Geoscience Australia

CORPORATE PLAN

2019-20 to 2022-23

August 2019

Contents

1. Introduction

1.1 Chief Executive Officer's foreword

Geoscience Australia is the national public sector geoscience organisation. Our mission is to be the trusted source of information on Australia's geology and geography for government, industry and community decision making. Our work covers the Australian landmass, marine jurisdiction and territories in Antarctica.

Since 1910, geoscience has played an important role in Australia's prosperity and safety. The nation's first national topographic mapping program was driven by the need to defend Australia's people and develop our regional areas. In later years, systematic mapping of the nation's geology to understand our resource endowment and drive new discoveries has underpinned our successful economy.

We continue to deliver enduring data and advice that helps government, industry and the community to address challenges and enhance opportunities facing Australia now and into the future.

This 2019-20 Corporate Plan sets out the key work of the organisation over the next four years and how we'll measure our success as we progress to realise our purpose.

1.2 Statement of preparation

As the accountable authority of Geoscience Australia, I am pleased to present our 2019-20 Corporate Plan covering the four-year period to 2022-23, as required under section 35(1)(b) of the *Public Governance, Performance and Accountability Act 2013*.

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Dr James Johnson

Chief Executive Officer

26 August 2019

2. Strategic Direction

2.1 Purpose

Geoscience Australia is the national public sector geoscience organisation. Our purpose is to be the trusted source of information on Australia's geology and geography for government, industry and community decision making, and contribute to a safer, more prosperous and well-informed Australia.

Geoscience Australia supports evidence-based decisions through information, advice and services for a strong economy, resilient society and sustainable environment.

2.2 Strategic Priorities and Objectives

Geoscience Australia's work aligns with the Australian Government's Science and Research Priorities and supports global and domestic initiatives. It impacts six key areas:

Building Australia's resource wealth—to maximise benefits from our mineral and energy resources, now and into the future

Supporting Australia's community safety—to strengthen our resilience to the impact of hazards

Securing Australia's water resources—to optimise and sustain the use of our water resources

Managing Australia's marine jurisdictions—to support sustainable use of our marine environment

Creating a location-enabled Australia—to use detailed and fundamental geographic location information to develop our nation

Enabling an informed Australia—to equip government, industry and community with geoscience data and information to make informed decisions for our nation.

3. Strategic Priorities and Performance Criteria

Geoscience Australia's work program impacts six key areas of society. For each area, the environmental context, the role of the organisation, the long-term targets, and the work program activities and capabilities are described.

Geoscience Australia's performance will be assessed using a number of qualitative and quantitative measures to communicate a comprehensive view of performance that will be presented in the organisation's annual performance statement. Performance measures will include assessment against key work deliverables, key performance indicators and case studies.

3.1 Building Australia's resources wealth

Environment

Australia's mineral and energy resources are a major contributor to the nation's wealth, economically and socially; annual export earnings will exceed $270b in 2018–19. Understanding Australia's available resources is a prerequisite for formulating sound policies on resources and land access.

Australia has a significant advantage in the production of resource commodities over other nations. This advantage stems from the rich and diverse mineral and energy endowment, the high quality regional-scale geoscience information that lowers the risks of exploration, advanced exploration, mining and processing technologies, a skilled workforce, generally favourable physical environments, relatively stable economic conditions, enabling and robust legislative framework and low sovereign risk.

Our Role

Geoscience Australia supports the responsible development of a diverse resources sector in Australia's low-carbon economy.

10 year targets

- We will map and understand Australia's energy resources, reversing Australia's increasing dependence on oil imports, and increase domestic gas supplies.
- We will stimulate mineral exploration investment, including critical minerals, to open up new producing provinces with mineral endowment worth over $100b.
- We will support the establishment of commercial carbon capture and storage and hydrogen industries to ensure Australia meets its greenhouse gas emission reduction targets.
- We will provide geoscience information to support new mineral and energy exploration technologies, and drive new discoveries.

Work Activities and Capability

Exploring for the Future

Exploring for the Future is a four-year (2016-2020) program stimulating exploration investment to open up new mineral and energy producing regions in northern Australia.

This work has provided a vastly improved understanding of the resource potential in northern Australia and has generated industry investment that will lead to sustainable economic development into the future. New data, maps, information and knowledge have renewed confidence in investing in Australia, ensuring new resource discoveries maintain Australia's position as a major global mineral and energy exporter.

The program also supports Australia's environmental outcomes, ensuring the management of groundwater resources are underpinned by scientific evidence, communities have access to groundwater resources, and the development of sustainable agriculture is supported.

