textual information about the real world feature being mapped. These elements are further explained below:

Spatial component
The spatial component provides the locational information of the feature. This information can be conveyed as points, lines and polygons.

Point
A *point* is a geometric representation defined by a single (x, y) coordinate. 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.

- **Polygon label point**
  A *polygon label point*, contained within every polygon feature instance, locates information about that polygon.

- **Node**
  A *node* is a junction of two or more lines.

Line
A *line* is composed of a sequence of non-intersecting line segments which is bounded by nodes at each end. A line segment is a straight line between two consecutive vertices in a line. Each vertex is defined by a single (x, y) coordinate couplet.

Figure 3: Line spatial object

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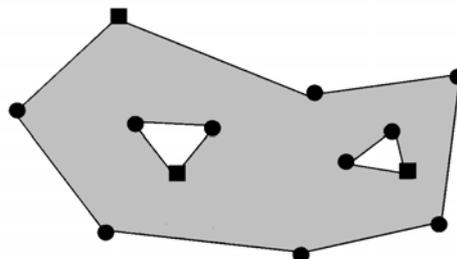

Figure 4: Polygon spatial object

Attribute component
An *attribute* identifies the non-locational properties of the feature. The following two examples illustrate the possible content of the attribute.

Attribute	Attribute value
feature	nml_base_ln
state	New South Wales
location	Lord Howe Island
scr_desc	Topographic mapping
scr_ref	Lord Howe Island
scr_date	01/01/1985
scr_scale	15 000
line_id	na
rel_date	01 September 2005
ufi	VM32M00087

Attribute	Attribute value
limit	Territorial Sea
location	Lord Howe Island
state	Australia
source	12M from baseline
origin	bp25620
line_type	Arc
status	Not Applicable
sourcedoc	Commonwealth of Australia Gazette S297 of 13 November 1990
rel_date	01 September 2005
ufi	VM32Z02223

Table 2: Examples of attributes

Unique feature identifier
Each entity in *AMB* has an attribute value which is unique to that entity. This attribute, known as the unique feature identifier (UFI) is unique for this dataset and can be used to identify each individual feature within the data (ie points or line segments).

4.2   AMB data characteristics

Resolution of coordinates
The horizontal coordinates of the data are given to a resolution of 0.00001 degrees in geographical coordinates (approximately 1 metre on the ground).

Territorial sea baseline editing
The territorial sea baseline has been constructed to comply with the *Seas and Submerged Lands Act 1973*. However, as it is a digital representation of the real world some filtering of the lines depicting the territorial sea baseline was performed to reduce the size and complexity of the dataset. The Douglas Peucker technique (1973) was used to filter the data with a tolerance of 0.6 metres.

As previously stated, it should also be noted that the territorial sea baseline supplied in *AMB* is not intended to be a comprehensive coastline dataset and only contains features relevant to maritime boundary determination. So, for example, islands which are located in the landward side of straight baselines are not included in the dataset.

Boundary computation
The maritime zone boundaries are based on spheroidal computations rather than simple buffering. The actual spheroidal calculations are complex and specialised software (known as MarZone) was used for this task. MarZone was developed in 1998 by the Department of Geomatics of Melbourne University, Australia under contract to Geoscience Australia. MarZone is a stand-alone maritime zone boundary delineation software package which has been designed to implement all provisions relating to the determination of maritime boundaries as set out in the relevant articles of UNCLOS.

MarZone performs geodetic calculations on lines which are either geodesics or loxodromes. These computations are performed in an entirely rigorous way, and more often than not, are carried out by segmentation and iteration to find an exact and rigorous solution.

Arc to chord separation
The maritime zone boundaries are comprised of arcs and straight line segments. To be able to plot the arcs reliably they have been supplied as a series of short chords. The chord lengths are determined such that the distance between the arc and the chord never exceeds 1 metre.
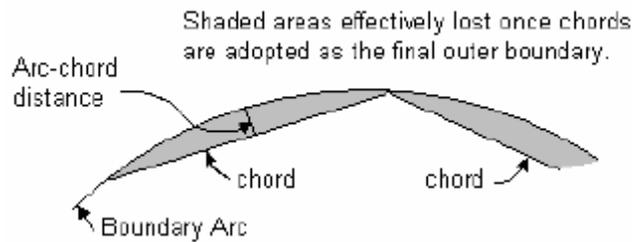
Figure 5: Arc to chords

Using the criteria of maximum arc to chord separation of 1 metre, the maximum chord lengths for each zone width are shown in the Table 3.

