Earth Sciences New Zealand

Earth Sciences NZ Statement of Corporate Intent 2025/26

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NEW ZEALAND INSTITUTE FOR EARTH SCIENCE LTD

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Cover: Lake Pukaki looking toward Aoraki/Mount Cook. [Dave Allen]

Inside front cover: Wairakei geothermal power station. [Jeff Brass]

1. INTRODUCTION

Earth Sciences New Zealand underpins national economic growth through work that enables increased returns from New Zealand's natural resources and builds resilience to natural hazards and environmental change.

Established on 1 July 2025 by the merger of GNS Science and NIWA, the increased scale and capabilities of Earth Sciences NZ will enable a lift in innovation, commercial outcomes and use of advanced technologies within the national economy. The acquisition of MetService and inclusion of the Measurement Standards Laboratory over the coming year will further enhance Earth Sciences NZ's capability to support the economy and ensure the safety of New Zealand's communities and assets.

A key focus for Earth Sciences NZ is to maximise the long-term benefits for New Zealand by being adaptable and responsive to government priorities. We will support the Government-led changes to the science system through improved collaboration, sharing of science infrastructure, services, and operational efficiency gains, and by keeping pace with technology advances. Earth Sciences NZ will also look for partnerships with private sector investors in research capability, facilities and knowledge production.

The research and services of Earth Sciences NZ will focus on the following six significant areas of science:

- **Geological Hazards** research to predict and mitigate the risks of earthquakes, volcanic eruptions, landslides and tsunamis, thereby enhancing New Zealand's resilience and preparedness for such events.
- **Weather and Climate Hazards** research to predict and mitigate the risks of heat waves, floods, droughts, damaging winds, coastal hazards and space weather, thereby enhancing New Zealand's resilience and preparedness for such events.
- **Energy** research to advance understanding of energy resources and develop materials and technologies to grow energy production from hydro, solar, wind, geothermal, marine, mineral green hydrogen, etc. resources, including options for energy storage and efficiency gains.
- **Land and Water** research to support the management and use of land and water resources while ensuring the environmental limits required to ensure the health, biodiversity and biosecurity of terrestrial and aquatic ecosystems are met.
- **Oceans** research to advance management and use of marine resources and ecosystems, including fisheries, aquaculture and minerals, thereby enabling the economic opportunities to be realised and the health, biodiversity and biosecurity of marine environments to be maintained.
- **Atmosphere and Climate** research to improve predictions of weather and climate to inform national climate adaptation and mitigation strategies, and to realise economic opportunities of climate variability and change.

Our research will inform the policies and decisions that enable New Zealanders to live sustainably and build resilience to a challenging global environment. To maximise our impact, we will strengthen our established partnerships with end users, Māori and stakeholders, ensuring our outputs are useful, usable and used.

The Earth Sciences NZ Statement of Corporate Intent for 2025 outlines our contribution over the coming year. Focused on 2025/26, it describes our direction, objectives, and performance measures, outlining how we will manage and mitigate risks, and maximise opportunities. It also forecasts our activity out to 2027/28.

SCIENCE DIRECTION

We are excited by the potential of Earth Sciences NZ. Combining the strengths of GNS Science and NIWA will enable relationships with government agencies responsible for national policy and decision making to be strengthened. Over time, our products and services will better support the private sector. The scale and international relevance of Earth Sciences NZ will also enable continued service of customers across the Pacific and beyond and provides opportunity to grow international revenues. Earth Sciences NZ will continue to be at the forefront of national science diplomacy.

The future acquisition of MetService as a wholly-owned subsidiary will increase collaboration, support state-of-the-art infrastructure, improve operational capabilities, and create scale and efficiencies. Most importantly, it will deliver comprehensive and advanced weather and climate services that will enable industry to realise value via improved reliability, accuracy and timeliness of tailored weather and climate information. This will support business resilience and ultimately growth of New Zealand's economy. Enhanced hazard monitoring, forecasting, risk assessment and communication will also enable communities, businesses and government to plan for, and take timely action in response to, the increasing frequency and severity of extreme weather events.

Our work this year is being undertaken in an environment of ongoing uncertainty as the Government's reform of the New Zealand science, innovation and technology system progresses. Details of the reforms are currently being worked through by the Government and are expected to include: the form and nature of Public Research Organisations; a future science and research funding framework and mechanisms; and long-term priorities for government-funded science and innovation.

As we develop Earth Science NZ's vision and strategy, we will focus not only on our work, but also on advancing the Government's science system reform aspirations as a whole. We will seek to foster better connectivity between Earth Sciences NZ and other key players in the science system. This includes other CRIs/Public Research Organisations, universities, industry and independent research organisations. We will also work closely with government agencies to support their evidence-based decision making.

Earth Sciences NZ will provide a platform for joint research initiatives, interdisciplinary projects, and the development of cutting-edge technologies, thereby enhancing the overall impact and efficiency of New Zealand's science system. By bridging the gap between researchers, sharing key science infrastructure and operational services, we will support the Government's vision of a more connected, cohesive, and responsive science ecosystem that is agile and responsive to national science priorities.

OUR OPERATIONS

There is much to do to fully transition to Earth Sciences NZ, and we are working at pace, committed to designing and building a strong new organisation that meets the nation's needs. During this first year of operations, we will progress the development and implementation of a merger integration plan. We will also develop our science strategy to ensure that our research and capabilities align with national priorities, maintain our financial performance and provide impact.

Financial sustainability will continue to be a key driver, and generating returns from our research and applied science to ensure we can meet our future capital and development needs will be a priority. Our integration activities will also seek cost efficiencies through consolidation of support services and systems over time.

Aging infrastructure remains a significant challenge. We have a range of buildings, science assets and technologies that are nearing the end of their useful life or are no longer fit for purpose. Through our integration activities we will optimise existing infrastructure and prioritise investment into assets critical for meeting future national science needs. We continue to engage with both public- and private-sector partners on opportunities to align investments and share resources for mutual benefit.

MetService

In March 2025, the Cabinet approved the acquisition of MetService by Earth Sciences NZ. This is expected to occur in 2026 once the required legislation changes have been passed by Government. Planning for the integration of MetService as a subsidiary within Earth Sciences NZ is well underway, including initiatives to improve the national Weather Forecasting System. Workstreams to identify and map current capabilities, operations, processes and assets across the organisations will be used to inform the development and implementation of future integration projects. This planning is expected to be complete by the end of 2025 and the aim of this work will be to:

- Establish MetService as a subsidiary business within Earth Sciences NZ, delivering services associated with weather and climate, and their impacts.
- Provide continued development of, and growth in, the services provided by MetService. This will include improved accuracy and effectiveness of forecasts through integration of advanced weather and climate research and modelling into MetService operations.
- Centralise enabling services to provide efficiencies and cost savings within MetService.

- Reinvest the savings through operational efficiencies and effective use of assets and capabilities across Earth Sciences NZ in the Weather Forecasting System.
- Enable the free flow of capacity and capability between MetService and the rest of Earth Sciences NZ to optimise the effectiveness of the Weather Forecasting System.
- Develop a unified data platform for access to weather data that has consistent policies, licences and pricing.

Meeting the above aims will enable Earth Sciences NZ to be at the forefront of weather and climate science and, through its subsidiary MetService, provide unparalleled services and support for New Zealand and the South Pacific.

We are committed to delivering the direction and initiatives set out in this Statement of Corporate Intent. We look forward to leading Earth Sciences NZ in this exciting environment of change for the science system – it's a privilege to be part of building a new science organisation that is even more responsive to the diverse needs and aspirations of New Zealand.

David Smol
Chair

John Morgan
Transition Chief Executive

Transition Chief Executive John Morgan and Integration Executive Chelydra Percy celebrate the launch of Earth Sciences NZ on 1 July 2025, formed by the merger of former Crown Research Institutes GNS Science and NIWA. [Maddy Brennan]

2. ABOUT EARTH SCIENCES NEW ZEALAND

2.1 Our purpose

Earth Sciences NZ understands the interconnected elements of the planet and how they impact other areas of scientific research and application. We work across the system to ensure collaboration and co-design are valued and sought after by our partners and end users. Bringing together experts, partners and technologies enables Earth Sciences NZ to tackle key environmental challenges and deliver solutions to help New Zealand build resilience and manage its natural resources wisely. We are focused on national benefit, delivering high-impact science with long-term national benefits, guided by Government's science priorities, and acting in the best interests of New Zealand.

Our Interim Statement of Core Purpose (Appendix Two) sets out the Government's expectations for Earth Sciences NZ and our areas of operation. Earth Sciences NZ will fulfil its purpose through leadership of global science and innovation, the provision of research that benefits New Zealanders, and the transfer of data, technology and knowledge in partnership with industry, government, Māori and Pacific partners, to:

- Support future energy growth, sustainability and security through increased production, effective storage, and resilient distribution through hydro, solar, wind, geothermal, marine, mineral green hydrogen, etc. resources.
- Increase economic benefit from the development and diversification of aquatic and geological resources, including aquaculture, fisheries and minerals.
- Support the economy through increased preparedness and resilience to natural hazards such as geological, space weather, and extreme weather and climate hazards.
- Develop new materials and technologies that improve energy efficiency and advance zero or low carbon energy use to contribute to economic growth.
- Increase social and economic benefits within environmental boundaries through improved management and stewardship of freshwater and marine resources and ecosystems and enhanced biosecurity.
- Adapt to and realise the economic opportunities of climate variability and change, and mitigate the drivers of climate change.
- Accelerate earth science and its application through the development and use of advanced technologies, such as space, environmental observation and analysis, biotechnology, engineering, nanotechnology, AI and supercomputing.
- Ensure key parts of the economy and society meet quality assurance, accreditation processes and regulatory compliance by providing measurement standards for New Zealand domestically and internationally.
- Build a more dynamic, effective and efficient Science, Innovation and Technology system for New Zealand by working collaboratively with other research organisations, including other CRIs/PROs and universities, and through enduring partnerships with international science organisations.

2.2 Our assets and capabilities

Earth Sciences New Zealand (Earth Sciences NZ) brings together the Institute of Geological and Nuclear Sciences Limited (GNS Science) and the National Institute of Water and Atmospheric Research (NIWA). Earth Sciences NZ will also include MetService, which is being acquired via a separate process.

