Australian Government
Geoscience Australia

Geoscience Australia Work Program 2011-12

Geoscience Australia undertook an organisational restructure in October 2011. This annual Work Program was created before the restructure and therefore reflects the pre-October 2011 structure.

The current, post-October 2011, organisational structure is available from the About Us page on the Geoscience Australia Internet site.

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GEOSPATIAL & EARTH MONITORING DIVISION

2011–12 Work Plan

Dr Andy Barnicoat A/g Chief of Division

Overview

GEMD maps, monitors and models changes to the Earth and advises on how they affect Australian Society. GEMD works to improve the safety of communities and the protection of Australia's critical infrastructure.

GEMD combines its capabilities in geospatial information and knowledge management, research and mapping programs, earth observation capabilities and risk assessment, to bring together a comprehensive capability, able to respond flexibly to current and emerging government priorities.

GEMD's work program links to many of the priorities identified in the Geoscience Australia Strategic Plan 2010-2012, in particular to Priority 2: Groundwater for environmental, economic and social purposes, Priority 3: Support Government policy development and decision making, Priority 4: Technical component of the legal framework for all of Australia's spatial information and jurisdictional boundaries for environmental, economic and social purposes, Priority 5: natural hazards and risks for community safety and resilience, Priority 6: Informed land and marine jurisdictions for environmental, economic and social purposes and Priority 8: Maintain and manage the geographic and geological data and knowledge of the nation.

Priorities for 2011 - 2012 are:

- Develop an MOU with the United States Geological Survey establishing Geoscience Australia as an international collaborator on the Landsat Data Continuity Mission to be launched in 2012 to ensure continuity of land surface observations for Australia.
- Facilitate the Gazettal by the National Measurement Institute of updated positions of the fiducial stations which define the Geocentric Datum of Australia 1994 (GDA94) thus improving the accuracy of national positioning.
- Release of 2012 Australian earthquake hazard map.
- In partnership with AusAID, delivery of a program of capability development for natural hazard risk assessment in Indonesia, the Philippines and Papua New Guinea.
- In collaboration with Government partners, continue the development of a natural hazard risk analysis capability. This includes the delivery of an augmented national exposure capability (NEXIS) for climate change impact assessment, an open source Tropical Cyclone Risk Model, and improved flood inundation damage models for Australian buildings.
- Delivery of national assessments of groundwater resources in palaeovalleys in Australia's arid zone, and of the vulnerability of coastal aquifers to seawater intrusion.
- Completion of the Broken Hill Managed Recharge Project Phases 2 and 3a assessments of aquifer suitability for groundwater extraction and/or managed aquifer recharge.
- Advise the Australian Government on groundwater-related matters associated with mining and coal seam gas developments.
- Implement the outcomes of the APS200 project 'Positioning Australia with Geography and Place' subject to the approval of the Secretary's Board.

Information Services Section
Section Leader Neal Evans

SECTION ACTIVITY: GEM Information Services Section (GEMD ISS) aims to enable GEM business areas and data stewards to efficiently manage and deliver to clients annual work plan outputs and sustainably steward the national data collections for which Geoscience Australia is custodian. This is delivered to a 'best practice' standard; ensuring reliability, quality and sustainability of support and solutions provided. GEM IS liaises and collaborates with Corporate Branch, ISB and the other business divisions to deliver IM support as a set of efficient and effective services.

SECTION OUTCOME: (1) To build a sustainable team of core skills to facilitate the delivery of strategic and tactical ICT solutions that meet GEM business needs.
(2) To improve the decision making ability of internal and external clients, based on timely information delivered via quality, client-focussed information systems and web pages.
(3) To enable GEM data stewards to sustainably manage Geoscience Australia's information assets and supporting collection, management, delivery and usage systems.
(4) To ensure strategic and tactical alignment of GEM business with agency ICT strategy and service provision.

DELIVERABLE 1: BAU Services
Description: To support GEMD business areas and the agency as required to effectively generate and deliver their 2010-11 work plan outputs. This includes:
(1) Advice & Liaison (Sections, Groups, Division & Agency)
(2) Support & Maintenance (Apps, Databases, Web, Stewardship)

Type of Deliverable:

☐ **Project OR**	☒ **Internal OR**
☒ **Business As Usual**	☐ **External**

DELIVERABLE 2: Project Services
Description: To supply expertise to business prioritised information system projects within GEMD and across Geoscience Australia, facilitating the ICT components of business projects or providing resources (skills) into business projects.

*** Majority of financial resources to be sourced from Sections/Groups ****

Type of Deliverable:

☒ **Project OR**	☒ **Internal OR**
☐ **Business As Usual**	☐ **External**

EARTH MONITORING GROUP
Group Leader Barry Drummond

The Earth Monitoring Group monitors and reports on earthquakes, tsunamis and the Earth's magnetic field. It develops national hazard maps that form part of building codes designed to mitigate the effects on buildings of ground shaking from earthquakes. It contributes to international efforts to monitor nuclear tests, and provides capacity building to allow the Rabaul Volcanological Observatory in Papua New Guinea to monitor and warn citizens of volcanic eruptions. The Group also monitors the shape of the Earth in the region, and contributes to the development of geospatial reference systems.

Work is conducted through seven (7) sections:

- Australian Tsunami Warning System (ATWS)
- Geomagnetism
- Geophysical Network
- National Geospatial Reference Systems
- Nuclear Monitoring
- Rabaul Volcanological Observatory Twinning
- Earthquake Hazard

It reports to government, industry and the Australian people on these activities.

Australian Tsunami Warning System Section
Section Leader Dan Jaksa

SECTION ACTIVITY: Develop, maintain and operate the Geoscience Australia component of the Joint Australian Tsunami Warning Centre (JATWC) with the Australian Bureau of Meteorology. This activity includes the 24/7 monitoring, detection, analysis and alerting of earthquakes that have the potential to generate a tsunami that pose a threat to Australian interests in Australia and overseas. Additionally the Section alerts for earthquakes that occur in Australia and internationally that are likely to impact Australians or Australian interests. The Section also catalogue and publish all earthquakes that can be located in Australia and submits the results to the International Seismological Centre.

SECTION OUTCOME: The collective benefit of the Section Activity is to reduce the number of lives lost and limit damage to infrastructure in Australia and overseas.

DELIVERABLE 1: Earthquake advice to the Australian Government

Description: Develop, maintain and operate the Geoscience Australia component of the Joint Australian Tsunami Warning Centre. Provide timely alerts for earthquakes that have the potential to generate a tsunami that pose a threat to Australian interests in Australia and overseas on a 24/7 basis. Alert, catalogue and publish earthquakes that occur in Australia and internationally that are likely to impact Australians or Australian interests. Actively participate in the Intergovernmental Coordination Groups of the Indian Ocean and Pacific Ocean Tsunami Warning and Mitigation Systems, Intergovernmental Oceanographic Commission, UNESCO.

Type of Deliverable:

☐ **Project** **OR**	☐ **Internal** **OR**
☒ **Business As Usual**	☒ **External**

Earthquake Hazard Section
Section Leader David Burbidge

SECTION ACTIVITY: To provide all levels of government and the public with accurate and timely information on the level of hazard expected from earthquakes in Australia. The main deliverable from the section is the National Earthquake Hazard map, a key element of the Australian Standard, "AS 1170.4 Structural design actions Part 4: Earthquake actions in Australia". The section also conducts research into the likelihood of earthquakes occurring in Australia and the level of ground shaking they might produce. This can be used to calculate the hazard at national, regional or local scales and to provide technical advice to other government agencies on earthquake hazard and risk.

SECTION OUTCOME: The impact of future earthquakes on the Australian community is reduced. This is achieved by stakeholders across the government and private sector being able to make more informed decisions on the potential hazard posed by earthquakes. In particular, this is done via improving the national building code and by providing advice on appropriate planning and prepartion measures to emergency managers. The project's research is also used by the private sector to produce more accurate site specific hazard assessments for critical infrastructure and by the general research community to better understand the causes and likely impacts of earthquakes in Australia.

DELIVERABLE 1: The National Earthquake Hazard Map

Description: Updates to the National Earthquake Hazard Map are planned to occur every 5 years timed to releases of the Standards Australia's national earthquake loading code, AS1170.4. The main activity this year is to circulate the draft map to key stakeholders for peer review. Once that is completed the plan is to then publish the revised map and accompanying report as a GA record and then as one or more papers in relevent scientific journals. We also plan to begin the process this financial year of applying to get the updated map incorporated into the next revision of AS1170.4.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

Geophysical Network Section
Section Leader Tim Barton

SECTION ACTIVITY: This section maintains and operates Australia's National Geophysical Network across Australia, the Antarctic region and in the Southern, Pacific and Indian Oceans. The section provides near-real time seismic, infrasound, hydroacoustic and geomagnetic data which underpins the monitoring of both natural and anthropogenic events that might constitute hazards to the Australian people.

SECTION OUTCOME: Effective national and international capabilities in Earth monitoring for detection of natural and anthropogenic events in Australia and overseas, such as earthquakes and nuclear explosions, and as an input to risk assessment provided through other Geoscience Australia and regional collaborative projects for the Australian continent, the South East Asian and South West Pacific regions.

DELIVERABLE 1: Seismic, geomagnetic, infrasound, hydroacoustic data and ancillary information.

Description: The Geophysical Network is responsible for the delivery of quality assured continuous near real-time time-series waveform data to support several agency activities and for making them available to external clients and international data centres for monitoring earthquakes, to tsunami warning centres overseas, and to the CTBTO for nuclear monitoring activities. Note this activity is primarily funded internally but also receives some S31 funding from the Nuclear Monitoring Section.

Type of Deliverable:

☐ **Project OR**	☒ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 2: Support for Earthquake Impact Assessments in Indonesia

Description: This program is subject to AusAID funding in 2011/12.
This activity is to enhance the capacity of Indonesia's Agency for Meteorology, Climatology and Geophysics (BMKG) to provide rapid and reliable earthquake information to key stakeholders. Steps to achieve this include capacity development that will allow BMKG to operate, maintain and manage the Indonesian strong ground motion network and produce of near real-time earthquake impact maps so that BMKG can provide rapid and reliable earthquake information to key stakeholders.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

Geomagnetism Section
Section Leader Adrian Hitchman

SECTION ACTIVITY: The Geomagnetism Section addresses the national and international need for geomagnetic-field information from the Australian region. This information is typically used in geomagnetic-field modelling, navigation, geophysical exploration, space weather analysis, and scientific research. The Section also exercises stewardship of Australian geomagnetic observatory data.

SECTION OUTCOME: The Section's main outcomes are enhanced representation of the Australian region in regional and global geomagnetic-field models, more-accurate compass navigation, more-effective resource exploration, improved space weather forecasting and analysis, and advances in solid-Earth geoscience and solar-terrestrial physics research.

DELIVERABLE 1: Geomagnetic data, models and advice

Description: Geomagnetic data, reference-field models, information and advice, are provided to Australian and international government agencies, data centres, industry, universities and the public. The current reference-field model was released in January 2010; the next will be released in January 2015. Research projects address matters of national interest related to geomagnetism, geoelectrical conductivity structure, and geoelectromagnetic induction. Compasses, magnetometers and compass swing bays are calibrated for the aviation, maritime, defence and research sectors on a fee-for-service basis.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

National Geospatial Reference Systems Section
Section Leader Gary Johnston

SECTION ACTIVITY: This Section delivers the National Geospatial Reference Systems for Australia. A National Geospatial Reference System (NGRS) provides the fundamental, national-scale, reference frame that establishes the spatial relationships on and above of the Earth's surface and allows spatial information to be interrelated in the same frame. Development of the NGRS includes refinement of and connection to the International Terrestrial Reference Frame, and crustal deformation measurements on the Australian landmass. Accordingly the Section will also coordinate the AuScope Geospatial activities including the Australian Geophysical Observing System (AGOS) Geospatial Obserevatory .

SECTION OUTCOME: An accurate and consistent National Geospatial Reference System supporting a wide range of planning and development activities, including cadastral and engineering surveys, topographic mapping, mineral and petroleum exploration, hazard monitoring, and navigation.

DELIVERABLE 1: Development of the National Geospatial Reference System

Description: This deliverable consists of several components. 1) Stewardship of quality assured geodetic data sets and value added products. 2) Integrated, versatile and quality assured regional and global reference systems including routine contributions to the International GNSS service (IGS), the International Laser Ranging Service (ILRS), and the International VLBI Service (IVS) for inclusion into the International Terrestrial Reference Frame (ITRF) definition. 3) Responsive, accessible, accurate and reliable expert analysis and advice services including legal traceability of position from GPS and delivery of the AUSPOS service.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 2: Delivery of the AuScope Geospatial Program

Description: Management of the Geospatial component of the AuScope initiative funded under National Collaborative Research Infrastructure initiative (NCRIS). AuScope is an initiative aimed at improving the understanding of the structure and evolution of the Australian continent through investment in research infrastructure. It will also involve the collation of progress reports and financial reports from participating agencies. This Deliverable also includes the implementation of the AuScope Australian Geophysical Observing System which is funded under EIF3.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

Nuclear Monitoring Section
Section Leader David Jepson

SECTION ACTIVITY: The Nuclear Monitoring Section monitors and assesses suspected nuclear explosions worldwide, and provides technical advice and support to Government on matters pertaining to Australia's obligations as a signatory to the Comprehensive Nuclear-Test-Ban Treaty 1996 (CTBT), enacted under Australian law in the CTBT Act 1998.

SECTION OUTCOME: (i) GA contributes to Australia's evidence-based decision making for assessing violations to the CTBT and on matters relating to Australia's position on non-proliferation;
(ii) Australia's commitment to the global verification system to monitor future compliance of the CTBT is strengthened; and
(iii) Australia's obligations under the CTBT Act 1998 are met.

DELIVERABLE 1: Provision of nuclear monitoring technical advice to Government

Description: The Nuclear Monitoring Section (i) maintains an effective and reliable seismic monitoring capability, that is able to monitor for underground nuclear explosions in real-time; and (ii) provides technical advice and support to DFAT on the establishment of the CTBT verification system. This enables the timely provision of seismo-acoustic monitoring information and advice on any suspected nuclear explosion , and entails providing technical advice and support to DFAT at Working Group B and relevant CTBTmeetings

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 2: Establishment of the CTBT Infrasound Monitoring Station on Cocos (Keeling) Is.

Description: Establishment of the CTBT infrasound monitoring station, IS06, on Cocos (Keeling) Islands. The project commenced on 24 Dec 2009, under contract with the CTBTO and is scheduled for completion in 2011/12.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

DELIVERABLE 3: Operation and maintenance of CTBT International Monitoring System (IMS) stations

Description: The Nuclear Monitoring Section, under contract with the Provisional Technical Secretariat (PTS) of the Preparatory Commission for the CTBT Organization (CTBTO), operates and maintains ten seismo-acoustic CTBT IMS stations. The Nuclear Monitoring Section undertakes the liaison activities with the PTS in matters relating to data delivery, station operation, maintenance and sustainability, and includes negotiation of contracts to fund these activities. The Geophysical Network Section is engaged to undertake data delivery and station operation & maintenance activities to IMS standards under a fee-for-service arrangement.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

Rabaul Volcanology Observatory Twinning Section
Section Leader Shane Nancarrow

SECTION ACTIVITY: The Rabaul Volcanological Obervatory Section provides capacity building to develop the RVO in PNG to monitor and warn citizens of volcanic eruptions. . The Project has been funded by AusAID since 1994 and contributes to the Australian Government's foreign policy objectives in the region. The last phase of the program ended on 30 June 2008. AusAID extended the program twice to 30 June 2010 to allow time to finalise its new 3-year PNG National Disaster Management Plan. A new 3-year agreement for this Program was subsequently signed between GA and AusAID in September 2010.

SECTION OUTCOME: Reduce the impact of volcanic hazards on Papua New Guinean communities through the development of effective indigenous volcano monitoring capabilities.

DELIVERABLE 1: Reports documenting improved capacity of RVO to monitor and mitigate volcanic hazards.

Description: Reports to AusAID on the level of capacity improvement and engagement within the project, including evidence of on-going engagement by RVO with National Disaster Centre, NGO's, Provincial Disaster Committees and local communities.

Type of Deliverable: ☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

RISK & IMPACT ANALYSIS GROUP
Group Leader John Schneider

The Risk & Impact Analysis Group's (RIAG) key role is to develop information on the risks from natural and human-caused hazards for input to policy and risk management decision makers in order to mitigate the risk to communities in Australia and the Australasian region. The focus of RIAG's work is earthquake, tsunami, volcano, flood, severe wind, storm surge, and landslide hazards. Risks and impacts are characterised in terms of the convolution of hazard, exposure and vulnerability, where the vulnerability describes the relationship of exposed population, buildings, infrastructure, social systems and the economy to hazard events or phenomena. RIAG achieves this through the development of computational methods, models and decision support tools for use in assessing the impact and risk posed by hazards. RIAG works in collaboration with all levels of government as well as the private sector and public more broadly. External funding is derived from three main sources:

- Attorney General's Department (AGD), in support of the Natural Disaster Resilience Strategy;
- the Australian Agency for International Development (AusAID), in support of the Disaster Risk Reduction Policy; and
- the Department of Climate Change & Energy Efficiency, in support of climate change adaptation policies and priorities.