Table 3: Maximum chord length for given zone boundary

Zone boundary	Maximum chord length (m)
3 nautical miles	211
12 nautical miles	421
24 nautical miles	596
200 nautical miles	1,720

Representation of geodesic and loxodromic lines
A geodesic is the line of shortest distance between two points on the surface of the reference ellipsoid (similar to a great circle). A loxodrome (rhumb line) is the line of constant azimuth. Many of the maritime boundary delimitations agreed in treaties with neighbouring countries are described as geodesics. The *Petroleum (Submerged Lands) Act 1967* (PSLA) boundaries are composed of geodesics and loxodromes.

Geodesics are not displayed in their true position along the length of the line in most GIS and other plotting systems. These mapping systems draw straight lines between two points as if they are on a flat surface. The effective difference will only be noticeable for long lines. However, users should be cautious when using geodesic lines in their GIS or other plotting system. Similarly, long loxodromes may not plot correctly on maps when projections other than Mercator or Transverse Mercator are used.

To help overcome this problem, intermediate points have been inserted along long straight lines in the data. Users should be aware that such points are for cartographic purposes only and do not form part of any treaty or specified line.

4.3   Coordinate system

AMB data is provided as geographical coordinates (latitude and longitude) in decimal degrees by reference to the Geodetic Reference System 1980 (GRS80) ellipsoid determined within the International Terrestrial Reference Frame 2000 at epoch 1 January 2000 (ITRF 2000 @ 2000.0). This may be considered to be equivalent to the World Geodetic System 1984 (WGS 84).

Geoscience Australia recognises that most users are familiar with WGS84 and therefore refer to AMB as being based upon this datum for practical purposes.

The following notes relate to the use of datum in Treaties:

- Various datum have been used to reference coordinates listed in the different treaties that Australia has negotiated with neighbouring countries. Where necessary, these coordinates have been transformed to WGS 84 (ITRF 2000 @ 2000.0) for inclusion in *AMB*.

- Whilst all *AMB* data is referenced to WGS 84 (ITRF 2000 @ 2000.0) the Treaty point files include attribute values listing the coordinates of the point in both the WGS84 and Treaty datum.

- The generated WGS 84 coordinates may not have been agreed upon by the Treaty signatories (where Treaties or Agreements exist) and therefore these co-ordinates should be used with caution.

5   Data structure and content

5.1   Data structure

The topological data structure of *AMB* consists of point, line and polygon features. These features are grouped into themes and layers – each containing logically related geographic information. Each feature also carries textual information (or attributes) which help identify and provide more detailed information about the real world entity being depicted in the GIS data.

Theme
A theme is the highest level of data grouping in the topological data structure. The *AMB* data is grouped into two themes, these being: Baseline and Boundaries.

The Baseline theme contains geographic information related to the mapping and depiction of the territorial sea baseline. The Boundaries theme contains geographic information depicting the various maritime limits and boundaries (or Treaties).

Layer
Each theme is further composed of several layers. A layer is a grouping of similar features which also have compatible attributes.

5.2   Data dictionary

This data dictionary describes the database tables that are associated with the *AMB* dataset.

There are two attributes which are common to most features. These are:

Unique Feature Identifier (UFI)
An attribute code which provides a means to uniquely identify a feature within the dataset.

Release Date (rel_date)
A date stamp which identifies the version of the dataset.

Baseline

Theme	Layers	Type	Attributes	Description	Possible Attribute Values
Baseline	mld_isl_bln lte_bln	line	feature	A descriptor that identifies the type of baseline represented by the feature. These include the normal baseline (line of low water along the coast), the low water line of drying reefs (low tide elevations), straight lines closing the mouth of a river or entrance of a bay, the seaward limit of historic bays, and straight baselines used to connect fringing islands or simplify a deeply indented coastline.	bay_cls_ln hbay_cls_ln low_tide_el nml_base_ln riv_cls_ln str_base_ln
			state	An identifier of the Australian State or the Northern Territory on which that part of the baseline lies. 'Australia' is used where the baseline lies on external territories.	Australia New South Wales Northern Territory Queensland South Australia Tasmania Victoria Western Australia
			location	A location descriptor of the geographic region of the feature. Often a subset of the State or Northern Territory.	Contains free text for location descriptions, for example, 'Macquarie Island'.
			src_desc	Source description. This identifies the source material used in the mapping of the baseline. The following attributes – src_ref, src_date and src_scale also refer to this source material.	Aerial photography Differential GPS Electronic navigation chart Hydrographic charts Hydrographic fairchart Laser airborne depth sounding Map compilation Proclamation Topographic mapping Satellite image map Satellite imagery