Earth Sciences NZ benefits from the strong history of collaboration between GNS Science and NIWA and will strengthen the delivery of science and innovation to foster economic growth and resilience. It presents a unique opportunity to create a world-class research organisation that can address New Zealand's environmental and geoscience opportunities and challenges while better driving economic growth. By combining the strengths of the organisations, science will be enhanced, operational efficiency improved, and greater impact and value delivered to stakeholders and the New Zealand economy.

Earth Sciences NZ will be one of four Public Research Organisations. We will have a national footprint with over 1,500 staff at 22 sites throughout New Zealand and Australia, supporting urban and regional industries and communities across the nation. Earth Sciences NZ draws on over 160 years of excellence in earth sciences.

Earth Sciences NZ's 1,500 staff will be located at 22 sites across New Zealand and Australia, supporting urban and regional industries and communities.

The breadth of Earth Sciences NZ's work is significant. It spans natural resources science, weather and climate forecasting, climate adaptation and mitigation, natural hazard monitoring and forecasting (earthquakes, volcanoes, floods, extreme weather), environmental monitoring, ocean environments and resources, freshwater environments and resources, and the atmosphere, from New Zealand to Antarctica and Pacific, and globally.

Our capabilities, including $400 million of assets and extensive, versatile, and highly utilised science infrastructure, make us of international scale and an internationally competitive natural resources, environmental and geoscientific science organisation. Earth Sciences NZ contributes substantially to both operational services and scientific advancement worldwide.

Earth Sciences NZ has a broad revenue base spanning most sectors of New Zealand's economy – from central government ministries and local councils, across the primary, transport, tourism, energy and other industries, to universities and the research sector, as well as international clients. This diverse client base not only underscores the economic value Earth Sciences NZ delivers, but also provides a resilient, diversified revenue base to sustain its science mission and growth.

We are committed to community engagement, collaboration and co-design of research projects, particularly in partnership with iwi and hapū. By coordinating efforts across water, atmosphere, land and geological domains, Earth Sciences NZ is working to strengthen iwi engagement and ensure a seamless, high-trust relationship for Māori partners.

Earth Sciences NZ has a central role in New Zealand's science system, with deep, enduring and productive connections with others in it, including all universities, CRIs and other research organisations. Our international collaborations are broad and with contracts and collaborations across the Pacific region and beyond. Since 2020, staff from our predecessor organisations have co-published with collaborators from at least 1,865 organisations in 146 countries, on topics spanning all our science themes.

We will continue to operate as a platform for joint research initiatives, interdisciplinary projects, and the development of cutting-edge technologies, enhancing the impact and efficiency of New Zealand's science system. By bridging the gaps between researchers, science and decision-makers we can support the Government's vision of a more connected, cohesive, and responsive science ecosystem, ultimately driving scientific excellence and societal benefits.

Earth Sciences NZ research vessel *Kaharoa II* is a state-of-the-art science platform with the latest equipment and technology for essential research to help us better understand, and maximise the sustainable development of, New Zealand's extensive marine resources. [Ethan Carson-Groom]

3. ENSURING IMPACT AND VALUE CREATION

Earth Sciences NZ is focused on national benefit, delivering high-impact science with long-term national benefits, guided by Government's science priorities, and acting in the best interests of New Zealand. We will help deliver the Government's *Going for Growth* agenda, which aims to grow New Zealand's economy faster, and increase living standards and opportunities for all New Zealanders. In the innovation, technology and science sector, this includes using new ideas, knowledge and technology to develop better ways of doing things to help the New Zealand economy grow.

We define impact as changes in behaviour, decisions, policy and practice by businesses, government, resource managers, communities and Māori who are informed and supported by our science (including advice, data, new products and services). These are changes that create value for our stakeholders, grow businesses and ultimately the New Zealand economy. Over the past few years, our predecessor organisations have been increasing the focus on impact and delivering value for customers, improving our planning for, monitoring and providing evidence of impact. This work will continue.

We are deliberate and relentless in our drive to deliver impact and value for our customers**.** We achieve this through four areas of focus:

Commercialisation and Innovation

Earth Sciences NZ will continue to drive the commercialisation of intellectual property, aiming to create new value from our research for New Zealand's benefit. We do this in a manner that supports the best pathway for uptake and impact. We have a Knowledge Assets Framework that seeks to maximise the impact and value of Earth Sciences NZ's most valuable intellectual property (IP), in the broadest sense of the word. This helps us determine whether the new IP should be disseminated widely, targeted at impact partners or stakeholder groups, or if it should be commercialised through licensing, spin-out or applied science with industry partners.

Technology

Earth Sciences NZ science is powered and accelerated by advanced technology. This enables us to deliver more science and commercial impact, faster, and to a wider range of customers. Technological innovation will continue to have a profound impact on research and applied science. Expanding accessibility of advanced technologies means our science increasingly relies on a widening technological base, including genetic technologies, advanced analytical capabilities, data science and artificial intelligence, sensor technology, remote sensing, analysis of data in situ, high-performance and quantum computing, and augmented reality technologies. Developing, adapting and adopting advanced technologies makes the most of our information and capability and builds research capability to deliver the greatest value and impact for New Zealand.

Customer

We maintain a strong line of sight between our science and the eventual benefits or impact for individuals, businesses or society. We engage early with potential users of our science and maintain this engagement throughout the science process, and we seek feedback so that we are delivering outputs that are tailored to the user's/customer's needs.

Social Science

Creating impact and value from our science requires that people want it, understand it and use it. We embed social science approaches across our science to allow us to better understand public perceptions and values, identify barriers to adopting new practices and technologies, and ensure effective public discussion on critical issues. This helps ensure our research outputs are useful, usable and used. For example, social science supports risk mitigation and builds resilience to geological and climate hazards by understanding how to influence individuals, communities and organisations.

4. OUR SCIENCE

The research and applied science services that Earth Sciences NZ delivers covers six theme areas:

1. **Geological Hazards**
2. **Weather and Climate Hazards**
3. **Energy**
4. **Land and Water**
5. **Oceans**
6. **Atmosphere and Climate**

The nature and scope of our activities within each of the theme areas are described in the following sections.

Our science is continually evolving to ensure it delivers new knowledge, solutions, impact and value to stakeholders, customers and Māori now and in future. It will continue to change, especially over the next year as Earth Sciences NZ's science priorities and focus are clarified and implemented and expert teams are merged.

Significant benefits from merging the science activities of the predecessor organisations include:

- Geological, climate and weather hazards – We will develop and deliver integrated geological and climate hazard risk advice, forecasting and support of warnings. We will also deliver multi-hazard risk reduction, adaptation and recovery support. This responds to the United Nations mandate for multi-hazard, impact-based early warnings for all. It is a world-leading opportunity for Earth Sciences NZ, and unique, given the required science is embedded alongside all-hazard monitoring and risk in one agency.
- Energy – We will optimise the current and future state of New Zealand's energy system, supporting a secure and decarbonised energy sector. We will do this by addressing generation (hydro, solar, wind, geothermal, marine, mineral green hydrogen, etc.), storage and use (subsurface, battery, ammonia, heat transfer, new materials), and system resilience, taking an integrated approach not easily possible previously.
- Land and water – We will integrate surface and groundwater science, leading to a better understanding of the interconnectedness of these systems and improved water management, especially in the face of climate change and increasing water demands.
- Environmental and remote observation networks – We will integrate meteorological, hydrological and geophysical observational systems, providing extensive coverage the width and breadth of the nation, and delivering the critical data that is the foundation for much of Earth Sciences NZ science.
- Engagement and partnerships – Combining expertise in social science, iwi engagement and partnerships and science communication, as well as providing integrated services to common customers, will strengthen engagement and communication and enhance capabilities and enable increased impact. Access to research infrastructure will also be enhanced.
- Alignment and efficiency of 24/7 monitoring, forecasting, communications and operations across weather, climate and geological hazards, and space weather.

Foundational to all six science themes are data from Earth Sciences NZ's Earth Observation and sensor networks. We ensure that Earth Sciences NZ's data is collected, curated and managed to ensure its accessibility, usability and security. Primarily though, we will ensure that Earth Sciences NZ's data is useful, whether for new science, informing decisions, or developing new economic value. We partner internationally to ensure technology advances can be used to drive new scientific knowledge and economic value for New Zealand, alongside solutions for increasingly complex problems the world needs to be solved.

The overall performance of Earth Sciences NZ is monitored against the set of Key Performance Indicators (KPIs) shown in Appendix One.

4.1 Geological hazards

Our science predicts and mitigates the risks of geological hazards to enhance New Zealand's resilience and preparedness for events such as earthquakes, volcanic eruptions, landslides and tsunamis.

Earth Sciences NZ monitors and researches the causes, risks and consequences of geological hazards in New Zealand. Our analysis, modelling and forecasts of earthquakes, volcanoes, tsunamis and cascading impacts helps national and local agencies better understand and mitigate New Zealand's substantial natural hazard risks. The end users include central and local government, insurance, infrastructure, lifelines and business sectors, emergency management groups, local councils, and at-risk communities.

We understand fundamental interconnected processes of plate tectonics, rock deformation, seismology, natural resources, climatic forcing and surface processes – the underlying cause of geological hazards – including determining the rates and frequency of geological and climatic events. We operate across a wide range of timescales – seconds to years when responding to events, and thousands to millions of years to understand the long-term geological foundations of Te Riu-a-Māui Zealandia.

We develop decision-support tools for and with communities and businesses to plan for and mitigate the impacts of hazard events. This includes providing improved assessments of exposure and vulnerability to these hazards, including quantification of their impacts on people, land, buildings, infrastructure and the economy. We also provide advice on policy and regulation. We will leverage our state-of-the-art climate projections for geological hazards, such as tsunamis and landslides, that can be impacted by climate.

We continue to grow our extensive knowledge of the geological foundations of New Zealand. This knowledge is key to understanding the response of the natural and built environment to geological and climatic hazards. It allows us to improve forecast models of seismic shaking in our cities, and to understand and characterise the genesis and occurrence of key natural resources.