Work is conducted through five (5) sections:

- Climate Hazard and Risk
- Risk Analysis Methods
- Regional Risk
- Vulnerability
- Exposure Information

Climate Hazard and Risk Section
Section Leader Hamish Anderson A/g

SECTION ACTIVITY: Definition of current and future climate impacts and risk to Australia and the Australasian Region from climatic hazards including: severe winds, sea level rise, storm surge, flooding and bushfire. Provision of scientific analysis and advice, including the development of decision support tools, to stakeholders enabling evidence based mitigation and adaptation policy development.

SECTION OUTCOME: Clearly define current and future climatic hazards and risks, and apply this knowledge to inform adaptation and risk reduction. Deliver hazard and risk analysis to improve: policy development; planning decision; and building standards to better adapt to a changing climate.

DELIVERABLE 1: Wind hazard and risk analysis
Description: Develop methods, tools and datasets to undertake severe wind hazard, impact and risk assessments for Australia and the Australasian Region. Inform building standards improvements and climate change adaptation policy

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Coastal hazard and risk analysis
Description: Develop methods, tools and datasets to undertake national-scale vulnerability to inundation from sea-level rise, storm surge and coastal recession. Create decision support tools to build community capability to undertake detailed, regional and local vulnerability assessments. Develop a National Coastal Geomorphological Information Framework to underpin coastal hazard, impact and risk assessments for the development of climate change adaptation policy in Australia.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: Bushfire Hazard and Risk
Description: As part of the Bushfire CRC, develop a fire risk assessment framework and coordinate the development of a bushfire risk computational model chiefly using contributions of other organisations (Bureau of Meteorology, Melbourne University, CSIRO Marine and Atmospheric Research & CSIRO Ecosystem Science, as well as State fire and environment agencies). Outputs will be used to inform building standards with respect to bushfire, fuel reduction management and climate change adaptation policy.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

Exposure Information Section
Section Leader Krishna Nadimpalli A/g

SECTION ACTIVITY: The Exposure Information Section develops and provides exposure information for risk and impact assessments from natural hazards and infrastructure failures, climate change adaptation and urban research. The section develops the National Exposure Information System (NEXIS) which includes information about people, buildings, business activity and infrastructure exposure.

SECTION OUTCOME: Exposure information products are nationally consistent and support a broad range of geospatial applications, with particular focus on evidence-based decision making in Australia and the region for disaster management, climate change adaptation and urban planning.

DELIVERABLE 1: National Exposure Information System (NEXIS) maintenance and service delivery

Description: NEXIS database, software products and services are maintained and enhanced to support the exposure information needs of users, clients and stakeholders (GA appropriations).

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 2: Development of NEXIS Capability

Description: Enhance NEXIS capability to include specific information about people, buildings, business activity and infrastructure. NEXIS capability is augmented and updated in alignment with the needs of stakeholders, clients and users through series of meetings and workshops.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

Regional Risk Section
Section Leader Phil Cummins

SECTION ACTIVITY: This Section manages, and provides technical expertise and advice to AusAID in support of AusAID's Disaster Risk Reduction policy. The Section aims to enhance the capacity of our regional neighbours to define risk from natural hazards including earthquake, tsunami, severe wind, volcanic hazards and flood.

SECTION OUTCOME: Australia's regional neighbours are able to sustainably develop their capacity to undertake natural hazard risk assessments and in turn make informed decisions to manage these risks.

DELIVERABLE 1: Australia-Indonesia Facility for Disaster Reduction (AIFDR)
Description: Support AusAID to implement the AIFDR work program providing scientific tools and expertise to quantify hazards in Indonesia, and for the computation of risk. Provide technical support to the AIFDR risk and vulnerability work stream to make progress towards development of: 1) earthquake hazard information; 2) engineering vulnerability; 3) tsunami hazard information; 4) volcanic ash risk information; 5) real-time earthquake impact assessment capacity; and 6) scoping other potential areas for support, for Indonesia.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Enhancing multi-hazard risk assessments in PNG
Description: Support AusAID's Papua New Guinea (PNG) program and the Government of PNG (GoPNG) to develop a better understanding of natural hazards and their risks in East New Britain Province. The second year of this three-year program will focus on the collection and integration of existing datasets (e.g., population, built environment, flood extent, severity of earthquake shaking), training of GoPNG staff in earthquake, tsunami and volcanic risk analysis..

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: Greater Metro Manila Area project
Description: Support AusAID's disaster risk reduction goals in the Philippines by developing long-term partnerships between Government of Philippines (GoP) technical agencies, AusAID and Geoscience Australia in order to better understand, and in the longer term reduce the risk from earthquake, severe wind and flood hazard in the Greater Metro Manila Area. The second year of this three-year program will focus on the use of the high-resolution Digital Elevation Model (DEM) for Manila for multi-hazard analysis, and collection and integration of existing information on exposure and vulnerability analysis.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 4: Public Sector Linkages Programs
Description: Develop natural hazard risk modelling capacity in the region through Asia and Pacific Public Sector Linkages Programs through (i) Capacity Building for Tsunami risk Assessment in the SW Pacific – Phase 3 (ii) Capacity building in risk modelling for tropical cyclones, tsunamis, volcanic (ash) eruptions and earthquakes with a component on groundwater modelling.

Type of Deliverable:	☒ **Project <u>OR</u>**	☐ **Internal <u>OR</u>**
	☐ **Business As Usual**	☒ **External**

Risk Analysis Methods Section
Section Leader Jane Sexton

SECTION ACTIVITY: The Section aims to define the natural hazard risk in Australia from rapid onset hazards hazards including earthquake, tsunami, landslide, riverine flood and storm surge inundation. This Section will provide risk analysis models, methods and tools to support risk mitigation options, including emergency response, recovery and preparedness, building regulation, land-use planning and insurance. This Section provides modelling expertise to support other RIAG deliverables. This Section provides natural hazard risk technical expertise and advice to Australian and state government agencies in support of the National Disaster Resilience Strategy.

SECTION OUTCOME: The Australian and State Governments are supported by the provision of natural hazard risk analysis to underpin requirements from the COAG agreed, National Disaster Resilience Strategy. This analysis is based on best available science, engineering, soci-economic data and analytical methods and tools.

DELIVERABLE 1: Natural Hazard Risk Maps and Analysis

Description: Apply natural hazard risk models and conduct analysis to support the Australian and State Governments in the requirements from the COAG agreed, National Disaster Resilience Strategy. This year will (i) development of national scale earthquake risk map using the updated national earthquake hazard map and (ii) develop knowledge on exposure and vulnerability indicators for assessing natural hazard impact in a consistent and comparable manner.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Natural Hazard Risk and Impact Modelling

Description: Development of risk and impact modelling tools, capabilities and information for earthquake, local scale hydrological and landslide hazards. Focus on the continued development of the free and open-source software ANUGA for flood, storm surge inundation and debris flow, the free and open-source software EQRM for earthquake and the tsunami data and modelling tool, Tsu-DAT. Collaborate with international stakeholders to enhance earthquake risk modelling through GA's strategic partnership with the Global Earthquake Model (GEM).

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: Advice and Maintenance

Description: Provide technical expertise and advice to, and in support of: (i) National Emergency Management Committees, (ii) GA corporate initiatives and (iii) requests for natural hazard technical advice from government and the public. This expertise and advice relies on the maintenance and update of (a) natural hazard databases (Australian Flood Studies and Landslides) and (b) flood, landslide, tsunami and volcano web content to support the management of natural hazard risk in Australia through the National Disaster Resilience Strategy.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

Vulnerability Section
Section Leader Mark Edwards

SECTION ACTIVITY: The section develops for RIAG and external stakeholders an understanding of the vulnerability of the built environment, business activity and people if exposed to severe events. The section develops engineering, economic and social vulnerability models that are representative of buildings, essential infrastructure, economic activity and people. It further develops information to enable decision makers to identify optimal strategies for the retrofit of assets which are contributing disproportionately to community risk, such as through benefit versus cost analyses.

SECTION OUTCOME: Australian government, external stakeholders and developing nations are able to make reliably informed decisions to manage the risk from natural hazards and malevolent acts. Impacts of natural hazards on communities are reliably assessed in terms of physical damage, injury and socio-economic loss. The impacts of blast events and plume agent release are more reliably assessed in physical damage and economic loss terms.

DELIVERABLE 1: Engineering Vulnerability
Description: The development of vulnerability models for buildings and bridges exposed to severe hazards and threat. Natural hazards of interest include earthquake, tsunami, volcanic ash, severe wind, flooding and storm surge. Threats include blast and plume agent exposure with specific deliverables for the Australian Reinsurance Pool Corporation. Work also extends to the regional risk reduction activities of GA for neighbouring countries and globally through the Global Earthquake Model Foundation (GEM).

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Socio-Economic Vulnerability
Description: The development of methodologies and models for assessing the economic and social resilience of Australian communities due to extreme events. The development of processes for extrapolating community exposure into the future to enable the assessment of the benefits versus costs of adaptation options to climate change. The development of social and economic metrics for incorporation into the National Exposure Information System. This deliverable is primarily funded by GA with external funding from the DCCEE and AGD through the Queensland Department of Community Safety.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: System Vulnerability
Description: The development of modelling techniques to assess the likely behaviour of community systems disrupted by extreme events. The methdology will be scalable and be compatible with the public domain information incorporated into the National Exposure Information System (NEXIS). This research will take a capability previously applied to CIPMA for critical infrastructure protection and apply it hollistically to enable multiple scenario risk assessments This will enable more reliable inclusion of system behaviour into GA's risk and impact analysis information.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 4:	Disaster Impact Assessments and Advice
Description:	The development and utilisation of physical, social and economic impact information capture tools for field survey use following severe events. This includes the training of key agencies in regional countries on the use and augmentation of the tools for similar surveys in the region. Processing, dissemination and analysis of captured survey data is also included with formal reporting of the survey activity and outcomes.

Type of Deliverable:	☒ **Project <u>OR</u>**	☐ **Internal <u>OR</u>**
	☐ **Business As Usual**	☒ **External**

GROUNDWATER GROUP
Group Leader Jane Coram

The key role of the Groundwater Group is to inform Government, industry and community decisions on the management of the nation's groundwater resources. It aims to increase Australia's water security and community resilience through the identification and characterisation of groundwater resources, by undertaking groundwater research to inform the national understanding of location, quality, quantity and sustainable use of Australia's groundwater resources, and by working with Government agencies to identify the impacts of development and climate change on Australia's groundwater resources.

The Group undertakes a number of applied research activities of national significance. Activities are principally carried out with multi-agency teams including relevant Federal, State agencies, and the private sector as required. These activities represent a combination of geoscientific advice on groundwater related issues; strategic activities undertaken to provide national leadership in the identification and characterisation of groundwater resources; and specific projects undertaken for external agencies to address key Government priorities.

The Groundwater Group work is conducted through five (5) sections:

- Groundwater, Resources and Energy
- Groundwater and Environment
- Regional Groundwater Resilience
- Groundwater Advice
- Groundwater Knowledge Adoption and Coordination

Groundwater and Environment Section
Section Leader Baskaran Sundaram

SECTION ACTIVITY: The section is comprised of a portfolio of projects and activities focussed on understanding the interactions between groundwater and the environment, including the impacts of climate change. These include two externally funded projects to (i) Conduct a national-scale vulnerability assessment of coastal groundwater resources currently affected by seawater intrusion and potentially at risk in the future due to climate change; and (ii) Build East Timor's water agencies' capacity for assessing, monitoring and managing groundwater resources in a changing climate

SECTION OUTCOME: Improved understanding of the likely vulnerability of groundwater resources to seawater intrusion as the result of current and/or planned future groundwater extraction and/or climate change impacts, both in Australian coastal groundwater systems and in the Dili region of East Timor.

DELIVERABLE 1: National-Scale Vulnerability Assessment of Seawater Intrusion
Description: The project will undertake a national-scale vulnerability assessment of coastal aquifers currently affected by seawater intrusion (SWI) and potentially at risk in the future as a consequence of over-extraction and/or sea-level rise due to climate change. The project is being implemented by Geoscience Australia (GA) in partnership with the National Centre for Groundwater Research and Training (NCGRT) and State and Territory water agencies. Through a series of stakeholder workshops and on-going discussion, the project team will consult with State/Territory representatives regularly to draw on local knowledge of SWI issues.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Assessment of Climate Change Impacts on Groundwater in East Timor
Description: The project is an Australian Government initiative under the Pacific Adaptation Strategy program funded by the department of the Climate Change and Energy Efficiency. The project will be carried out in 2 phases. Phase 1 will review and synthesise existing data and information on groundwater and identify current and potential risks to groundwater resources from climate change. Phase 2 will collect new groundwater data to conduct research into the characterisation of aquifers and potential threats from climate change and also provide training for in-country groundwater monitoring.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

Groundwater Advice Section
Section Leader Vacant (recruitment action in progress)

SECTION ACTIVITY: The Section provides the Australian Government with technical geoscientific advice to support national groundwater policy development and program administration in relation to groundwater resources, environmental and mining impacts.

SECTION OUTCOME:

DELIVERABLE 1: Groundwater Advice
Description: Provide independent technical advice to other Commonwealth agencies including the Department of Resources, Energy and Tourism (RET) and Department of the Sustainability, Environment, Water, Population and Communities (DSEWPaC), on groundwater-related implications of Departmental policy making that may include uranium mining, other mining activities, environmental and groundwater resource management.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 2: Coal Seam Gas advice
Description: Provide technical advice to SEWPaC relating to coal seam gas (CSG) developments and their potential impacts on groundwater resources

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 3: National Groundwater Strategy
Description: The project will progress the development of a unified national strategy for groundwater knowledge acquisition, through consultation with jurisdictions, Commonwealth agencies including DSEWPAC, BoM, CSIRO, NWC and DRA, and the National Centre for Groundwater Research and Training

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

Groundwater, Energy and Resources Section
Section Leader Ross Brodie

SECTION ACTIVITY: The section is comprised of a portfolio of projects and activities focussed on geological systems which can contain significant groundwater resources as well as energy and/or mineral resources. Particular examples include large sedimentary basins such as the Surat and Eromanga Basins (with oil, coal seam gas and geothermal resources) and Cenozoic palaeochannel deposits (with uranium resources).

SECTION OUTCOME: Improved understanding of the hydrogeology, hydrochemistry and hydrodynamics of geological systems with significant groundwater, energy and/or mineral resources. Improvement of the technical knowledge base relating to the potential groundwater impacts of energy and mineral resource development.

DELIVERABLE 1: Water for Australia's Arid Zone - Identifying and Assessing Palaeovalley Groundwater Resources

Description: The Palaeovalley Groundwater Project is an externally funded (S31 revenue) project managed by Geoscience Australia and sponsored by the National Water Commission. This project involves improving national capacity to assess, characterise and manage arid zone palaeovalley aquifers. Final outputs will include detailed reporting on project operations at seven key demonstration field sites, as well as a national strategy document for improved resource use and management.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

DELIVERABLE 2: Great Artesian Basin Water Resource Assessment

Description: A joint project with CSIRO to undertake a detailed basin-scale investigation of the hydrological status and condition of the Great Artesian Basin. The project is funded by the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) and National Water Commission. GA will lead the development of the reconceptualisation of the GAB reviewing existing information and revising the understanding of the groundwater systems of the GAB. A three-dimensional visualisation of the basin will be developed to complement the reconceptualisation. In addition GA will be the data custodian for all the project data, ensuring the public can access the data post the project.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

Groundwater Knowledge Adoption and Coordination
Section Leader Kim Forbes

SECTION ACTIVITY: To provide mechanisms to inform government, and science and regional communities of the science and knowledge from Groundwater Group projects. To improve the organisation and function of the Groundwater Group; through a number of activites including project coordination, contract management, recruitment, lab coordination and comunication activities.

SECTION OUTCOME: Improved groundwater knowledge adoption and enhanced stakeholder understanding of the Groundwater Group's projects. A coordinated and functioning Groundwater Group that has the foundations and resources to enable project delivery.

DELIVERABLE 1: Program coordination and data stewardship
Description: Provide project coordination to the Groundwater Group to enhance ongoing project management and coordination across all the sections of the Group. Key activities will ensure resources are matched to the upcoming needs to meet group deliverables.
To coordinate data and information management for the group, providing stewardship for Hydrochemistry, Groundwater Resources and Hydrogeology data sets.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 2: Knowledge Adoption and Transfer
Description: To provide mechanisms to inform government and science and regional communities of the science and knowledge from Groundwater projects. Activities will communicate research outputs in ways that are relevant, useful and timely for our stakeholders. Methods will range from collaborative research to knowledge transfer workshops, culminating the knowledge from individual projects and synthesising to provide information/science to stakeholders.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

NATIONAL EARTH OBSERVATION GROUP
Group Leader Dr Adam Lewis

NEO is Australia's national remote sensing capability. NEO provides advice on the use of EOS (Earth observations from space) in national programs; provides data and information about the land and marine jurisdictions such as the National Dynamic Landcover Map and bathymetric mapping; and provides information on hazards and major disasters including the Sentinel web site and flood mapping. NEO maintains archives of imagery captured from satellites and acquires EOS data from international satellite operators and from commercial sources. NEO works closely with key stakeholders in the Australian Government under formal Collaborative Agreements.