				src_ref	Source reference. In the case of charts or topographic mapping being the source material, this provides an exact reference to the source material. For example, a chart or map number or name. Most aerial photography was transferred to topographic mapping as part of the digitising process and in these cases the topographic map number (and scale) are provided. In other cases, the source reference may refer to a satellite sensor or other material.	Free text containing the chart or map number, map name, satellite sensor, or other material. Examples of chart or map numbers are: AUS715 - Australian Hydrographic Chart BA1095 - British Admiralty Chart 9249 - 100K Topographic map 59284 - 50K Topographic map 822013 - 25K Topographic map
				src_date	Date of the source material referenced above	mmddyyyy
				src_scale	The scale of the source material	xx 000 (space delimited scale. eg 100 000 is 1:100 000)
				line_id *(mld_isl_bln only)*	A unique identifier for each straight line segment (these include river & bay closing lines and straight baselines).	ln<number>
				cw_bln *(lte_bln only)*	Identifies whether a low tide elevation feature is a valid component of the baseline from which the 3 M coastal waters limit is derived.	yes no
				rel_date	A date stamp which identifies the version of the dataset.	Day Month Year as free text
				ufi	A unique identifier.	Free text

Theme	Layers	Type	Attributes	Description	Possible Attribute Values
Baseline	isl_pt_bln lte_pt_bln	point	feature	A descriptor that identifies the type of baseline represented by the feature. These include areas of dry land, rock or reef that are too small to show at scale and are thus depicted by points in the data.	island rock_bldr low_tide_el
			state	An identifier of the Australian State or the Northern Territory on which that part of the baseline lies. 'Australia' is used where the baseline lies on external territories.	Australia New South Wales Northern Territory Queensland South Australia Tasmania Victoria Western Australia
			location	A location descriptor of the geographic region of the feature. Often a subset of the state or territory.	Contains free text for location descriptions, for example, 'Lord Howe Island'.
			cw_bln *(lte_pt_bln only)*	Identifies whether a low tide elevation feature is a valid component of the baseline from which the 3 M coastal waters limit is derived.	yes no
			src_desc	Source description. This identifies the source material used in the mapping of the baseline. The following attributes – src_ref, src_date and src_scale also refer to this source material.	Aerial photography Differential GPS Electronic navigation chart Hydrographic charts Hydrographic fairchart Laser airborne depth sounding Map compilation Proclamation Topographic mapping Satellite image map Satellite imagery

			src_ref	Source reference. In the case of charts or topographic mapping being the source material, this provides an exact reference to the source material. For example, a chart or map number or name. Most aerial photography was transferred to topographic mapping as part of the digitising process and in these cases the topographic map number (and scale) are provided. In other cases, the source reference may refer to a satellite sensor or other material.	Free text containing the chart or map number, map name, satellite sensor, or other material. Examples of chart or map numbers are: AUS715 - Australian Hydrographic Chart BA1095 - British Admiralty Chart 9249 - 100K Topographic map 59284 - 50K Topographic map 822013 - 25K Topographic map
			src_date	Date of the source material referenced above.	mmddyyyy
			src_scale	The scale of the source material	xx 000 (space delimited scale. eg 100 000 is 1:100 000)
			rel_date	A date stamp which identifies the version of the dataset.	Day Month Year as free text
			ufi	A unique identifier.	Free text