Over 90% of our continent is submerged, including a significant portion of the Pacific Australian plate boundary that is responsible for our most hazardous earthquakes and tsunamis. Marine geophysics, drilling, and evolving technologies are vital complements to offshore geological studies to further our understanding of our continental, including ancient and active plate boundary zones.

Our GeoNet operations are building on more than two decades of operating a world-class geohazards network delivering data for geohazards research and monitoring. As an integral component of GeoNet, the National Geohazards Monitoring Centre Te Puna Mōrearea e te Rū provides 24/7 active monitoring of New Zealand's geological hazards. Wider Earth Sciences NZ expertise and tools underpin the critical science advice we deliver during major geohazard events, supporting New Zealand's response and recovery and underpinning government geohazard warnings.

Our research develops new state-of-the-art advanced modelling capability and technologies (including AI), and increases understanding of the physical processes that control geohazards, natural resources and the consequences of past environmental change. It leverages and contributes to global geohazard science advances, ensuring New Zealand benefits from and adapts to new science advances.

This theme depends on Earth Sciences NZ's critical research assets, including:

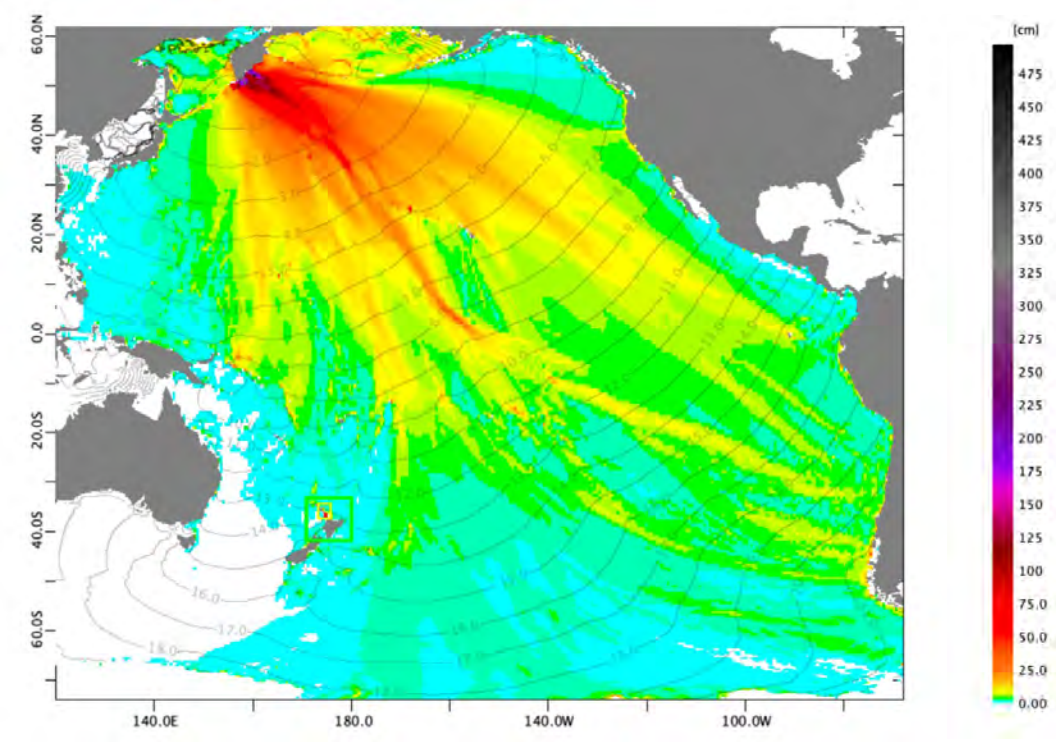
- GeoNet
- 24/7 services
- Stable isotope facilities
- Rafter Radiocarbon Laboratory and Accelerator
- Ion Beam and Material laboratories
- Drilling gear and core analytical equipment
- Field assets
- Science and forecasting communications studios
- Physical collections and digital databases
- Supercomputing and high-performance computing facility.

In addition, the theme supports and leverages the following Nationally Significant Databases and Collections:

- Regional Geological Map Archive and Datafile
- National Earthquake Information Database
- National Paleontological Collections and Associated Database
- National Petrology Reference Collection and PETLAB Database
- New Zealand Fossil Record File
- New Zealand Geomagnetic Database
- New Zealand Volcano Database.

Our Goals 2025–28

1. Improved geological hazard forecasting through the development and application of scientific knowledge, tools and expertise.
2. Improved understanding of the complex processes that generate natural hazards, effective stewardship of critical geohazards data, hazards models and risk tools, monitoring infrastructure and nationally important capability, and extended geohazard monitoring capability.
3. Multi-hazard risk intelligence, including impact-based forecasting is available geospatially across the country to support reduction, adaptation and build recovery as a seamless package (*with Weather and Climate Hazards*).



Earth Sciences NZ deep-ocean tsunami amplitude forecast map showing the pattern of tsunami energy distribution across the Pacific Ocean after the magnitude 8.8 earthquake that occurred off the east coast of Kamchatka on 30 July 2025.

4.2 Weather and climate hazards

Our science predicts and mitigates the risks of climate and weather-related hazards to enhance New Zealand's resilience and preparedness for events such as extreme weather, landslides, floods, droughts, wildfires, coastal hazards (storm surge, sea-level rise and tsunamis) and space weather.

Earth Sciences NZ's work provides enhanced forecasting, from nowcasting through to future risk, of extreme weather events, floods and coastal inundation. We have a dual focus on numerical and AI-based modelling in support of improved resilience and emergency management.

We provide detailed spatial and time series data and create tools, guidance and decision-support systems. These are used to build resilience into New Zealand's infrastructure and built assets, financial system, business continuity, economic investment opportunities, natural habitats, native species and ecosystems, and urban and land-use planning.

Earth Sciences NZ's extensive networks for climate and hydrographic observations, covering the length and breadth of the country, enable accurate weather and flood predictions. This information, combined with predictive models, enables high-resolution nowcasting and forecasting of extreme weather, before and during extreme weather events, in support of emergency preparedness and response.

We connect Antarctic research with measurements of land movement along our coast to project local relative sea-level change and map evolving coastal hazards to guide management decisions and adaptation planning.

We leverage both our observations of past climate conditions and our state-of-the-art projections of New Zealand's future climate. This allows us to assess changes in the frequency and intensity of extreme weather expected under a changing climate. We deliver quality information that enables national and local agencies, such as infrastructure operators, emergency management groups, local councils, and at-risk communities to better understand and map New Zealand's changing exposure and vulnerability to climate and weather hazards. This information enables better preparedness and resilience to these hazards, and is essential for ensuring long-term economic resilience, national productivity and growth.

This theme depends on Earth Sciences NZ's critical research assets, including:

- Climate, hydrometric, freshwater and meteorological monitoring networks
- 24/7 services
- National Ice Core Research Facility
- Stable isotope facilities
- Field assets
- Science and forecasting communications studios
- Digital databases
- Supercomputing and high-performance computing facility.

In addition, the theme supports and leverages the following Nationally Significant Databases and Collections:

- National Climate Database
- Water Resources Archive.

Our Goals 2025–28

1. Enhanced predictions of weather and climate impacts from minutes to centuries, enabling New Zealand and the Pacific to thrive and prosper under a changing climate.
2. Improved hazard and risk information and forecasts that are used to enhance the resilience of New Zealand communities and resilience and reliability of our key infrastructure.
3. Multi-hazard risk intelligence, including impact-based forecasting is available geospatially across the country to support reduction, adaptation and build recovery as a seamless package (*with Geological Hazards*).

4.3 Land and water

Our science supports the management and use of land and water resources. We predict New Zealand's future water flows for better water management and planning to support water security and water use. We build understanding of the future of freshwater and estuarine ecosystems in a changing environment, for improved ecosystem health and water quality, and to ensure aquatic biosecurity. We understand catchment-to-sea connections to ensure a healthy and prosperous coastal marine environment.

Earth Sciences NZ is developing a more comprehensive understanding of land, freshwater and estuarine systems and providing new insights through new technologies and science methods. This information is vital in helping improve policy, management, and restoration approaches.

We provide science, information, guidance and tools to help decision-making by central and regional government and a range of sectors, especially agriculture, aquaculture, energy, tourism and conservation. High-quality freshwater and healthy freshwater ecosystems are vital to support livelihoods, productivity and economic growth, as well as biodiversity and biosecurity into the future.

The national need for this research arises from conflicts between the uses of our limited freshwater and freshwater environments. In particular, conflicts between uses such as irrigation and hydropower generation, and the maintenance of aquifers, stream flows and the water quality required to support aquatic ecosystems and cultural values. Historical and changing land uses under a changing climate and environment have also increased the need for improved research and management of these resources.

Our science supports decision makers in managing the inevitable trade-offs between competing economic, environmental, social and cultural uses of freshwater and freshwater environments.

Based on observations and system understanding, we develop predictive models and associated simulation tools needed to predict water flows, water quality, and ecosystem health attributes now and under a future climate. Our work covers the spectrum of the water cycle, from rain, snow and ice, to lakes, rivers and groundwater, and to impacts on estuaries and coasts. It also considers the processes that shape our landscapes and influence land use. Our predictions benefit from state-of-the-art future climate projections including changes in rainfall patterns. Our guidance includes assessing alternative water use scenarios, future-proofing water allocation approaches, prioritising water infrastructure investments, and enabling productive coastal environments (e.g., for shellfish and carbon sequestration).

We measure and model surface processes that influence New Zealand's landscape from our mountain peaks to the sea. We explore coastal sedimentary systems that offer mechanisms to store carbon to offset our CO_2 emissions and provide enhanced protection against coastal hazards such as coastal flooding, erosion and tsunamis.

We work with communities, farmers, industry, and iwi and Māori to provide best-practice guidance for the restoration of freshwater and estuarine ecosystems and associated economic, social and cultural values. We also develop nature-based solutions to mitigate agricultural runoff, adapt to a changing climate, and treat rural community and marae wastewater.

