

Seabed Minerals Map — a world first for Australia

A world-first map showing known offshore mineral occurrences and deposits for Australia's vast marine jurisdiction was launched in August by the Minister for Industry, Tourism and Resources, The Hon. Ian Macfarlane, MP and the Minister for Education, Science and Training, The Hon. Julie Bishop, MP.

The Australian Offshore Mineral Locations map was developed by Geoscience Australia and CSIRO's Wealth from Oceans Flagship and Division of Exploration and Mining in collaboration with the state and Northern Territory Geological Surveys.

Minister Macfarlane said the map's documentation of known mineralisation in the huge expanse of Australia's seabed was an important instrument for encouraging future exploration and scientific study of the water column. 'Australia has one of the largest marine jurisdictions in the world, but very little is known about its make-up or resource potential,' Mr Macfarlane said.

He also pointed out that the gap between onshore exploration and mining, and seafloor exploration is enormous. The total expenditure for exploration in Commonwealth waters totals only \$17 million, compared with Australia's annual mineral exploration expenditure of more than \$800 million.

Minister Bishop commented that the data collected during compilation of the map would help researchers better understand the seafloor environment in Australian waters. 'We can expect the map to act as a catalyst for future surveys and exploration of Australia's offshore region which will help in the longer term development of strategic resource planning,' she said.

It is anticipated that the map will promote interest in exploring for marine minerals, particularly minerals located in readily accessible shallow waters, such as those illustrated by the drilling of seafloor sulphides in New Zealand and Papua New Guinea Territorial waters.

The map in portable document format can be accessed through Geoscience Australia's website and is available from the Geoscience Australia Sales Centre on Freecall 1800 800 173 (within Australia) or +61 2 6249 9966 (email mapsales@ga.gov.au).



Figure 1. Minister for Industry, Tourism and Resources, the Hon. Ian Macfarlane and the Minister for Education, Science and Training, the Hon. Julie Bishop, following the launch of the Australian Offshore Mineral Locations map at Parliament House on 10 August 2006.

Related articles/websites

Australian Offshore Mineral Locations map
www.ga.gov.au/minerals/exploration/offshore/



More information

phone Bill McKay on
+6 2 6249 9003
email bill.mckay@ga.gov.au

Reducing natural hazard risk to remote Indigenous communities

Western Australia has 283 remote Indigenous communities which are populated by approximately 17 000 Aboriginal people. Though many communities are located in areas subject to flood, tropical cyclone, bushfire and tsunami, little is known about the risk posed to them by such hazards.

Many factors link the vulnerability of remote Indigenous communities to natural hazard risk. Some of these relate to hazards, however, there are many other complex factors involved, such as isolation, inadequate infrastructure, transient populations and

being undertaken by Geoscience Australia as part of meeting Reform Commitment 2 of the Council of Australian Governments (COAG) Report *Natural Disasters in Australia*.

To date, Geoscience Australia and FESA have held several meetings and workshops with Western Australian emergency managers, including operational services officers who work closely with remote Indigenous communities.

As a result key indicators of risk are being developed in a geographic information systems (GIS) environment with the final data and information due to be released in an ArcReader format in September 2006. Decision-makers who are unfamiliar with GIS will be able to use this format to view information on all remote Indigenous communities in Western Australia and examine issues relating to natural hazard risk.

Some of the key indicators of risk incorporated into the GIS environment to date include: remoteness, bushfire/cyclone exposure, language (traditional or English), airstrip access, community evacuation plans, petrol-sniffing programs and population size. When these and other indicators are combined they create a more complete picture of the natural hazard risk in particular communities which will enable emergency managers to make better informed decisions.

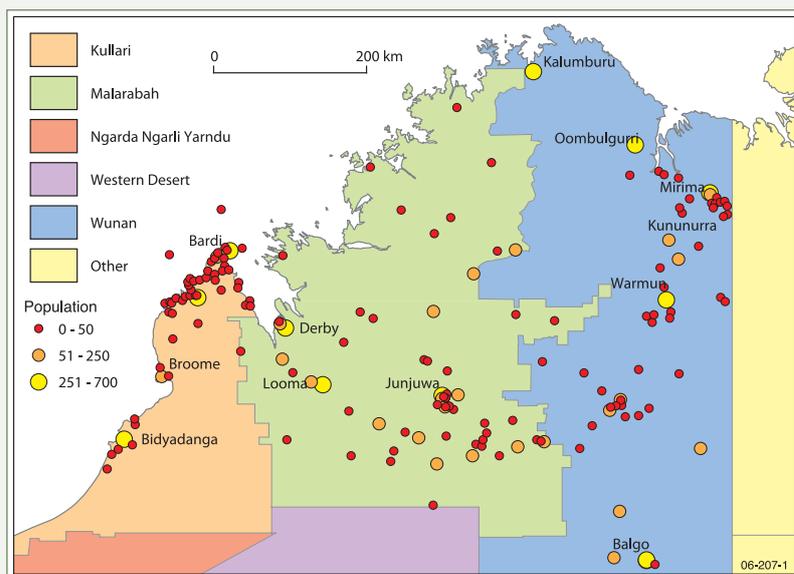


Figure 1. Remote Indigenous communities of the Kimberley.

cultural beliefs. All these factors need to be analysed and are equally important when determining risk. Consequently remote Indigenous communities have diverse and complex emergency risk management needs.

Geoscience Australia and the Fire and Emergency Services Authority (FESA) of Western Australia are currently collaborating on a demonstrator project which aims to support decision-makers involved in natural disaster mitigation and emergency risk management reduce natural hazard risks facing remote Indigenous communities.

In bringing together key risk data in a mapping environment, the project fulfils two strategic objectives.

