

## GA: update on geophysical survey progress from the Geological Surveys of Western Australia, South Australia, Northern Territory, Queensland and Victoria (information current on 23 March 2016)

Further information on these surveys is available from Murray Richardson at GA via email at [Murray.Richardson@ga.gov.au](mailto:Murray.Richardson@ga.gov.au) or telephone on (02) 6249 9229.

Table 1. Airborne magnetic and radiometric surveys

Survey name	Client	Project management	Contractor	Start flying	Line km	Spacing AGL Dir	Area (km <sup>2</sup> )	End flying	Final data to GA	Locality diagram (Preview)	GADDs release
Coompana	GSSA	GA	GPX Surveys	7 Feb 2015	255 265	400 m 80 m E-W	85 910	8 Nov 2015	Dec 2015 for magnetic and elevation data	173: Dec 2014 p. 24	The magnetic and elevation data were released via GADDs on 10 Dec 2015. The radiometric data are in the final stages of processing prior to assessment by GA
Delamere/Spirit Hills	NTGS	GA	Thomson Aviation	20 Jul 2015	96 500 est.	400 m 80 m N-S	33 690	7 Nov 2015	Expected to be supplied to GA in Jan or Feb 2016	176: Jun 2015 p. 22	The data were released via GADDs on 29 Mar 2016

TBA, to be advised.

Table 2. Gravity surveys


Survey name	Client	Project management	Contractor	Start survey	No. of stations	Station spacing (km)	Area (km <sup>2</sup> )	End survey	Final data to GA	Locality diagram (Preview)	GADDs release
SW Yilgarn	GSWA	GA	Atlas	12 Jun 2015	27 678	2 km along public roads and tracks	175 000	100% complete to 3 Dec 2015	TBA	176: Jun 2015 p. 24	The data were released via GADDs on 11 Feb 2016
Stavelly	GSV	GA	TBA	Survey Quotation Request in preparation	Approx. 8000 in 9 separate areas	500 m regular grid in 8 areas and 500 m station interval along one traverse	TBA	TBA	TBA	177: Aug 2015 p. 18	TBA
Wiluna	GSWA	GA	TBA	TBA	Approx 17 000 in 2 separate areas	2500 m regular grid	103 000	TBA	TBA	The proposed survey covers parts of the Bullen, Trainor, Nabberu, Wiluna, Sir Samuel, Madley, Herbert, Robert Standard 1:250 000 map sheets. The Quotation Request was released on 27 Jan and closed on 23 Feb. The preferred supplier has been selected by GA and GSWA and a draft Contract is expected to be executed in Apr.	TBA

TBA, to be advised.

Table 3. AEM surveys


Survey name	Client	Project management	Contractor	Start flying	Line km	Spacing AGL Dir	Area (km <sup>2</sup> )	End flying	Final data to GA	Locality diagram (Preview)	GADDS release
Musgraves – PACE Area	GSSA	GA	CGG Aviation	Apr 2016	8489	2 km; E–W lines	16 371	TBA	TBA	179: Dec 2015 p. 23	The proposed survey covers parts of the Mann, Woodroffe, Birksgate and Lindsay Standard 1:250 000 map sheets
Musgraves – CSIRO Area	GSSA	GA	SkyTEM Australia	Apr 2016	7182	2 km; E–W lines	14 320	TBA	TBA	179: Dec 2015 p. 23	The proposed survey covers parts of the Woodroffe, Alberga, Lindsay and Everard Standard 1:250 000 map sheets
West Kimberley and Ord-Bonaparte	WA Government: Departments of Water, Agriculture and Food	GA	SkyTEM Australia	26 Sep 2015	7837	Various + traverses	TBA	3 Nov 2015	TBA	178: Oct 2015 pp. 30–31	The release date for the survey data is to be decided by the WA Government Department of Water
Isa Region	GSQ	GA	TBA	Winter 2016. Centred on Cloncurry	TBA	TBA	TBA	TBA	TBA	The Technical Specifications of the survey are being planned between GSQ and GA	The National Collaboration Framework Agreement was executed between GA and GSQ on 16 Dec 2015. A QR was released on 24 March that closed on 15 April

TBA, to be advised.



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## MRT: MT surveys in progress

Mineral Resources Tasmania is co-sponsoring acquisition, processing and interpretation of magnetotelluric (MT) data on two regional transects in western and northern Tasmania respectively (Figure 1). The work is being undertaken by Thomas Ostersen (Figure 2) as part of his PhD project at the University of Tasmania. Tom is being supervised by Associate Professor Anya Reading in collaboration with Professor Graham Heinson and Dr Stephan Thiel of the University of Adelaide and the Geological Survey of South Australia. The survey is being conducted using MT instruments sourced through the ANSIR National Facility for Earth Sounding (<http://ansir.org.au>). Station spacing on the transects is approximately two kilometres.

