

New geophysical datasets released

Datasets from nine new geophysical surveys, released since August 2006, will be a valuable tool in assessing the mineral potential of the respective survey areas.

They include seven airborne magnetic and radiometric surveys in the Bowen-Surat and Mt Isa regions in Queensland, the Tiwi Islands in the Northern Territory, the Musgrave Extensions in Western Australia as well as the Eromanga-Thomson area and the Southern Darling and Murray Basins in New South Wales. The new gravity surveys include the Webb region in Western Australia and part of the Mt Isa region in Queensland.

The data were acquired in surveys conducted in 2005 and 2006 and, except those in New South Wales, were managed by Geoscience Australia on behalf of the Geological Surveys of Queensland, Western Australia and the Northern Territory. The three surveys in New South Wales were acquired in 2005 and managed by the Geological Survey of NSW.

The datasets have been incorporated into the national geophysical databases. The point-located and gridded data for the nine surveys can be obtained free online using the GADDS download facility.

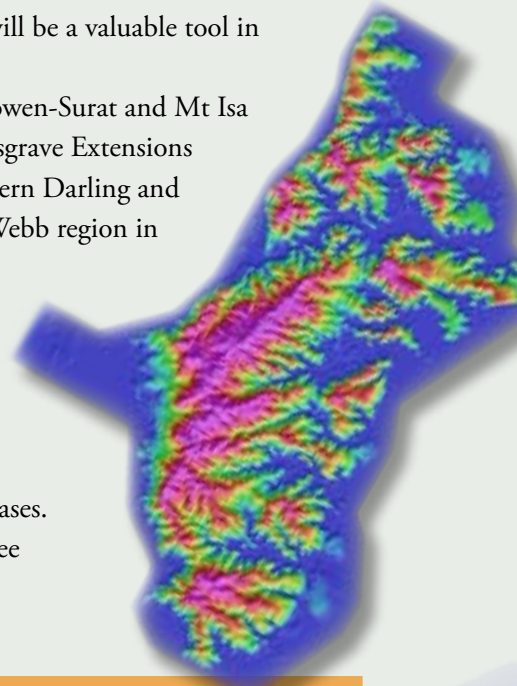


Table 1. Details of the airborne surveys.

Survey	Survey Type	Date of Acquisition	1:250 000 Map Sheets	Line Spacing (m), terrain clearance (m), orientation	Line Km	Contractor
Bowen – Surat North (Qld)	Magnetic, Radiometric, Elevation	Jan – July 2006	Springsure, Baralaba, Monto, Eddystone, Taroom, Mundubbera, Mitchell, Roma, Chinchilla	400, 80, east – west	169,882	UTS Geophysics
Mount Isa South - West (Qld)	Magnetic, Radiometric, Elevation	April – Aug 2006	Mount Whelan, Bedourie, Machattie, Birdsville, Betoota	400, 80, east – west	140,500	Fugro Airborne Surveys
Tiwi Islands (NT)	Magnetic, Radiometric, Elevation	Oct – Nov 2006	Bathurst Island, Melville Island, Darwin	400, 80, north – south	29,874	Fugro Airborne Surveys
Musgrave Extensions (WA)	Magnetic, Radiometric, Elevation	June – Oct 2006	Musgrave North: Bentley, Scott, Cobb; Musgrave South: Talbot, Cooper	Musgrave North: 400, 60, north – south Musgrave South: 400, 60, east – west	82,094	Fugro Airborne Surveys
Southern Darling Basin (NSW)	Magnetic, Radiometric, Elevation	March – June 2005	Manara, Ivanhoe	400, 60, north – south	18,000	Fugro Airborne Surveys
Murray Basin (NSW)	Magnetic, Radiometric, Elevation	April – Aug 2005	Menindee, Anabranck, Pooncarie Mildura, Balranald	400, 60, east – west	96,000	Fugro Airborne Surveys
Eromanga-Thomson (NSW)	Magnetic, Radiometric, Elevation	Aug – Dec 2005	Urisino, White Cliffs, Yantabulla, Louth	250 & 400, 60, east – west or north - south	166,000	Fugro Airborne Surveys

Table 2. Details of the gravity surveys.