Geoscience Australia will continue to deliver new geoscience data, knowledge and decision support tools that support increased industry investment and sustainable economic development to a wider range of stakeholders.

Energy pre-competitive information

To increase domestic oil and gas supplies and reduce our dependence on oil imports, the Energy Pre-Competitive Information program underpins the establishment of new energy producing provinces in onshore and offshore Australia.

The program achieves this by enhancing our understanding of Australia's energy resource potential through the provision of pre-competitive data, information and knowledge that significantly lowers the technical risk for private sector exploration investment. This enhances our reputation as an attractive destination for investment in a globally competitive resources sector. The new data and information generated by this program enables private industry to explore and invest in Australia with confidence, maintaining a pipeline of new discoveries and assisting in enhancing Australia's long-term energy supply and security.

The program is also pivotal to Australia developing a more diverse energy sector, characterised by sustainable oil and gas development, commercial carbon capture, utilisation and storage, and hydrogen development, which supports our transition to a lower carbon economy.

Minerals pre-competitive information

To realise $100 billion of new mineral resource discoveries in Australia the Minerals Pre-Competitive Information program stimulates exploration investment in greenfield (unexplored) regions, focusing especially in areas under cover where thick layers of sediment can conceal large deposits.

The program achieves this by acquiring and delivering pre-competitive data, maps, information and knowledge to enable private industry to explore and invest in Australia with confidence and maintain the pipeline of new discoveries, including critical and strategic minerals to advance development of new and emerging technologies.

Universal access to this publicly available information is one of Australia's competitive advantages and underpins our position as a globally attractive destination for exploration investment in the resources sector.

Resources advice and promotion

The Resources Advice and Promotion program supports an evidence-based policy and decision making environment that underpins the long-term sustainability of Australia's resource sector, helping to safeguard our future economic prosperity.

The program achieves this by providing authoritative, independent information and advice to the Australian Government and other stakeholders on our mineral and energy resources and reserves. This advice enables the Australian Government and industry to make strategic decisions about growing our domestic energy and mineral supplies and production. Geoscience advice and information from this program also contributes to the establishment of carbon capture, utilisation and storage, and hydrogen industries, supporting Australia meets its greenhouse gas emission reduction targets.

Through this program Geoscience Australia also collaborates with state and Northern Territory governments to promote Australia's resource exploration and investment opportunities. This attracts investment into the sector by private companies by highlighting the exploration opportunities created by the acquisition and provision of pre-competitive data, information and knowledge. This investment opens up new resource producing regions, including for critical and strategically important minerals.

Performance Measures

Exploring for the future	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Release of pre-competitive information	✓			
• Deliver integrated resource assessment for northern Australia	✓			
Energy pre-competitive information	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverable				
• Deliver geological studies of the evolution and resource potential of onshore and offshore energy systems	✓	✓	✓	✓
Minerals pre-competitive information	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Deliver new pre-competitive data from greenfield undercover regions	✓	✓	✓	✓
• Deliver geological studies of the evolution and resource potential of undercover regions	✓	✓	✓	✓
Resources advice and promotion	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Promote and attract investment into the Australian mineral and energy resource sectors	✓	✓	✓	✓
• Deliver geological material to support the Offshore Petroleum Acreage Release	✓	✓	✓	✓
• Deliver technical advice on mineral and energy resources, including the storage of CO_2, to the Australian Government	✓	✓	✓	✓
• Deliver precompetitive information and develop an increased understanding on CO_2 sequestration	✓	✓	✓	✓

Program key performance indicator • Provide advice in relation to the *Environment Protection and Biodiversity Act 1999* within the stated response period	100%	100%	100%	100%

Case study

Promoting investment in Australia's mineral sector

- This case study will demonstrate how Geoscience Australia's leadership and direction shapes Australia's promotion of its mineral investment opportunities.
- The Australia Minerals promotional program aims to stimulate investment from around the globe in Australia's excellent resource opportunities. The case study will review the Australian Mineral promotional program and Geoscience Australia's key role in shaping an investment attraction strategy and its subsequent implementation. It will draw on outcomes of promotional events, partner feedback and follow-ups from stakeholders to demonstrate the value of Geoscience Australia's contribution to Commonwealth promotion of investment in the resource sector.

3.2 Supporting Australia's community safety

Environment

The impact of disasters on Australia's economy, environment and society can be significant and includes loss of life, loss of property and infrastructure, disruption to business and disruption to our livelihoods. Our cities and regional centres, and their supporting infrastructure, are expanding as populations grow. This increases our exposure and vulnerability to hazards. The forecast cost of disasters is expected to increase with our growing population and valuable assets expanding into areas vulnerable to hazards and a changing climate.