Work is conducted through five (5) sections:

- Business Intelligence and Services
- International Forest Carbon Initiative
- Science and Strategy Section
- Business Systems Development
- Operations

Business Intelligence and Services Section
Section Leader Alla Metlenko / David Hudson

SECTION ACTIVITY: The Business Intelligence and Services Section (BIS) coordinates engagement with internal and external stakeholders and clients of Earth observation data including management of the Optical, Geospatial, Radar and Elevation, or OGRE Panel. Dialogues with DIISR in regard to space policy, provides day to day client services, management of agreements at all levels, and dialogues with distributors. Convenes the National Remote Sensing Technical Reference Group and provides Regional Hub services under the IFCI program. Furthremore, provides advice to Earth observation users and maintains key relationships both with users and suppliers of data and information.

SECTION OUTCOME: Improved Earth Observation from Space (EOS) services. Improved knowledge of GA's Earth observations from space capabilities in the Australian Government. Simplified purchasing of EOS data in GA and across government including efficiencies.

DELIVERABLE 1: Advice and information to Government in regard to EOS and space policy
Description: Coordinate the gathering of evidence and provision of advice and information to inform the development of Australian space policy. Coordinate GA representation at relevant forums including the Australian Government Space Forum (AGSF) and space-industry forums.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 2: Operate the Cooperative Imagery Panel (OGRE panel)
Description: Manage procurements through the OGRE panel for GA. Implement management arrangements for OGRE that lead to self-funding and an on-going capability. Participate in negotiations with government and industry.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 3: Provide services and support for EOS clients
Description: Carry out client services functions to provide ongoing support to NEO's key clients and distributors. This includes helpdesk, improving NEO web content and holding the annual NRSTRG meeting.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 4: Business development activities LDCM, Shallow Water Bathymetry and emergency management
Description: Implement technical plan and negotiate a Memorandum of Understanding (MOU) and related agreements for the Landsat Data Continuity Mission (LDCM); scope a multi-stakholder shallow Water Bathymetry project; and provide a coordinated response to GA's emergency response project.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☐ **External**

Business Systems Development Section
Section Leader Wenjun Wu

SECTION ACTIVITY: Develops, working closely with ISB, the necessary operational capabilities (data processing, data archive, serving of data, systems for scientific analysis of data) to meet the expectations of clients and stakeholders; operationalises new services and provides project and programme management capabilities to the NEO Group as a whole.

SECTION OUTCOME: NEO systems are able to meet the requirements and expectations of the day; rigorous programme and project management capabilites are in place within NEO; projects are supported by appropriate documentation and governance. Systems are designed and implementted in a timely and effective manner to support key priorities.

DELIVERABLE 1: Interim satellite imagery catalogue
Description: In consulation with Programme DARWIN an on-line catalogue and ordering system for satellite imagery to the public to replace the failing ACRES catalogue. A web based application will be developed, which allows external users to discover and download pre-processed satellite imagery available under Creative Common licences. This deliverable is subject to the success of the exemplar project carried out by Programme DARWIN, and the "satellite web services based delivery for scene based satellite data" project carried out by the HPC/eResearch project.

Type of Deliverable: ☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: NEO data audit and legacy data recovery and repatriation
Description: In consultation with Programme DARWIN to establish a Gov 2.0 compliant NEO data management capability, which adheres to international standards. The project involves auditing NEO data, developing data management policy, processes, procedures, guidelines and goverencace arrangements while adopting new technology solutions. All NEO legacy data will be recovered and archived, and Landsat data will be repatriated to USGS.

Type of Deliverable: ☒ **Project OR** ☒ **Internal OR**
☐ **Business As Usual** ☐ **External**

DELIVERABLE 3: GEMD data archive scoping project
Description: Working with all Groups in GEMD to develop a project scope and plan tackling data archive issues across the Division.

Type of Deliverable: ☒ **Project OR** ☒ **Internal OR**
☐ **Business As Usual** ☐ **External**

DELIVERABLE 4: ASRP Data cube project
Description: As a partner in the Australian Space Research Program (ASRP) project "Unlocking the Landsat Archive", GA will be contracted to provide support to the project leader, Lockheed Martin Australia (LMA).

Type of Deliverable: ☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 5:	Interferometric radar acquisition and portal service (Ausscope EIF3)
Description:	As a part the Australian Geophysical Observing System (AGOS) development, funded throught the Education Investment Fund (EIF) Round 3 grant, to acquire interferometric Radar data, and to develop a portal for the use of the data under AGOS. This project will extend into FY 2012/13

Type of Deliverable:	☒ **Project <u>OR</u>**	☐ **Internal <u>OR</u>**
	☐ **Business As Usual**	☒ **External**

International Forest Carbon Initiative Section
Section Leader Jeff Kingwell

SECTION ACTIVITY: Manages GA's participation in the Australian Government's International Forest Carbon Initiative. Section 31 funding is received from DCCEE and covers the total cost. The project scope, budget and objectives are specified in Project Agreements authorised under the 2007 Collaborative Head Agreement (CHA) between GA and what is now the Department of Climate Change and Energy Efficiency (DCCEE). The Agreement was recently extended to 31 December 2011, with additional funding provided.

SECTION OUTCOME: GA delivers satellite data required by the Indonesian government for national forest accounting purposes and GA is able to operate a 'regional processing hub' as a proof of concept, for forest monitoring which meets the requirements of DCCEE and AusAID. This may lead to an on-going role for GA in an operational capacity funded by the clients.

DELIVERABLE 1: Regional hub for forest carbon satellite data processing

Description: GA systems have been upgraded to permit bulk (in excess of 3000 scenes/month) production of ortho-rectified, atmospheric-corrected, cloud-flagged Landsat scenes and mosaics for a given geographic area and historic period. GA has developed or acquired systems for bulk ortho-rectification of radar satellite data scenes and mosaics for a given geographic area and historic period. These systems are functioning as a "proof of concept" - ie not routinely operational and staffed, but capable of producing these data as required for the duration of the project.

Type of Deliverable:

☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: IFCI data delivery

Description: GA delivers satellite data required by the Indonesian government for national forest accounting purposes. This comprises selection of 1990-1999 Landsat data; QA of the selections by client; processing to ortho-level, and delivery to vendors/third parties to be nominated by DCCEE.

Type of Deliverable:

☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

Operations Section
Section Leader Jeff Kingwell / Wenjun Wu

SECTION ACTIVITY: Acquire public-good Earth observation data for stakeholders according to agreed plans and priorities through a range of mechanisms. Maintain an archive of processed and raw data. Enable access to processed data. Operate information services for external and internal clients.

SECTION OUTCOME: Geoscience Australia is able to provide cost-effective, timely, relevant and on-going Earth observation data and information in support of Australian Government programs and the community.

DELIVERABLE 1: Earth observation data acquisition and Sentinel system operations
Description: Earth observation data are acquired at Geoscience Australia reception facilities. Satellite orbit information is gathered from relevant sources and compiled to produce acquisition schedules. Reception facilities are maintained to achieve optimum performance. Operate the Sentinel fire watch system to ensure timely hot-spot data are available to the public.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: Earth observation products and services
Description: Raw data are processed into imagery either on demand or on receipt. Raw data are maintained in an archive. Processed imagery archived in the Earth Observation Data Store (EODS).

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 3: Earth observation data management
Description: Earth observation data are managed to ensure that optimum access and utilisation of archives is achieved. Data volumes, data types, security and issues are well understood and managed. All datasets are archived with proper metadata recorded. Data repatriation are performed according to agreed schedule 0073.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 4: Antenna and systems refurbishment for the Alice Springs ground station
Description: Addresses the declining reliability of Alice Springs facilities through electrical and other refurbishment and renewal of the spares and maintenance regime. Includes a draft Statement of Requirements and Procurement Plan based on information collected in 2010/11; Release of an RFT; Selection of a contractor; Refurbishment and recommissioning of systems.

Type of Deliverable:
☒ **Project OR** ☒ **Internal OR**
☐ **Business As Usual** ☐ **External**

DELIVERABLE 5: Establishment of the DCCEE Darwin Ground Station
Description: Provide technical services, expertise and advice in regard to tender evaluation, construction and commissioning of a Darwin ground station for DCCEE, in order to allow them to receive additional data for forest carbon monitoring.

Type of Deliverable:	☒ **Project <u>OR</u>** ☐ **Business As Usual**	☐ **Internal <u>OR</u>** ☒ **External**

Science and Strategy Section
Section Leader Medhavy Thankappan

SECTION ACTIVITY: Develop and apply scientific methods for the effective utilisation of Earth Observation (EO) data to serve the Australian Government and Geoscience Australia priorities. Provides strategic scientific leadership and advice associated with Earth Observation from Space (EOS). Provide EO based information in support of emergency response when needed.

SECTION OUTCOME: Increased GA influence through application of earth observation (EO) science capabilities to address national challenges such as management of natural resources, understanding climate change, and support for disaster response. Increased GA capability and excellence in effective utilisation of EO data through support for the development of scalable scientific data processing systems.

DELIVERABLE 1: National Land Cover Monitoring
Description: This project will deliver a robust and repeatable methodology that enables routine updates to the National Land Cover Map, leading to a national land cover monitoring framework for Australia. It builds on the joint GA-ABARES National Land Cover mapping capability. Additional benefits delivered by this activity include new scientific capability for information products related to water, cloud and fractional cover. The capability will underpin the development of workflows for scientific processing associated with the International Forest Carbon Inintiative and Australian Space Research Program grant projects.

Type of Deliverable:
☒ **Project OR** ☒ **Internal OR**
☐ **Business As Usual** ☐ **External**

DELIVERABLE 2: Earth observation support for emergency response
Description: This activity maintains and improves the base capability to generate and deliver information products in response to natural disaster emergencies. It includes support for GA-wide coordination of response activities, and progressing improvements such as protocols for action and product standards to meet emergency response requirements.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 3: Scientific engagement with TERN/IMOS and consolidation of shallow water bathymetry capability
Description: This deliverable involves GA participation as an effective and influential member of the Terrestrial Ecosystems Research Network (TERN) AusCover and Integrated Marine Observing System (IMOS) Ocean Colour, leading to successful completion of joint activities aimed at effective utilisation of data by the science community. Shallow water bathymetry research and development with ANU and CSIRO.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 4: Calibration, validation & standardisation of pre-processing for effective utilisation of EO data

Description: This BaU activity focusses on calibration, validation, standardisation of correction approaches and their improvement, and the development and application of algorithms for high performance computing environments for effective utilisation of historical and future time series EO data. Through the National Field Spectroradiometer Loan Service administered under this activity, field spectral measurements collected by researchers will help build progressively, a national database of spectral data for calibration and validation.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 5: EO based surface water body mapping to support water compliance monitoring

Description: This project is being fully funded by SEWPaC to deliver an EO-based capability to monitor water use practices for compliance purposes in the intensive land use zones of (name of states and territories). The project will also meet 'chain of custody' requirements for EO based information to be used as legal evidence for prosecution of water-use breaches.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

NATIONAL GEOGRAPHIC INFORMATION GROUP
Group Leader Greg Scott

The National Geographic Information Group (NGIG) provides authoritative geographic information services and products to inform evidence-based decision making, government policy, industry development needs and community wellbeing. The NGIG combines its capabilities in geographic information and knowledge management, data acquisition and stewardship, stakeholder and industry relationships, and information display and dissemination into an integrated capability which has the capacity to adapt to current and emerging government priorities.

The group delivers scaleable fundamental theme-based spatial data sets, web delivery services, and geospatial analytics for government departments, emergency managers, defence, and the public.

The Group also plays a lead role in coordinating national topographic and thematic mapping activities and standards, through participation in the Intergovernmental Committee for Surveying and Mapping (ICSM) and other priority national coordination initiatives including the Office of Spatial Data Management (OSDM), National Spatial & Information Management (NSIM), and the Australia New Zealand Land Information Council (ANZLIC).

The National Geographic Information Group comprises four (4) sections:

- Geographic Operations
- Geographic Services
- Natural Resources Information
- Geographic Information for Defence

The Seismographic Paper Records Scanning project is an internal activity focused on delivering scanned raster images of seismographic paper records for permanent storage.

Geographic Information for Defence Section
Section Leader Gypsy Bhalla

SECTION ACTIVITY: Manage the production of geospatial data and map products for Australia and nominated offshore areas on behalf of Department of Defence - Defence Imagery and Geospatial Organisation (DIGO).

SECTION OUTCOME: DIGO and its Defence clients have access to geospatial data and map products that meet their requirements.

DELIVERABLE 1: DIGO work program

Description: Production of mapping data and information for DIGO including conversions of IGDS 1:50K vector data to GIS; update geographic information for identified training areas; multi Geospatial Co-production Program (MGCP) and Georectification of scanned mapping.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

Geographic Operations Services
Section Leader Alan Swift

SECTION ACTIVITY: The Geographic Operations Section manages the capture, maintenance and delivery of fundamental geographic information to meet government priorities, emergency management mitigation and response, industry development and community needs. This is undertaken in collaboration with state and other Commonwealth agencies and industry partners through the National Topographic Information Coordination Initiative (NTICI) and other cooperative frameworks.

SECTION OUTCOME: Government, industry and the community have access to authoratitive national fundamental spatial data via a program that meets their needs and reduces duplication in capture and maintenance.

DELIVERABLE 1: Acquisition, Revision and Maintenance of Fundamental National Geographic Data

Description: On-going maintenance of priority themes in conjunction with emergency management organisations, state land information agencies, Australian Government agencies and other GA projects, in particular those related to Australian government priorities of emergency management, community safety in remote areas, safer transportation, and sustainable use of mineral and water resources.

Type of Deliverable:

☐ **Project <u>OR</u>**	☐ **Internal <u>OR</u>**
☒ **Business As Usual**	☒ **External**

Geographic Services Section
Section Leader Russell Hay

SECTION ACTIVITY: The Geographic Services Project provides three inter-related capabilities in support of external government and internal project requirements. These capabilities are: providing coordination of governance and stakeholder relations; database development, management and administration, and application development; project services defined by specific government requirements, development of geographic and thematic products, and the development and delivery of web services.

SECTION OUTCOME: Government, industry and the community have ready and timely access to appropriate authoritative national scale geographic information and services.

DELIVERABLE 1: National Geographic Information System development and support
Description: Coordination, development and maintenance of the specifications, workflows, processes and applications to support the National Geographic Information System.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 2: Geographic Information Products and Services
Description: Development and maintenance of geographic information thematic map and data products and services including: the implementation of a geospatial platform to deliver authoritative geographic information and products; maintenance and production of topographic base mapping for aeronautical charting with AirServices Australia; provision of on-demand thematic mapping products for Australian Government agencies; provision of medium to small scale topographic mapping products; provision of solar mapping data to industry on behalf of DRET under the Solar Flagships Program.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Business Development and Management
Description: Development and management of appropriate governance and key stakeholder/client relationships including the provision of: ICSM secretariat services; geospatial advice to ICSM, OSDM, ANZLIC, EMSINA and other relevant peak bodies and government committees; collaborative development of MoUs, head agreement project schedules, and agreements with governments and industry.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 4: Seismogram Scanning
Description: To sysematically and digitally scan paper seismograph records, create associated metadata, and store scanned data on CDS.

Type of Deliverable:
☒ **Project OR** ☒ **Internal OR**
☐ **Business As Usual** ☐ **External**

Natural Resources Information Section
Section Leader Phil Tickle

SECTION ACTIVITY: The Natural Resource Information Section provides technical support and advice for several key spatial data infrastructure initiatives relating to water, elevation, imagery and related information. This relies on partnerships with key government agencies, industry, research agencies and stakeholder groups. These initiatives include: the National Elevation Data Framework (NEDF); the Urban DEM Project; and the development of the Australian Hydrological Geospatial Fabric (Geofabric)

SECTION OUTCOME: Government, industry and community have access to authoritative water, elevation and related information which meet their needs and priorities.

DELIVERABLE 1: The Australian Hydrological Geospatial Fabric (Geofabric)
Description: The Australian Hydrological Geospatial Fabric (the Geofabric) forms a key componet of the Australian Water Resources Information System (AWRIS). The initiative aims to provide a single, consistent, national geospatial framework for hydrological features. The program commenced in September 2008 as a partnership between Geoscience Australia, the Bureau of Meteorology, CSIRO, the Australian National University and State jurisdictions. Following the release of national products in 2010, work has commenced on the development of regional-scale products information and products in priority areas.

Type of Deliverable: ☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: National Elevation Data Framework (NEDF)
Description: Digital elevation data which describes Australia's landforms and seabed is crucial for addressing issues relating to the impacts of climate change, disaster management, water security, environmental management and planning. The National Elevation Data Framework (NEDF) aims to enhance: governance, coordination, cooperation and cost-sharing in data acquisition and product development to meet needs across all levels of government; development of technical standards; access distribution and use arrangements and industry development and capacity building.

Type of Deliverable: ☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Coordination of National Spatial Data Initiatives
Description: The provision of advice, technical support and coordination of key national spatial data infrastructure initiatives in partnership with key government agencies, industry, and research agencies. This role includes: management and membership of numerous Commonwealth and State Steering Committees and Technical Reference Groups; provision of advice and development of best practice standards; liaison and coordination of Commonwealth and State projects.