Earth Sciences NZ is contributing to the Government's goal of doubling the value of our mineral exports to $3 billion by 2035. Our expertise in geological and earth system processes generates new knowledge that allows us to understand the economic opportunities relating to the exploration of geologically based resources. To meet the growing demand for a sustainable, secure supply of critical minerals and elements we provide an accurate appraisal of New Zealand's on-land resource potential and enable sustainable custodianship of New Zealand's natural resources.

This theme depends on Earth Sciences NZ's critical research assets, including:

- Stable isotope facilities
- Kaianga rating flumes
- Climate, hydrometric, freshwater and meteorological monitoring networks
- Extensive specialised laboratory facilities (including Ecotoxicity, PC2 biosecurity facilities, etc.)
- Water dating (tritium) analytical facility
- Field assets including boats

- Science and forecasting communications studios
- Physical collections and digital databases
- Supercomputing and high-performance computing facility.

In addition, the theme supports and leverages the following Nationally Significant Databases and Collections:

- National Climate Database
- Water Resources Archive
- National Groundwater Monitoring Programme
- Freshwater Fish Database
- Regional Geological Map Archive and Datafile.

Our Goals 2025–28

1. Strengthened monitoring and predictive systems to enable evidence-based governance and management of subsurface, land, freshwater, estuarine and groundwater resources.
2. Improved understanding of catchment-to-sea connections and estuarine processes for effective carbon sequestration and to ensure a healthy and prosperous coastal marine environment under changing land-use scenarios and a changing climate.
3. Enhanced predictions of New Zealand's current and future groundwater storage and surface water flows, allowing for improved water management and planning to support water security.
4. Improved understanding of critical elements and materials in the subsurface to support a sustainable transition to a low-emissions future.

The Rangitata South Irrigation Scheme. Earth Sciences NZ forecasts New Zealand's future water flows for better management, increasing economic returns from the optimal and sustainable use of water resources. [Rooney Earthmoving]

4.4 Energy

Our science advances New Zealand's transition to a low-carbon economy, builds the nation's energy security, and accelerates economic growth. We enhance understanding of energy resources and develop technologies and material for energy generation, storage and use, to grow energy production from hydro, solar, wind, geothermal, marine, mineral green hydrogen, etc. resources.

Earth Sciences NZ plays a major role in enabling New Zealand's transition to a low-carbon energy future by addressing key challenges in energy generation, storage, use, and network infrastructure and by supporting the development of new energy infrastructure. Our work will reduce our national carbon footprint while enhancing New Zealand's energy security within environmental limits.

Our geothermal research aims to support baseload electricity generation by providing fit-for-purpose guidance for new geothermal developments and supporting the uptake of superhot geothermal energy generation over the next decade. We develop the potential of direct heat utilisation from high to low geothermal temperatures to provide innovative solutions for distributed energy sources.

Our science leverages geological subsurface systems to optimise energy storage and generation, derisking any future environmental impacts and optimising the future of energy security. We support energy generation and storage development and operation through in-depth knowledge of the geological, ecological and physical science of subsurface earth reservoirs, rivers, lakes and oceans.

Our research into innovative materials leverages recent advances in green hydrogen, a zero-emission fuel made from water. This work progresses the development of a hydrogen economy. We develop novel electrocatalytic systems that can help us decarbonise and decentralise ammonia production. This will enable New Zealand to produce low-carbon, transportable energy storage, as well as "green" fertilisers.

Renewable energy resource information is central to our science. We are improving hindcast, observation, nowcast and forecast information for proven energy technologies (wind, solar, hydro) to support optimised operational efficiency as well as the development of new generation energy resources. We also guide the development of new energy sources, such as wave and tidal. Further, our advice accounts for changing weather patterns in energy resource models, using climate-change model projections downscaled to individual development sites.

We build New Zealand's energy system resilience, which is at risk of geological and climate-related events. We apply our natural hazard knowledge (geological – seismic loading and liquefaction, and the increasing risk of weather-related hazards like extreme wind, snow, flooding, land instability and ocean state) to build the resilience of existing and new energy infrastructure. Further, we use our understanding of future climate at local resolutions to increase the climate resilience of our national energy system. New Zealand's energy systems are also vulnerable to global socio-political events. We are concurrently examining where and how to best achieve a decentralised and secure energy supply for remote locations.

Our work on earth materials that make up our continent supports a sustainable transition to a low-emissions future. We seek rocks that can potentially provide natural hydrogen, and geological formations that are suitable for energy storage (e.g., hydrogen, compressed air) and/or carbon capture and storage, and aim to understand heat and fluid transfer within geothermal systems.

This theme depends on Earth Sciences NZ's critical research assets, including:

- Geothermal laboratory facility
- Hydrogen laboratory facility
- Ion beam science facility
- Climate, hydrometric, freshwater and meteorological monitoring networks
- 24/7 services
- Stable isotope facilities
- Field assets
- Science and forecasting communications studios
- Digital databases

- High-performance computing facility and modelling skills (Thermo-Hydro-Mechanical-Chemical simulation).

In addition, the theme supports and leverages the following Nationally Significant Databases and Collections:

- Regional Geological Map Archive and Datafile
- National Geothermal Database
- National Climate Database
- Water Resources Archive.

Our Goals 2025–28

1. Scientific and technical challenges are resolved, enabling increased generation of geothermal energy over the next decade.
2. New materials, processes, locations and approaches for effective carbon and energy storage, low carbon hydrogen and energy harvesting are identified.
3. Robust resource information and forecasting is provided to optimise existing hydro, wind and solar energy operations and the growth of new developments.
4. Renewable energy technologies, including solar and storage technologies, suitable for New Zealand's conditions are discovered and optimised in support of regional energy security.

The Clyde Dam. Earth Sciences NZ measures, models and forecasts weather, river flows and climate variability to help the hydroelectricity sector manage supply, demand and transmission. [Lana Young]

4.5 Oceans

Our research advances the stewardship, management and use of marine resources and ecosystems, including fisheries, aquaculture and minerals. This research enables economic opportunities to be realised and the health, biodiversity and biosecurity of marine environments to be maintained.

New Zealand's Exclusive Economic Zone is one of the largest in the world. Our marine economy is worth over $7 billion[1]. Our seafood industry currently contributes about $2 billion in export earnings and employs more than 13,000 people. It provides significant opportunity for future growth should it address its challenges, including sustainability and ensuring resilience in the face of environmental change.

Our science helps provide the information required for the sustainable management of our oceans and the use of marine and seabed resources, particularly under a changing climate. Earth Sciences NZ's ocean science addresses three main interdependent areas:

1. Ocean change, including its impact on regional climate and carbon mitigation
2. Ocean ecosystem health
3. Ocean resource use, including minerals, fisheries and aquaculture.

We are increasing our understanding of the ocean's role in the climate system and its response to climate change. It includes how the oceans will drive change in Antarctica, and the feedback from changes in Antarctica on the global oceans. Significant changes are already occurring in the ocean-climate system. Understanding these is important for climate adaptation and mitigation strategies, and the management of marine ecosystems and fisheries.

Our research into how oceanic changes influence weather patterns, sea-level rise, and marine ecosystems supports growth of the marine economy and helps coastal communities plan for change and the opportunities it provides. We are also exploring the ocean's potential to mitigate climate change through enhanced carbon uptake and supporting the development of the marine carbon dioxide removal industry. In addition, we provide skills, expertise and infrastructure to industry, and are working with the government to establish safe operating parameters.

Our science supports the expansion of New Zealand's ocean and land-based aquaculture industry. For both aquaculture and fisheries, the critical interplay of environmental change, social licence challenges, optimisation of production, and minimisation of risk requires deep understanding of the physical and biotic environments for enduring, commercially viable production.

We focus on developing high-value aquaculture species at scale and pace, while identifying and mitigating the environmental and biological risks to aquaculture operations and to the environment. This research supports New Zealand's Aquaculture Development Plan[2], which aims to quadruple the size of this economic sector, reaching $3 billion by 2035.

For the wild fisheries sector, we provide science to inform management and mitigate the environmental and biological risks to fishing. We aim to enable the growth of existing and new seafood businesses while sustaining healthy seas for future generations. We monitor and assess wild fish and shellfish populations, using existing and new technologies. This includes undertaking stock assessments to better understand the sustainability of key fisheries species and the impacts of ocean change. We support the development of ecosystem-based management approaches. Our science also focuses on natural resource management, restoration of degraded habitats, and ensuring marine biosecurity.

This theme depends on Earth Sciences NZ's critical research assets, including:

- Research vessels and boats
- Northland Aquaculture Centre including the commercial-scale Recirculating Aquaculture System research facility
- Invertebrate facility and other physical collections
- Marine experimental manipulation facility

[1] https://www.stats.govt.nz/information-releases/environmental-economic-accounts-data-to-2022
[2] https://www.mpi.govt.nz/dmsdocument/67776-NZ-Aquaculture-Development-Plan-2025-2030

- Marine technology (moorings, gliders, corers, seismic systems, profilers, fisheries and geophysical acoustic systems)
- Stable isotope facilities
- Digital databases
- Supercomputing and high-performance computing facility.

In addition, the theme supports and leverages the following Nationally Significant Databases and Collections:

- NIWA Invertebrate Collection
- Regional Geological Map Archive and Datafile.

Our Goals 2025–28

1. Enhanced understanding of ocean change and its role driving climate in New Zealand, the Pacific and Antarctica, to enable effective responses to climate change.
2. Enhanced understanding of the future of marine ecosystems in a changing environment, for sustainable fisheries and marine ecosystem health.
3. Providing evidence to balance sustainability of fisheries stocks and the impacts of fishing on the environment with economic opportunities.
4. Demonstrate and develop commercial-scale, land-based culture of finfish, focusing on haku (yellowtail kingfish) at the Northland Aquaculture Centre.
5. Better protection of New Zealand's marine environments from pests and diseases now and in future.

The recirculating aquaculture system at our Northland Aquaculture Centre in Ruakākā is designed to produce 600 tonnes of kingfish annually, supporting New Zealand's Aquaculture Development Plan, which aims to quadruple the size of this economic sector. [Stuart Mackay]

4.6 Atmosphere and climate

Better predictions of weather and climate from minutes to centuries enabling New Zealand and the Pacific to thrive and prosper under a changing climate. Documenting our changing atmosphere to calibrate satellite earth observations and for better greenhouse gas mitigation.