Survey (State)	Survey Type	Date of Acquisition	1:250 000 Map Sheets	Station Spacing / orientation	Stations	Contractor
Webb (WA)	Gravity	Aug – Sept 2006	Webb, Wilson, Ryan, Macdonald	2.5 x 2.5 km east - west	4,103	Daishsat Geodetic Surveyors
Mount Isa Area B (Qld)	Gravity	Sept – Oct 2006	Lawn Hill, Donors Hill, Camooweal, Dobbryn, Mt Isa (western half)	2.0 x 2.0 km east – west on Dobbryn and Camooweal (eastern half); 4.0 x 4.0 km east – west (remainder)	9,857	Fugro Ground Geophysics

Related websites

NT Geological Survey: www.nt.gov.au/dpifm/Minerals_Energy/Geoscience/

Geological Survey of WA: www.doir.wa.gov.au

Geological Survey of Qld: www.nrw.qld.gov.au/science/geoscience/

Geological Survey of NSW: www.dpi.nsw.gov.au/minerals

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New information on Australia's Near-Pristine Estuaries

Around half of Australia's estuaries (that is, 470 out of 974) were classified as 'near-pristine' during the National Land and Water Resources Audit (NLWRA) conducted in 2001 (NLWRA 2002). The NLWRA definition of a near-pristine estuary includes those estuaries with greater than 90 per cent natural vegetation cover in a catchment which has no dams, alterations to tidal flow or aquaculture, and minimal fishing.

Australia's near-pristine estuaries are some of our most valuable natural assets. They are important for:

- **Biodiversity conservation** – because they provide major undisturbed environments for native plants and animals;
- **Management** – because they represent the *benchmark* or *baseline* conditions against which to measure modified estuaries and they also assist in distinguishing between changes caused by human activity and those that occur due to natural cycles of disturbance;
- **Science** – by studying near-pristine estuaries, scientists can learn more about *natural* systems and processes, and the ways in which human activities can impact upon them.

Many countries have only a few or no remaining near-pristine estuaries and therefore lack opportunities for significant biodiversity conservation and scientific research.

Australia's near-pristine estuaries are located away from major population centres in the most remote and inaccessible parts of the coastline, such as across northern Australia and southwest Tasmania. They

