

Onshore Energy Security Program update

Ambitious five-year program gathers data

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Geoscience Australia's Onshore Energy Security Program (OESP) is applying the latest geophysical imaging and mapping technology to boost investment in exploration for onshore energy resources such as petroleum, uranium, thorium and geothermal energy.

The program is acquiring national-scale geophysical and geochemical data, including seismic, gravity, heat flow, radiometric, magnetotelluric and airborne electromagnetic data in collaboration with the state and Northern Territory governments under the National Geoscience Agreement.

Deep reflection seismic data

In conjunction with the New South Wales Department of Primary Industries, Geoscience Australia has completed a deep crustal seismic reflection survey in the Rankins Springs trough and Yathong trough of the Darling Basin. The survey area is interpreted as an extensive sediment-filled structural low, a large part of which attains basement depths in excess of 3500 metres. Previous seismic coverage of these troughs was virtually non-existent, and this survey will therefore provide a step change in information on the basin architecture across the region.

Two traverse lines totalling 234 kilometres of high-resolution reflection seismic data were acquired by Terrex Seismic (figure 1) in March 2008. The energy source was three truck-mounted Hemi50 vibrators, and data were recorded for 22 seconds, giving a depth penetration of more than 60 kilometres. Preliminary analysis of field stacks of line RS2 (figure 2) has interpreted sediments of the Darling Basin and a possible underlying older basin. Data from both lines are

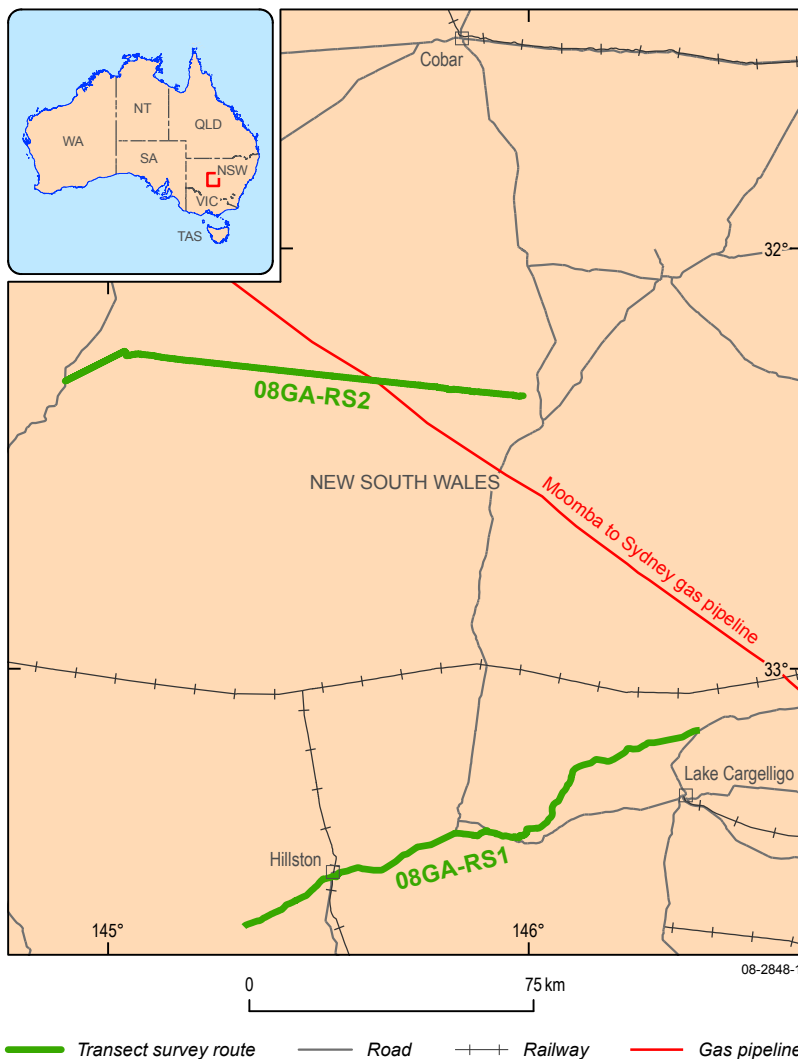


Figure 1. Rankins Springs seismic survey traverse line location map.