Earth Sciences NZ develops and delivers quality information about our past and present climate and future weather (minutes to weeks) and climate (months to centuries) to those who need it. In doing this, we work closely with other science providers, central and local government, businesses, sector organisations and communities. This information is essential for ensuring national productivity and growth under present-day and future climate variability and change.

Earth Sciences NZ produces data, tools and guidance to enable climate adaptation and more effective long-term planning. We quantify and disseminate information about compounding climate risks and impacts across multiple environments, land uses and economic sectors. We develop and use advanced regional-scale weather and climate modelling and AI-based downscaling (creating higher spatial resolution accounting for New Zealand's topography) of global models for New Zealand. The tools, guidance and decision-support systems we create are used to build resilience into New Zealand's infrastructure, built assets and environment. This includes our financial system, business continuity, economic investment opportunities, natural habitats, native species and ecosystems, and urban and land-use planning.

Our research will support New Zealand's adaptation to a changing climate. This is especially important as climate impacts become more severe across various locations, communities and economic sectors[3]. Climate change affects water, energy and food security, human and animal health, built and natural environments, and cultural and economic wellbeing. Public and private sector stakeholders, and iwi and hapū, increasingly seek guidance on responding to these challenges in ways that enhance resilience, productivity and growth.

Earth Sciences NZ supports New Zealand to reduce national net greenhouse gas emissions. We determine and verify the emissions from, and sequestration potential of, our primary production sector, our indigenous forests, and our coastal and marine environments. We work with government and industry (especially the Ministry for Primary Industries and New Zealand's forestry and agriculture sector), as well as international organisations (e.g., the Intergovernmental Panel on Climate Change, the World Meteorological Organization). This collaboration allows us to create, implement and verify emission mitigation policies and practices that are effective and efficient. The national need for this research arises from New Zealand's goal to reduce net emissions of all greenhouse gases (excluding biogenic methane) to zero by 2050. This is stipulated by the Climate Change Response (Zero Carbon) Amendment Act[4] and outlined in the Government's Emissions Reduction Plan[5]. This Act also requires interim emission budgets on the pathway to zero carbon, alongside a significant reduction in biogenic methane emissions.

Using advanced technology, AI and high-precision remote sensing, we develop models and decision-support tools to help stakeholders, for example farmers, develop and implement low-emissions approaches. We maintain and disseminate high-precision, world-leading, long-term measurements of other atmospheric trace gases, including ozone, from our atmospheric monitoring stations, continuing the most significant 50-year long record of global atmospheric change in the southern hemisphere.

This theme depends on Earth Sciences NZ's critical research assets, including:

- Baring Head and Arrival Heights Greenhouse Gas Facilities
- Lauder Upper Atmosphere and Satellite Facility
- Rafter Radiocarbon Laboratory
- National Ice Core Facility
- Climate, hydrometric, freshwater and meteorological monitoring networks
- 24/7 services
- Stable isotope facilities
- Field assets
- Science and forecasting communications studios

[3] https://environment.govt.nz/publications/aotearoa-new-zealands-first-national-adaptation-plan/
[4] https://www.legislation.govt.nz/act/public/2019/0061/latest/LMS183736.html
[5] https://environment.govt.nz/publications/new-zealands-second-emissions-reduction-plan/

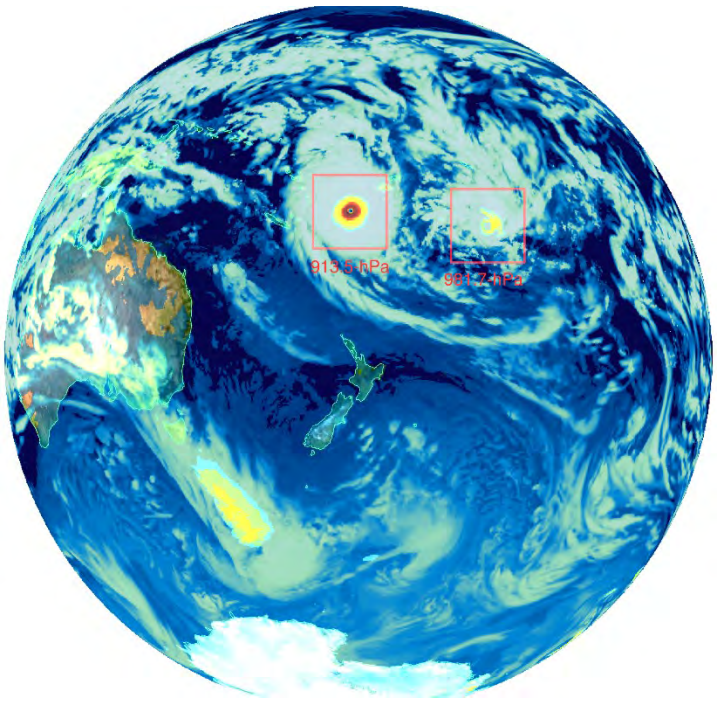
- Digital databases
- Supercomputing and high-performance computing facilities.

In addition, the theme supports and leverages the following Nationally Significant Databases and Collections:

- National Climate Database
- Water Resources Archive.

Our Goals 2025–28

1. Numerical and AI-based weather and climate modelling (using land, ocean and space observations) is enhanced and benefits key sectors, including aviation and transport, primary production, tourism, infrastructure and energy, conservation and emergency response within New Zealand and the Pacific.
2. Weather (minutes to weeks) and climate (months to centuries) forecasts are produced for weather/climate impact assessment, operational decision-making and long-term planning.
3. Ongoing and refined measurements of the atmosphere are used to document trace gas concentrations and emissions, calibrate satellite earth observations, and support global, national and local greenhouse gas mitigation.
4. Improved understanding of global-scale environmental change, variability, and impacts have led to improved predictive capabilities for hazards and disasters.



An extreme tropical cyclone derived from the Conformal Cubic Atmospheric Model (CCAM) climate model. High-resolution modelling predicts that under a high emissions scenario, extreme rainfall from cyclones could rise by up to 35% across the southwest Pacific, including for ex-tropical cyclones impacting New Zealand. [Earth Sciences NZ]

5. SUPPORTING DELIVERY

To deliver the science needed to achieve the desired impacts, Earth Sciences NZ will provide the best for our people, strengthen domestic and international collaborations, partner with Māori, and support Pacific resilience. We will leverage advanced technologies, invest prudently in necessary assets and infrastructure, and communicate our science well. Earth Sciences NZ remains committed to upholding environmental responsibility, consistently striving to meet necessary environmental obligations, and ensuring its financial sustainability.

5.1 Empowering people, driving performance

Earth Sciences NZ's success will reflect the calibre and contribution of our people. A focus on both organisational performance and employee health, safety and wellbeing will be important in maintaining a dynamic and sustainable organisation into the future. We aim to have high-performing leaders, an inclusive culture and a diverse workforce that contributes to the organisation's performance, now and into the future.

Earth Sciences NZ needs to maintain business-as-usual activities, continuing to deliver projects and programmes, while actively integrating into one organisation. We are also focused on ensuring a close alignment of our capability and capacity with the changing market demand and future science direction.

Robust change management plans and ongoing engagement will support Earth Sciences NZ's people to have a positive experience through any changes. Key people initiatives include:

- Strategies for engagement and health, safety and wellbeing of our people
- Leadership development programmes
- Early-career support
- An action plan to deliver to Kia Toipoto and the Public Service Commission guidance on closing equity gaps
- Preparing for the workplace of the future
- Recognising and rewarding high performance.

We continue to build a diverse and inclusive culture, harnessing diversity to improve our research capability and ability to serve communities. We encourage greater representation of Māori and Pasifika in our workforce and work to create a welcoming and supportive culture to support our engagement and collaborative work with both.

Ensuring a work environment that is safe and healthy is an organisational priority. Our aim is that health and safety risk management is seamlessly integrated into all Earth Sciences NZ activities, including ongoing management of critical risks and identification of opportunities for continual improvement. We provide training for all workers and protective equipment, safety monitoring systems, and health monitoring as appropriate to specific work types. Employee participation contributes to improved understanding and increased levels of health, safety, and wellbeing leadership, ownership, and collaboration throughout the organisation.

5.2 Strengthening domestic and international linkages

Earth Sciences NZ seeks strong and lasting stakeholder relationships with commercial partners, impact partners and research funders that allow us to improve our services, create impact and deliver value. As we enhance collaborations with other domestic and international research agencies, governments and the private sector, we all benefit from scientific and technological progress, and deliver excellent science that meets New Zealand's needs.

Earth Sciences NZ aims to be a proactive, responsive, and trusted partner to our stakeholders and clients, known for provision of expert guidance and effective solutions to create impact and value. We will continue to evolve the way we engage with our major stakeholders and clients. We are taking a more deliberate focus on engagement with next users and end users of our science in areas of opportunity. Our commitment to users is grounded in mutual respect, meaningful connections, and organisational consistency.

We will work constructively with other research organisations and stakeholders on the science system reforms. We will work closely with Callaghan Innovation to ensure a smooth transfer of the Measurement Standards Laboratory and with MetService as we progress the acquisition process. We are actively engaging in the further development of eResearch infrastructure.

Earth Sciences NZ has strong links with New Zealand's universities. We train more than 100 graduate students per year and have 14 staff who hold joint academic appointments. We have Joint Graduate Schools with the Universities of Auckland and Otago in Coastal and Marine Science and Oceanography respectively. We are a partner in two Centres of Research Excellence – QuakeCoRE with the University of Canterbury and Te Pūnaha Matatini with the University of Auckland.

We are working closely with government agencies and colleagues in other CRIs to build the best project teams, share resources and assets for mutual benefit, and deliver impact for the nation. We will continue to partner with business, Māori and stakeholders to grow markets and realise economic growth opportunities. Examples of this include exploring the potential of supercritical geothermal energy technology and advancing the commercial production of kingfish via recirculating aquaculture systems.