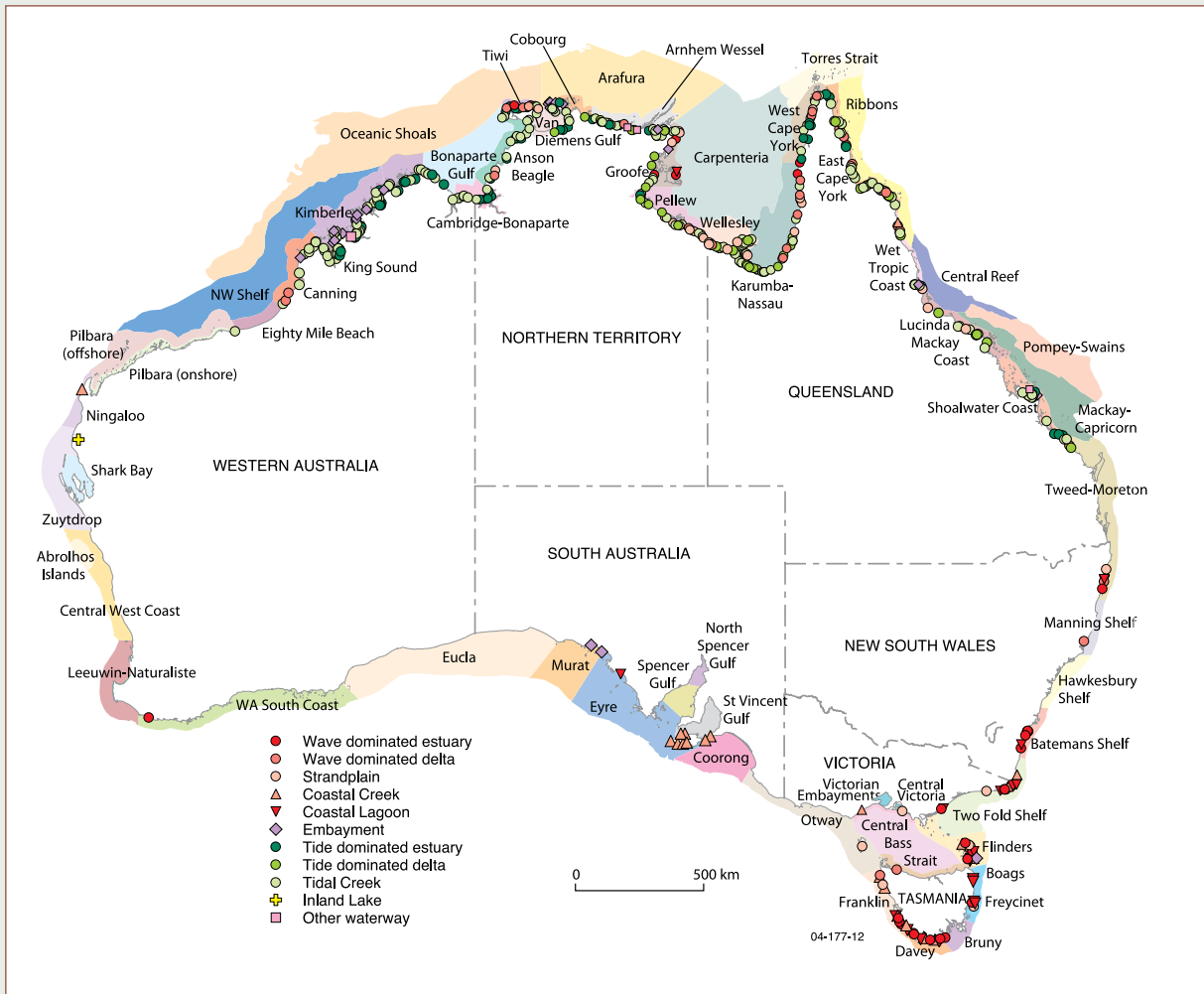


Figure 1. Australia's near-pristine estuaries according to geomorphic type and in relation to IMCRA bioregions (IMCRA 1998). Estuary classification from National Land and Water Resources Audit 2002.

also differ according to the region, for example, estuaries in northern Australia are shaped mainly by tides, whereas in southern Australia they are shaped mainly by waves (Ryan et al 2003). Most near-pristine estuaries in Australia (approximately 65 per cent) fall into tide-dominated classifications.

Geoscience Australia, in collaboration with CSIRO Land and Water and the Coastal CRC, has recently released online resources and information about Australia's near-pristine estuaries through the OzEstuaries and Coastal CRC websites.

The Near-Pristine Estuaries Project page – www.ozestuaries.org/projects/pris_est.jsp#geomorphic in OzEstuaries includes a map showing the location and geomorphic type of Australia's near-pristine estuaries (figure 1) in relation to coastal IMCRA bioregions (Interim Marine and Coastal Regionalisation for Australia; IMCRA 1998). Visitors can also zoom in on specific regions to load more detailed maps (figure 2). The webpage also includes an interactive map that can summarise typical pristine characteristics of estuaries by region around the Australian coastline. In showing the estuaries against a backdrop of IMCRA bioregions, these maps can be used to help plan a system of representative marine protected areas.

References

Heap A, Bryce S, Ryan D, Radke L, Smith C, Harris P & Heggie D. 2001. Australian Estuaries and Coastal Waterways: A geoscience perspective for improved and integrated resource management. A report to the National Land and Water Resources Audit, Theme 7: Ecosystem Health. Australian Geological Survey Organisation Record. 2001/07. http://dbforms.ga.gov.au/pls/www/npm.ozest.pubs_reports