Type of Deliverable: ☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☒ **External**

International Geological Congress
2011-2012 WORK PLAN

Ian Lambert
Paul Kay

SECTION ACTIVITY: Establish the legal and administrative framework and organise the 34th International Geological Congress (IGC), to be held in Brisbane 5-10 August 2012, including through establishing the contractual, logistical and marketing framework.

SECTION OUTCOME: A heightened international profile and enhanced reputation for the region's geoscientific strengths.

DELIVERABLE 1: Establish the Framework and Operating Arrangements for the 2012 International Geological Congress

DELIVERABLE 2: Manage drafting and editing of the IGC publication "a Geology of Australia".

DELIVERABLE 3: Manage special IGC edition of the International Union of the Geological Sciences publication *Episodes.*

Information Services Branch

Branch Head Antony Stinziani

Overview

ISB is established as the enterprise ICT business unit in GA to set and implement ICT directions and priorities that align with GA business strategy and whole of government directions. GA operates in a federated ICT environment, in which ISB works in collaboration with ICT capability in the business.

The mission and eight priorities listed in the GA Strategic Plan are all increasingly underpinned by ICT, which provides the platform for GA outcomes.

ISB is responsible for the delivery of the GA ICT Strategy 2010-15, for which the key priorities in 2011-12 are:

- A whole of agency architected framework for delivery of existing and new services through a group of quality, robust, sustainable and supported software and applications running on an enterprise platform;
- Software Services to facilitate a smaller number of better managed and controlled ICT systems that are robust, efficient and sustainable, and eliminate duplication of resources;
- Responsive business-as-usual ICT service delivery underpinned by a service catalogue, policy, process and procedures;
- Support for Programme Darwin through delivery of the tools and technologies to underpin enterprise data management;
- An informed position on eResearch (high performance computing, cloud services and data management) in order to better understand, apply and support advances in ICT to GA groups and projects;
- Integration of ISB into the GA divisional and corporate business planning process; and
- Continuous development of the relationship the GA business.

Specific enterprise programs for 2011-12 include:

- Implementation of Enterprise Software and Applications Roadmap;
- Development of an enterprise approach to eResearch;
- GA High Performance Computing and Cloud Strategy and Roadmap;
- Enterprise Testing Services;
- Best practice ICT Service Management;
- Business continuity and disaster recovery planning; and
- Core infrastructure improvement.

Service Delivery Section
Director Debbie Jackson

SECTION ACTIVITY: The section is responsible for delivering high quality and efficient services to assist GA staff with all ICT matters, enabling ongoing productivity and successful outcomes. The delivery of services will be underpinned by the Information Technology Infrastructure Library (ITIL) framework which has been identified as best practice and is utilised by Federal Government. Services included single point of contact Service Desk, Desktop deployment, Asset Management (Hardware & Software), ICT Contract management, ICT Procurement and Telecommunications management.

SECTION OUTCOME: The Section will assist to enable GA business outcomes through delivery of a single point of contact for GA staff that require access to ICT services, ensuring that the services delivered align with the outcomes of the agency, provide expert advice and adhering to Whole of Government (Whole of Government) initiatives, Commonwealth Government Procurement Rules and the Financial Management and Accountability Act.

DELIVERABLE 1: Software Consolidation **BAU**
Description: Consolidate desktop software from the current 960 (approx 1400 including versions) to reduce management and maintenance costs. This will involve undertaking a complete review of current desktop software, targeting software for reduction, decommissioning of software and defining enterprise desktop applications. On completion of this work, the benefits to the business will be software deployed to desktops in a timely manner, a standard list of software that meets the needs of GA staff to deliver their outcomes and a reduction in costs for software.

DELIVERABLE 2: Information Technology Infrastructure Library (ITIL) Implementation **BAU**
Description: Implement best practice in Information Technology Infrastructure Library for the management and delivery of IT Services. By implementing ITIL, the Agency will receive benefits including, improved and measurable service support, reduced total cost of ownership, proactive service management.

DELIVERABLE 3: PC Refresh **BAU**
Description: To replace PCs & Laptops as part of the PC Refresh cycle. GA staff are currently working on ageing PCs and this impacts their ability to deliver outcomes. The replacement of equipment will reduce the increasing hardware failures, provide ongoing vendor warranty support, and increased capability.

DELIVERABLE 4: Service Delivery **BAU**
Description: Provide high quality of service to GA staff within the Service Catalogue KPI's. This includes Advice Services, Desktop Packaging Services, Desktop Moves - Individual & Multiple, User Accounts, Remote Access, Software Services, ICT Equipment Services, Telecommunications (including mobiles, Blackberrys) Internet services, hosted websites.

DELIVERABLE 5: Windows 7 **PROJECT**
Description: Deploy Windows 7 to desktop/laptops. As part of the whole of government Common Operating Environment (COE) the operating system will include Windows 7. In preparation for the introduction of the COE, and to reduce the risk to the agency, ISB will complete software capability testing. This will ensure that software used by GA staff will be functional. Initial rollout will be targeted to a pilot group.

Enterprise Systems Section
Director Astrid Ries (current), Jennifer Losev (from 2 May 2011)

SECTION ACTIVITY: The section is responsible for delivering an enterprise wide ICT Architecture that is well governed and based on best practice, creating a roadmap for high performance computing, maintaining the currency of ICT policy and for providing technical support for the internet, intranet and web applications. The section is also responsible for leading the development of a GA Software Testing roadmap and has carriage of the Web Application Migration project and Web Redevelopment Phase 2.

SECTION OUTCOME: GA software developers and architects will be able to utilise and fit into a well governed ICT architecture. GA will have a roadmap and projected milestones for the migration of intensive computational processing to external high performance computing and cloud providers. GA's web and corporate applications are technically sound and supported. ICT policy is current and relevant, meets whole of government standards. GA will have a clear direction on software testing.

DELIVERABLE 1: Enterprise ICT Architecture **BAU**
Description: The section will develop and implement an architecture model for the organisation, in consultation with the GA Architecture Committee and Divisional ICT staff. The model will contain well architected software and applications and infrastructure platforms. This will result in better educated technical decisions, supportable and sustainable infrastructure to maintain the nation's spatial data.

DELIVERABLE 2: Corporate and Web Application Support **BAU**
Description: The section is responsible for maintaining the technical architecture that supports instances of corporate applications, the website and web applications. This ensures continuous and reliable access to Geoscience Australia's data.

DELIVERABLE 3: Web Application Migration and Web Redevelopment Phase 2 **PROJECT**
Description: The section will lead the migration of web applications across to new infrastructure and review and implement remaining tasks for the Web Redevelopment Project.

DELIVERABLE 4: ICT Policy Compliance and Review **BAU**
Description: The section will lead a review of all ICT policy and CEIs, consolidation all documentation and develop a plan to maintain currency of documentation and respond to requests from AGIMO on compliance to Government ICT Policy. This will ensure GA is compliant with best practice and international standards where appropriate.

DELIVERABLE : Testing Services Roadmap **PROJECT**
Description: The section will lead the development of testing standards across GA. With collaboration with software developers, business analysts and project managers, develop and maintain best practice software testing procedures for use across the agency. Develop principles that ensure the sustainability of best practice software testing procedures. This will reduce the support overhead for ICT within GA.

DELIVERABLE6:	High Performance Computing/Cloud Roadmap **PROJECT**
Description:	The section will lead the development and implementation of a High Performance Computing Strategy for GA, evaluate the cost of cloud services through both NCI and direct connection to leading commercial cloud providers, evaluate options of Cloud for GIS software such as ESRI or other windows software, document baseline costs of GA's current internal solutions, conduct an environmental scan of strategic directions for HPC and baseline and evaluate directions in mass data storage.
DELIVERABLE 7:	E-Research Pilots **PROJECT**
Description:	The section will support pilot projects to apply advances in eResearch technologies to GA business functions.
DELIVERABLE 8:	Software and Applications Consolidation **PROJECT**
Description:	The section will contribute to the Software and Applications Consolidation project by providing architectural advice and recommendations on best practice with a view to eliminating duplication of functionality and technology.

Infrastructure Operations Section
Director Stuart Ross

SECTION ACTIVITY: Aligned to the ICT Strategy, undertake operations and provide support and advice on the use of the core ICT infrastructure to underpin the delivery of Geoscience Australia's work program. Specifically the services are:

- Infrastructure Services including Local Area Network) access to electronic mail, desktop file & print services, Internet web browsing, data storage and protection)
- Database Administration
- Geospatial Applications & Data Support
- Network & Gateway Support
- ICT Infrastructure Related Technical Advice
- Infrastructure System Integration Advice & Assistance
- Data Centre Management
- ICT Project Support

SECTION OUTCOME: As a result of the services offered, Infrastructure Operations is a respected enabler facilitating GA to undertake its work program using reliable, relevant and secure infrastructure; GA's Divisions use this infrastructure to provide services to internal and external clients.

DELIVERABLE 1: Business as Usual **BAU**
Description: Delivery of business as usual activities that are required to maintain infrastructure, this includes level 2 and 3 level support for Windows, Linux, Unix, Oracle and ESRI products; undertake system monitoring and respond to incidents for all technologies; system administration including user access management and system patching for all technologies; the deliverable also includes technical support offered to divisions across the range of technologies the section maintains; reporting.

DELIVERABLE 2: Business Continuity and Disaster Recovery plan **PROJECT**
Description: Infrastructure upgrades to maintain and improve capability of core infrastructure in line with changing Government and agency requirements. Improvement include, authentication, Windows 7 desktop, existing Enterprise software upgrades such as ESRI and Oracle, Enterprise network capacity improvements , Gateway, ISP and internal network upgrades and delivery infrastructure. Upgrade capabilities such as Remote Access, mobile computing and wireless.

DELIVERABLE 3: Business Continuity and Disaster Recovery plan **PROJECT**
Description: Develop contemporary and business focussed ICT disaster recovery in the context of GA business continuity activity; this will continue on the work undertaken during the 2010/2011 financial year to establish the agency's business continuity requirements for implementation in 2012/2013.

DELIVERABLE 4: eResearch Infrastructure Support **PROJECT**
Description: Provide infrastructure and support for the eResearch community through engagement and supply of internal and external high performance computing and connectivity to high performance networks for sharing of data and resources amongst GA's research partners

DELIVERABLE 5: Research and Development **PROJECT**
Description: Undertake research into new technologies that would assist in future infrastructure design as well as streamlining the management of existing ICT systems

ONSHORE ENERGY & MINERALS DIVISION

2011–12 Work Plan

Dr James Johnson, Chief of Division & Deputy CEO

Overview

Onshore Energy & Minerals Division (OEMD) provides pre-competitive geoscience information in support of onshore energy and mineral exploration in Australia. This is delivered through integrated programs of data gathering and assessment, at national and regional scale, and commonly in collaboration with the states and Northern Territory geoscience agencies. Use is made of the latest geophysical imaging, research and mapping techniques to enhance the chances of mineral discovery and reduce the risks involved with exploration. The division also operates a state-of-the-art Sensitive High Resolution Ion Microprobe, which provides geochronology data to assist with mineral exploration and studies into the geological evolution of Australia.

OEMD undertakes activities of national strategic importance. The most recent being the *Australian Energy Resource Assessment* released in 2010 and the Onshore Energy Security Program (OESP), an Australian Government initiative designed to boost investment in exploration for energy resources, particularly oil, gas and hot rocks to assist in securing a sustainable domestic energy supply and underpin Australia's energy exports. An overview of the OESP is to be published on its completion in mid 2011. It is anticipated that the division will provide input to the Government's energy white paper process in 2011/12.

OEMD coordinates domestic and international mineral exploration promotion events in partnership with state and Northern Territory counterpart geological surveys and departments. It also advises the Australian Government on mineral resources, mining and land use. This work is integral to decisions in regard to multiple and sequential land use, and to an informed understanding of the nation's known mineral endowment, the sustainable development of mineral resources, and levels of exploration activity.

Priorities for 2011-12 are

- completion of remaining sections of the OESP including processing and interpretation of previously acquired geophysical data
- continuation of the management of geophysical data acquisition under National Geoscience Agreements with the States and Northern Territory
- provision of technical advice to the Government on minerals-related issues, particularly in relation to petroleum, uranium, thorium and geothermal energy, including technical input to the Geothermal Drilling Program
- continuation of the international program of coordinated technical promotion of Australia's mineral prospectivity in partnership with the States and Northern Territory (Team Australia), and
- finalisation of commitments and products for the International Geological Congress

This plan sets out the OEMD's activities and deliverables.

GEOPHYSICS
Group Leader Ned Stolz

The Geophysics Group is responsible for managed programs of pre-competitive geophysical data acquisition, processing, archiving and delivery to contribute to mineral and energy resource assessments conducted by the Australian Government and the exploration industry. The group collects magnetic, radiometric, gravity, airborne electromagnetic, seismic and magnetotelluric data that are released to the public to attract increased investment in resource exploration expenditure. These data are also used by Federal and State government departments to gain an improved understanding of the geology of the Australian continent.

The Group is the custodian of the most comprehensive publicly available Australian airborne geophysical and gravity databases. The airborne database consists of almost 30 million line kilometres of data and the gravity database consists of more than 1.57 million gravity stations. Both geophysical databases are valuable assets that have been populated with data collected by government and industry over the past sixty years.

Land seismic surveys have been conducted by the Group for more than forty years with more than 15 000 kilometres of deep crustal seismic reflection data acquired across the continent. More recently expertise in magnetotelluric data acquisition and processing has been developed.

The Group is also responsible for the archiving and delivery of all the geophysical data collected and regularly releases new pre-competitive geophysical datasets once they have been assessed as suitable to be added to the national geophysical databases.

The work of the Group is conducted through two sections:
Continental Geophysics; and
Seismic Acquisition and Processing.

Continental Geophysics Section
Section Leader Murray Richardson

SECTION ACTIVITY: The Continental Geophysics section engages in the acquisition, processing, archiving, enhancement, presentation and interpretation of pre-competitive geophysical (magnetic, radiometric, gravity and airborne elctromagnetic) data, and the development of new computational methods that can be applied to these data.

SECTION OUTCOME: New insights into Australia's onshore energy and mineral potential, which contribute significantly to the Geoscience Australia Program. Enhanced exploration strategies, promotion of mineral exploration opportunities and improved environmental management in Australia

DELIVERABLE 1: National Geophysical Databases and Maps
Description: Updated datasets from the National Geophysical Databases. Datasets available via the Geophysical Archive Data Delivery System (GADDS) and the Airborne Surveys website (where appropriate).

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: New Geophysical Datasets
Description: Development of a National AEM Database as part of the National Airborne Geophysical Database (NAGD)

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Updates to the Australian Fundamental Gravity Network (AFGN)
Description: The AFGN provides the datum and scale for gravity surveys conducted in Australia. Selected sites will have values for absolute gravity recorded, and updated information will be made available via the GA website.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 4: NGA geophysical data acquisition project management
Description: Management of data acquisition for the States/NT under the NGA. Supervise geophysical acquisition by managing the procurement process and ensuring the contractor(s) adhere to the technical specifications required by GA.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 5: Frome (SA) AEM Interpretation Report

Description: Produce a GA record documenting the results of interpretation of the AEM data. Interpret AEM data and integrate results of other studies including solid geology, bore hole data and landscape evolution. Collaborate with the groundwater group, and support their studies on implications for palaeo-valley groundwater resources in the region. Document the inferred implications for exploration for uranium and other commodities incorporating results from collaboration with the Uranium Systems Project and Minerals Promotion group.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 6: Research on Geophysical Processing and Interpretation Methods

Description: Research into the development and application of computational methods for geophysical data inversion, and building 3D geology models

Type of Deliverable:

☒ **Project OR**	☒ **Internal OR**
☐ **Business As Usual**	☐ **External**

DELIVERABLE 7: Support for DETCRC Data Integration and Mineralisation Targeting Project (P2.3)

Description: Contribute to Geoscience Australia's participation in the DETCRC Data Integration and Mineralisation Targeting Project 2.3

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

Seismic Acquisition & Processing Section
Section Leader: Jenny Maher

SECTION ACTIVITY: Manage acquisition and processing of onshore seismic and magnetotelluric datasets on behalf of GA, NGA partners and ANSIR and maintain and develop legacy onshore datasets.

SECTION OUTCOME: New insights into Australia's onshore energy and mineral potential and improved understanding of Australia's crust.

DELIVERABLE 1: Seismic and Magnetotelluric Data Acquisition
Description: Acquisition of seismic and magnetotelluric data sets for GA, NGA partners and ANSIR.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Seismic and Magneotelluric Data Processing
Description: Processed seismic and MT data, technical information, seismic images and MT models for input into geophysical and geological studies by the Energy & Minerals Systems Group and NGA partners for surveys acquired for GA, NGA partners and ANSIR. Data sets are made available to industry via GA web.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: Seismic and MT data management and delivery
Description: Management, recovery and delivery of onshore seismic and MT data in the custodianship of GA. Continue population of survey metadata into Dbmap database, continue transcription and archiving of seismic reflection data onto the Repository Digital Data Store (RDDS) and improve data delivery via the internet inline with new directions from Programme Darwin.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

RESOURCES, ADVICE AND PROMOTION GROUP
Group Leader Leesa Carson

The Resources, Advice and Promotion (RAP) Group provides authoritative geoscience information and evidence-based advice on mineral and energy related issues to the Australian Government and industry. This is delivered through an annual assessment of Australia's resources of mineral commodities, an online Australian Mines Atlas, the lexicon of Australian geological units (Australian Stratigraphic Units Database) and national digital geological maps and databases. The Group encourages investment in mineral and energy exploration in Australia by promoting awareness of pre-competitive geoscience data and exploration opportunities.