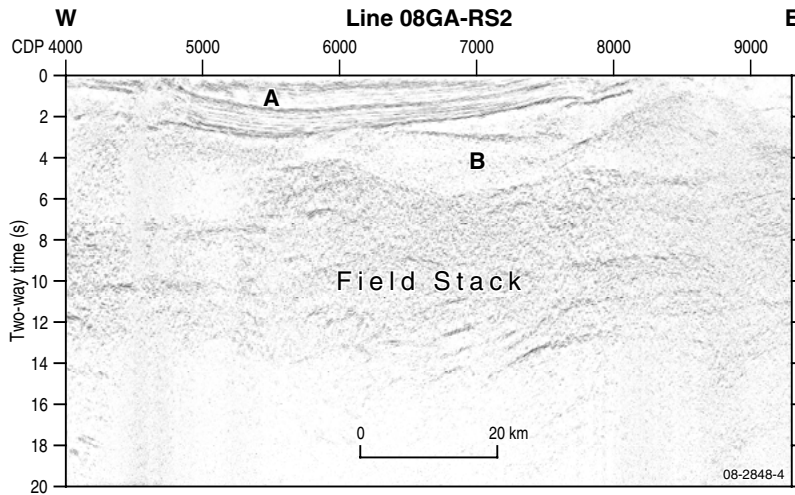


Figure 2. Field stack of line 08GA-RS2 showing interpreted sediments of the Darling Basin (A), and a possible underlying older basin (B).

now being processed in-house by Geoscience Australia's geophysicists, and the results will be released to industry later this year.

The next seismic survey acquisition program under the OESP is scheduled to commence in June in South Australia. That survey consists of three traverse lines (figure 3)—one line in each of the Gawler and Curnamona provinces and the Arrowie Basin. The data will be used for the assessment of uranium, geothermal and hydrocarbon resource potential in these important mineral and energy provinces of South Australia.

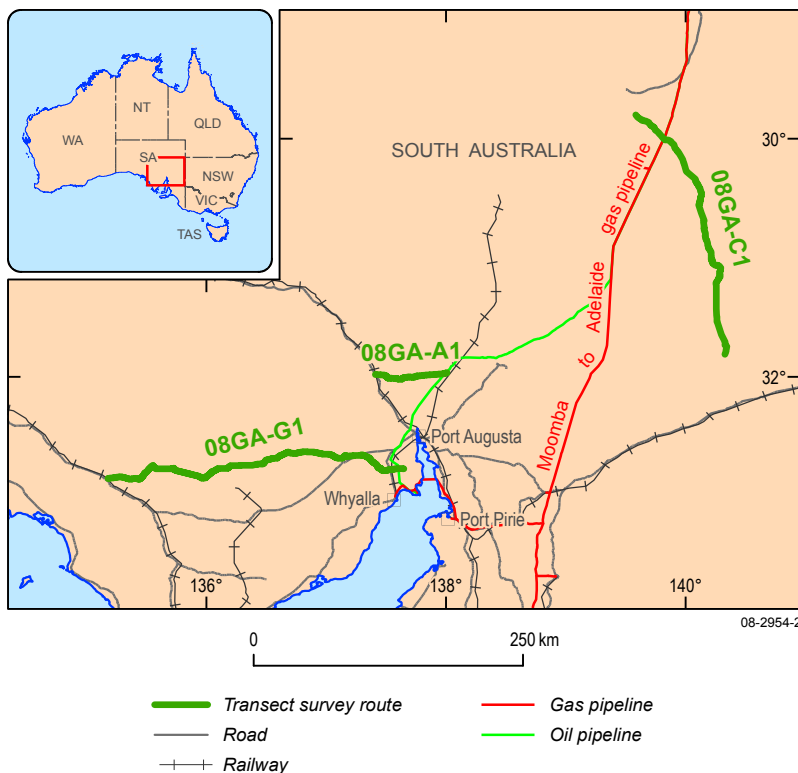


Figure 3. Gawler-Curnamona-Arrowie seismic survey proposed traverse line location map.

Australia-wide airborne geophysical tie-line survey

Data from the recently completed Australia-wide airborne geophysical tie-line survey (AWAGS2) survey were supplied to Geoscience Australia in March for quality assurance / quality control testing and initial processing. Results from the survey are scheduled to be released during the last quarter of 2008.

This survey, which was flown across the entire Australian mainland and Tasmania, acquired more than 156 700 kilometres of radiometric and magnetic data on north-south flight lines spaced 75 kilometres apart, with a nominal flying height of 80 metres above ground level.