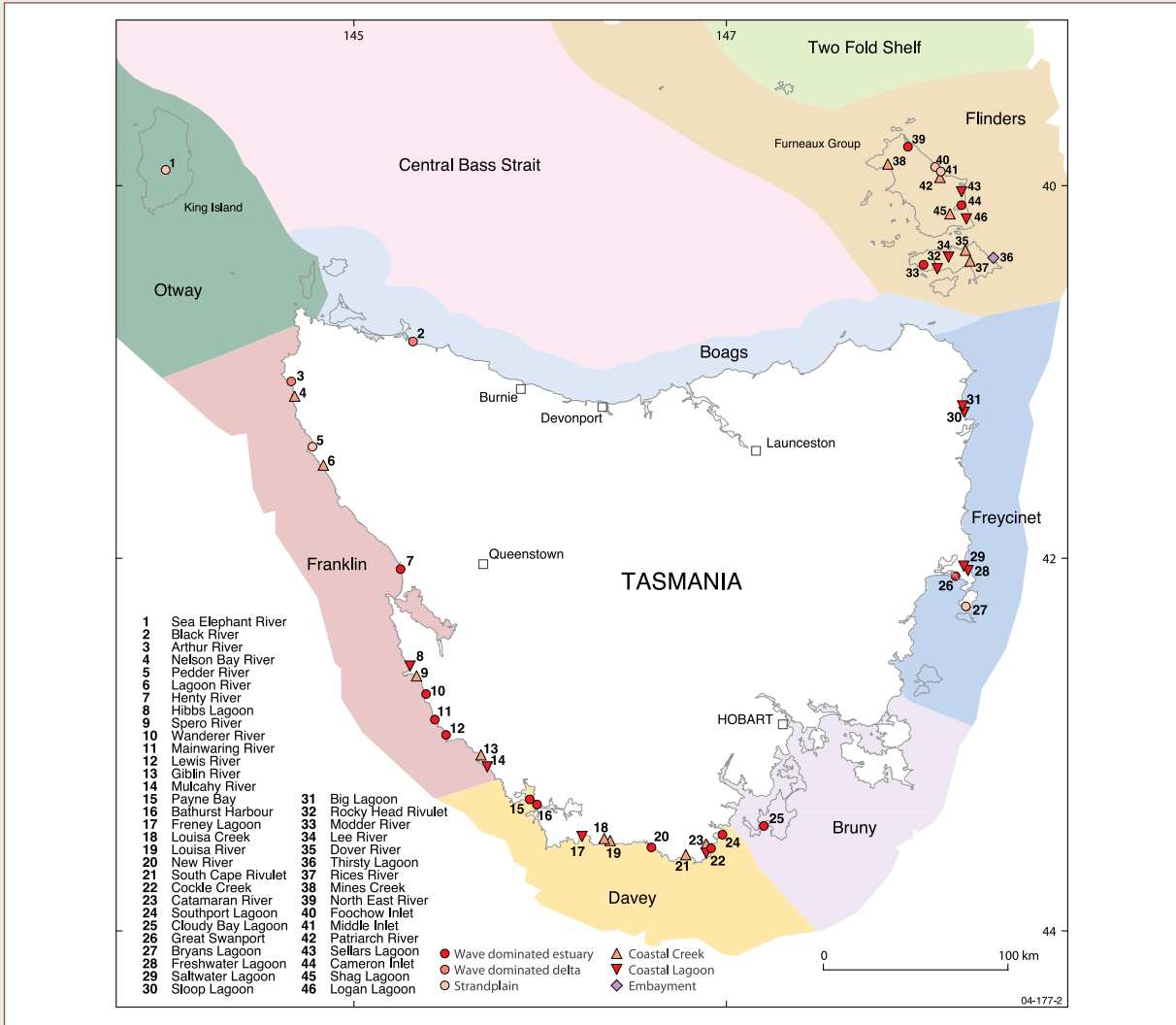


Figure 2. Detailed map of IMCRA regions and near-pristine estuaries of Tasmania.

IMCRA. 1998. Interim Marine and Coastal Regionalisation for Australia: an ecosystem-based classification for marine and coastal environments. Version 3.3. Interim Marine and Coastal Regionalisation for Australia Technical Group, Environment Australia, Canberra. www.deh.gov.au/coasts/mpa/nrsmmpa/pubs/imcra.pdf

NLWRA. 2002. Australian Catchment, River and Estuary Assessment 2002, volume 1. National Land and Water Resources Audit, Commonwealth Government, Canberra. http://audit.ea.gov.au/anra/coasts/coasts_frame.cfm?region_type=AUS®ion_code=AUS&info=estuaries Data also available at www.ozestuaries.org

Ryan DA, Heap AD, Radke L & Heggie DT. 2003. Conceptual models of Australia's estuaries and coastal waterways: applications for coastal resource management. Geoscience Australia Record. 2003/09. Geoscience Australia, Canberra. www.ozestuaries.org/conceptual_mods/conceptual.jsp

For more information

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Related websites

Near-Pristine Estuaries Project page
www.ozestuaries.org/projects/pris_est.jsp#geomorphic

Several reports on Australia's near-pristine estuaries are also available on the Coastal CRC website www.coastal.crc.org.au/. These include:

- Australia's Near-Pristine Estuaries: Current Knowledge and Management
- Improving Our Knowledge of Near-Pristine Estuaries: Geomorphic habitat mapping and related applications
- An Initial Assessment of Estuarine Geomorphic Habitats as Indicators of Waterway Health

Price drop for Synthetic Aperture Radar (SAR) satellite imagery

Geoscience Australia is pleased to announce a major price reduction in Synthetic Aperture Radar (SAR) products downloaded from the Earth Resource Satellite (ERS). Prices have fallen from over \$2000 to \$590 as a result of greater pricing flexibility by the satellite operator. The reduced price will increase the attractiveness and utilisation of the SAR data produced by ERS to a wide range of users. In addition, and for a small fee, customers may also place requests for the ERS satellite to acquire data over a particular area in the future.