Basepoints

Theme	Layers	Type	Attributes	Description	Possible Attribute Values
Baseline	cs_basept	point	feature	A simple description of the point feature.	basepoint treaty_pt
	cw_basept		location	The geographical location of the basepoint feature.	Ashmore and Cartier Islands Australian Antarctic Territory Christmas Island Cocos (Keeling) Islands Coral Sea Islands Heard Island and McDonald Islands Norfolk Island New South Wales Northern Territory Queensland South Australia Tasmania Victoria Western Australia
	cz_basept				
	eez_basept				
	ts_basept				
			zone_limit	An indicator of which of the various zone limits (3, 12, 24 or 200 M) are computed from this basepoint.	3 12 3-12 3-12-24 3-12-24-200 12-24 12-24-200
			basept_id	A unique identifier for each basepoint..	bp<number>
			lat_dms	The latitude of the basepoint in degrees, minutes, seconds.	DD MM SS.ss
			long_dms	The latitude of the basepoint in degrees, minutes, seconds.	DD MM SS.ss
			lat_dec	The latitude of the basepoint in decimal degrees.	DD.dddddd
			long_dec	The longitude of the basepoint in decimal degrees.	DD.dddddd
			rel_date	A date stamp which identifies the version of the dataset.	Day Month Year as free text

Boundaries (Limits of Australia's Maritime Zones)

Theme	Layers	Type	Attributes	Description	Possible Attribute Values
Boundaries	cs_limit cw_limit cz_limit eez_limit ts_limit	line	limit	The maritime limit depicted by the line.	Continental Shelf Coastal Waters Contiguous Zone Exclusive Economic Zone Territorial Sea
			location	A location descriptor for the feature. Generally only features generating their own maritime limit are uniquely identified. Features that are close to the mainland and/or Tasmania are labelled as 'Australian mainland & islands'	Contains free text for location descriptions, for example, 'Lord Howe Island'.
			state	The jurisdiction pertaining to the limit. For all limits other than Coastal Waters, this will generally be 'Australia', however, where the line is delimited by agreement with a neighbouring country, that country is also named. The Australian State or Northern Territory is used in the Coastal Waters layer.	Contains free text country name (separated by '&' if more than one) or the Australian State or Northern Territory. For example, 'Australia & France' or 'Queensland'.
			source	Indicates whether the limit was constructed as a distance from the Australian baseline or delimited by treaty or proclamation. Where the continental shelf extends beyond 200M from the Australian baseline it is labelled as being constructed from the 'Provisions of Article 76' of UNCLOS.	3M from baseline 12M from baseline 24M from baseline 200M from baseline Treaty line Proclamation Provisions of Article 76 200M from opposite State
			origin	Provides a link to the section of the baseline from which the maritime limit is constructed. That is, the basepoint or straight line section of the baseline where appropriate.	bp<number> ln<number> Not applicable

				type	Indicates the type of line used to construct that part of the maritime limit.	Arc
						Geodesic
						Loxodrome
				status	Used to indicate the status of the areas of continental shelf which extend beyond 200M from the Australian baseline.	'As submitted to the United Nations on 15 Nov 2004, for consideration by the Commission on the Limits of the Continental Shelf (CLCS)'
						Not applicable
				sourcedoc	A reference to the authoritative document which defines the maritime limit.	Australian Treaty Series 1973 No 31
						Australian Treaty Series 1973 No 32
						Australian Treaty Series 1983 No 3
						Australian Treaty Series 1985 No 4
						Australian Treaty Series 1989 No 12
						Australian Treaty Series 2003 No 13
						Coastal Waters (State Powers) Act 1980
						Coastal Waters (Northern Territory Powers) Act 1980
						Commonwealth of Australia Gazette S297 of 13 Nov 1990
						Commonwealth of Australia Gazette S148 of 7 Apr 1999
						Commonwealth of Australia Gazette S290 of 29 July 1994
						Commonwealth of Australia Gazette GN35 of 6 Sept 2000
						Continental Shelf Submission of Australia – Annexes to the Executive Summary
						Seas and Submerged Lands Act 1973 (Cwth)
						The Australia-Indonesia Delimitation Treaty 1997
						The Australia-New Zealand Delimitation Treaty 2004
						United Nations Convention on the Law of the Sea
				rel_date	A date stamp which identifies the version of the dataset.	Day Month Year as free text
				ufi	A unique identifier.	Free text

Map data (polygons)

Theme	Layers	Type	Attributes	Description	Possible Attribute Values
Map Data	cs_poly cw_state_poly cz_poly eez_poly ts_poly	polygon	feature	The maritime zone depicted by the polygon.	<State> (including Coastal Waters) Territorial Sea Contiguous Zone Exclusive Economic Zone (Australian Fisheries Jurisdiction) Continental Shelf Australian Territory (including Internal Waters) Australian Territory (including Territorial Sea) Joint Petroleum Development Area