The processed radiometric data from AWAGS2 will form the Australian Radioelement Datum and be used to adjust data in the National Radiometric Database (all Commonwealth and state public-domain data) to the new datum. The survey will also be the datum for airborne radiometric data acquired in the future.

The processed magnetic data will increase the resolution of the Australian Magnetic Anomaly Map and will be incorporated into continental-scale datasets. This will fill the gap between wavelengths of about 100 kilometres from standard airborne surveys and wavelengths exceeding 400 kilometres from satellites.

Airborne electromagnetic surveys

The Paterson airborne electromagnetic (AEM) survey is the first AEM survey to be conducted under the OESP. The contractor ceased flying in November 2007 to avoid the hot summer months which cause unstable flying conditions and recommenced in May 2008. This survey is scheduled to be completed by mid-2008; results are to be released towards the end of 2008.

The Pine Creek AEM survey (figure 4) is the next AEM survey to be conducted under the OESP, and is expected to commence flying in the second half of 2008. Data will be collected on 5 km, 2 km and 1.66 km spaced lines over a large region around Pine Creek and to the east of Kakadu National Park. A number of companies exploring in the area have also expressed interest in sponsoring additional infill lines over their tenement areas.

The results will be used to assess the region's potential for uranium resources by mapping the relevant unconformity and structures, as areas adjacent to Kakadu are considered to be highly prospective for uranium. The Ranger uranium mine, which started operating in 1980, is close to the region of the new survey. The AEM data will also assist the mapping of subsurface water resources within the survey area.

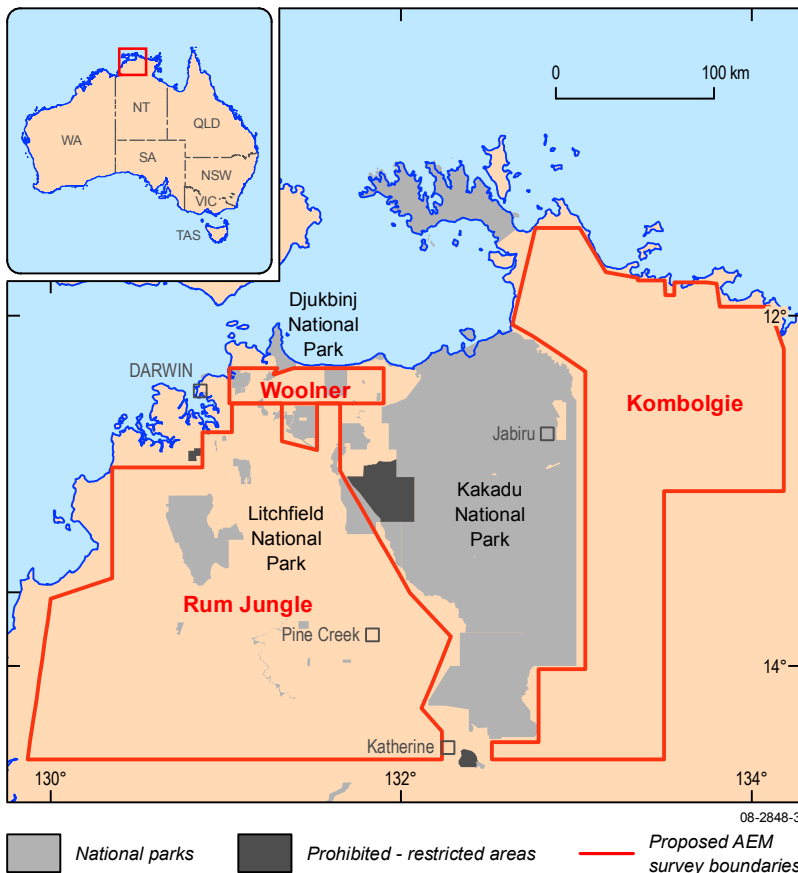


Figure 4. Proposed airborne electromagnetic survey area, Pine Creek Region, Northern Territory.

National Geochemical Survey of Australia

The National Geochemical Survey was initiated to complement the results of the AWAGS2 Australia-wide airborne radiometric survey and improve the existing knowledge of concentrations and distributions of energy-related elements such as uranium and thorium at the national scale. It will also provide complete uniform geochemical coverage across Australia.

Sampling of surface and subsurface transported regolith at the outlets of large catchments for the project is now underway in all states and in the Northern Territory (figure 5). Of about 1500 sites selected to cover all of Australia, 50 percent had been received at Geoscience Australia by 31 May. Sample preparation (drying, sieving, milling, etc.) has started, and preliminary testing of analytical instruments and methods has commenced. The field work component of the survey is due to be completed by 31 December 2008.