RAP's work is conducted through three (3) sections:

- National mineral resources and advice;
- Mineral exploration promotion; and
- National geological maps and data standards.

National Mineral Resources And Advice Section

Section Leader Aden McKay

SECTION ACTIVITY: Provide authoritative scientific and technical advice on mineral resources, exploration and mine development to the Australian Government to support government policy development.

Assessment of Australia's national resources of minerals and energy minerals and publication of Australia's Identified Mineral Resources 2011.

Update the Australian Mines Atlas and related mineral databases. Australian representation at meetings of Uranium Group within the OECD Nuclear Energy Agency and International Atomic Energy Agency and contribution to Uranium Resources, Production and Demand publication.

SECTION OUTCOME: Informed government, industry and community decisions on the economic, social and environmental management of the nation's mineral and energy mineral resources. Assessments of national mineral and energy mineral resources provides information to facilitate government decisions on development of a sustainable mineral and energy resource sector.

DELIVERABLE 1: Technical advice to Australian Government on mineral and energy resources

Description: Timely, authoritative scientific and technical advice on mineral and energy resources, exploration and mine development to the Australian Government to support government policy development and evidence-based decision making.

Type of Deliverable:

☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: National assessment of mineral resources

Description: Assessment of Australia's resources of mineral and energy mineral commodities and publication of Australia's Identified Mineral Resources (AIMR) 2011.

Type of Deliverable:

☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Australian Mines Atlas maintenance and development.

Description: Update and maintain the Australian Mines Atlas (AusMA) and the mineral data sets and data bases that AusMA draws on, most important of which is OZMIN. AusMA is a popular web site for seeking information on Australia's minerals sector with a diverse range of users from government agencies, industry and the wider community. AusMA provides the online presentation of Australia's Identified Mineral Resources (AIMR).

Type of Deliverable:

☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 4:	Australian representation at OECD/NEA-IAEA Uranium Group meetings and contribution to Red Book 2011
Description:	Prepare Australia's chapter for OECD/NEA-IAEA Uranium Resources, Production and Demand (Red Book) 2011 Review draft of Red Book 2011 supplied by IAEA secretariat Update data on Australia's uranium deposits for entry into IAEA database (UDEPO) Participation in and reports for meetings of Uranium Group as Australian delegate
Type of Deliverable:	☐ **Project OR** ☐ **Internal OR** ☒ **Business As Usual** ☒ **External**

DELIVERABLE 5:	Maintenance of data sets on energy plants and Indian Ocean Territories.
Description:	Maintenance of data sets on renewable energy electricity sites and the Indian Ocean Territories (IOT). Provide the annual secretariat for the Conference of Chief Inspectors of Mines.
Type of Deliverable:	☐ **Project OR** ☐ **Internal OR** ☒ **Business As Usual** ☒ **External**

Mineral Exploration Promotion Section
Section Leader Roger Skirrow

SECTION ACTIVITY: To encourage increased investment in mineral exploration and discovery of mineral resources in Australia by increasing the awareness of mineral exploration opportunities and availability of pre-competitive geoscientific information. Section activities include technical presentations and exhibitions at selected major national and international mineral exploration and mining technical conferences, and targeted release of scientific reports, maps and datasets that highlight Australia's mineral resources and potential. The international promotion is conducted under Team Australia, a partnership with the State and Northern Territory geological surveys.

SECTION OUTCOME: Increased global awareness of mineral exploration opportunities in Australia.
Enhance global attractiveness of Australian exploration investment opportunities.
Generate an increased awareness of mineral exploration opportunities in Australia and of the pre-competitive geoscience information which is available to support mineral exploration in Australia.

DELIVERABLE 1: International Mineral Exploration Promotion Events.
Description: Coordinate a series of international mineral exploration investment seminars and conference exhibitors booths in partnership with State and Northern Territory geological surveys and mines departments (Team Australia) to promote investment in Australia.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: Domestic Mineral Exploration Promotion Events
Description: Domestic Mineral Exploration Promotion events attended by Geoscience Australia. Provision of partial coordination with participating State and Northern Territory geological surveys.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Mineral Exploration Promotional products and reporting
Description: Compile and revise maps of Australian mineral deposits and mineral resources; technical reports, briefings, minerals alerts, presentations, research papers and syntheses of Australian mineral resources, mineral resources potential and exploration trends and outcomes.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

National Geological Maps And Data Standards Section
Section Leader Ollie Raymond

SECTION ACTIVITY: Develop, compile, maintain, and deliver Geoscience Australia's national digital geological maps including surface, provinces, and the national stratigraphic lexicon.
Manage Geoscience Australia's contribution to the development of national and international geological data standards.
Implement local, national and international geological data standards within GA.

SECTION OUTCOME: Current, seamless, standardised national geological databases, digital geological maps, and value-added datasets to better support and inform decision-makers in minerals and energy resources exploration, and land use, social, and environmental planning.

DELIVERABLE 1: Australian Stratigraphic Units Database (ASUD)
Description: Populate and manage the Australian Stratigraphic Units Database to provide an authoritative and current lexicon of Australian geological units to support geoscientific and resource analysis of the Australian continent and marine territories. Lead the Australian Stratigraphic Commission.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: Geological Data Standards Development
Description: Through corporate, national and international collaboration, develop geological data standards for use with GA and the broader geological community. Provide expert advice and implement data standards in the compilation, management and delivery of GA geological data.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Surface Geology of Australia (1:1M scale)
Description: Ongoing maintenance and update of the national Surface Geology Dataset (1:1M scale).

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 4: Australian Geological Provinces
Description: Compile a national geological provinces dataset covering all of the Australian continent to support mineral and energy resource analysis and exploration.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

ENERGY MINERAL SYSTEMS
Group Leader Terry Mernagh (Acting)

The EMS Group undertakes studies and generates new concepts concerning mineral, geothermal and sedimentary basin resource systems for energy and mineral explorers. Much of its work is focussed on research to better define Australia's petroleum, geothermal and mineral resource potential. The Group also undertakes geochronological and isotopic analysis to determine the ages of rocks and geological events using a Sensitive High Resolution Ion Microprobe (SHRIMP) and other techniques.

The Onshore Energy Security Program delivered significant new geophysical and geochemical data sets, including regional deep crustal seismic and MT surveys, measurements for heat flow data, and a national coverage of low-density geochemical analyses. These and other geological, geophysical and geochemical data are used to create 3D geological and geophysical interpretations and to conduct energy potential assessments (uranium, geothermal and petroleum) in these areas. In 2011/12, EMS will be drawing much of this information together for interpretation at the national scale. This work contributes to the meeting the challenges identified in the *Theo Murphy High Flyers Think Tank 2010 – Searching the Deep Earth: The Future of Australian Resource Discovery and Utilisation*.

EMS work is carried out in close cooperation with relevant State geological surveys, and Australian universities.

Work is conducted through three (3) sections and two (2) projects:
Continental Resources and Energy Systems Project
Onshore Energy Geodynamic Framework Project
Geothermal Energy Section
Onshore Petroleum Section
Geochronology Section

The Group reports to industry, government and the Australian people on these activities.

Continental Resource & Energy Systems Project
Project Leader Jon Claoue-Long

PROJECT ACTIVITY: Develop all-continent scale geoscience information and interpretive products that will lead to future resource and energy discoveries under cover. Provide the information in formats that are useful to the exploration industries and decision-makers, and will attract international exploration activity to the Australian continent.

PROJECT OUTCOME: Development of international competitive advantage in resource and energy exploration, through reduction of risk in the exploration of Australia under cover, leading to consideration and discovery of new resource and energy provinces. A key outcome is the fostering of collaborative links between the exploration and research communities, and knowledge transfer to promote rapid uptake of new geoscience knowledge by decision-makers.

DELIVERABLE 1: Depth and character of the Australian cover
Description: Development of innovative national-scale maps showing the depth and character of surficial cover, regolith, and onshore basins: to identify where the cover is relatively thin, or the nature of the cover permits buried resource signatures to be revealed..

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Resource system indicators under cover
Description: Development of 'distal resource footprint' criteria: indicators of resource and energy systems that may not be obscured by burial. The indicators include distal chemical footprints, geophysical expressions of resource location, and predictive knowledge of where and when resource and energy systems developed within the Australian continent.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: Continental structures
Description: Development of national-scale maps which interpret the dynamic structuring of the Australian continent at depth, and through time. Identification of all-lithosphere predictive controls on resource and energy locations. The continent-scale analysis will also inform predictions of Australian earthquake hazard, and knowledge of the development of offshore hydrocarbon basins.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

Onshore Energy Geodynamic Framework Project
Project Leader Narelle Neumann

PROJECT ACTIVITY: This section will interpret precompetitive geoscience information related to energy and mineral resources in selected provinces and basins across Australia to identify prospectivity and promote new data and results to industry, in partnership with state and territory geological surveys, and AuScope.

PROJECT OUTCOME: Increased investment in exploration for onshore minerals and energy-related resources including geothermal, uranium, and hydrocarbons, in selected provinces and basins across Australia, to improve discovery rates for onshore energy- and mineral-related resources.

DELIVERABLE 1: Interpretation and release of seismic and MT data

Description: Interpretation of seismic and magnetotelluric (MT) data from the Onshore Energy Security Program/Geological Survey of Western Australia/AuScope seismic surveys in Western Australia, and the release of selected surveys into the public domain (in collaboration with Seismic Acquisition and Processing Project, Geological Survey of Western Australia and AuScope).

Type of Deliverable:
- ☒ **Project OR**
- ☐ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 2: 3D geological and geophysical maps

Description: Construction of 3D geophysical and geological maps and models in areas of recent seismic acquisition. Completion of Pandurra Formation investigations. Participation in South Eastern Australia 3D collaborative work. Continued development of 3D mapping and modelling capability, and documentation of Standard Operating Procedures (SOP).

Type of Deliverable:
- ☒ **Project OR**
- ☐ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 3: Assessment of energy systems and geodynamic synthesis in a time-space framework

Description: Assessment of geothermal and uranium potenital of the Georgina-Arunta-Amadeus region, including the development of predictive map products and accompanying reports. Geodynamic synthesis in a time-space framework for the Musgrave Province-Arunta Province, and development of time-space products and accompanying report.

Type of Deliverable:
- ☒ **Project OR**
- ☐ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

Geothermal Energy Section
Section Leader Anthony Budd

SECTION ACTIVITY: Provide pre-competitive geoscience information including compilations of existing data, new data collections, and interpreted products, in formats useful to the geothermal industry and decision makers. Collaborate with industry and other researchers on building Australia's research capacity to support the geothermal industry.

SECTION OUTCOME: Increased exploration and development activity as a result of lowering resource risk for the geothermal industry and the Commonwealth. Promulgation of knowledge of Australia's geothermal potential to support informed debate about Australia's secure and low-emission energy future.

DELIVERABLE 1: Geothermal Advice and Promotion
Description: Provide advice to Government, including technical input to the Australian Centre for Renewable Energy. Collate geological data from Geothermal Drilling Program. Member of Steering Committee for round 15 CRC bid. Participate in the Organising and Technical Committees for the Australian Geothermal Energy Conference, November 2011 and the Melbourne 2015 World Geothermal Congress. Conduct "Team Australia" activities. Member of the Geothermal Reporting Code Committee, the International Partnership for Geothermal Technologies, the Geothermal Research Initiative and Australian Geothermal Energy Group.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: Public Sector Linkages Program - India Geothermal Energy Capability Building
Description: This activity is a contribution to the Australia-India Joint Working Group on Energy. The aim is to enhance awareness of the geothermal energy potential in India within Indian Government Departments and agencies that are involved in energy and geoscience. This activity will enable development of geothermal geoscience and appropriate policies to be driven within the Indian Government agencies responsible for geothermal energy (Ministry for New and Renewable Energy - MNRE, National Geophysical Research Institute - NGRI) to help India meet its increasing demand for clean, reliable sources of base load electricity.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: Acquisition of new geothermal data - Heat flow mapping
Description: Undertake measurements of thermal conductivity of rock samples and temperature in drill holes, to perform heat flow determinations. Wherever possible link thermal conductivity to Stratigraphic Index.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 4: Australian Geothermal Systems Framework

Description: A framework and information system for assessing Australia's geothermal energy potential, identifying areas of high potential, and lowering resource risk for explorers and investors. Deposit-scale modelling to develop an understanding of the minimum component requirements of a viable geothermal system in the Australian context. Characterise and map thermal resistance, heat production and fluid flow at national and regional scales. Development of information management systems to support data acquisition, capture, storage, interpretation, modelling and delivery.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 5: Fluid flow in geothermal systems

Description: A study into the required directions for GA to develop an ongoing capability to predict, map and monitor fluid flow for geothermal systems.

Type of Deliverable:

☒ **Project OR**	☒ **Internal OR**
☐ **Business As Usual**	☐ **External**

Onshore Petroleum Section
Section Leader Russell Korsch

SECTION ACTIVITY: The section is involved in the acquisition, interpretation and integration of geophysical, geological and geochemical data sets in underexplored onshore petroleum provinces. The project will utilise methodologies which have been applied in both the mineral and hydrocarbon exploration sectors and the work is carried out in close cooperation with relevant State geological surveys and energy departments.

SECTION OUTCOME: An improved understanding of the hydrocarbon prospectivity and untapped energy resource potential of basins in onshore Australia. The focus will lie in older Paleozoic and Neoproterozoic basins, but will include Late Paleozoic basins. A key result area is to maximise opportunities for discovering new hydrocarbon resources and to minimise the risk to explorers with current or future interests in these provinces. The results will also be used to support the various State organisations in their efforts to select areas for exploration acreage release. Ultimately, the results of this project will contribute to Australia's onshore energy security

DELIVERABLE 1: Interpretation and release of seismic reflection data

Description: Relevant OESP seismic data from the southern Carnarvon Basin and the western Officer Basin in Western Australia, collected during the 2010-2011 Onshore Energy Security Program, interpreted and released into the public domain (in collaboration with Seismic Acquisition & Processing Project and Geological Survey of Western Australia).

Type of Deliverable: ☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Architecture and asssessment of hydrocarbon prospectivity in selected frontier onshore basins

Description: Assessment of basin architecture and hydrocarbon prospectivity undertaken in key onshore sedimentary basins where new data have been collected as part of the Onshore Energy Security Program, including the Arrowie Basin (South Australia), Darling Basin (New South Wales) and Georgina Basin (Queensland).

Type of Deliverable: ☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: Assessment of hydrocarbon prospectivity in selected onshore sedimentary basins

Description: Assessment of hydrocarbon prospectivity, using petroleum maturation modelling, undertaken in key onshore sedimentary basins where new data have been collected as part of the Onshore Energy Security Program, including the Arckaringa Basin and eastern Officer Basin (South Australia) and Amadeus Basin and Georgina Basin (Northern Territory).

Type of Deliverable: ☒ **Project OR** ☒ **Internal OR**
☐ **Business As Usual** ☐ **External**

Geochronology Section
Section Leader Keith Sircombe

SECTION ACTIVITY: Determine the ages of rocks and geological events using the Sensitive High Resolution Ion Microprobe (SHRIMP) and other analytical techniques in support of GA's internal projects and State and Northern Territory geoscience programs under the National Geoscience Agreement (NGA). Maintain database of geochronological data and disseminate results.

SECTION OUTCOME: Improved geochronologic understanding of Australian geological history to support resource exploration strategies.

DELIVERABLE 1: Processed mineral samples for analysis
Description: Process up to 150 rock samples per annum to separate mineral grains, and prepare and document samples so that they are suitable for geochronological and isotopic analysis using SHRIMP and other techniques. Promote best practice procedures for mineral sample collection and preparation.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 2: SHRIMP U-Pb age determinations and method development
Description: Maintain an in-house SHRIMP-IIe ion probe and scanning electron microscope facility for the production of U-Pb isotopic ages of minerals aiming for up to 150 production days per annum. Manage collaborative relationships with State/Territory NGA partners and Australian Scientific Instruments. Develop new analytical methods as required.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Geochronological data management and delivery system
Description: Continue to provide expert and user advice to ICT development specialists commissioning systems for managing and delivering geochronological data from the SHRIMP Laboratory (part of the RAGING SPOT project). Manage populating data systems via migration and uploading of existing data. Provide leadership and advice to national-scale data infrastructure projects via groups such as the Geochronology Working Group and Government Geologists Information Committee.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 4: 6th International SHRIMP Workshop, August 2012
Description: Organise the next meeting of the international SHRIMP community in conjunction with the International Geological Congress in August 2012.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

PETROLEUM AND MARINE DIVISION

Chief of Division Dr Clinton Foster

Overview

PMD provides geoscientific and technical advice to government on:
- hydrocarbon resources and their development;
- marine, coastal, and Antarctic geoscience;
- the geological storage and monitoring component of Carbon Capture and Storage (CCS); and
- Australia's offshore boundaries.