To be better prepared, and to make informed decisions to reduce disaster risk, Australia depends on availability of hazard, vulnerability and exposure information.

Our Role

Geoscience Australia provides disaster risk information to help Australians understand the consequences of hazard events, contributing more resilient communities now and in the future.

10 year targets

- We will reduce the impact of disasters for all Australians
- We will provide nationally consistent data, information and advice to enable informed decisions on preparedness and response to the impact of hazards
- We will advance our understanding of Australia's hazards and vulnerability of the built environment to support mitigation and reduce the cost of disasters.
- We will provide ongoing real-time monitoring, analysis and advice on significant earthquakes and potentially tsunamigenic earthquakes to help safeguard Australian and Indian Ocean communities

Work Activities and Capability

Community safety

The Community Safety program develops and delivers authoritative nationally consistent disaster risk data and information to support evidence-based decision making to prepare for hazard events and to better manage their impact.

This program supports all levels of government in implementing key initiatives of the National Disaster Risk Reduction Framework and the development of the National Disaster Risk Information Services Capability.

The program also contributes to the Australian Reinsurance Pool Corporation established by the Australian Government through our predictive modelling of insured losses in the event of a suspected terrorist incident.

This work also supports the implementation of international commitments under the Sendai Framework for Disaster Risk Reduction through working with the Department of Foreign Affairs and Trade in delivering their international strategies and policies for Disaster Risk Reduction, particularly in the Indo-Pacific region.

Seismic alerts

The Seismic Alerts program provides 24/7 monitoring, analysis and notification of earthquakes and suspected nuclear weapons test explosions to the Australian Government.

The program delivers information to the Australian Government Crisis Coordination Centre regarding earthquakes that have the potential to damage Australian and regional interests. The real-time earthquake advice provided supports emergency managers making decisions about resource deployment in the immediate aftermath of an earthquake.

We partner with the Bureau of Meteorology to provide the Joint Australian Tsunami Warning Centre that is used to forecast potential tsunami impacts on the Australian coastline and in issuing alerts. This information is a key contribution to the Indian Ocean Tsunami Warning and Mitigation System, and contributes to providing tsunami information for the South West Pacific.

Information on nuclear weapon test explosions is provided to the Australian Government for incorporation into national response to suspected breaches of the Comprehensive Nuclear-Test-Ban Treaty.

	Exposure and topographic information The Exposure and Topographic Information program delivers access to trusted information on Australia's geography, and the exposure of businesses and infrastructure to disasters, for the purposes of disaster mitigation, recovery, response and preparation. This information is used by Australian Government entities, businesses and the general public. The program also informs and educates policy makers, operational officers and business owners to make better use of digital mapping tools and technology to lessen the impact of future disasters on business and the community.

Performance Measures

Community safety	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Deliver nationally consistent data, information and advice to enable informed decisions on preparedness and response to the impact of hazards	✓	✓		
• Deliver improved understanding of Australia's hazards and vulnerability of the built environment to support mitigation and reduction in cost of disasters	✓	✓	✓	✓
• Deliver the technical Disaster Risk Reduction work program in Papua New Guinea and the wider Pacific community as part of the Australian Government's international aid policy commitments	✓	✓	✓	
• Deliver modelling capability on estimated losses from suspected terrorism events to the Australian Reinsurance Pool Corporation	✓	✓		
Seismic alerts	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Provide ongoing monitoring of specified regions for detection of suspected nuclear tests	✓	✓	✓	✓
• Provide 24 hour, 7 days per week earthquake monitoring and alerts	✓	✓	✓	✓
Program key performance indicators				
• All significant earthquakes detected, analysed and reported within agreed timeframes, with alerts issued for potentially tsunamigenic earthquakes	100%	100%	100%	100%
• All suspected nuclear events detected, analysed and reported within agreed timeframes	100%	100%	100%	100%
Exposure and topographic information	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Provide advice on the best use of digital mapping tools and technology to strengthen disaster and emergency management capabilities for the Australian Government	✓	✓		
• Modernise the supply chains and delivery mechanisms for topographic information to the Department of Defence.	✓	✓		
• Improve the timeliness and reliability of the National Exposure Information System and the Australian Exposure Information Platform.	✓			
Program key performance indicators				
• Availability of the national bushfire monitoring system, Sentinel Hotspots, between October and March each year	95%	95%	95%	95%
• Response to requests to activate the International Charter for Space and Major Disasters and Copernicus Emergency Management System within 72 hours	100%	100%	100%	100%
• Response to requests for location information from the Australian Government Crisis Coordination Centre within 24 hours between October and March and within 48 hours during steady state periods	95%	95%	95%	95%
• Availability of exposure reports from the Australian Exposure Information Platform	100%	100%	100%	100%