Note: Coastal waters is defined as the belt of water extending from the 3 M limit landwards to the limit of the State or the Northern Territory. As no assumption is intended to be made about the limit of the States, the coastal waters polygon has been extended to the State's land borders. For mapping purposes these polygons can be laid under other coastline polygons to give an approximate indication of the extent of Coastal Waters for each State or the Northern Territory.
Note 2: In Torres Strait Australia's Exclusive Economic Zone (EEZ) extends beyond the Australian/PNG seabed line. This area is refered to in the data as 'Australian Fisheries Jurisdiction'.

PSLA Boundary (Petroleum (Submerged Lands) Act 1967 – Scheduled Areas)

Theme	Layers	Type	Attributes	Description	Possible Attribute Values
Boundaries	psla_bdy	line	limit	The maritime limit depicted by the line.	PSLA - Scheduled Areas
			location	A location descriptor for the area that lies within the limit. Relates to the name of the adjacent area described in the legislation.	Contains free text for location descriptions, for example, 'Ashmore and Cartier Islands'. Common boundaries refer to both locations separated by '&'.
			state	The Australian State or Territory that has jurisdiction for the purpose of the petroleum legislation within the limit (or adjacent area).	Contains free text for the name of the State or the Northern Territory. Common boundaries refer to both States separated by '&'.
			sourcedoc	A reference to the authoritative document which defines the maritime limit.	Petroleum (Submerged Lands) Act 1967 (Cth)
			rel_date	A date stamp which identifies the version of the dataset.	Day Month Year as free text
			ufi	A unique identifier.	Free text

Treaties (Treaty Lines)

Theme	Layers	Type	Attributes	Description	Possible Attribute Values
Boundaries ↳ France	frn_ker_ln frn_nc_ln	line	treaty_name	The full name of the treaty.	Free text field containing the full name of the treaty.
↳ Indonesia	ind71sb_ln ind72sb_ln ind97ez_ln ind97sb_ln ind_mou_ln Ind_pfsel_ln		short_name	An abbreviation of the full name of the treaty. May be used to identify the treaty in other layers.	The Australia-France Delimitation Treaty 1982 The Australia-New Zealand Delimitation Treaty 2004 The Australia-Indonesia Delimitation Treaty 1971 The Australia-Indonesia Delimitation Treaty 1972 The Australia-Indonesia Delimitation Treaty 1989 The Australia-Solomon Islands Delimitation Treaty 1989 The Australia-Papua New Guinea Delimitation Treaty 1985 The Australia-Timor Leste Timor Sea Treaty 2003
↳ New_ Zealand	nz_treaty_ln		countries	An indication of the two countries that are parties to the treaty.	Australia & France Australia & New Zealand Australia & Timor-Leste Australia & Indonesia Australia & Papua New Guinea Australia & Solomon Islands
↳ Papua_New_ Guinea	png_fsh_ln png_prz_ln png_sb_ln png_ts_ln		boundary	Indicates the nature of the treaty line	Continental Shelf Exclusive Economic Zone Exclusive Economic Zone & Continental Shelf Fisheries Jurisdiction Line Petroleum Development Seabed Jurisdiction Line Traditional Fishing Traditional Fishing & Environment Protection
↳ Solomon_ islands	sol_treaty_ln		status	The current status of the treaty	signed in force
↳ timor_ leste	tl_jpda_ln tl_unit_ln		status_date	The date associated with the status above	Free text field for date

			line_type	The line type specified in the treaty for each segment of line	geodesic loxodrome arc
			tr_datum	The datum specified for geographical coordinates listed in the treaty	AGD66 WGS72 WGS84 ITRF2000
			rel_date	A date stamp which identifies the version of the dataset.	Day Month Year as free text
			ufi	A unique identifier.	Free text

Treaties (Treaty Points)