This assists government and the community to make appropriate and informed decisions about the use of resources and the management of the environment, including contributing to regional marine planning and management of Australia's oceans and coasts.

PMD also provides pre-competitive data and information to industry to promote Australia's offshore petroleum and greenhouse gas acreage release programs. The offshore petroleum acreage release assists in attracting investment to Australian waters in a very competitive international market for exploration capital.

Following the conclusion of the Offshore Energy Program in 2010-2011, PMD will commence three new projects in 2011-2012. These include developing an inventory of the petroleum prospectivity of offshore Australian basins, derived from the synthesis of available geoscience data and information. Working with State and NT Geological Surveys the Division will examine national unconventional hydrocarbon resources including mapping the spatial and temporal distribution of organic-rich rocks in Australian onshore basins to assess their potential for energy resources.

A two year project will also commence that will provide pre-competitive geophysical and geological datasets to support the uptake of the existing Offshore Greenhouse Gas (GHG) Storage Assessment Areas in the Petrel Sub-basin. This will involve data acquisition of commercial seismic and geophysical data, including potential field and multibeam sonar data. A complementary seabed environment and characterisation study will also be compiled for the area.

Key Priorities for 2011 – 2012 are:

1. Promote the petroleum prospectivity of Australia and provide technical support for the 2012 offshore petroleum acreage release, which includes the offshore Perth Basin;
2. Produce an inventory of Australia's offshore frontier basins, assessing their readiness for hydrocarbon exploration;
3. Plan and acquire pre-competitive commercial seismic data to assess the carbon storage potential of the Petrel Sub-basin;
4. Commence a national assessment of Australia's onshore unconventional hydrocarbon resources.

PETROLEUM PROSPECTIVITY AND PROMOTIONS GROUP
Group Leader Dr Peter Southgate

The Petroleum Prospectivity and Promotions Group provides pre-competitive studies and knowledge to support investment in hydrocarbon exploration. The Group's current activities support offshore exploration for conventional oil and gas resources. However, in the future, unconventional onshore resources will receive increased focus.

The Group provides technical information to support the annual acreage release in the offshore jurisdiction. It is also responsible for the analysis of data and information collected under the Offshore Energy Security Program and the provision of new knowledge to support exploration in under-explored regions. These studies support the release of the frontier basins in the annual acreage release.

As well as providing pre-competitive knowledge, staff are involved in the promotion of exploration opportunities through presentations at conferences, workshops and on visits to exploration companies in Australia, north and south Asia and north America.

Provision of pre-competitive data and knowledge enhances the attractiveness of Australia as an exploration destination and assists in the evaluation of offshore prospectivity and advice to Government.

Sections within the Petroleum Prospectivity and Promotions Group in 2011/12 are:
- Petroleum Geology Inventory Of Offshore Basins
- Acreage Release and Promotion
- Southwest Frontiers
- Unconventional Hydrocarbons

Petroleum Systems Taskforce

Petroleum Geology Inventory Of Offshore Basins Section
Section Leader Jennifer Totterdell

SECTION ACTIVITY: Gather, synthesise and analyse available geoscience data and information on the petroleum prospectivity of offshore sedimentary basins in order to build a basin inventory that will provide the basis of advice to government and underpin the development of future work programs.

SECTION OUTCOME: An inventory of the available data and petroleum system knowledge-base currently available for offshore sedimentary basins in the Australian marine jurisdiction. The identification of data and knowledge gaps that need to be addressed to encourage industry investment in offshore exploration.

DELIVERABLE 1: Petroleum Geology Inventory Of Offshore Sedimentary Basins
Description: Develop a major Geoscience Australia Record summarising the current knowledge of petroleum system elements in each offshore basin, identifying key exploration issues, and documenting strategies for addressing gaps in knowledge.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

Acreage Release And Promotion Section
Section leader Dr Tom Bernecker

SECTION ACTIVITY: Provide scientific and technical support to the Department of Resources, Energy and Tourism (RET) for the annual release of the Offshore Petroleum Exploration Areas and promote the petroleum prospectivity of Australia. Assist RET in identification of offshore areas for gazettal; prepare petroleum geological summaries and reports outlining the hydrocarbon prospectivity in these areas.

SECTION OUTCOME: Broad awareness and acceptance of the technical opportunities of the acreage offered by the Australian government for petroleum exploration investment. Publication of proposed acreage release areas by the end of 2011. Maintenance and enhancement of stakeholder engagement through regular technical briefings and updates. Understanding of industry requirements and strategies for exploration/production in Australia.

DELIVERABLE 1: Acreage Release Product
Description: Plan, scope and compile technical reports and datasets that support the 2012 release of Offshore Petroleum Exploration Areas. Provide prospectivity assessments as part of write-ups. Provide geoscientific advice for the selection of gazettal areas for the 2012 release.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: Acreage Release Promotion
Description: Promotion of Australia as an attractive exploration destination both nationally and internationally at petroleum conferences and through planned meetings with petroleum exploration companies.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Knowledge Delivery - Timescales
Description: Refine and document Australian biozonations to improve the correlation of events and biozones within Australia and to the global geologic timescale.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 4: Web system requirements for future delivery of Acreage Release
Description: Scope system requirements for the web-delivery of a North West Shelf Atlas comprising a series of reports, maps, sections and diagrams that summarise the regions geodynamic history as well as the spatial and temporal distribution of petroleum systems and the respective elements that comprise each system.

Type of Deliverable:
☒ **Project OR** ☒ **Internal OR**
☐ **Business As Usual** ☐ **External**

South West Frontiers Section
Section leader Dr John Kennard

SECTION ACTIVITY: The South West Frontiers Section involves basement, basin and petroleum systems studies of the southwest continental margin, within the Australian Marine Jurisdiction. The area of interest includes the Mentelle, Perth and Southern Carnarvon basins, and the Wallaby Plateau, extending from the Naturaliste Plateau in the south to the Exmouth Plateau in the north. The section will focus on developing tectono-stratigraphic, structural and petroleum systems frameworks for the offshore North Perth Basin, and promoting new exploration opportunities in the offshore North Perth.

SECTION OUTCOME: An improved understanding of the geology, petroleum prospectivity and resource potential of Australia's southwest margin to maximise opportunities for the discovery of a new oil and gas province, to underpin promotion of selected areas for petroleum exploration via acreage release, to reduce exploration risk through provision of new data and interpretive information, and to assist ongoing marine planning.

DELIVERABLE 1: Advice on southwest Australian margin prospectivity
Description: Provision of scientific advice on the petroleum potential of the offshore southwest Australian margin to government and industry to support resource and environmental policy and planning purposes

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: Petroleum prospectivity of the offshore northern Perth Basin
Description: Reports, maps, charts, presentations and provision of information on the petroleum systems and prospectivity of the offshore northern Perth Basin to support the 2011 acreage release (Abrolhos Sub-basin) and proposed future acreage release (Houtman Sub-basin).

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: Perth Basin structural architecture and trap integrity modelling
Description: Reports, maps, presentations, interpretations, models and provision of information on the structural architecture, fault dynamics and trap integrity of the offshore north Perth Basin to support the 2011 acreage release (Abrolhos Sub-basin), proposed future acreage release (Houtman Sub-basin) and the regional synthesis of the tectonostratigraphic evolution of the southwest Australian continental margin.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 4: Marine National Facility Survey, northern Perth Basin
Description: Undertake a marine survey to investigate natural hydrocarbon migration and seepage and the benthic habitats of the offshore northern Perth Basin.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 5:	Regional tectono-stratigraphic synthesis of the southwest Australian margin
Description:	Reports, maps, presentations and provision of information on the tectono-stratigraphy and tectonic development of the southwest Australian continental margin.

Type of Deliverable:	☒ **Project <u>OR</u>**	☐ **Internal <u>OR</u>**
	☐ **Business As Usual**	☒ **External**

Unconventional Hydrocarbons Section
Section leader Dr Andrew Stacey

SECTION ACTIVITY: To provide technical advice to government to assist in the sustainable development of coal seam gas, and shale gas and shale oil energy resources. This will entail mapping the spatial and temporal distribution of organic-rich rocks in Australian on-shore basins to assess their potential for energy resources.

SECTION OUTCOME: The production of maps and reports illustrating the distribution and quality of source rocks in selected Australian sedimentary basins.

DELIVERABLE 1: Delineation of Australia's Unconventional Resources
Description: Defining the scope of the project with key stakeholders through engagement with the State/NT geoscience agencies, industry and other interested parties. Working through the National Geoscience Agreement, gather and review available literature and data in order to develop agreed processes to assess a basin's prospectivity for unconventional resources.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

Petroleum Systems Taskforce
Section leader David Williams

SECTION ACTIVITY: The Petroleum Systems Taskforce has been established to improve Total Basin Resource Mangament capabilities. Key activities incude: Business and architectural analysis, solution design and solution development testing, migration and implementation.

SECTION OUTCOME: The Petroleum and Marine Division will have an improved capability to undertake Total Basin Resource Management analysis. This will include the interpretation and presentation of pre-competitive basin data, information and knowledge for internal and external clients.

DELIVERABLE 1: Business Solutions to support Total Basin Resource Management

Description: A business solution that supports the future operational requirements for Total Basin Resource Management analysis and interpretation. The solution will address the interoperability/integration of related data sets which include but are not restricted to time scales, geophysical properties, geothermal gradients, well header details, water chemistry and hydrodynamic data. The solution will enable external and internal stakeholders to discover and access data and information from GA's basin resource body of knowledge using internal/external portals and applications

Type of Deliverable:

☒ **Project OR**	☒ **Internal OR**
☐ **Business As Usual**	☐ **External**

Petrel Sub-Basin Greenhouse Gas Storage Project
Section leader Alfredo Chirinos

SECTION ACTIVITY: In its first year the project will provide interim interpreted pre-competitive geophysical and geological datasets to support the uptake of the existing Offshore Greenhouse Gas (GHG) Storage Assessment Areas in the Petrel Sub-basin. In conjunction with the Innovation & Specialist Services and Marine & Coastal Environment Groups, acquire and process commercial seismic and geophysical data, including potential field and multibeam sonar data. A seabed environmental characterisation study will be compiled to inform infrastructure development in the area.

SECTION OUTCOME: The interim report on the GHG storage potential of the study area in the Petrel Sub-basin will incorporate existing and newly acquired datasets to better define the architecture of the basin, the continuity of potential seal and reservoir facies, and allow the construction of broad-scale trapping and migration models. The interim report will provide pre-competitive information to accelerate the deployment of carbon capture and storage technologies as recommended in the National Carbon Mapping and Infrastructure Plan.

DELIVERABLE 1: Geophysical data acquistion and processing
Description: Acquistion and processing of up to 10,000 line kilometres of seismic, magnetic and gravity and multibeam data in the Petrel Sub-basin to support the uptake of the existing Offshore GHG Storage Assessment Areas.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

MARINE AND COASTAL ENVIRONMENT GROUP
A/g Group Leader Dr Brendan Brooke

The Marine and Coastal Environment Group provides geoscientific advice and products to inform the sustainable management of Australia's marine and coastal environment. In particular the Group assists the Australian Government to meet its goals in the implementation of the National Ocean's Policy within Australia's Exclusive Economic Zone, support the Framework for a National Cooperative Approach to Integrated Coastal Zone Management, maintain the Antarctic Treaty System and enhance Australia's influence within the system, the delineation of Australia's maritime boundaries, and the administration of the Environmental Protection and Biodiversity Conservation (EPBC) Act.

Key outputs of the group include scientifically rigorous data and maps of marine geomorphology, sediments and spatial patterns of seabed habitats and biodiversity. These marine environmental data also inform offshore petroleum exploration in frontier areas of Australia and Marine infrastructure development.

Sections within the Marine and Coastal Environment Group for 2011/12 are:
- Seabed Mapping And Coastal Information
- NERP Marine Biodiversity Hub
- Antarctic Geoscience
- Marine Survey Taskforce
- Field and Engineering Surveys
- Law Of The Sea And Maritime Boundaries Advice

Seabed Mapping and Coastal Information Section
Section leader Dr Andrew Heap

SECTION ACTIVITY: Provision of technical advice for the management and regulation of Australia's offshore living and non-living resources under the Offshore Petroleum and Greenhouse Gas Storage Act and Ocean's Policy. This derives from: preparing seabed environmental summaries for development and exploration areas for Australia's offshore oil and gas industry; conducting seabed mapping surveys in areas of planned offshore infrastructure development; maintaining national geoscience datasets for the seabed; and undertaking scientific research in the use of abiotic variables to predict marine biodiversity and habitats.

SECTION OUTCOME: A raised awareness of the use of marine geoscience technical information in developing Australian Government policy and environmental regulations. Use of geoscience data and advice in the Australian Governments decision making processes for offshore resource development and marine and coastal environmental management.

DELIVERABLE 1: Environmental summary report for the North Perth Basin
Description: Draft a report on environmental geoscience information for the North Perth Basin for the Department of Resources, Energy and Tourism and Australia's offshore oil and gas industry. The report will contain pre-competitive information at a regional scale, describing the physical and ecological properties of the seabed to help inform future exploraton and development decisions by Australia's offshore oil and gas Industry.

Type of Deliverable:
☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Provision of Scientific and Technical Advice
Description: The ongoing delivery of scientific and technical advice to the Australian Government, industry and research community on a range of activities regarding marine and coastal management, including: 1) establishment of processes and standards to guide collation of environmental data acquired by Australia's offshore oil and gas industry, 2) scientific capabilities and governance policies of Australia's future marine research vessel, 3) setting strategic marine agendas through the Oceans Policy Science Advisory Group, 4) environmental aspects of seabed mining applications, and 5) naming of under-sea features as marine representative on the Committee for Geographical Names of Australia.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Marine environmental geoscience data stewardship; MARS database
Description: The ongoing stewardship of Australia's national seabed geoscience information through the enhancement and maintenance of Geoscience Australia's marine samples database (MARS). Activities include: addition and quality control of new data from stakeholders (e.g., industry, marine research agencies, marine national facility); development of procedures for, and completion of, quality control for Geoscience Australia legacy data; and developing protocols and systems to enhance the external discoverability and delivery of the data and interpreted products.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 4:	Coastal Geoscience Information / OzCoasts
Description:	The ongoing development and maintenance of Australia's national coastal website (OzCoasts); facilitate information sharing by State and Territory environmental agencies in estuary management through the National Estuary Network; and contribution to coastal geomorphology and vulnerability research. This includes 1) scoping of future content for OzCoasts in collaboration with stakeholders, 2) co-ordination of the National Estuary Network, and, 3) input to the national coastal geomorphology and vulnerability program being run by the Department of Climate Change and Energy Efficiency.

Type of Deliverable:	☐ **Project OR**	☐ **Internal OR**
	☒ **Business As Usual**	☒ **External**

NERP Marine Biodiversity Hub
A/g Section leader Dr Scott Nichol

SECTION ACTIVITY: Provide scientific information and advice to support the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) in managing and monitoring Marine Protected Areas. This activity involves three deliverables: development of a detailed four year work plan for the Marine Biodiversity Hub; a seabed mapping survey in Northern Australia to characterise key ecological features and processes, and; development of a conceptual model depicting shelf and canyon physical features and related processes in representative areas of the national marine estate.

SECTION OUTCOME: Increased understanding of marine biodiversity and ecosystem functioning, particularly for Northern Australia. New information and knowledge will lead to more effective monitoring and management of marine biodiversity across the Australian marine estate and in Marine Protected Areas. Data and products from this section will also support the information needs of the Environmental Resources Information Network (ERIN) within SEWPaC in its role of providing an information base for environmental decisions. The outcome will also assist decision making in the Department of Resources Energy and Tourism.

DELIVERABLE 1: Develop a Four Year Work Plan for Marine Biodiversity Hub

Description: Development of a detailed work plan for the National Environmental Research Program's Marine Biodiversity Hub for the 2011/12 to 2014/2015 financial years. Based on the successful proposal submitted in 2010, Marine Biodiversity Hub partners will work in consultation with the Marine Division in the Department of Sustainability, Environment, Water, Population & Communities to formulate a work plan that meets Departmental priorities and best supports marine bioregional planning and management of Marine Protected Areas.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

DELIVERABLE 2: Seabed mapping survey to support bioregional planning and Marine Protected Area management

Description: Planning, execution and reporting of a seabed mapping survey to Northern Australia in an area to be defined in consultation with the stakeholder (Marine Division, Dept Sustainability, Environment, Water, Population & Communities). The survey will use the Australian Institute of Marine Science (AIMS) research vessel Solander to map and sample benthic habitats across key ecological features on the continental shelf and slope such as shoals, banks and canyons. The survey will be conducted under the Memorandum of Understanding for use of RV Solander between Geoscience Australia and AIMS.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

DELIVERABLE 3: New Shelf and Canyon Ecosystems Knowledge

Description: A detailed conceptual model depicting key physical features and related physical processes for priority area(s) of the continental shelf and slope (including canyons), set in consultation with the client (Marine Division, Dept Sustainability, Environment, Water, Population & Communities). Key datasets to support the model will be identified and compiled from existing seabed and oceanographic data, supplemented by new field data where available. Spatial analysis techniques for data modelling will be identified.