• Availability of the national catalogue of emergency management web services, EM-LINK	95%	95%	95%	95%

Case study

Use of openly available, authoritative information to reduce effort in disaster mitigation

- This case study will use examples from some of Geoscience Australia spatial data infrastructure to demonstrate how businesses, emergency management authorities and Australian Government entities have minimised the impact of disasters on assets and communities.
- Information would be drawn from the Australian Exposure Information Platform and case studies from other government entities including the Australian Government Crisis Coordination Centre and the North Queensland Livestock Industry Recovery Agency.

3.3 Securing Australia's water resources

Environment

Australia is the driest inhabited continent, which makes water use and management a key challenge. In many parts of Australia, groundwater underpins agriculture, the environment, minerals and energy resource development, and the well-being of regional communities. We need to better understand groundwater in order to properly manage it. Understanding the connection between groundwater and surface water systems, and reducing the impact of development on groundwater supply and quality are critical to our water security and regional development.

Our Role

Geoscience Australia supports the fair sharing of Australia's water resources for a strong economy, resilient society and sustainable environment. We aspire to identify the location, quantity and quality of Australia's groundwater resources to support sustainable water management

10 year targets

- We will deliver a complete map of Australia's groundwater system with estimated resource volumes
- We will collaborate to deliver a complete understanding of the national surface and groundwater resources
- We will deliver regional assessments of groundwater resources in priority areas
- We will provide data, information and advice on groundwater systems to inform the sustainable management of these resources by government, industry and communities
- We will develop new technologies that support the discovery of new groundwater resources.

Work Activities and Capability

Evaluating Australia's groundwater systems

The Evaluating Australia's Groundwater Systems program provides authoritative, independent information and advice to the Australian Government and other stakeholders on groundwater resources, processes and impacts.

This work delivers new geoscience data and assessments of the nature, size and status of accessible groundwater resources across Australia. This new data and information informs the sustainable management and responsible development of groundwater resources and provides transparent, evidence-based technical advice in support of Australian Government priorities. Geoscience Australia delivers this work through collaborative partnerships with a range of Australian, state and territory government entities and university partners.

Groundwater and surface water innovation

The Groundwater and Surface Water Innovation program uses new and emerging science and technology to resolve key questions regarding groundwater-surface water systems that support the discovery and characterisation of new groundwater systems.

This work actively scans, applies and advances current and emerging science and technology useful in the investigation of groundwater systems, issues and risks. It capitalises on existing national and regional geospatial and geoscience datasets, advanced computing capabilities and application of modern industry and geoscience methods for better understanding of the nation's groundwater system.

As part of this program, Geoscience Australia provides scientific leadership to drive cross-disciplinary, holistic assessments of hydrogeological systems.

Performance Measures

Evaluating Australia's groundwater systems	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Provide authoritative, independent information and advice to the Australian Government and other stakeholders on groundwater resources, processes and impacts	✓	✓	✓	✓
• Deliver stage reports to the Department of the Environment and Energy on Geological and Bioregional Assessments	✓	✓		
• Deliver stage reports on the water balance of the Great Artesian Basin	✓	✓	✓	

Program key performance indicators • Requests for groundwater resource management advice under the *Environment Protection and Biodiversity Conservation Act 1999* responded to within agreed timeframes	95%	95%	95%	95%
Groundwater and surface water innovation	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables • Develop new workflows to integrate and analyse data in a high performance computing environment	✓	✓	✓	✓

Case study

New groundwater data supporting agricultural development – Ord region, northern Australia

- Geoscience Australia's Exploring for the Future program is delivering new data, science and understanding of the surface and groundwater systems and associated soils to attract new agricultural investment in key regions of northern Australia.
- This case study will look at the greater Ord region of Western Australia and the significant investment in agricultural land made possible from new innovative solutions that has transformed our understanding of groundwater recharge and discharge processes, potential soil and salinity hazards, together with mapping water tables and assessing groundwater volumes.

3.4 Managing Australia's marine jurisdictions

Environment

Australia's marine jurisdiction is about double the size of Australia's land mass and 4 per cent of the world's oceans. With increasing global demand for energy, food and security, activity within our marine jurisdiction is becoming increasingly important to our economy. Effective and efficient management of this precious environment relies on baseline mapping, understanding of marine resources and assets, and the ability to measure change over time.

Our Role

Geoscience Australia supports the effective, efficient and sustainable management of the marine environment through the provision geoscience data, information and authoritative advice.