Theme	Layers	Type	Attributes	Description	Possible Attribute Values
Boundaries ↳ France	frn_ker_pt frn_nc_pt	point	treaty_name	The full name of the treaty.	Free text field containing the full name of the treaty.
↳ Indonesia	ind71sb_pt ind72sb_pt ind97ez_pt ind97sb_pt ind_mou_pt		short_name	An abbreviation of the full name of the treaty. May be used to identify the treaty in other layers.	The Australia-France Delimitation Treaty 1982 The Australia-New Zealand Delimitation Treaty 2004 The Australia-Indonesia Delimitation Treaty 1971 The Australia-Indonesia Delimitation Treaty 1972 The Australia-Indonesia Delimitation Treaty 1989 The Australia-Solomon Islands Delimitation Treaty 1989 The Australia-Papua New Guinea Delimitation Treaty 1985 The Australia-Timor Leste Timor Sea Treaty 2003
			tr_pt_id	A point identifier as used in the treaty document.	No set values. Free text field.
↳ New_Zealand	new_zld_pt		lat_dms	The latitude of the point in degrees minutes and seconds. (*AMB* datum)	Text field in format –DD MM SS.ss
			long_dms	The longitude of the point in degrees minutes and seconds. (*AMB* datum)	Text field in format DD MM SS.ss
↳ Papua_New_Guinea	png_fsh_pt png_prz_pt png_sb_pt		lat_dec	The latitude of the point in degrees and decimal points of a degree. (*AMB* datum)	Number field in forma t –DD.dddddd
			long_dec	The longitude of the point in degrees minutes and seconds. (*AMB* datum)	Number field in format DD.dddddd
↳ Solomon_islands	sol_isl_pt		tr_datum	The datum specified for geographical coordinates listed in the treaty	AGD66 WGS72 WGS84 ITRF2000
↳ timor_leste	tl_jpda_pt lt_unit_pt		tr_lat_dms	The latitude of the point as described in the treaty and on the treaty datum in degrees minutes and seconds	Text field in format –DD MM SS.ss
			tr_long_dms	The longitude of the point as described in the treaty and on the treaty datum in degrees minutes and seconds	Text field in format –DD MM SS.ss

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

Title: Australian Maritime Boundaries

Custodian

Custodian: Geoscience Australia

Jurisdiction: Australia

Description

Abstract:

AMB is a dataset depicting the limits of Australia's maritime jurisdiction as set out under UNCLOS and relevant domestic legislation. To this extent, *AMB* provides a digital representation of the outer limit of the 12 nautical mile territorial sea, the 24 nautical mile contiguous zone, the 200 nautical mile Exclusive Economic Zone and Australia's Continental Shelf, as well as, the 3 nautical mile coastal waters. Where Australia has agreements with neighbouring countries these treaty lines are also included in the data.

The dataset has been compiled by Geoscience Australia in consultation with other relevant Commonwealth Government agencies including the Attorney-General's Department, the Department of Foreign Affairs and Trade as well as the Australian Hydrographic Office.

Australia's maritime boundaries are computed from the territorial sea baseline which has been mapped by Geoscience Australia using the most reliable information available at the time it was compiled. However, it should be noted that the territorial sea baseline supplied in *AMB* is not intended to be a comprehensive coastline dataset and only contains features relevant to maritime boundary determination. Basepoints that generate the zone boundaries are supplied in separate files.

Other data included in *AMB* are the 'Scheduled Area' boundaries of the Petroleum (Submerged Lands) Act 1967 (Cth), individual line and point files depicting maritime boundary agreements with neighbouring countries, and polygon data of the various maritime zones supplied primarily for mapping purposes.

AMB data is clearly attributed providing information about the source material used to determine the baseline and linking the baseline with the various limits. The data is available in geographical coordinates which can be referenced to the WGS84 datum which is used on charts and by mariners more generally.

The area of coverage of the *AMB* data is for the whole of the Australian marine jurisdiction which includes waters adjacent to the mainland, offshore islands and External Territories. The geographical extent is approximately between the latitude limits of 7 S to 70 S and the longitude limits 40 E to 175 E.

This dataset includes the following disclaimer:

AMB data is a digital representation of the territorial sea baseline and of the outer limits of Australia's maritime zones. The baseline and zones are established under the Seas and Submerged Lands Act 1973. The data also includes a representation of the limits by which the waters adjacent to each of the Australian States and of the Northern Territory are determined under the Coastal Waters (State Powers) Act 1980, Coastal Waters (Northern Territory Powers) Act 1980 and the Petroleum (Submerged Lands) Act 1967. In the event of an inconsistency between AMB data and the baselines and limits under the legislation, the latter prevails.