We are highly connected internationally, with numerous strategic agreements with international partner agencies, including in Australia, the United Kingdom, Japan, Germany, Italy and the United States. Such agreements signify the importance we place on these relationships, which remain strong and hold significant potential.

Areas of future emphasis internationally include:

- Expanding our international offerings in applied science services by building relationships with key commercial partners.
- Expanding the already strong partnership with the United Kingdom MetOffice, and as a core member of the Momentum Partnership.
- Deepening our relationships with our European partners to respond jointly to Horizons Europe funding opportunities.
- Providing development assistance with United Nations Programmes and Specialised Agencies, foreign governments, multilateral development banks, and global philanthropic organisations.
- Building on existing arrangements (e.g., Strategic Scientific and User Advisory Panel) to develop and implement a new process for incorporating international perspectives into the review of our research. This will inform research performance, future research directions and capability needs and ensure our research is both excellent and relevant and that we are taking advantage of key developments in international science and technology.

5.3 Partnering with Māori

Earth Sciences NZ aims to be a leading and trusted science provider of innovative earth science through collaborative partnerships that benefit whānau, hapū, iwi, Māori communities and Māori businesses. Earth Sciences NZ is committed to creating visible career pathways for the next generation of Māori researchers and developing a diverse workforce with transdisciplinary skills and expertise capable of delivering impactful research of benefit to Māori and Aotearoa.

We prioritise strategic research that is co-designed with Māori and undertaken in a context relevant to whānau, hapū, iwi, and Māori partners' needs, and that builds their capability and capacity needed to deliver impact. We will expand and deepen partnerships with iwi and Māori entities to collaborate on research and proposals that deliver research, mātauranga and science aspirations. Our targeted and tailored approach to science communication will maximise clear and fit-for-purpose outputs through a suite of approaches and products that better respond to the specific needs of Māori. Through this we seek to deliver tangible outcomes for our Māori partners and audiences.

As we continue to build partnerships with iwi/Māori and deliver excellent and impactful outcomes we increase our reputation, visibility and effectiveness amongst Māori communities. Our efforts will build on the successful long-term strategies of our predecessor organisations including:

- Te Punawai o Rangiātea/Te Kūwaha o Taihoro Nukurangi Māori strategic plans
- Te Piko o te Māhuri for growing Māori research capacity
- Te Puāwaitanga for growing internal cultural competency.

Building Māori workforce capability and capacity will be critical to the future success of Earth Sciences NZ. We provide learning opportunities for young Māori in the science system through outreach events, internships, and by creating clearer pathways for transitioning Māori science graduates into postgraduate opportunities and science careers. We contribute to iwi research capability development through secondments, fieldwork and iwi/Māori-led research planning and resourcing.

We will continue to deepen staff capability and cultural competency to support effective engagement, partnerships, research development and impactful delivery. We will do this by building on our Vision Mātauranga capability, te reo, tikanga, and Te Tiriti o Waitangi training for staff. We will strengthen staff understanding of WAI262, Māori data sovereignty and a range of intellectual property requirements needed to support the application of best practice in our science and operational activities.

5.4 Supporting Pacific resilience

Earth Sciences NZ aims to foster enduring Pacific partnerships at the national and regional level, increasing the application of our science to support Pacific development and resilience activities.

Earth Sciences NZ will continue to meet our long-term commitments to provide technical support and development of the capability and capacity of our partners in the Pacific region. We will continue to build cultural competency of our staff to ensure effective implementation and develop targeted partnerships and programmes to provide educational and vocational opportunities for Pacific Islanders.

We aim to strengthen our collaboration with our Pacific partners via formalised agreements to maximise support of sustainable development and resilience outcomes. We will proactively increase our focus on opportunities to support natural resource management, resilience to all hazards, improved risk assessment, and climate adaptation in our region. Likewise, we will continue to explore opportunities to leverage the diverse applied science, social science, economic, and indigenous-led research capabilities to support Pacific development needs and aspirations.

We will continue our strong strategic engagement and align our science capability and capacity to help the Ministry of Foreign Affairs and Trade deliver impact from its development commitments across the Pacific. We will expand our support of other international development agencies and programmes.

5.5 Leveraging and developing advanced technologies

Earth Sciences NZ applies advanced technologies to accelerate science, enhance operations and deliver practical outcomes across our science theme areas. We adopt, adapt and help shape emerging tools for national and sector-wide benefit.

We are continuing to extend deep in-house expertise in AI, quantum science, robotics, and digital systems to ensure Earth Sciences NZ remains equipped to lead in an era of rapid technological change.

Our new supercomputer, Cascade, and high-performance archive, Rapids, provide the scale and speed needed for complex modelling, ensemble earth sciences forecasting, AI workloads, and data-intensive science. These platforms support both research and operational applications across climate, geohazards, oceans and atmosphere. We continue to support REANNZ in offering Cascade and Rapids to the wider science and research community and through commercial partnerships for the nation.

We are expanding our capability in quantum science, particularly for forecasting and simulation in earth systems. This includes early work in silicon-quantum modelling, hybrid classical-quantum computing, and potential future applications in environmental sensing, hazard management, and intelligent digital twins. AI is being embedded across Earth Sciences NZ. We are also investing in AI model operations (ModelOps) to support the scalable, ethical, and interpretable use of AI in environmental contexts.

Sensor networks are being modernised using edge computing, intelligent edge connectivity, and cloud-linked automation. These upgrades enable faster, more accurate environmental monitoring and streamline how we manage, process and use the data. Autonomous platforms such as drones and uncrewed aquatic and land vehicles will be increasingly deployed to gather data in remote or high-risk environments. Robotics is also an emerging focus, especially for field deployment, asset inspection, and laboratory automation.

Our core digital infrastructure is transitioning to the cloud, enabling more flexible, scalable services across research and operations. The integrated Earth Sciences NZ Data Platform, supporting FAIR-aligned data management, continues to improve access, federation, and governance of nationally significant datasets, including those supporting real-time services like GeoNet and National Weather Forecasting.

We are developing technologies for space and Earth observation, including satellite-based sensing and remote monitoring tools. These are being integrated through real-time geospatial fusion – combining data from orbit, ocean, land and models to support emergency response, ocean monitoring, and other high-value uses. These tools support both public-good science and future commercial applications. We continue to explore immersive and human-centred technologies such as AR/VR and interactive simulation. These will help scientists, stakeholders, and the public engage with environmental risk, scenario planning, and collaborative decision-making in new and more intuitive ways.

5.6 Investing in assets and infrastructure

Earth Sciences NZ invests in the assets and infrastructure required to deliver its future research and science services and support those critical for the New Zealand science system. In addition to investing in its large major research assets of national significance, Earth Sciences NZ seeks to grow or refresh its other technologies, equipment and research assets to ensure they meet New Zealand's future science needs.

To deliver excellent science for the benefit of New Zealand and globally we rely on key science assets and state-of-the-art scientific equipment. Key areas of investment are:

- **Field assets and vessel fleet**: Field assets, such as dive equipment, remote air operations, boats and vehicles, as well as the ocean-going vessel fleet will continue to be maintained so it is fit for purpose now and in the future. We will continue to provide voyage time on RV *Tangaroa* and RV *Kaharoa II* to science, government and industry entities.
- **Information and communication technologies**: We will continue to invest in strengthening our ICT infrastructure by addressing technical debt, modernising core systems, and enhancing cybersecurity across platforms. We are automating cyber defence capabilities, embedding secure-by-design and role-based access zero-trust principles. Support for our new supercomputing platform will remain a priority.
- **Monitoring and measurement networks**: We will enhance monitoring and measurement networks by incorporating innovative geophysical, weather and environmental monitoring and sampling technologies, ensuring alignment with end-user requirements and bolstering our capabilities in hazard and environmental modelling and forecasting.
- **Analytical capabilities**: We will maintain the suite of highly specialised, in some cases unique and world-leading, analytical capabilities in our laboratories, to support and deliver innovative current and future earth science.
- **Nationally Significant Collections and Databases**: We will maintain the viability and longevity of collections and data essential for ongoing research and decision making and ensure that databases remain current and relevant with long-term protection. This includes ready access for research, commercial applications, and public information. We will identify opportunities to create new value for New Zealand from these data assets, as well as exploring business models to ensure they can be well managed into the future.
- **Experimental commercial-scale recirculating aquaculture system**: We will continue the supply of kingfish from our experimental, commercial-scale recirculating aquaculture system to partner with companies and regional communities so they can develop high value local and international markets.

Earth Sciences NZ has a large range of strategic science infrastructure, which includes the facilities, buildings and resources required to deliver our current research commitments and future research ambitions. Some infrastructure has reached the end of its useful life or is no longer fit for purpose, with significant investment required. Developing options to address this presents both a challenge and an opportunity and is an early priority for the Earth Sciences NZ Board and management. Property upgrades will be consistent and implemented within a timeframe that considers the resources available and the capacity of the organisation to absorb the change. Earth Sciences NZ aims to ensure all its properties and facilities are of a contemporary standard and closely align with New Zealand's future needs.

5.7 Communicating for maximum impact

Earth Sciences NZ aims to ensure that the knowledge our science develops is communicated to our stakeholders and society to inform policy and planning and guide business and societal decision making.

Excellent science is fundamental to the enduring use of our natural resources and to achieving the Government's goals and the *Going for Growth* agenda. But science is often complex, so we must engage with our audiences using a style and manner they can understand, readily access and easily use.

Our science has many different audiences, reflecting the areas we operate in, but all our audiences need to better understand the disruptive and complex world we live in. Our audiences range from central and local government agencies making policy and management decisions, to climate-sensitive businesses, to the general public seeking to better understand the impacts of our changing world.

People expect information and data to be immediately available and easily interpreted, and technology has changed the way information is delivered and received. Skilful communication reinforces our reputation as the provider of authoritative, independent, impartial and innovative science.

Our communications will present Earth Sciences NZ as the primary authority and source of information in earth sciences. We will lead public engagement and understanding of the critical issues in our theme areas of science. More broadly, we aim to enhance understanding of the role and benefits of science and foster an interest in science among students of all ages.