10 year targets

- We will map and understand Australia's seabed to support sustainable management of our marine assets and support rapid growth of Australia's Blue Economy to $100b per year
- We will deliver coastal landform data to inform management of the coastal zone and build resilience to the impacts of a changing climate
- We will use geoscientific data to define Australia's maritime boundaries and underpin the legal and regulatory authority for our marine jurisdiction.

Work Activities and Capability

Secure marine jurisdiction for Australia

Australia's marine jurisdiction supports a wide range of marine industries that underpin Australia's energy, food and border security. Defensible enforcement of Commonwealth, state, territory and international laws, and permitted activities in Australia's marine jurisdiction, all depend on access to authoritative digital mapping of maritime boundaries generated by this program.

The Secure marine jurisdiction for Australia program provides technical advice on the Law of the Sea to support Australian Government domestic and foreign policy positions.

Marine geoscience to support the blue economy

The Marine Geoscience to support the Blue Economy program aims to harness the collective value of seabed and coastal mapping data that is provided from offshore industries, government and university sectors for the benefit of the Australian economy. This program adds value to that data by building a fundamental knowledge base of Australia's marine and coastal environments across our vast marine jurisdiction, including the Australian Antarctic Territory.

The effective management of marine and coastal environments relies on the baseline mapping of natural resources and assets and the ability to measure change over time, as provided through this program.

Performance Measures

Secure marine jurisdiction for Australia	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Deliver a collaborative program of support for Pacific island countries to access their maritime jurisdictional entitlements under international law	✓	✓		
• Provide support for Australian Government implementation of Treaty with Timor-Leste	✓			
• Deliver updated maritime boundaries in international standard format		✓		
• Register of legal instruments that give legal certainty to the digital mapping boundaries of Australia's marine jurisdictions			✓	✓
Marine geoscience to support the blue economy	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Deliver marine and coastal geoscience data, derived products and advice that informs evidence-based decisions for the management of Australia's marine jurisdictions, including the Australian Antarctic Territory.	✓	✓	✓	✓

Case study

Use of openly available, authoritative maritime boundaries to provide certainty for investment in offshore areas

- This case study would use examples demonstrating how the process by which Australia's maritime boundaries are produced and made available has been used to provide certainty for where economic activities can safely occur in the marine jurisdiction.
- Information would be drawn from domestic and overseas work with Australian Government partners, in particular the Department of Industry, Innovation and Science, and the Department of Foreign Affairs.

3.5 Creating a location-enabled Australia

Environment

Australia has a vast and rich landscape. Geographic data provides the nation with a complex view of the country's landscape through time. Geoscience data and information are a significant national resource with enduring value for the Australian community. Knowing when and where events and activities occur is essential for government, industry, researchers, and the community to make decisions and improve economic, environmental and social outcomes for Australia.

Our Role

Geoscience Australia provides trusted fundamental geographic information and advice to support evidence-based decision making.

10 year targets

- We will deliver positioning accuracy of 10 cm across Australia, and enable 3 cm accuracy in mobile phone range, adding at least $200m annually to the Australian economy over the next 30 years
- We will deliver a satellite data platform that supports better-practice Government environmental decisions, helps Australian businesses to use satellite data and underpins the contribution of over $5b annually to the Australian economy by the rapidly growing geospatial sector
- We will contribute to environmental forecasting capabilities that support better management of Australia's natural resources
- We will provide trusted information on Australian geography that is accurate and easy to use, for everyone, everywhere
- We will underpin faster, cheaper and smarter approaches to decision-making and location-based activities through integrating digital mapping, satellite data, and real-time precise positioning.

Work Activities and Capability

Digital Earth Australia

The Digital Earth Australia (DEA) program provides decision-ready satellite data products and services that can be used by Australian governments, businesses and individuals to make more informed decisions about the management and use of Australia's natural resources.

This program translates satellite imagery into evidence of how Australia's land and water bodies change over time and delivers it ways that benefit the user most, that is, openly-accessible, routine, robust, of high-quality and in unprecedented detail.

This information helps governments and industry better understand soil and coastal erosion, the impact of land management practices, deforestation, urban development, and water quality and availability.

Digital Earth Africa

The Digital Earth Africa program establishes a routine, reliable and operational service using Earth observations to deliver decision-ready satellite data products and services that can be used by African governments, businesses and individuals to make more informed decisions about the management and use of Africa's natural resources.

Digital Earth Africa is an Australian government program, partly co-funded by a US Charitable Trust. This program will be institutionalised within Africa to establish an African-based capability, and build the world's largest platform for accessing and analysing satellite imagery. The information from this continental-scale platform will support improved planning and sustainable development of land and sea resources by government, industry, the community society and development agencies working in Africa.