ANZLIC search words:
- BOUNDARIES Administrative Models
- MARINE Models

Geographic extent name:
AUSTRALIA EXCLUDING EXTERNAL TERRITORIES - AUS - Australia - Australia
ASHMORE REER AND CARTIER REEF - ACR - External Territories - Australia
CHRISTMAS ISLAND - CHI - External Territories - Australia
COCOS (KEELING) ISLAND - COI - External Territories - Australia
CORAL SEAS ISLANDS TERRITORY - CSI - External Territories - Australia
TERRITORY OF HEARD AND MCDONALD ISLANDS - HMI - External Territories - Australia
NORFOLK ISLAND - NOI - External Territories - Australia

Geographic bounding box:
North bounding latitude: -7.00°
South bounding latitude: -70.00°
East bounding longitude: 175.00°
West bounding longitude: 40°

Data currency

Beginning date: 2001

Ending date: 2006-02-17

Dataset status

Progress: Complete

Maintenance and update frequency: As Required

Access

Stored data format:
Digital: ArcInfo

Available format type:
Digital: ArcInfo Export
Digital: ArcView Shapefile
Digital: MapInfo mid/mif

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:

The territorial sea baseline ('the baseline') data was originally derived from Geoscience Australia's 1:100 000 scale coastline data supplemented with coastal aerial photography in some areas. This mapping of the baseline was done in the early 1990's and since then the baseline data has been extensively validated and revised using the best available data from Geoscience Australia, the Australian Hydrographic Office and all State and Territory mapping agencies. The source material used for this purpose includes charts, topographic mapping, recent aerial photography and satellite imagery, as well as, other miscellaneous sources, such as LADS data.

Australia's baseline incorporates approximately four hundred straight baselines as proclaimed under the *Seas and Submerged Lands Act 1973* by proclamation dated 15 February 2006. The location of the terminal points of these straight baselines were revised in 2006 to make them compatible with the Geocentric Datum of Australia (GDA94) as well as Geoscience Australia's most recent mapping of the baseline. These new locations of the straight baselines have been incorporated into the baseline for *AMB*.

The various maritime limits that are derived as a distance from the baseline have been rigorously computed using specialises geodetic software rather than simple buffering. This software, known as MarZone was developed specifically for this purpose by the Department of Geomatics, University of Melbourne under contract to Geoscience Australia.

Other maritime boundaries included in *AMB* have been digitised from their description in the relevant legal instrument such as treaty or legislation. Where necessary, these coordinates have undergone a datum transformation to be consistent with other *AMB* data.

Positional accuracy:

The positional accuracy of the baseline varies according to the scale and origin of the source material, the data digitising process and the stability of the coastline. Experience and empirical evaluations suggest that the location of the baseline in *AMB* has been mapped to an accuracy generally better than 150 metres standard deviation.

As the maritime limits are rigorously computed no significant error is introduced in this process. Limits which are arcs are represented by chords with a one metre arc to chord tolerance. Boundaries digitised from a coordinate list, such as treaties, are as accurate as the stated coordinate and where applicable, the coordinate transformation method used. In general, the boundary data can be regarded as having been computed to an accuracy of one metre whether it is derived from the baseline or a list of coordinates.

Attribute accuracy:
Manual testing of the attribute items and values was performed on all of the data.

Logical Consistency:
ArcInfo was used to do a topological consistency check to detect flaws in the spatial data structure and to flag them as errors. This check ensures that all classified polygons are closed, nodes are formed at the intersection of lines and that there is only one label within each polygon, etc.

Completeness:
The *AMB* data contains a complete picture of Australia's jurisdictional boundaries, as well as, the territorial sea baseline and/or treaty lines from which they are derived.

Contact information

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Contact position: Data Sales

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Metadata information

Metadata date: 2005-09-01

Additional metadata

Size of dataset: 105 - 238 MB depending on the format

Scale/resolution: Variable - source is generally larger than 1:150 000

Projection/datum: WGS84 (ITRF2000@2000.0)

Glossary

Adjacent Area Boundaries
The *Petroleum (Submerged Lands) Act 1967* defined the offshore boundaries between the various States and the Northern Territory for the purposes of the Act. Since then the Adjacent Areas have been referred to in other legislation and some court decisions giving them broader application.