Firstly, since it will assist FESA develop a much clearer understanding of the level of natural hazard risk faced by these Indigenous communities, the information will assist in the prioritisation and delivery of emergency risk management activities.

Secondly, the project involves examining existing data collection systems at the state level and how these can be replicated and modified to facilitate the collection of consistent data for a national risk assessment. It is one of three demonstrator projects currently

More information

phone Anita Dwyer on
+61 2 6249 9027

email anita.dwyer@ga.gov.au



in brief

International award assists inversion modelling development

Geophysical inversion methods form an integral part of Geoscience Australia's ongoing program to develop predictive 3D models of subsurface geology. Consequently Nick Williams, a Minerals Division geoscientist, is undertaking a Ph.D. in Geophysics at The University of British Columbia (UBC) in Vancouver, Canada. His project is focussed on developing and improving the techniques for integrating geology, geophysics and rock properties into 3D models through the use of geophysical inversion software developed by UBC Geophysical Inversion Facility.

Having commenced with Geoscience Australia in 2001 as part of the organisation's Graduate Program, he is currently working on problems associated with regional 3D mapping, nickel targeting and exploration in the Agnew-Wiluna greenstone belt of the Eastern Goldfields in Western Australia's Yilgarn Craton. His project is supported by Geoscience Australia, the Predictive Mineral Discovery CRC, the UBC Mineral Deposit Research Unit, the UBC Geophysical Inversion Facility, and BHP Billiton.

In April 2006, Nick was awarded a US\$4000 Hugo Dummett Mineral Discovery Fund grant to support his research by the Society for Economic Geologists, an international organisation with over 3000 members in more than 70 countries. The competitive fund 'supports applied economic geology research, including the development of new exploration technology and techniques, and the dissemination of related results'. The grant is being used to cover costs associated with the analysis of density and magnetic properties of samples



Figure 1. Nick Williams.

Nick collected during field work around Leinster and the Perseverance Ni deposit in 2005.

The knowledge gained from this analysis will help clarify the relationship between the expected geology and the observed gravity and magnetic responses in the region. This in turn will allow the inclusion of geological constraints into the geophysical inversions to provide more reliable 3D models of subsurface geology.

in brief

Earthquake Engineering Conference AEES2006

In November this year, Geoscience Australia will host the annual conference of the Australian Earthquake Engineering Society (AEES). This is an opportunity for earthquake engineers, engineering seismologists, emergency managers, code writers, insurance actuaries and others to discuss measures aimed at reducing earthquake risk in Australia.

During the 20th century earthquakes caused, on average, 10 000 deaths per year with about 10 times that number of people suffering severe injuries as a result of building collapse.

Keynote speakers from the United States and New Zealand have accepted invitations to address the conference, which is being held between 24 and 26 November. The organisers are planning a program with a mixture of oral presentations and poster sessions.

The AEES is affiliated with the International Association of

Earthquake Engineers through its linkage as a professional society of Engineers Australia and it draws a significant membership from the geoscience community and people interested in earthquakes and their impacts.

More information

phone Mark Leonard on
+61 2 6249 9357
email mark.leonard@ga.gov.au
web www.aees.org.au

Map producers working together

With an area covering more than 7 650 000 square kilometres, the revision of Australia's topographic maps is a major challenge that governments cannot tackle alone. For many years private map publishers as well as members of the public have provided information which has contributed to the updating of Geoscience Australia's maps and data sets. This information has come from a variety of sources including dedicated field revision, anecdotal comments, and formal feedback, as well as distribution of topographic maps to local organisations and rural property owners/managers for review.

This collaboration between map publishers and Geoscience Australia has gone a step further toward the main goal of increasing the value of data acquired whilst reducing the costs for participating organisations.

During August, mapping staff from Geoscience Australia joined one of Australia's largest commercial map publishers, Hema Maps, to undertake field revision work in the Douglas/Daly, Katherine, Daly Waters, and Roper River regions in the Northern Territory.

During the month, the Hema Map Patrol vehicle and its combined crew from Hema Maps and Geoscience Australia travelled more than 6000 kilometres of roads and tracks, noting and recording locations of numerous man-made and natural terrain features. The crew used differential GPS navigation systems coupled to laptop computers and GIS software to record this information.

Hema Maps General Manager Rob Boegheim considered that the joint initiative succeeded for a number of reasons. 'Working with Geoscience Australia allowed us to acquire data that is useful to both



Figure 1. Cameron Corner to Moomba Rd—Hema Map Patrol vehicle.

organisations. Hema Maps use a lot of Geoscience Australia data to produce our extensive range of maps and by sharing many of the costs and resources involved in acquiring data we can fast track our map development and update program'.

more information

phone Simon Costello on
+61 2 6249 9665

email simon.costello@ga.gov.au

Spatial information scientist receives 2006 Fulbright Scholarship



Figure 1. Dr Alan Forghani.

A spatial information scientist with Geoscience Australia is one of 21 Australians to receive a Fulbright Scholarship worth up to \$40 000 to study and conduct research in the United States.

Dr Alan Forghani left Australia in early August to take up the scholarship and carry out research on remote sensing applications at the Geographic Information Science Centre with the University of California Berkeley.

He will examine wind and bushfire assessment approaches used in the US, focusing on the integration of these models with remote sensing data and test its suitability for the Australian environment. He believes the work being conducted at the University of California Berkeley complements Australian research and will contribute to planning and designing safer communities.

Dr Forghani will also visit the Rocky Mountain Research Station's Missoula Fire Sciences Laboratory in Montana which developed the Wind Wizard system to engage with eminent bushfire scientists.

The 2006 Australian Fulbright scholarships are administered by the Australian-American Fulbright Commission and funded by the Australian and US Governments and a group of corporate partners.