Australian Spatial Data Framework

The Australian Spatial Data Framework program provides trusted, accurate and easy-to-use information on Australia's geography, and the ability to integrate other data with geography, to enable government, businesses and the community to make decisions faster, cheaper and smarter.

Technology makes it possible for anyone, anywhere to have digital mapping at their fingertips. This drives demand for information on Australia's cities, transport, water, environment, property and administrative boundaries that is fit for purpose, nationally consistent and easy to join up with other information.

Maintaining access to trusted information on Australia's geography, and the ability to use location-based technology for decision-making, is now essential to: growing Australian business faster and smarter in a competitive global economy; the success and defensibility of government policy and operations; and helping people connect with government.

Positioning Australia

The Positioning Australia program will deliver more accurate, reliable positioning in real time across Australia and its maritime zones. The program is building a national satellite positioning capability that all Australians can access, including in remote areas without mobile phone or Internet coverage. This will meet the growing need for position and navigation information across industries.

The program will contribute to the enhancement of the Global Geodetic Reference Frame, and improve Australia's Geospatial Reference System. It will also undertake targeted geodetic monitoring activities in support of other organisational programs.

In support of this work, the Australian Government has committed $224.9 million over four years for improved GPS through the 2018-19 Budget. This includes $160.9 million to develop a Satellite-Based Augmentation System and a further $64 million to upgrade Australia's ground network of Global Navigation Satellite System (GNSS) sites through the National Positioning Infrastructure Capability (NPIC).

New open source software and data analysis capabilities will further allow Australians to improve existing technologies and to generate new location-enabled innovations.

Performance Measures

Digital Earth Australia	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Deliver decision-ready satellite data and information products to government and industry users	✓	✓	✓	✓
Program key performance indicators				
• Availability to users of decision-ready data	90%	95%	99%	99%
Digital Earth Africa	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Establish Institutional hosting arrangement in Africa for the Digital Earth Africa program office	✓			
• Deliver analysis-ready satellite data & decision-ready information products to government and industry users	✓	✓	✓	
Australian Spatial Data Framework	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Deliver the Location Index pilot as part of the Data Integration Partnership for Australia	✓			
• Establish governance rules with Australian Government, and state and territory entities to better manage datasets and infrastructure for Australia's Foundation Spatial Data Framework.	✓	✓	✓	✓
• Modernise the data infrastructure and the supply chains that maintain the national datasets in the Foundation Spatial Data Framework.	✓	✓	✓	✓
• Provide digital mapping tools and technology for government policy priorities	✓	✓	✓	✓
Positioning	2019-2020	2020-2021	2021-2022	2022-2023

Program deliverables • Delivery of static and time dependent reference frames available for use in Australia • Completion of the satellite-based augmentation system follow-on program and the National Positioning Infrastructure Capability program • Completion of initial GNSS network refresh and extension		✓	✓ ✓	
Program key performance indicators • Availability of GNSS network to support continuous, real-time positioning applications	95%	95%	98%	98%

Case study

Using positioning infrastructure to help predict storms

- Storms cause great damage to Australians and their property. The state-wide blackout in South Australia, and in 1999, the biggest single insurance loss in Australian history of $1.7 billion caused by the Sydney hailstorm serve as important examples.
- This case study will showcase the work Geoscience Australia has undertaken in partnership the Bureau of Meteorology to use the Positioning Australia GNSS network to infer atmospheric water vapour content that is radically improving storm forecasting.

3.6 Enabling an informed Australia

Environment

Geoscientific data and physical collections have enduring value. It is essential that these data and collections are collected correctly, and can be easily understood and accessed by everyone. Data are acquired from platforms including satellites, observatories and laboratory instruments. Data and samples can be integrated to build models of our continent, our Antarctic and island territories and surrounding oceans.

Our Role

Geoscience Australia delivers world-class, trusted data, platforms and expertise to support high-impact geoscience, transparent evidence-based decisions and social licence to operate.

10 year target

- We will build and operate infrastructure to measure and monitor our environment
- We will be the authoritative custodian of geoscientific data and physical collections for the benefit of all Australians
- We will work to ensure all teachers are equipped with knowledge and resources to increase the participation of future generations in science, technology, engineering and mathematics
- We will provide national and international leadership in geoscientific and open source data, resulting in consistent, accessible and useable data across all areas of geoscience
- We will achieve a ten-fold increase in engagement with stakeholders across Geoscience Australia's digital platforms.