Australian Fishing Zone (AFZ)
The AFZ is defined in Australian legislation in the *Fisheries Management Act 1991* as the waters adjacent to Australia and its External Territories within the outer limits of the exclusive economic zone. Generally, it does not include Coastal Waters except where there is a special agreement between the Commonwealth and a State.

Australian Geodetic Datum 1966 (AGD66)
This datum was adopted in 1966 and is defined by the parameters of the Australian National Spheroid and the coordinates of the Johnston Geodetic Station. This datum is used for the determination of coordinates for some Geoscience Australia products. Superseded by the Geocentric Datum of Australia (GDA94).

Baseline
See Territorial Sea Baseline.

Bay closing line
Line drawn across bays in accordance with the provisions of UNCLOS Article 10.

Chart
A nautical map specially designed to meet the needs of maritime navigation. It depicts such information as depths of water, nature of the seabed, configuration and nature of the coast, dangers and aids to navigation, in a standardised format.

Datum
A mathematical surface from which heights or positions are referenced.

Geocentric Datum of Australia 1994 (GDA94)
The set of geographical coordinates based on the Geocentric Datum of Australia. It is compatible with Global Positioning Systems (GPS). Adopted in 1994 and implemented in the year 2000.

Geodetic datum
A datum defines the basis of a coordinate system. A local or regional geodetic datum is normally referred to an origin whose coordinates are defined. The datum is associated with a specific reference ellipsoid which best fits the surface (geoid) of the area of interest. A global geodetic datum is now related to the centre of the earth's mass, and its associated spheroid is a best fit to the known size and shape of the whole earth. The position of a point common to two different surveys executed on different geodetic datums will be assigned two different sets of geographical coordinates.

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

Geodesic
The line of shortest distance between two points on the surface of the reference ellipsoid.

Historic Bays
Article 10 (6) of UNCLOS allows for special provisions to be applied to 'historic bays'. Australia has applied this in only two instances, both in South Australia.

International Terrestrial Reference Frame (ITRF)
The ITRF is an accurate global terrestrial reference frame produced by the International Earth Rotation Service. It was created and is maintained by the civil geodetic community quite independently of the US military organisations who maintain WGS84.

LAT
The acronym for Lowest Astronomical Tide. It is the lowest level to which sea level can be predicted to fall under normal meteorological conditions. Used as the low tide datum on Australian charts.

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

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

MarZone
Geodetic software developed by University of Melbourne under contract to Geoscience Australia. Software computes zone boundaries from a baseline, computes median lines and assists in the definition of the continental shelf in accordance with Article 76 of UNCLOS

MHW
Mean high water.

Nautical mile (M)
A unit of distance equal to 1,852 metres. This value was adopted by the International Hydrographic Conference in 1929 and has subsequently been adopted by the International Bureau of Weights and Measures. The length of the nautical mile is very close to the mean value of the length of 1 minute of latitude, which varies from approximately 1,843 metres at the equator to 1,861.6 metres at the pole.

Offshore Constitutional Settlement (OCS)
The Offshore Constitutional Settlement (OCS) is an agreement between the Commonwealth and the States (concluded at the Premiers' Conference in 1979), which provides the basis for an agreed division of powers between the Commonwealth and the States in relation to the territorial sea and in relation to certain other matters including the regulation of shipping and navigation, offshore petroleum exploration, crimes at sea, and fisheries. A range of legislation gives effect to the OCS at Commonwealth level.

PSLA Boundaries
See Adjacent Area Boundaries

Rhumb line
A line that crosses all meridians at a constant angle (also known as Loxodrome).

River closing line
Line across the mouth of a river in accordance with UNCLOS Article 9.

Straight baseline
Line drawn between fringing islands, the mainland and fringing islands or along deeply indented coastlines in accordance with UNCLOS Article 7.

Territorial Sea Baseline (TSB)
The Territorial Sea Baseline is the line around the coast from which the limits of the Territorial Sea and other zones are measured. It is defined in Part II Section 2 of UNCLOS. Frequently referred to simply as the 'baseline'.

UNCLOS 1982
The acronym for the United Nations Convention on the Law of the Sea 1982.

World Geodetic System 1984 (WGS84)
A reference system developed by the United States Department of Defense for use with GPS. The WGS84 system has been refined on several occasions since its inception and is now aligned with the International Terrestrial Reference Frame (ITRF) at the level of a few centimeters.