SAR products have been available from Geoscience Australia's remote sensing unit (ACRES) since 1993. A major advantage of SAR data is its ability to image the Earth through cloud or at night. C-band SAR data is particularly useful in coastal and ocean environments where it has been successfully used in helping to identify oil seeps and slicks, and ship detection.

Geoscience Australia holds a large and comprehensive archive of SAR data covering Australia and New Zealand, including complete continental coverages from the ERS-1 and ERS-2 tandem mission undertaken over nine months in 1995–96. During the tandem mission the orbit configuration enabled global observations, one day apart, from the two satellites. This data is particularly suited for interferometric applications, including subsidence monitoring and Digital Elevation Model (DEM) generation. The ERS-1 and ERS-2 SAR data may also be used for time-series studies with the currently available Envisat ASAR data.

For more information

www.ga.gov.au/acres/prod_ser/ersdata.jsp

European Space Agency (ESA)

www.esa.int/esaCP/index.html

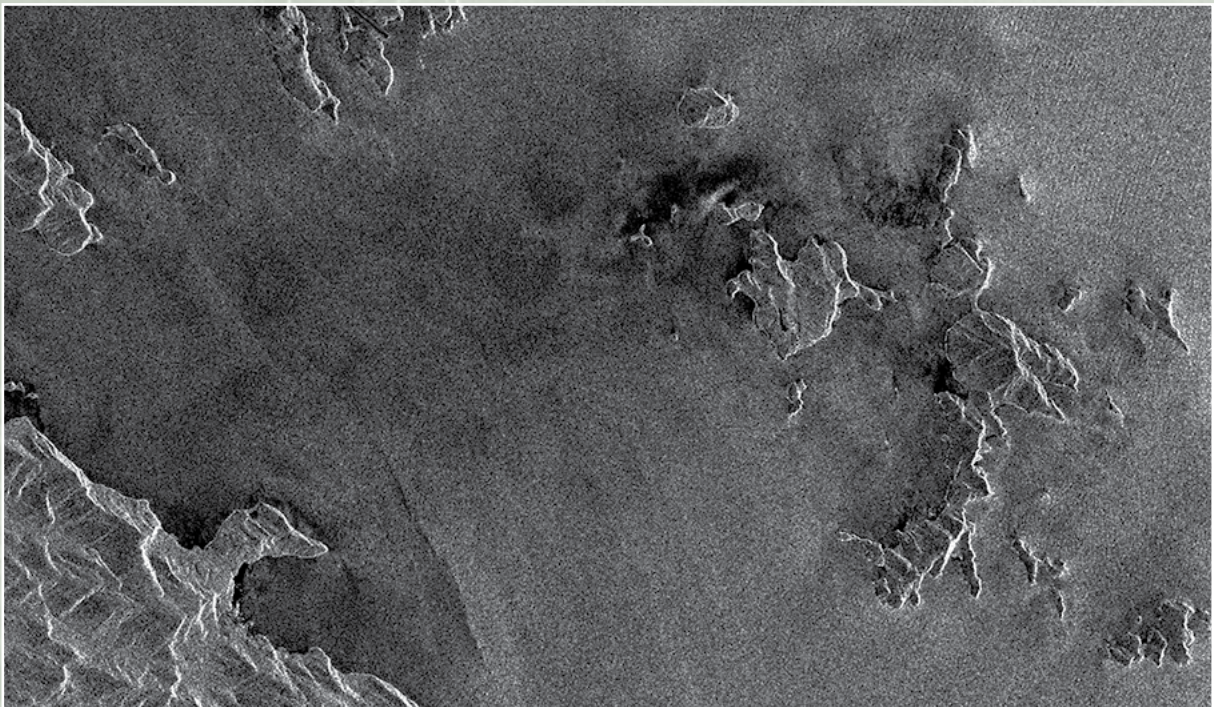


Figure 1. Earth Resources Satellite SAR image over Whitsunday Islands, Queensland © European Space Agency.