We will enhance knowledge transfer and stakeholder uptake through the continual development of dynamic, highly visual imagery and innovative technologies, tailored stakeholder communications and engagements, and a thoroughly revised website. We will deliver high-quality internal communications, particularly in recognition of, and response to, the rapidly changing and disruptive environment. Our science communication will respond to the specific needs of Māori and Pasifika people, and in ways that are meaningful to these partners and audiences.

Earth Sciences NZ forecaster Chris Brandolino presents the 2024 Annual Climate Summary to media. The annual climate summary provides national information on the year's overall climate conditions, including rainfall, sunshine, temperature and soil moisture. [Stuart Mackay]

5.8 Taking environmental responsibility

Earth Sciences NZ aims to provide advice or solutions that help all New Zealanders meet environmental sustainability goals and to conduct our own activities with the lightest possible environmental footprint.

Environmental responsibility is one of the four pillars of our organisational sustainability framework. We commit to organisational sustainability through:

- Investing in our people, technology and infrastructure
- Providing advice and services to end users and other stakeholders
- Partnering with iwi, local communities and the wider society
- Ensuring operations are as environmentally sustainable as practicable.

Earth Sciences NZ is committed to environmental sustainability. We aim to operate with the lowest possible environmental footprint and be an exemplar in environmental sustainability. We remain committed to continuous improvement of our systems and processes to support that.

We will continue to measure, reduce and report our greenhouse gas emissions footprint with independent verification via Toitū Envirocare. Plans for a combined sustainability reporting, reduction and target-setting approach include:

- Working with service providers, including freight and waste removal, to improve the accuracy of reporting and identify reduction activities.
- Striving to constrain air travel while maintaining connectivity through continued investment in digital communication technologies.
- Investing in science that supports the sustainable use of renewable resources, including energy resources and the mitigation of greenhouse gas emissions.
- Communicating our current emissions position, our roadmap for emissions reductions and the collective actions needed across the business to achieve our near-term and longer-term targets.

5.9 A financial approach that enables delivery

Earth Sciences NZ will maintain robust financial management that delivers financial information and advice for decision making and improved financial performance.

A core operating principle of Earth Sciences NZ, as outlined in our Interim Statement of Core Purpose, is that we must be run in a financially sustainable manner. This means not only securing enough revenue to cover day-to-day operations, but also generating sufficient cash flow to continually invest in maintaining and upgrading the assets required to support our science mission for the long term.

Earth Sciences NZ is operating in a challenging economic climate that is placing significant pressure on revenues. We will continue to explore growth opportunities, look closely at our costs, and make the most of collaborative working and investment opportunities. We have a focus on project management, ensuring delivery of agreed outputs on time and to budget, and alignment with client, stakeholder and funder expectations. Exploring growth opportunities includes, for example, a change in the Government's position on oil, gas and mineral exploration. We are working with the Ministry of Business, Innovation and Employment and industry to understand potential opportunities and will take a demand-led approach to commercial work in this area.

Our approach ensures that Earth Sciences NZ maintains financial disciplines aligned with our goals and plans, supported by a resource allocation process that delivers on our priorities. Achieving the required financial performance involves securing appropriate margins from our research and commercial work, while optimising the costs associated with supporting our operations. We will equip our people with the right tools and information to perform effectively and manage our publicly funded resources prudently and responsibly.

Over the next 12 to 24 months, a key priority will be integrating Earth Sciences NZ's financial management and reporting systems into a single, seamless platform. At the same time, it will be essential to maintain effective day to day operations to ensure business-as-usual priorities continue to be delivered. These include ensuring that:

- Financial and administrative operations are effective and efficient, while allowing seamless interaction with our customers, suppliers and staff.
- Management reporting and financial analysis is timely, insightful, intuitive and well positioned to support agile decision making at all levels of the organisation.
- Risks are managed to an acceptable level while enabling an agile and responsive operating environment.
- Internal audit activities identify opportunities to improve systems and processes while providing assurance to Earth Sciences NZ's management and Board that risks are being appropriately managed.

Earth Sciences NZ maintains a network of 10 remotely operated cameras near volcanoes across the North Island. Rapidly advancing science gives our volcano team a wide range of remote monitoring tools to keep a close eye on the active volcanoes. The data helps us provide valuable information to responding agencies, infrastructure providers and the public, to support disaster management and build community resilience. [Marie Helliwell]

6. FINANCIAL INFORMATION

The financial projections for Earth Sciences NZ reflect broadly flat or declining research revenue streams, resulting from the expected continued fiscal constraint. Modest increases in commercial revenue are anticipated, broadly reflecting inflation expectations, together with an increase to full-scale production volume of the Company's experimental recirculating aquaculture facility (RAS).

Expenditure growth is held below projected inflation after accounting for the effect of revenue changes (particularly related to the increase in RAS production volume).

The financial debt and cash figures shown for year-end 2024/25 reflect debt carried by NIWA alongside the cash balance of GNS Science. These balances are consequent to the different stages of the capital reinvestment cycle (largely related to property redevelopment) that the two companies were in prior to their amalgamation.

The financial information shown here reflects an aggregation of the pre-amalgamation projections of NIWA and GNS Science, the predecessor companies that amalgamated on 1 July 2025 to form Earth Sciences NZ. Importantly, it does not reflect the impact of the integration of the operations of the former NIWA and GNS Science companies into a single company-wide organisation. This integration is likely to require capital and operational investments to drive ongoing efficiency savings. None of these impacts have yet been assessed or are included in these projections.

Year ending 30 June	Forecast 2024/25 $000	Forecast 2025/26 $000	Forecast 2026/27 $000	Forecast 2027/28 $000
Revenue				
Total revenue	298,717	306,317	315,977	314,099
Revenue growth	-9.0%	2.5%	3.2%	-0.6%
Operating results				
Operating expenses	257,429	268,800	279,116	278,454
EBITDA	41,288	37,517	36,861	35,645
EBIT	12,155	7,554	7,471	7,414
Profit/(loss) before tax	8,803	3,851	4,542	5,106
Profit/(loss) after tax	6,411	3,025	3,287	3,694
EBITDA per FTE	35.97	32.97	32.39	32.46
Total assets	401,300	356,553	360,927	362,760
Total equity	203,280	206,305	209,592	213,286
Capital expenditure	46,269	18,552	23,760	21,422
Capital expenditure % to revenue	15.5%	6.1%	7.5%	6.8%
Liquidity				
Current ratio	1.0	0.7	0.8	0.9
Quick ratio (Acid test)	1.7	0.9	1.1	1.2
Interest cover	13.2	16.7	22.8	35.3
Profitability				
Return on equity	3.2%	1.5%	1.6%	1.7%
Return on assets	1.6%	0.8%	0.9%	1.0%
Operating profit margin	13.8%	12.2%	11.7%	11.3%
EBIT margin	4.1%	2.5%	2.4%	2.4%
Growth/Investment				
Capital renewal	1.7	0.7	0.9	0.8
Financial strength				
Gearing	23.0%	0.0%	0.0%	0.0%
Equity ratio	50.7%	57.9%	58.1%	58.8%
Cash and short-term deposits	41,891	4,243	11,989	20,326
Financial debt	46,793	–	–	–

7. OTHER INFORMATION REQUIRED BY THE CRI ACT 1992

Shareholder Consent for Significant Transactions

The Board will obtain prior written consent of Shareholding Ministers for any transaction (or series of interconnected transactions) involving full or partial acquisition, disposal, or modification of property (buildings, land and capital equipment) and other assets with a value equivalent to or greater than $10 million or 20% of the Company's total assets (prior to the transaction), whichever is the lesser.

The Board will obtain the prior written consent of Shareholding Ministers for any transaction (or series of interconnected transactions) with a value equivalent to or greater than $5 million or 30% of the Company's total assets (prior to the transaction) involving:

- The acquisition, disposal, or modification in a joint venture, partnership, or other similar association.
- The acquisition or disposal in full or in part of shares or interests in external companies, subsidiaries, and business units.
- Transactions that affect the Company's ownership of a subsidiary or a subsidiary's ownership of another entity.
- Other transactions that fall outside the scope of the definition of the Company's core business or may have a material effect on the Company's science capabilities.

The Board will advise the Shareholding Ministers in writing (in the Quarterly Report) before entering into any transaction involving a change in intellectual property ownership or control.

Accounting Policies

A summary of our Accounting Policies is included in our Annual Reports. The current (and previous) Annual Reports can be found via our external websites.

Ratio of Shareholders' Funds to Total Assets

The target ratio of 'shareholders' funds to total assets' is as follows:

	2025 Forecast	2026 Outlook	2027 Outlook	2028 Outlook
Target Ratio %	50.4%	57.6%	57.8%	58.5%

Shareholders' funds are defined as the sum of the 'share capital' and 'equity reserves' (otherwise called 'total equity'). Total assets are defined as the sum of the net book value of 'current' and 'non-current assets'.

This is as disclosed in the Company's balance sheet as per the Annual Report, prepared in accordance with the accounting policies adopted by the Board.

Commercial Value

Section 16(3) of the CRI Act requires the Company to furnish an estimate of the current commercial value of the Crown's investment.

The Board is satisfied that the net asset position (or shareholders' funds) as at 30 June 2025 was a fair and reasonable indication of the commercial value of the Group at that time. The aggregated net asset position as at 30 June 2025 as reported in accordance with Earth Sciences NZ's predecessor companies' accounting policies was $196.9 million.

Dividend Policy

Profit retention and dividend distribution will be determined from year to year by the Board. The policy's objective is to ensure that an appropriate level of funds is maintained in the company to sustain financial viability, whilst providing an adequate return to the shareholders. In considering this objective, the Board each year determines the level of surplus funds by reference to Earth Sciences NZ's:

- Medium- and long-term capital investment requirements (including equity investments).
- Ability to maintain and expand operational capability.
- Ability to repay debt (if any).
- Funding requirements for subsidiaries.
- Capacity to fund RV *Tangaroa*.
- Working capital requirements.
- Legislative requirements, e.g., ensuring Section 4 of the Companies Act 1993 (Solvency test) has been satisfied.

Any dividend would be paid within two months of the financial year-end.