### AusLAMP in Tasmania

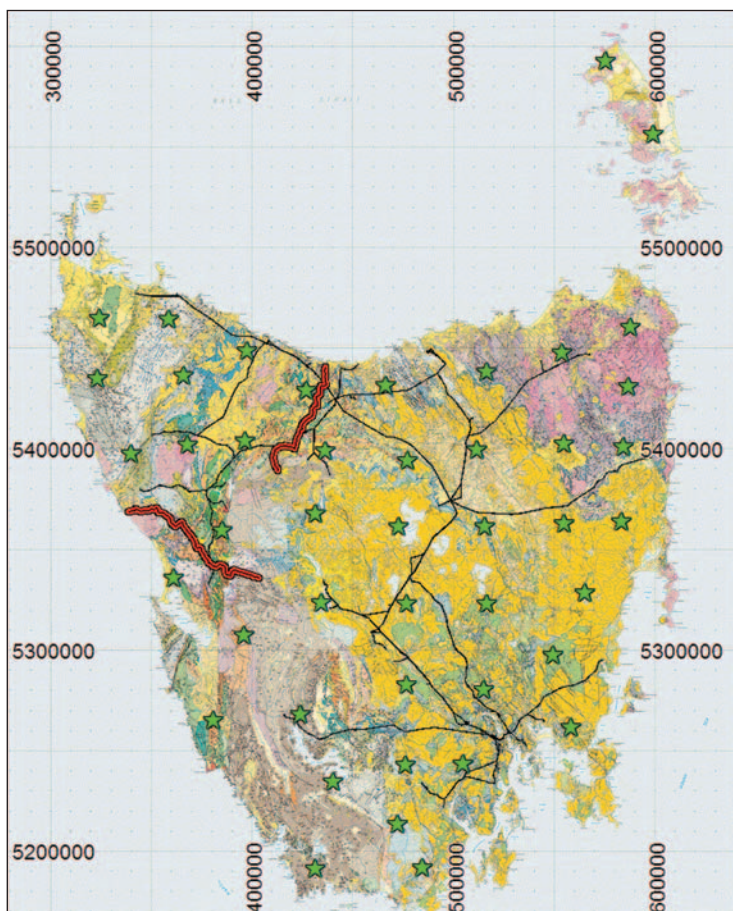
The transect data are being obtained in conjunction with the Tasmanian leg of the Australian Lithospheric Architecture Magnetotelluric Project (AusLAMP). AusLAMP (<http://www.ga.gov.au/about/what-we-do/projects/minerals/current/auslamp>) is a multi-year collaboration aimed at resolving the first order electrical structure of the Australian continental lithosphere through the acquisition of long-period magnetotelluric data at  $\sim 55 \times 55$  km spacing. The data collection has been funded by AuScope under the auspices of Geoscience Australia, which has also provided extensive field support to both this and the transects programme. Fieldwork on

the transects in particular was extremely demanding, and was carried out by participants from the University of Tasmania, University of Adelaide and Geoscience Australia. Thanks are due to Nick Smith, Jingming Duan, Goran Boren, Tanya Fomin, Matt Carey, Esi Eshaghi, Yohannes Didana, Dennis Conway and Joe Rugari for their sterling efforts.

At the time of writing, data acquisition on the transects has been finished, despite complications introduced by a spate of lightning strikes and consequent widespread bushfires. The AusLAMP station coverage has been partially completed. It is expected to be concluded in the third quarter of 2016, following a hiatus while the instruments are required elsewhere.

By illuminating major conductivity structures, this work is expected to yield important insights into Tasmanian 4D geodynamic evolution and mineralising systems, from a new perspective.

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**Figure 1.** Magnetotelluric transects (2 km station spacing along the red lines shown) and AusLAMP stations (green stars) currently being acquired in Tasmania, depicted on the State geological map. Black lines denote high voltage transmission lines. Coordinates in metres on MGA zone 55.



**Figure 2.** UTas PhD student Thomas Ostersen collecting MT data.



GSSA: update

The past few months have been busy for the GSSA as we prepare for two major earth science conventions to be held in Adelaide this year. As well as preparing papers for the conferences we have busy been planning for some major regional geophysical surveys. Stay tuned to *Preview* for more news on these surveys in the near future.

The SA geophysical databases have been undergoing reviews in order to streamline our processing workflows. An upshot of this process is that stakeholders will find more regular releases of public domain geophysical surveys. In particular we're anticipating a major release of public domain gravity data prior to ASEG-PESA-AIG 2016.

The AusLAMP Magnetotelluric programme is progressing well, and at the time of writing stations in the Maralinga area have been deployed, collected, and the data being processed. Over two-thirds of South Australia is now covered with regularly spaced (at 50 km) MT stations.