Work Activities and Capability

Geoscience Promotion, Education and Awareness

The Geoscience Knowledge, Education and Awareness Program works to increase interest, enthusiasm and knowledge about geoscience and its applications. A greater understanding of geoscience and its application to issues of national importance helps ensure geoscience can continue to underpin evidence-based policies and decision-making. A scientifically literate community is critical in advancing science-based government policies and initiatives.

This program brings together Australia's National Geoscience Library, the National Mineral and Fossil Collection, the Geoscience Education Facility and the organisation's Client Services function to deliver science education and outreach programs to help build a community that values science and understands its importance to individual and national wellbeing and prosperity.

The Geoscience Knowledge, Education and Awareness Program aims to engage with and educate the Australian community through: access to and use of Geoscience Australia's Earth science collections; products and services; development and delivery of teaching resources; and development of, and support for STEM initiatives.

Observatories

The Observatories program operates and maintains networks of observatories to acquire and deliver data about the Earth. This information is used to monitor land use, develop agriculture, help discover new mineral and energy resources, ensure our water security and respond to natural hazards such as earthquakes, tsunami and bushfires. It also provides essential information about global positioning and navigation systems.

Australia is totally reliant on internationally operated satellites for remote sensing data used by government, industry, research and academic institutions to monitor and understand how our environment is changing over time.

Essential to the program is the ongoing operation of Australia's primary satellite ground station in Alice Springs. The Alice Springs ground station is critical to the timely acquisition of remote sensing data for Australia, and providing mission support to the Landsat satellite mission, operated by the National Aeronautics and Space Administration (NASA) and the United States Geological Survey (USGS).

Petroleum Data Repository

The Petroleum Data Repository program is responsible for the stewardship and management of offshore petroleum data and samples for the Australian Government under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGSA). Through this program, Geoscience Australia is the authoritative custodian of offshore petroleum data and samples for the benefit of all Australians.

It is a requirement under the OPGGSA that petroleum exploration and production companies submit offshore data and petroleum samples to the Australian Government. With over 60 years' worth of publicly available data and samples available, access to the collection maximises the efficiency and effectiveness of offshore exploration activities by eliminating duplication and de-risking exploration investment. Australia's system of universally accessible data and information provides us with a competitive advantage in a globally competitive resources sector.

As well as petroleum samples, the Petroleum Data Repository also makes available core, rock, soil and fossil samples of national significance collected from locations across Australia and the Australian Antarctic Territory.

Science Support

The Science Support program provides analytical, technical, engineering and logistics services that underpin Geoscience Australia's science and work program.

The program provides: geophysical and geochemical datasets demonstrating hydrocarbon prospectivity in offshore acreage release areas; geochemistry and geochronology (rock aging) supporting baseline geological mapping by state and territory geological surveys; maintenance of geophysical observatory networks that support the Joint Australian Tsunami Warning System and Comprehensive Nuclear-Test-Ban Treaty Organisation, including the maintenance of the Alice Springs ground station satellite antennas.

Enabling Digital Geoscience

The Enabling Digital Geoscience program supports: the curation of trusted, national-scale geoscience datasets that support evidence-based decisions; provides leadership and support to empower geoscientific communities to employ the best methods to maximise the usability and value of their data; and assists in the development of decision-support tools and applications that make our data more accessible and useable by the wider community.

This program oversees the collection, storage, maintenance, useability and accessibility of data from field observations, modelling and instrument platforms including satellites, observatories and laboratories. These geoscientific data and physical collections are of national geological and geographic importance. They have enduring value helping answer geoscientific questions, and providing baseline information to integrate into models of Australia's territory.

Performance Measures

Geoscience Promotion, Education and Awareness	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Undertake activities to promote, educate and create awareness of geoscience and its benefits	✓	✓	✓	✓

Observatories	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Deliver an updated version of the Australian / International Geomagnetic Reference Field model	✓			
• Deliver Macquarie Island Geomagnetic and Seismic modernisation project	✓			
• Achieve Landsat 9 Landsat Ground Network operational readiness	✓			
• Deliver geomagnetic and seismic data delivery systems upgrade project	✓	✓		
• Operate national network of observatories	✓	✓	✓	✓
• Operate Alice Springs satellite ground station	✓	✓	✓	✓

