

1b Water table elevation of the Great Artesian Basin

Abstract	<p>Water table elevation of the Great Artesian Basin.</p> <p>Data is available as contours (Shapefile) and elevation grids (ESRI grid and ESRI ASCII grid)</p> <p>Height is in metres above sea level (AHD).</p> <p>Cell resolution is 1000m.</p> <p>Contours and elevations were produced for the Great Artesian Basin Water Resource Assessment and used in watertable maps in:</p> <ol style="list-style-type: none"> 1. Chapter 6 of Ransley TR and Smerdon BD (Eds) (2012) Hydrostratigraphy, hydrogeology and system conceptualisation of the Great Artesian Basin. A technical report to the Australian Government from the CSIRO Great Artesian Basin Water Resource Assessment. CSIRO Water for a Healthy Country Flagship, Australia. 2. Regional watertable section of Smerdon BD, Welsh WD and Ransley TR (Eds) (2012) Water resource assessment for the Carpentaria region. A report to the Australian Government from the CSIRO Great Artesian Basin Water Resource Assessment. CSIRO Water for a Healthy Country Flagship, Australia, plus Figure 10 in the associated summary report. 3. Regional watertable section of Smerdon BD and Ransley TR (Eds) (2012) Water resource assessment for the Central Eromanga region. A report to the Australian Government from the CSIRO Great Artesian Basin Water Resource Assessment. CSIRO Water for a Healthy Country Flagship, Australia, plus Figure 13 in the associated summary report. 4. Regional watertable section of Smerdon BD and Ransley TR (Eds) (2012) Water resource assessment for the Surat region. A report to the Australian Government from the CSIRO Great Artesian Basin Water Resource Assessment. CSIRO Water for a Healthy Country Flagship, Australia, plus Figure 14 in the associated summary report. 5. Regional watertable section of Smerdon BD, Welsh WD and Ransley TR (Eds) (2012) Water resource assessment for the Western Eromanga region. A report to the Australian Government from the CSIRO Great Artesian Basin Water Resource Assessment. CSIRO Water for a Healthy Country Flagship, Australia, plus Figure 12 in the associated summary report. <p>This dataset and associated metadata can be obtained from www.ga.gov.au, using catalogue number 75830.</p>
Lineage	<p>The watertable contours were hand drawn from water level data. Interpretation was by Jim Kellet of Geoscience Australia. Water level data was obtained from state groundwater databases for NSW and Queensland. SA and NT data points were supplied by Flinders University. Additional data points were obtained from reports published by the state geological surveys and water authorities, and from unpublished BMR records and consultants' reports.</p> <p>Watertable elevation surface of the Great Artesian Basin was interpolated from the contour dataset.</p> <p>SOURCE DATA:</p>

1. Queensland groundwater database (water levels), Natural Resources and Mines [2010]. Queensland Groundwater database. Qld Government (Department of Natural Resources and Mines)
2. New South Wales groundwater database (water levels) New South Wales. Department of Land and Water Conservation, 2010. Pinneena Groundwater Works Version 3.1 [electronic resource]: New South Wales surface water data archive / Department of Land & Water Conservation, NSW Government.
3. South Australia groundwater database (water levels).
4. Northern territory groundwater database (water levels)
5. Remote sensing studies of Enhanced Vegetation Index (EVI)
6. Chamberlain T and Wilkinson K (eds.) (2006) Salinity investigations using airborne geophysics in the Lower Balonne area, Southern Queensland. Department of Natural resources and Mines, Queensland. 255p
7. Gibson DL (1975) Auger Drilling, Cape York Peninsula, 1974. Record 1975/11. Bureau of Mineral Resources, Canberra
8. Gibson DL, Powell BS, Douth HF, Smart J and Grimes KG (1973) Shallow stratigraphic drilling in the Carpentaria and Laura Basins, 1972. Record 1973/77. Bureau of Mineral Resources, Canberra
9. Habermehl MA, Devonshire J and Magee JW (2009). Sustainable Groundwater Allocations in the Intake Beds of the Great Artesian Basin in New South Wales. Bureau of Rural Sciences, Canberra
10. Heathgate Resources Pty Ltd (2008). Beverly Mine Report. 3rd Party Users of Groundwater Surrounding the Beverly Four Mile ML Application Area. Unpublished report.
11. Kellett J, Mullen I, Mansfield D, Spring J and Frost M (2008). Drilling, Coring and Geophysical Logging for Calibration of Airborne Electromagnetic Survey in the Lower Macquarie Valley, New South Wales, Australia. Bureau of Resources Sciences, Canberra.
12. Smart J and Grimes KC (1971). Shallow stratigraphic drilling, eastern Carpentaria Basin, 1971. Record 1971/143. Bureau of Mineral Resources, Canberra.
13. Smart J, Powell BS and Gibson DL (1974) Auger drilling, northern Cape York Peninsula, 1973. Record 1974/75. Bureau of Mineral Resources, Australia.
14. Warner KR (1968) Gilbert -Staaten Rivers groundwater investigations. Report 24. Geological Survey of Queensland, Brisbane.

BOUNDARY:

1. Revised Great Artesian Basin Jurassic-Cretaceous boundary, 2013. Geoscience Australia. Canberra
2. GEODATA TOPO 250K Series 3, Framework Boundaries. Available from Geoscience Australia <http://www.ga.gov.au>

METHODS:

Contours were hand drawn from point water level data. Groundwater water levels along rivers with high EVI values were assumed to be 10m below ground. This information was used to interpret groundwater level contours where borehole water level data was absent. In areas of sparse data coverage the 3 second DEM was used to constrain contours below ground level. SA water levels were corrected for density effects due to salinity (in excess of 100,000 mg/L TDS in some bores in the Eyre Basin) but all others were uncorrected because salinity data were not available. Density corrections for the watertable are not deemed to be an issue outside of the SA portion of the GAB. Remote sensing studies of Enhanced Vegetation Index (EVI) were also used in the interpretation to provide water level

	<p>information along certain rivers (refer to data set "Watercourses used to calculate riparian evapotranspiration loss from the GAB") where there were no boreholes.</p> <p>The hand drawn transparencies interpreted by Jim Kellet were scanned into a 2bit tiff file format. Scanned images were then rectified within ArcGIS and vectorised into linework using the ArcScan toolset to produce the polygon dataset</p> <p>Linework and were attributed with a contour value within the field "height", as well as a DESCRIPTION of the line TYPE in the field "descript".</p> <p>The grid surface was created using the Topo to Raster tool in the Spatial Analyst toolset from the values within the "height" field and clipped to the Revised Great Artesian Basin boundary and GEODATA TOPO 250K coastline.</p> <p>Note: data used to compile this map was a combination of the most recent available water level measurements (as at 2011), water level measurements at the time of drilling or the first water cut reported in drillers logs.</p>
Extent	West 131.7986; East 153.1901; North -10.3492; South -33.1288
Scale	1:6 000 000