Type of Deliverable:	☒ **Project OR**	☐ **Internal OR**
	☐ **Business As Usual**	☒ **External**

Antarctic Geoscience Section
Section leader Dr Chris Carson

SECTION ACTIVITY: Provide geoscience data and research to support Government goals for Antarctic Science identified within the Antarctic Science Strategic plan (2011-2021) and for effective management of the Australian Antarctic Territory. Applied geoscience knowledge to support Australia's commitment to the Antarctic Treaty System. Provide advice to Government on geoscience issues within the Australian Antarctic Territory

SECTION OUTCOME: Useful advice provided on Antarctic marine and onshore geoscience issues for SEWPaC, RET and DFAT and other departments as required. Geoscience outputs support management of the Australian Antarctic Territory and enhance Australia's geoscience contribution and participation in Antarctic affairs. Geoscience outputs also support Australian Governments Antarctic Science Strategic plan (2011-2021). The section's work enhances Australia's contribution and influence within the Antarctic Treaty System (ATS) and contributes to effective management of the Antarctic onshore and marine environments under the protocols of the ATS.

DELIVERABLE 1: Antarctic seabed mapping and characterisation of marine benthic ecosystems

Description: Seabed mapping and characterisation to understand marine benthic ecosystems and habitats in the Antarctic (in collaboration with Australian Antarctic Division, AAD). This deliverable will utilise multibeam sonar bathymetry, benthic imagery and seabed sediment analysis. Compilation of existing sediment and seismic data will be used to characterise proposed Marine Protected Areas on the Antarctic Shelf .

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

DELIVERABLE 2: Continental ice sheet dynamics and sub-ice shelf seafloor sedimentary processes

Description: Collect and interpret geoscience data to facilitate understanding of ice shelf and continental ice sheet behaviour (with the Australian Antarctic Division, support of theme 1.1 of the Australian Antarctic Science Strategy, 'Climate Processes and Change'). Analyse existing sediment cores from beneath the Amery Ice Shelf to assess seafloor sedimentary processes and response to environmental change. Preliminary study on variability of sub-glacial crustal geothermal heat production and explore ramifications to Antarctic ice sheet dynamics and climate change.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

DELIVERABLE 3: Geoscience Program Leadership

Description: Provide geoscience advice, data and products to government departments engaged in management of the Australian Antarctic Territory (AAT) and Antarctic marine and onshore environments under the Antarctic Treaty System (ATS) and the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). Represent Australia on international Antarctic geoscience bodies (e.g. Scientific Committee on Antarctic Research). Ongoing development of strategically important marine and onshore geoscience maps and related products of the AAT for management and environmental protection. Public awareness and promotion of Geoscience Australia's Antarctic Geoscience program.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

Marine Survey Taskforce
Section leader Andrew Owen

SECTION ACTIVITY: The Marine Survey Taskforce develops data management protocols to enable marine survey data to be made discoverable and accessable. The taskforce also captures and develops appropriate metadata for marine survey data and migrates selected survey data into a corporate database.

SECTION OUTCOME: A single marine survey database with ISO compliant metadata for survey and navigation data.

DELIVERABLE 1: Migrate survey data from existing data sources to the new corporate surveys database structure

Description: To discover, Quality Check and migrate survey data from existing data sources to the new corporate surveys database structure.

Type of Deliverable:	☒ **Project <u>OR</u>**	☒ **Internal <u>OR</u>**
	☐ **Business As Usual**	☐ **External**

Field and Engineering Services Section
Section leader Dave Holdway

SECTION ACTIVITY: Field and Engineering Services (FES) provides technical knowledge and equipment for planning, managing, budgeting and provisioning marine and land-based surveys and fixed installations. Equipment managed and operated by FES enables field-based sediment sampling and geochemical analysis, geophysical surveys and seabed mapping, and associated data management and logistics support. In its workshop and laboratories FES designs and develops marine geoscience survey equipment to support new research, and miscellaneous survey and engineering requirements for other Divisions in Geoscience Australia (GEMD, OEMD, Corporate), external partner agencies and organisations.

SECTION OUTCOME: Field and Engineering Services enables Geoscience Australia's scientists to undertake research in the field and laboratory to fulfill environmental management and resource assessment objectives. FES provides clients access to well-maintained (state-of-the-art), fully-functional field and laboratory equipment. Data sets and samples are collected to the required standards to enable science objectives to be met. Support provided to land-based programs and external projects and organisations enables a wide range of field-based geoscience research goals to be achieved.

DELIVERABLE 1: Petroleum and Marine Division (PMD) Surveys and Science Services
Description: Marine surveys and ad-hoc science services (PMD and GA collaborative projects). For 2011-2012 these will include but not necessarily restricted to: 1. Marine surveys with Australian Institute of Marine Science / NERP Marine Biodiversity Hub surveys; 2. PPP Marine National Facility North Perth Basin Seeps survey; 3. Collaborative Austrlian Antarctic Division multibeam survey Casey Base harbour; 4. Ad-hoc field-science services and surveys support including Greenhouse Gas Monitoring, CO2 CRC research, and PGGAG/PPP survey work in Bonaparte Gulf.

Type of Deliverable: ☒ **Project OR** ☒ **Internal OR**
☐ **Business As Usual** ☐ **External**

DELIVERABLE 2: Petroleum and Marine Division (PMD) Engineering and Development
Description: Engineering design and development and equipment maintenance – PMD projects. For 2011-2012 these projects will include: 1. Multibeam maintenance and upgrade; 2. Redesign and development of shallow-water video & still cameras; 3. CO2 profiling system for PPP Marine National Facilitiy survey; 4. Underwater rotary drill maintenance and refurbishment; 5. Seismic system maintenance and upgrade; 6. CO2 CRC and Greenhouse Gas Monitoring at fixed installations

Type of Deliverable: ☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 3: Non Petroleum and Marine Division (PMD) Surveys and Engineering Services
Description: Engineering and survey services to other GA Divisions (GEMD, OEMD, Corporate) and external (non GA) clients including but not restricted to: 1. GEMD ATWS (tsunami) and seismometer station installation and maintenance (Marble Bar & SA stations); 2. GEMD Groundwater survey and engineering support; 3. GEMD Infrasound station engineering support; 4. SHRIMP ion microprobe maintenance; 5. GEMD seismic support; 6. Laboratory and Corporate support.

Type of Deliverable: ☐ **Project OR** ☒ **Internal OR**

☒ **Business As Usual** ☐ **External**

Law of the Sea and Maritime Boundaries Advice Section
Section leader Mark Alcock

SECTION ACTIVITY: Provide the spatial definition of Australia's International and Domestic maritime boundaries. Provide advice and develop guidelines on the spatial framework governing the establishment of administrative boundaries within the Australian Maritime Jurisdiction. Provide geoscientific advice on aspects of the Law of the Sea where appropriate.

SECTION OUTCOME: A robust, sustainable and cost effective spatial framework for Australia's Maritime Jurisdiction (AMJ). The spatial framework delivers certainty, is responsive to the needs of stakeholders in the AMJ and reflects modern maritime practice.

DELIVERABLE 1: Maintenance of the Australian Maritime Boundaries databases and products
Description: Determination of the location of Australia's national boundaries defined by: the UN Convention on the Law of the Sea; the Seas and Submerged Lands ACT; the Coastal Waters State Powers Act and Scheduled Area limits defined under the Offshore Petroleum and Greenhouse Gas Sequestration Act.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 2: Advice on the spatial framework of Australia's Maritime Jurisdcition
Description: Advice to Government on the spatial aspects of the administration of the Australian Maritime Jurisdiction. Provision of advice on the location of Austrlaia's primary jurisdcitional zones. The ongoing maintenance and devlopment of the "Procedures for the Definition of Maritime Limits". Advice on the spatial definition and management of adminsitrative boundaries consistent with the above procedures and the national framework.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 3: Management of Australian Marine Spatial Information System (AMSIS)
Description: Ongoing administration and enhancement of the Australian Marine Spatial Information System (AMSIS) including its underlying support systems.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 4: Support of Australian membership of the UN Commission on the Limits of the Continental Shelf
Description: Activities associated with role of Commissioner on the UN Commission on the Limits of the Continental Shelf, including attendance of the Commission at the two annual plenary sessions and intercessional meetings as required.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

DELIVERABLE 5:	Advice to Pacific Island Countries on the definition of their maritime Boundaries
Description:	Thirty month program to support Pacific Island countries in delineating, delimiting and implementing their maritime boundaries within the regional and national context. This will provide an internationally acceptable and secure maritime jurisdictional framework throughout the Central and Western Pacific region, and a sustainable resource and environmental management regime.

Type of Deliverable:	☒ **Project OR**	☐ **Internal OR**
	☐ **Business As Usual**	☒ **External**

INNOVATION AND SPECIALIST SERVICES GROUP
Group Leader Dr Bruce Goleby

The Innovation and Specialist Services group provides a range of services and expertise to support PMD and other Divisions within Geoscience Australia. These services are provided by three groups: the Geoscience Australia Laboratory section; the Information Development and Analysis Services (IDeAS) section and the Geophysical Analysis and Data Access (GADA) section.

The Laboratory provides specialist services in the disciplines of organic and inorganic marine geochemistry, palaeontology, sedimentology and hydrochemistry to support Geoscience Australia's work program. Information management and systems advice, application development and spatial analysis services are provided to the Division by the IDeAS section. And the GADA section provides swath and acoustic data, seismic reflection and refraction and potential field data acquisition support, as well as processing, archival and distribution functions to support Geoscience Australia's marine surveys. It also manages the Division's seismic interpretation platforms and seismic and bathymetry data processing activities as well as the preparation and delivery of annual acreage release seismic workstation packages.

The sections within the Innovation and Specialist Services group for 2011/12 are:
- Information Development And Analysis Services
- GA Laboratories
- Geophysical Analysis And Data Access

Information Development and Analysis Services Section
Section leader Mark Webster

SECTION ACTIVITY: To provide supporting service and advice functions for Divisional and corporate information management and information technology systems. To enable business areas and data stewards to efficiently manage and deliver to clients annual workplan outputs and support the management of national data collections. To provide 'best practice' standards ensuring reliability, quality and sustainability of support and solutions provided. To liaise and collaborate with Corporate Branch, ISB and all Divisions to deliver services effectively and efficiently.

SECTION OUTCOME: Support PMD business with information resources and services that underpins PMD outputs. Facilitate access by stakeholders to quality information and ensure effective and efficient decision-making. Provide a central Divisional point of contact for all ICT matters. Influence technical decisions on Information Management and technology and the strategic ICT direction for the Division and the organisation.

DELIVERABLE 1: Application Maintenance and Technical Support Service
Description: To provide services in programme management, analysis, application bug fixes and technical support, architectural and testing support and advice, web content and product publishing, ICT and IM advice, geospatial analysis and support, system development, standards support and external project support.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 2: Provide Business Support Services to PMD for ICT projects
Description: To supply appropriate project management and analysis support staff for ICT projects i.e. PMD Taskforces.

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 3: Information Systems Service to PMD for ICT projects
Description: To supply technical design and development expertise to prioritised ICT projects within PMD and across the enterprise. This includes development contractors only

Type of Deliverable:
☐ **Project OR** ☒ **Internal OR**
☒ **Business As Usual** ☐ **External**

DELIVERABLE 4: Virtual Data Room management
Description: Increase the availability of GA data and the range of functionality within theVDR at production level. Develop ongoing metric's of business intelligence from VDR use.

Type of Deliverable:
☐ **Project OR** ☐ **Internal OR**
☒ **Business As Usual** ☒ **External**

Geoscience Laboratories Section

Section leader Stuart McEwen

SECTION ACTIVITY: Provide specialist laboratory services including sample preparation and quality analyses in a timely manner to support and meet specific project objectives and outcomes. Laboratory services include; Organic Geochemistry, Inorganic Geochemistry, Hydrogeochemistry and Palaeontology and Sedimentology sample preparation and analyses.

SECTION OUTCOME: The delivery of high quality pre-competitive Organic Geochemistry, Inorganic Geochemistry, Hydrogeochemistry and Palaeontology and Sedimentology data in a timely manner for use by government and industry.

DELIVERABLE 1: Laboratory and Technical Services

Description: The timely delivery of high quality geochemical data and advice to GA projects and external collaborative partners including State and Territory Geological Surveys.

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 2: Scope and implement a Laboratory Information Management System (LIMS)

Description: Scope and implement a suitable Laboratory Information Management System (LIMS) to ensure the quality, accessibility, security and successful delivery of pre-competitive geochemical data sets to internal and external clients.

Type of Deliverable:

- ☒ **Project OR**
- ☐ **Business As Usual**
- ☒ **Internal OR**
- ☐ **External**

DELIVERABLE 3: Organic Geochemistry Data Inventory

Description: Standardisation of Corporate datasets (ORGCHEM and related databases products) to internationally recognised standard databases, inclusion of metadata for laboratory generated results and cleansing of existing datasets.

Type of Deliverable:

- ☒ **Project OR**
- ☐ **Business As Usual**
- ☒ **Internal OR**
- ☐ **External**

DELIVERABLE 4: Geochemistry Research & Development Projects

Description: Undertake key Research and Development (R&D) projects within the GA Laboratories including; commissioning of a high temperature/high pressure pyrolysis system (for CO2CRC Project), analysis of gas fluid inclusions required to map gas migration pathways for (SW Frontiers/NW Shelf Projects), commissioning of the inert gas fume hood, Pyrolysis-GC and GC-MS for shale gas and the development of a dedicated GC for helium isotopes (for Unconventional Hydrocarbons Project/NW Shelf).

Type of Deliverable:

- ☒ **Project OR**
- ☐ **Business As Usual**
- ☒ **Internal OR**
- ☐ **External**

DELIVERABLE 5: Development of a Laser Ablation-Inductively Coupled Plasma Mass Spectrometer (LA-ICPMS) Capability

Description: Develop a Laser Ablation-Inductively Coupled Plasma Mass Spectrometer (LA-ICPMS) capability for the chemical and isotopic analyses of geological samples to better define Australia's petroleum, renewable energy, mineral and geological storage resource potential.

Type of Deliverable:

- ☒ **Project OR**
- ☐ **Business As Usual**
- ☒ **Internal OR**
- ☐ **External**

Geophysical Analysis and Data Section

Section leader Anne Fleming

SECTION ACTIVITY: To provide expert advice and analysis services for seismic, bathymetric and potential field data for internal and external clients. These services range from application support and maintenance of GA's extensive marine seismic data holdings; management of interpretative software; supply of pre-competitive seismic workstation packages as part of the annual Acreage Release to industry and academia; acquisition, processing, data custodianship and delivery of marine seismic, bathymetry and potential field datasets to internal and external clients; and multibeam processing and acquisition for GA Marine Surveys.

SECTION OUTCOME: Enhanced ability of exploration companies to take up acreage in Australian offshore areas by providing pre-competitive datasets within workstation packages. Acquisition and processing of bathymetry data to acceptable standards, and population and management of Australia's bathymetry holdings, enabling accurate imaging and mapping of the seafloor for the benefit of government and the public. Archived, cleaned and managed seismic and potential field datasets complying with GA's and international data and metadata standards.

DELIVERABLE 1: Seismic Platform and Workstation Package Services

Description: Maintain and provide professional support to GA's Seismic Interpretation Platforms for use by GA projects and visiting companies using GA's Physical Data Room. Manage and maintain all seismic and well data spatially and make available to GA scientists for analysis and interpretation. Create Seismic Workstation Packages, in Geoframe, Kingdom and Landmark formats, including all available openfile 2D and 3D seismic for each new Acreage Release area.

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 2: Bathymetric Data Services

Description: Management and delivery of bathymetric and acoustic data, information and grids for internal and external clients. Population of CARIS (Computer Aided Resource Information System) Bathymetric Database for improved delivery of data and production of grids. Management and supervision of multibeam acquisition and processing of bathymetry during GA marine surveys. Acquisition advice and processing of sub bottom profiler data for GA marine surveys.

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☒ **Internal OR**
- ☐ **External**

DELIVERABLE 3: Provision of seismic and potential field acquisition processing and analysis services

Description: Management of all GA involved marine seismic and potential field acquisition surveys. Advice to internal clients regarding marine survey acquisition design and processing methodologies. Management of seismic and potential field processing contracts and results. Provision of specialist seismic analysis for depth conversion and velocity investigations for internal clients.

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☒ **Internal OR**
- ☐ **External**

REPOSITORY AND PETROLEUM DATA MANAGEMENT GROUP

Group Leader Paul Trezise

The Repository and Petroleum Data Management Group is responsible for the receipt, archival, management and access to data submitted under the Offshore Petroleum and Greenhouse Gas Storage Act and its predecessor legislation. Data submissions are receipted, catalogued and archived in suitable media or containers to maintain preservation and integrity of the material or data. Industry is provided copies of data held within the Repository upon request. Access to open file data is provided through on-line databases on Geoscience Australia web pages or through the Client Services area. Access to data and preservation is being improved through programs of remastering and digitisation. Business improvements are also being made with the implementation of new systems and workflows to enhance data management, discovery and access. The Group is also responsible for archival and management of materials collected during Geoscience Australia's field programs. Access to these collections is provided upon request.