Program key performance indicators				
• Data availability from the Comprehensive Nuclear-Test-Ban Treaty network	98%	98%	98%	98%
• Data availability from the seismic network	90%	90%	90%	90%
• Data availability from the geomagnetic networks	98%	98%	98%	98%
• Alice Springs Observatory scheduled satellite passes acquired	98%	98%	98%	98%
Science Support	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Deliver analytical data to support Geoscience Australia's science activities	✓	✓		
• Complete laboratory modernisation project		✓		
Petroleum Data Repository	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Operate the National Offshore Petroleum Information Management System for the discovery and delivery of petroleum data and samples	✓	✓	✓	✓
Program key performance indicators				
• Respond to, and initiate workflows for, Repository Client Services requests within seven business days	92%	94%	96%	96%
• Initiate workflows for cataloguing and data storage of new *Offshore Petroleum and Greenhouse Gas Storage Act 2006* submissions within five business days	92%	94%	96%	96%
Enabling digital geoscience– turning data into decisions	2019-2020	2020-2021	2021-2022	2022-2023
Program deliverables				
• Deliver digital system enhancements to promote national-scale geoscience datasets that are findable, accessible, interoperable and reusable (FAIR)	✓	✓	✓	✓
Case study				
Geophysical Archive Data Delivery System • The modernisation of fundamental national geophysical data will improve the delivery of evidence-based products and services to our stakeholders. • This case study will demonstrate how the development of the Geophysical Archive Data Delivery System (GADDS) platform within the new Geoscience Australia portal will provide users with a single interface to access our suite of high-quality geophysical data sets with the functionality stakeholders require, with additional data types never delivered in this way before.				

4. Financial Management

Geoscience Australia is committed to meeting whole-of-government priorities and ensuring the provision of services is as efficient and well-targeted as possible. In this context, Geoscience Australia is improving operational efficiencies, reducing administrative overheads and delivering services within a governance framework that demonstrates the benefits and value of the organisation's work.

Geoscience Australia's revenue and expenses for the 2019-20 budget and forward estimates period to 2022-23 are detailed in table 4.1.

Table 4.1 – Comprehensive income statement

GEOSCIENCE AUSTRALIA: Comprehensive income statement (source: 2019-20 Portfolio Budget Statements)	2019-20 Budget $'000	2020-21 Forward estimate $'000	2021-22 Forward estimate $'000	2022-23 Forward estimate $'000
EXPENSES				
Employee benefits	78,289	77,996	77,996	77,996
Suppliers	157,347	150,857	151,402	144,075
Depreciation and amortisation	9,333	10,189	10,871	10,409
Other expenses	49	49	49	49
Total expenses	**245,018**	**239,091**	**240,318**	**232,529**
OWN-SOURCE INCOME				
Sale of goods and rendering of services	40,089	40,089	40,053	40,053
Other	654	656	658	660
Total own-source revenue	**40,743**	**40,745**	**40,711**	**40,713**
Net (cost of)/contribution by services	**(204,275)**	**(198,346)**	**(199,607)**	**(191,816)**
Revenue from Government (Appropriation)	192,322	186,272	187,610	181,064
Total comprehensive income/(loss)	**(11,953)**	**(12,074)**	**(11,997)**	**(10,752)**

5. Geoscience Australia Overview

Geoscience Australia is a non-corporate Commonwealth entity within the Industry, Innovation and Science portfolio.

Stakeholders and Partnerships

Geoscience Australia works in partnership with governments, industry, publicly funded research agencies and academia to provide specialist expertise and information to support the delivery of Australian Government services.

Its collaboration with Australian Government, non-government, and international partner organisations is highly successful, with 91 per cent of stakeholders either satisfied or extremely satisfied with our overall performance.

Employees

Geoscience Australia has a highly educated and skilled workforce, spanning a number of specialist areas, including:

- Geoscientists such as geologists, geophysicists, geochronologists and geochemists
- Spatial professionals such as cartographers, surveyors and remote sensing experts
- Data management professionals
- Educators and science communicators
- ICT specialists including experts in high performance data and computing, mathematics, engineers, graphic designers
- Corporate and management professionals including human resource, finance and communication specialists.

Geoscience Australia has an average staffing level cap of 600. Results of the last Australian Public Service Employee Census provided results of a highly satisfied, motivated, experienced and qualified workforce.

Information Communications Technology

Geoscience Australia's digital investment will drive and enable high-impact science, leading to more accurate and robust insights, and better decisions about Australia's resources, land and marine environments, spatial enablement and community safety.

Geoscience Australia's Digital Strategy 2019 – 2022 is available at http://www.ga.gov.au/about/corporate-documents.

Risk Management

The management of risk within the organisation is in accordance with the *Public Governance, Performance and Accountability Act 2013* and the Commonwealth Risk Management Framework and is consistent with AS/NZS ISO 31000:2009 Risk management – Principles and guidelines.

Geoscience Australia undertakes periodic risk workshops and reviews on risk management. The effective application of risk management improves decision making and facilitates better outcomes for the Australian Government.