On the radiometrics front we are investigating the option of moving our calibration pads to a nearby airstrip. This will allow more convenient access for aircraft wishing to calibrate their radiometrics gear. More news on this should be available in the next issue of *Preview*.

Petrophysical data is still being regularly uploaded to our databases and is available online through SARIG.

The new SA Drill Core Reference Library has been officially opened (see the article elsewhere in this issue of *Preview*); however, it won't be open to clients wanting to view core for another few months.

Over 400 legacy geophysics plans (A2 to A0 sized documents) are being scanned as pdfs to be made more easily available to the public. The hardcopies will be archived at SA State Records. The first of these (the Andamooka Bouguer Gravity contours, showing the position of Olympic Dam) is shown in Figure 1.

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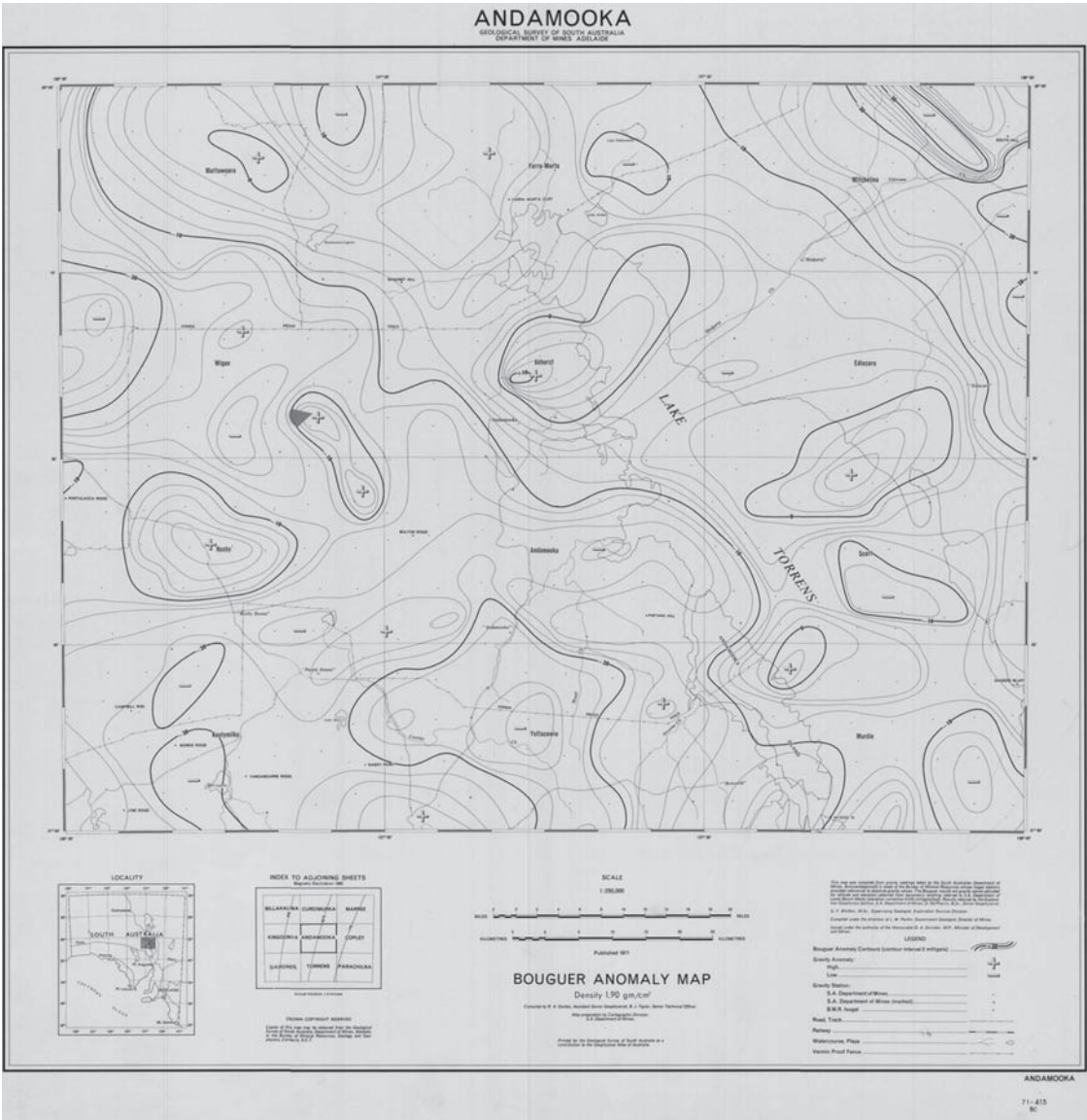


Figure 1. Adnamooka Bouguer Gravity contours, SA plan number 71-413.