Provision of access to data enhances the attractiveness of Australia as an exploration destination. The business improvement programs are aimed at more rapid data delivery, improved data access and increased data preservation. Data and materials are managed for their long term preservation as a key national information source and to maintain all confidentiality provisions**.**

Sections within the Repository and Petroleum Data Management Group for 2011/12 are:

- Geological & Geophysical Repositories
- Repository Information Management Taskforce

Petroleum Data And Information Management

Geological and Geophysical Repositories Section

Section leader Dr Graham Logan

SECTION ACTIVITY: Manage geological and geophysical data submitted under the Offshore Petroleum and Greenhouse Gas Storage Act and predecessor legislation. Manage samples and data collected during Geoscience Australia's own onshore and offshore field programs. Provide timely access to these data to government, industry and other interested parties. Migrate data held on physical media to digital storage systems to improve access and preservation.

SECTION OUTCOME: Support the annual acreage release process and maintain attractiveness of Australia as an exploration destination by providing timely and reliable access to the repository's physical and data assets. Maintain industry confidence in the data submission regime by strictly maintaining confidentiality provisions. Maximise ongoing value of the repository collections by managing data and samples as a national asset to provide long term preservation. Increase accessibility to via programs of data migration and digititisation.

DELIVERABLE 1: Client Services and data delivery

Description: Provide data and sample access to internal and external clients through the Client Services team. Copy data from the digital store to meet client requests or digitise paper records for data transfer as required. Maintain accurate records and statistics on all client interactions, ensure that standard operating procedures are followed and the relevant client service standards are met. Ensure that confidential data is handled appropriately.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 2: Management and archival of data submissions

Description: Manage data and samples submitted to the Repository under legislation by industry and through Geoscience Australia's work programs. Submissions must be receipted, catalogued and archived in suitable media or containers to maintain long term preservation and integrity of the material or data. Physical material is managed to allow sustainable sampling and digital files are archived on appropriate storage systems. Confidential data is identified on receipt and accorded the correct level of physical and/or virtual security.

Type of Deliverable:

☐ **Project OR**	☒ **Internal OR**
☒ **Business As Usual**	☐ **External**

DELIVERABLE 3: Digitisation and data migration

Description: The digital and physical holdings require maintenance and development for improved future access. This requires that paper material is digitised to allow online access. Digital data held on tape and optical media is migrated to the Repository Digital Data Store to provide a safe archive and to make it more easily accessible.

Type of Deliverable:

☒ **Project OR**	☒ **Internal OR**
☐ **Business As Usual**	☐ **External**

Repository Information Management Taskforce

Section leader Paula Boldra

SECTION ACTIVITY: Review existing Repository and Data Management processes and systems. Design, procure and implement the systems and processes required to improve and support Geoscience Australia's Repository and Data Management functions into the future.

SECTION OUTCOME: Deliver a holistic Repository Assets Management System that enables the agency to efficiently capture, manage and disseminate information relating to geoscientific holdings. Maximise the value of repository physical and digital assets through improved capability to discover and access holdings. In turn increasing the ability of the Geoscience Australia Data Repository to provide data rapidly to clients.

DELIVERABLE 1: Repository Information Management Project
Description: Procure and deliver Repository Asset Management System (RAMS). Identify core asset attributes and understand specific asset classes. Develop migration strategy and software. Cleanse and migrate exisiting data and relevant information pertaining to repository assets into RAMS. Customise RAMS where appropriate.

Type of Deliverable:
- ☒ **Project OR**
- ☐ **Business As Usual**
- ☒ **Internal OR**
- ☐ **External**

DELIVERABLE 2: Respository Business Process Improvement
Description: Assist Repository staff to transition to the new Repository Asset Management System and implement improved business processes. Work with the repository to establish a media processing centre for digital asset registration and packaging. Develop and maintain process documentation and necessary support guides. Integrate Data Packaging and Quoting Tool with the new Repository Asset Management System.

Type of Deliverable:
- ☐ **Project OR**
- ☒ **Business As Usual**
- ☒ **Internal OR**
- ☐ **External**

Petroleum Data and Information Management Section

Section leader David Rowland

SECTION ACTIVITY: This section is responsible for populating and managing geological and geophysical databases generated from information submitted under legislation and from Geoscience Australia's laboratories. Access to these data are provided free on-line via Geoscience Australia's web site

SECTION OUTCOME: Data are managed as a national asset. Long term preservation and stewardship are provided by capture of fundamental data essential for discovery, promotion and evaluation of petroleum exploration opportunities within Australia. Data from petroleum exploration activity is essential not only for petroleum exploration, but also provides base data for activities such as groundwater and geothermal exploration, evaluation and research.

DELIVERABLE 1: Population and Management of Petroleum Databases

Description: Key scientific and header data entered into a suite of petroleum databases for internal and external use. The databases store data for several themes including biostratigraphy, reservoir and facies data, and geochemistry. Data is made available online on the Geoscience Australia web site.

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 2: Data migration support for new system implementation

Description: New repository database systems for the data repository and surveys will be implemented during 2011/12. Existing data will need to be migrated into the new systems without loss of data integrity, loss of physical assets or compromise to confidentiality of data or assets.

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☒ **Internal OR**
- ☐ **External**

PETROLEUM AND GREENHOUSE GAS ADVICE GROUP
Group Leader Andrew Barrett

The Petroleum and Greenhouse Gas Advice Group provides technical advice to the Department of Resources, Energy and Tourism (RET) with respect to the Offshore Petroleum and Greenhouse Gas Storage Act 2006.

The petroleum technical advice assists the Offshore Resources Branch of RET in its role as the regulator for offshore petroleum activities including exploration, development and production of petroleum. The greenhouse gas storage advice assists the Clean Energy Division of RET in the development of the greenhouse gas storage regulatory framework, including support for the Carbon Capture and Storage Acreage Release and the formulation of regulations.

Projects are also being undertaken to assess the suitability of Australia's sedimentary basins for the storage of greenhouse gases, evaluating technologies for baseline atmospheric monitoring and storage verification, and studying the effects of the presence of naturally occurring carbon dioxide within some of Australia's important groundwater resources. Geoscience Australia has contributed to the Carbon Storage Taskforce by providing summary information on many of Australia's sedimentary basins.

Sections within the Petroleum and Greenhouse Gas Advice Group for 2011/12 are:
- Greenhouse Gas Storage
- Petroleum And Greenhouse Gas Technical Advice
- CO2CRC
- Greenhouse Gas Monitoring
- International CCS
- Petrel Sub-Basin Greenhouse Gas Storage Project

Greenhouse Gas Storage Section

Section leader Rick Causebrook

SECTION ACTIVITY: Development of a greenhouse gas (CO2) storage program including acreage release packages as required. Provide in-house expertise in the evaluation of sedimentary basins (offshore and onshore) for geological storage to aid in the formulation of advice both on acreage release and applications for greenhouse gas titles under the Offshore Petroleum and Greenhouse Gas Storage Act 2006. In conjunction with the State and Territory geological surveys, assist in the development and acquisition of pre-competitive exploration programs.

SECTION OUTCOME: Development of a robust Greenhouse Gas (GHG) Acreage Release and Injection Licence approval process in conjunction with RET and the State and Territory governments. Provision of targeted expertise to assist States and Territories with the development of specific GHG programs.

DELIVERABLE 1: Pre-competitive GHG Data Acquisition

Description: Work with States and Northern Territory through National Geoscience Agreements to deliver pre-competitive geoscientific data for greenhouse gas storage assessments of selected areas. GA to provide technical assurance for Commonwealth funds to States and Northern Territory for exploration programs related to storage assessment. Commonwealth fund allocations are related to recommendations of the Carbon Storage Taskforce. As part of the stewardship role in the disbursement of Commonwealth funds GA has representation on the Steering and technical committees of the State projects.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 2: Reservoir Simulation Studies

Description: In conjunction with other projects, develop dynamic reservoir models to run fluid flow simulation models of long term CO2 injection and migration. The project will initially focus on the Gippsland Basin based on pre-2010 data. A later phase will integrate the interpretation of the 2010 pre-competitive seismic survey over the Southern Flank of the Gippsland Basin. The project will be developed in collaboration with GeoScienceVictoria who will provide the interpreted surfaces and a geological model.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

DELIVERABLE 3: Technical advice on greenhouse gas storage

Description: Provide relevant and timely technical advice on greenhouse gas storage issues not associated with the Offshore Petroleum and Greenhouse Gas Storage Act 2006 to RET and other Australian Government and State/NT government agencies.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

Petroleum and Greenhouse Gas Technical Advice Section

Section leader Steve Cadman

SECTION ACTIVITY: Provide technical advice on relevant areas of the Offshore Petroleum and Greenhouse Gas Storage Act 2006, and its associated Regulations and Guidelines to the Resources and Clean Energy Divisions of the Department of Resources, Energy and Tourism (RET). The advice includes matters on: petroleum exploration, environment and marine; petroleum developments; petroleum resource management and production; carbon dioxide capture and geological storage.

SECTION OUTCOME: Enhanced resource management of Australia's petroleum resources for the benefit of the community and technical advice for the development of the regulatory regime for the geoloigical storage of carbon dioxide in the offshore.

DELIVERABLE 1: Exploration and Environment Advice

Description: Provide relevant and timely technical advice to the Resources Division of RET on petroleum exploration activities, environmental matters and administration of offshore petroleum exploration permits under the Offshore Petroleum and Greenhouse Gas Storage Act 2006 (OPGGSA).

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 2: Petroleum Engineering Advice

Description: Provide relevant and timely technical advice to the Resources Division of RET on petroleum engineering and resources issues for the purposes of the Offshore Petroleum and Greenhouse Gas Storage Act 2006. Also provide relevant and timely advice in association with RET for the purposes of the Excise Tariff Act 1921, the Petroleum Resource Rent Tax Assessment Act 1987, and the Trade Practices Act 1974. Provide relevant and timely technical advice for activities in the Timor Sea Joint Petroleum Development Area. Provide advice and support as required to the annual offshore Petroleum Acreage Release process.

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 3: Greenhouse Gas Advice

Description: Provide relevant and timely advice to the Clean Energy Division of RET and other government agencies on greenhouse gas storage issues for the purpose of the Offshore Petroleum and Greenhouse Gas Storage Act 2006.

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 4: Petroleum Resource Assessment and provision of petroleum statistical information and analysis

Description: Provide assessments of Australia's discovered and undiscovered petroleum resources, including conventional and unconventional petroleum resources, and also provide forecasts of production from both discovered and undiscovered resources. Provide relevant statistics on Australia's petroleum exploration activities, identified petroleum resources, petroleum developments, petroleum production and resources self-sufficiency primarily through the release of Oil and Gas Resources of Australia (OGRA) 2010.

Type of Deliverable:

- ☐ **Project OR**
- ☒ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

CO2CRC Section

Section leader Dr Ralf Haese

SECTION ACTIVITY: Geoscience Australia's CO2CRC Section undertakes research, provides project leadership and technical support as a contribution to the CO2CRC. The CO2CRC research objectives have been derived in consultation with and approved by industry and government partners. Geoscience Australia's scientists work on questions related to the monitoring of CO2 in groundwater and in the atmosphere, the geomechanical nature of reservoirs and their response to increased pressure and geochemical reactions in reservoirs under CO2 storage conditions.

SECTION OUTCOME: Geoscience Australia's collaborative research with the CO2CRC provides a better understanding of the short- and long-term impacts of CO2 sequestration, enhances our predictive capabilities of subsurface processes and conditions and makes credible scientific information publically available. This will lead to safer CO2 storage and better informed communities.

DELIVERABLE 1: Technical support and geochemical tracer studies during the Residual Gas Saturation Test

Description: Geoscience Australia to build a field laboratory container for permanent deployment at the CO2CRC field test site. A field test (Residual Gas Saturation Test) will be undertaken to determine the amount of CO2 stored in reservoir rocks when no water is present. These tests will include the application of inert tracers. Noble gases will be analysed on site together with common water and gas properties.

Type of Deliverable: ☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 2: Project progress reports and scientific presentations given at the CO2CRC symposium

Description: Scientific presentations on recent results presented at the annual CO2CRC Symposium in December 2011 and project progress reports discussed during the associated Program Advisory Committee meeting. Present results on topics including groundwater and atmospheric monitoring, the Residual Gas Saturation Test, geomechanics and geochemistry. Two scientists from Geoscience Australia serve as project leaders and will present and discuss the work progress for the two projects.

Type of Deliverable: ☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

DELIVERABLE 3: International Energy Agency's Green House Gas review report on caprocks in relation to CO2 storage

Description: The CO2CRC has been been selected by the International Energy Agency's Greenhouse Gas R&D Programme (IEAGHG) to write a comprehensive report on caprocks for use by the wider CO2 storage community. Geoscience Australia is a key contributor to this study with one staff member leading the Geomechanics chapter. This report is expected to be an important and highly referenced document, as it will discuss all aspects of caprocks as they relate to CO2 containment during storage operations.

Type of Deliverable: ☒ **Project OR** ☐ **Internal OR**
☐ **Business As Usual** ☒ **External**

Greenhouse Gas Monitoring Section

Section leader Dr Andrew Feitz

SECTION ACTIVITY: Assessing monitoring and verification techniques for geological storage of greenhouse gases in onshore and offshore environments. Baseline data for atmospheric and groundwater greenhouse gas monitoring programs will be determined for selected onshore areas.

SECTION OUTCOME: Implementation of facilities to be used to determine baseline greenhouse gas levels in selected onshore areas, the field testing of greenhouse gas flux measurement techniques, studies of inter-aquifer leakage, and the development of regional groundwater maps for selected potential storage basins. These studies contribute to pre-competitive data and knowledge for the geological storage of carbon dioxide in Australia and internationally.

DELIVERABLE 1: Baseline greenhouse gas monitoring in a potential storage basin

Description: A joint GA-CSIRO facility for the monitoring of greenhouse gases (GHGs) was established in 2010/2011. The primary objective is to field test new greenhouse gas monitoring technologies, develop techniques to resolve multiple GHG emission sources, and demonstrate best practice for baseline atmospheric monitoring of greenhouse gases for geological storage sites.

Type of Deliverable:

- ☒ **Project OR**
- ☐ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 2: Regional groundwater studies for a potential storage basin

Description: Under a National Geoscience Agreement with the Geological Survey of Queensland, GA is developing regional groundwater maps for a potential storage basin. Groundwater surveys to be undertaken in strategic areas to assess the impact that high levels of naturally occurring CO2 has on groundwater, extend baseline mapping of strategic aquifers, and to assess strategies for determining the extent of inter-aquifer leakage.

Type of Deliverable:

- ☒ **Project OR**
- ☐ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 3: Monitoring and quantification studies at the controlled release facility

Description: Greenhouse gas detection technologies and quantification techniques tested at the newly installed GA-CO2CRC controlled release facility.

Type of Deliverable:

- ☒ **Project OR**
- ☐ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

DELIVERABLE 4: Evaluation of sensors for greenhouse gas detection in marine environments

Description: Investigate the use sensors for the detection of greenhouse gases from natural ocean seepage sites.

Type of Deliverable:

- ☒ **Project OR**
- ☐ **Business As Usual**
- ☐ **Internal OR**
- ☒ **External**

International Carbon Capture and Storage Section

Section leader Rick Causebrook

SECTION ACTIVITY: Provide technical and advisory support for Carbon dioxide Capture and geological Storage (CCS) at an international level. Support the Department of Resources, Energy and Tourism by representing Australia at the Technical Group of the Carbon Sequestration Leadership Forum (CSLF). Lead and manage the China Australia Geological Storage of CO2 Project which began under the Asia-Pacific Partnership on Clean Development and Climate (APP). Engage in the development of collaborative activities including with the Global CCS Institute and the International Energy Agency Greenhouse Gas R&D Programme.

SECTION OUTCOME: Active Australian Government engagement and representation in international CCS activities leading to improved economic and environmental outcomes, enhanced capabilities through international collaboration and enhanced international networks.

DELIVERABLE 1: Support for RET engagement in international forums including Carbon Sequestration Leadership Forum

Description: Provide information and advice to the Clean Energy Division of RET as requested, and engage with Clean Energy Division at RET for greater coordination and cooperation. Support the Chief of Division in his role as Vice-Chair of the CSLF Technical group and Chair of the Projects Interaction and Review Team, and participate in CSLF task force activities.

Type of Deliverable:

☐ **Project OR**	☐ **Internal OR**
☒ **Business As Usual**	☒ **External**

DELIVERABLE 2: China Australia Geological Storage of CO2 Project

Description: Leadership and management of a collaborative project with Chinese Government agencies to build capacity on China and Australia in the area of geological storage of carbon dioxide, and to facilitate China's own assessment of prospectivity for geological storage of CO2. The project funded through the Asia Pacific Partnership on Clean Development and Climate and the Department of Resources, Energy and Tourism. The primary Chinese partner is the Administrative Centre for China's Agenda 21 (ACCA21) at the Ministry of Science and Technology.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**

DELIVERABLE 3: International Energy Agency Storage Assessment Road Map

Description: Work with the International Energy Agency (by invitation) to develop a Storage Assessment Road Map to be distributed to IEA members. Geoscience Australia on committee to develop this methodology.

Type of Deliverable:

☒ **Project OR**	☐ **Internal OR**
☐ **Business As Usual**	☒ **External**