Activities Where Shareholder Compensation Would Be Required

The Board would look to seek compensation from the shareholders in the following circumstances:

- Where the shareholders instruct Earth Sciences NZ to undertake activities or assume obligations that would result in a reduction of the company's profit or net realisable value.
- Where the Board may consider undertaking strategic investments for the wider benefit of the New Zealand public, involving financial outlays beyond those incorporated within the company's Statement of Corporate Intent or financing capabilities.

No request for compensation is currently being sought from the shareholders. At this time no such investment has been identified, nor have any financial projections for such investment been included in Earth Sciences NZ's Statement of Corporate Intent 2025/26. In the longer-term, Earth Sciences NZ will be reviewing deep-sea marine capability and how investment in these national science infrastructure assets may be supported.

David Smol
Chair
28 August 2025

Paul Connell
Board Member
28 August 2025

Appendix One: Key Performance Indicators

In our first year of operation, we will identify important areas of performance that relate to the proposed benefits of the science reforms, the delivery of our organisational goals (including resilience and financial viability), our people, and our progress in delivering outcomes that matter to New Zealand.

We will report on seven indicators as identified, five required by the Ministry of Business, Innovation and Employment (MBIE) in 2025/26. Throughout the year, we will work closely with MBIE officials as we develop our performance measurement framework and indicators. Our 2026/27 Statement of Corporate Intent will include a refined suite of KPIs designed to meet both MBIE's system-level monitoring requirements and capture our organisational level performance.

Indicator	Measure *(Year ending 30 June)*	Target 2025/26
Science quality	Impact of scientific publications (weighted citation index)	2.5
Research collaboration	Papers co-authored with collaborators	85%
End-user collaboration	Revenue per FTE from commercial sources	$92,000
Technology and knowledge transfer	Commercial reports per scientist FTE	1
Revenue generation	Revenue per FTE ($000)	$256,000
Operational delivery	% of projects delivered on time	>90%
Health and Safety	Recordable injuries per 200,000 work hours (rolling 12-month average)	<3

Appendix Two: Earth Sciences NZ Interim Statement of Core Purpose

Purpose

To drive New Zealand's economic growth and wellbeing through increasing returns from the use of New Zealand's natural resources and environments, enhancing energy security, building resilience to natural hazards and increasing prosperity in a changing climate.

The CRI will aggressively pursue opportunities to lift innovation, commercial outcomes, and use of advanced technology to grow the national economy.

Outcomes

The CRI will fulfil its purpose through leadership in global science and innovation, the provision of research that benefits the economy, and the transfer of data, technology and knowledge in partnership with industry, government, Māori and Pacific partners to:

- Support future energy growth, sustainability and security through increased production, effective storage, and resilient distribution through geothermal, hydro, wind, solar, mineral and marine resources.
- Increase economic benefit from the development and diversification of aquatic and geologic resources, including aquaculture, fisheries and minerals.
- Support the economy through increased preparedness and resilience to natural hazards such as geological, space weather, and extreme weather and climate hazards.
- Develop new materials and technologies that improve energy efficiency and advance zero or low carbon energy use to contribute to economic growth.
- Increase social and economic benefits within environmental boundaries through improved management and stewardship of freshwater and marine resources and ecosystems and enhanced biosecurity.
- Adapt to and realise the economic opportunities of climate variability and change, and mitigation of the drivers of climate change.
- Accelerate earth science and its application through the development and use of advanced technologies, such as space, environmental observation and analysis, biotechnology, engineering, nanotechnology, AI and supercomputing.
- Ensure key parts of the economy and society meets quality assurance, accreditation processes and regulatory compliance by providing measurement standards for New Zealand domestically and internationally.
- Build a more dynamic, effective and efficient Science, Innovation and Technology system for New Zealand by working collaboratively with other research organisations, including other CRIs and universities, and through enduring partnerships with international science organisations.

Scope of Operations

To achieve these outcomes, the New Zealand Institute for Earth Science will integrate physical, biological, and social scientific approaches to study New Zealand, Antarctica and the Southern Ocean, and the South West Pacific region in the following core research areas:

Earth System Observations and Processes

- Understanding geological, atmospheric, cryospheric, freshwater and oceanic processes, and their role in the climate system and hydrological cycle across temporal and spatial scales.

Natural Hazards

- Monitoring, risk management, forecasting and emergency response for geological, weather, climate and space hazards.
- Multi-hazard risk and impact-based approaches across sectors to inform warnings and short- to long-term risk-based decision making.

Landscape Evolution and Mineral Resources

- Understanding and modelling of processes that shape New Zealand's landscape and influence land use.
- Determining the distribution, scale, formation processes and nature of New Zealand's minerals and evaluating the impacts of extraction.

Energy

- Determining the distribution, scale and nature of energy resources (e.g., geothermal, hydrogen, minerals, hydro, wind, solar and marine generation), the impacts of their use and energy storage options.

Materials and Technologies for Energy Efficiency and security of supply

- Development of materials and technologies for efficient renewable energy production (e.g., hydrogen, geothermal, solar, and wind), reduced emissions, and improved carbon capture and storage.

Freshwater Resources and Environments

- Increased returns from the optimal and sustainable use of water resources from streams, rivers, lakes and groundwater.
- Support freshwater environmental resilience, including in a variable and changing climate, through geological, physical and biological freshwater research.

Ocean Resources and Environments

- Support ocean resource use and environmental resilience, including in a variable and changing climate, through geological, chemical, physical, and biological oceanographic research.
- Operation of the national deepwater and coastal research vessel fleet.

Climate and Weather Science, Monitoring, Forecasting and Risk

- Modelling and operational delivery of weather and climate forecasts and non-hazard impacts, based on land, ocean and space observations, for key sectors, including aviation and transport, primary production, tourism, infrastructure and energy, conservation and emergency response within New Zealand and the Pacific.
- Development of decadal-scale climate system forecasts, projections, key thresholds and tipping points to inform adaptation to climate change.

Carbon cycle and atmospheric change

- Support the management of atmospheric change through the measurement and monitoring of atmospheric constituents, quantifying the sources and sinks of greenhouse gases, and measurement of terrestrial and oceanic carbon cycling, including ocean acidification.
- Development and verification of carbon sequestration technologies and carbon emission mitigation approaches.

Fisheries and Aquaculture

- Support fisheries management through the surveying, monitoring, modelling, assessment and differentiation of stocks, from the tropics to Antarctica. Mitigate impacts of fishing and advance ecosystem-based management approaches.
- Development of sustainable sea-based aquaculture production, commercial-scale, land-based culture technologies and production, broodstock development and genetics, hatchery techniques and animal husbandry, with a focus on high value species.

Environmental Observations

- Maintain national environmental monitoring networks and development and engineering of sensor technologies and the collection, analysis and application of remote sensing data.

Supercomputing

- Operation of nationally advanced supercomputing capability, data storage, AI and cloud services, collaborating with REANNZ to provide the wider Science, Innovation and Technology system access to supercomputing.

Measurement Standards

- Ensure that New Zealand's units of measurement meet the international System of Units, enabling business to comply with regulations and maintain consumer confidence and trust.

The New Zealand Institute for Earth Science will collaborate with the other CRIs in the following areas:

Food Safety and Health

- Interfaces between food safety and human health, including foodborne disease and risk management, contaminants in drinking water, groundwater and freshwater systems, One Health approaches and cross-domain threats.

Natural Hazards and Risks

- Hazard impacts, multi-hazard approaches and adverse events across sectors and emergency management.

Aquaculture, Seafood and Fisheries

- Integrated aquatic ecosystems and sustainability and environmental aspects of production.

Climate & Weather

- Interfaces between environmental modelling, climate change, weather and climate forecasting and land-use impacts.

Biosecurity

- Cross-domain and integrated approaches to biosecurity threats and biosystematics across environments, including pathogen detection, antimicrobial resistance monitoring, and biosafety through integrated One Health approaches.

Climate Change

- National mitigation, adaptation and resilience, including greenhouse gas emissions and the carbon cycle, impacts on biodiversity across domains, climate-health research environmental surveillance, and community resilience strategies.

Conservation, Biodiversity and Ecosystem Services

- Development of national biodiversity and conservation approaches and environmental management.

Soil, Freshwater and Nutrient Modelling

- Catchment management, water quality and environmental health, particularly in relation to rural and urban development.

Environmental Health and Risk Science

- Monitoring and risk assessment, as well as environmental reporting, across terrestrial, freshwater and marine environments, including chemical, biological, radiological and explosive threat detection, preparedness and response to protect population health and national security.

Technologies for Energy Efficiency and Security of Supply

- Collaboration on energy options, materials and infrastructure

Social Science

- Integrated approaches to social science, community engagement and policy development, bridging biophysical and social science.

Collections and Databases

- Biosystematics, data curation, data sharing, and infrastructure.

Supercomputing and Advanced Technologies

- Digital infrastructure and data analytics, including AI.
- A system-wide approach to development and use of advanced technologies, including via an Advanced Technology PRO.

Vision Mātauranga

- Enabling the innovation potential of Māori knowledge, resources and people.

Building an effective SI&T System

- Approaches to knowledge transfer, commercialisation capability and infrastructure development.

DIRECTORY

Board of Directors

David Smol (Chair)
Mary-Anne Macleod (Deputy Chair)
Professor Chris Bumby
Paul Connell
Peter Landon-Lane
Paul White

Transition Chief Executive

John Morgan

Integration Executive

Chelydra Percy

Principal Locations

NIWA Business Unit
82 Wyndham Street
Auckland Central 1010
New Zealand

Private Bag 99 940
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Auckland 1149
New Zealand

GNS Science Business Unit
1 Fairway Drive
Lower Hutt 5010
New Zealand

PO Box 30 368
Lower Hutt 5040
New Zealand

Websites

www.earthsciences.nz
www.gns.cri.nz
www.niwa.co.nz

Right: Earth Sciences NZ, including MetService, has an extensive national climate and weather observational network. This underpins high-resolution forecasting and projections from seconds to decades. [Alec Dempster]

Inside back cover: Trapped on the Devil's Elbow on State Highway 2 between Napier and Wairoa after Cyclone Gabrielle in February 2023. [Regine Morgenstern]

Earth Sciences
New Zealand