Regular updates on the OESP are available through the program's website, which contains information on the program, summaries of current and planned surveys, and recent presentations. The program's five-year plan, which is included on the site, provides further information on objectives, outputs and planned activities for the national and regional projects. All new data releases for the OESP will be announced through Geoscience Australia's monthly *Minerals Alert*.

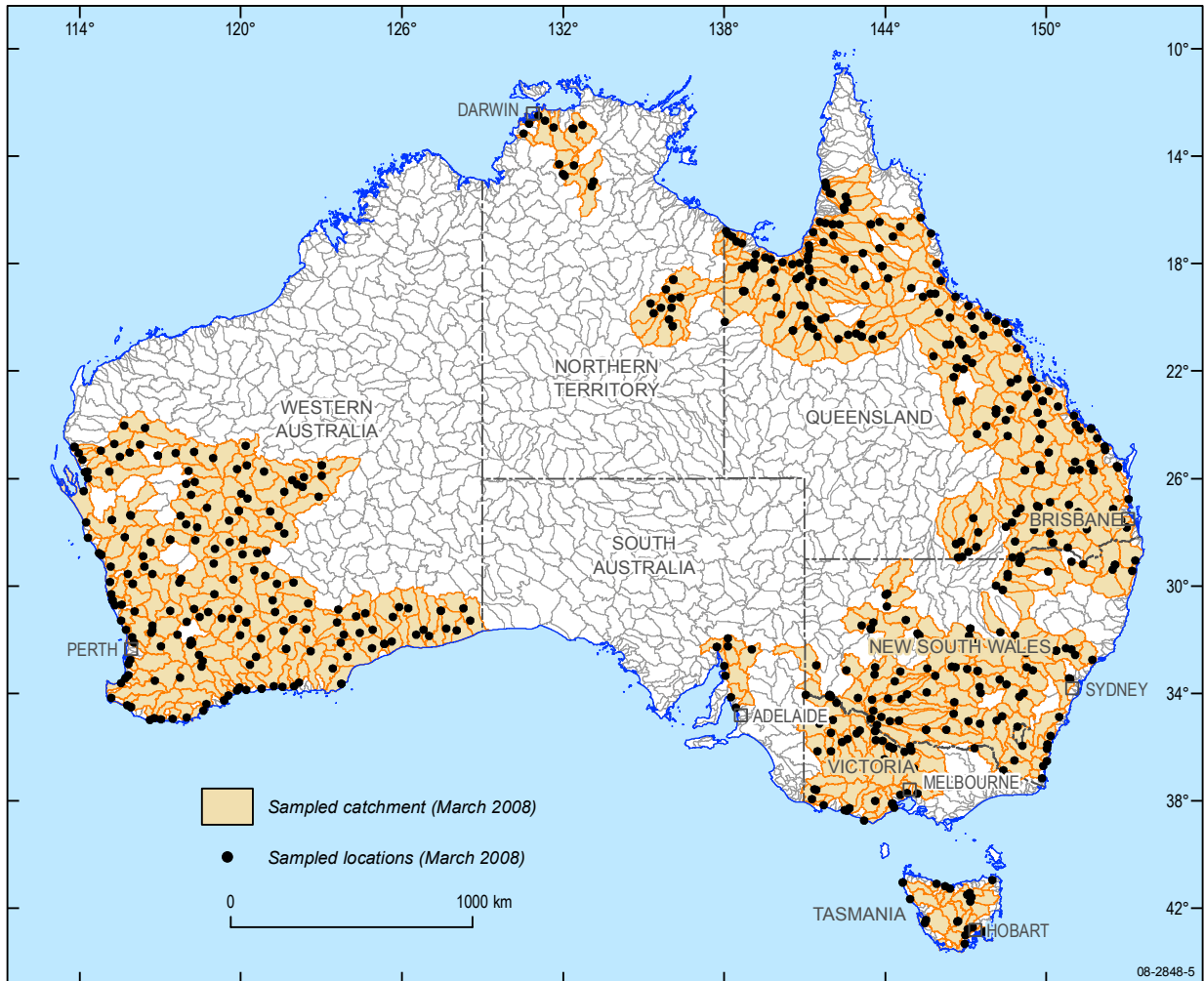


Figure 5. Sampling of surface and subsurface transported regolith for the National Geochemical Survey to 31 March 2008.

For more information

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