



Manaaki Whenua
Landcare Research

One of eight New Zealand Crown Research Institutes (CRIs), Manaaki Whenua – Landcare Research is New Zealand's foremost environmental research organisation. We undertake research that focuses on preserving New Zealand's rich biodiversity, improving biosecurity, and protecting the health of the land, fresh water, and soil resources we need for a prosperous future. We recognise the importance of partnerships, the special role of Māori, and the need to ensure all New Zealanders have the knowledge, understanding, and tools to live in harmony with our land. We are recognised nationally and internationally for the quality of our research and work with a wide range of organisations within New Zealand and globally.

The Informatics Team at Manaaki Whenua

Advances in Informatics are at the heart of the Information Age, providing us with new ways to communicate and influence society, new economic and business opportunities, new ways to acquire data, new forms of data and information, and new scientific methods, insights, and opportunities. The Informatics Team seeks to realise these opportunities so that New Zealanders can achieve increased prosperity with wise use of our natural resources. The Team focuses on new sources of data, harnessing technologies to gain insights from data and increase access to information. It plays an important and growing role in Manaaki Whenua's science and the digital services, which connect the institute with people and organisations in New Zealand, the Pacific, and beyond. The Informatics Team brings together individuals with cross-disciplinary ideas and vision who have specialist informatics expertise spanning the fields of biodiversity informatics, land resources, geography, ecology, remote sensing, data science and computer science.

Informatics: from data to insight to answers



Our Work

We engage with people to identify the best mix of data, technology, research, and policy to meet their immediate and future needs. Our partners and stakeholders include central and regional government, business, researchers, and iwi.

Our work covers a spectrum of activities including:

- Data collection, creation, analysis, management and delivery
- 'Big Data', complex data-processing services and automation
- Technical innovation in environmental sensing and mapping
- Environmental data science to provide insight for business and government
- Design, development, support and maintenance of on-line science systems and services
- Engagement in international data and technical standards development
- In conjunction with other science disciplines within Manaaki Whenua, we undertake collaborative R&D for national and international clients.

Our Expertise

We have specific expertise in the following areas:

- State-of-the-art image processing to derive information from remotely sensed imagery
- Geospatial analysis and modelling
- Ecosystems services science and advice
- Methods for monitoring the changing geographic patterns of land use
- Scientific mapping and data visualisation
- Acquisition, processing, integration and analysis of scientific data
- Terrestrial laser scanning, drones, sensors and IoT
- Environmental information and data modelling
- Development and maintenance of databases to store biodiversity and land-resource data
- High resolution digital elevation model creation
- Science data management across the data life cycle
- Web delivery and on-line services for land and biodiversity information
- Delivering environmental data infrastructures and web services [APIs]
- Taxonomies, semantics and vocabularies.

Computer Resource

The Informatics Team uses diverse computational and storage infrastructures in-house and has access to a wide range of analytical software. As a member of NeSI – the New Zealand e-Science infrastructure, Informatics has access to superior computing resources and e-Science services, including the high performance computing facilities at NIWA and the University of Auckland. We also exploit the computing resources and web services provided on Azure and Amazon.

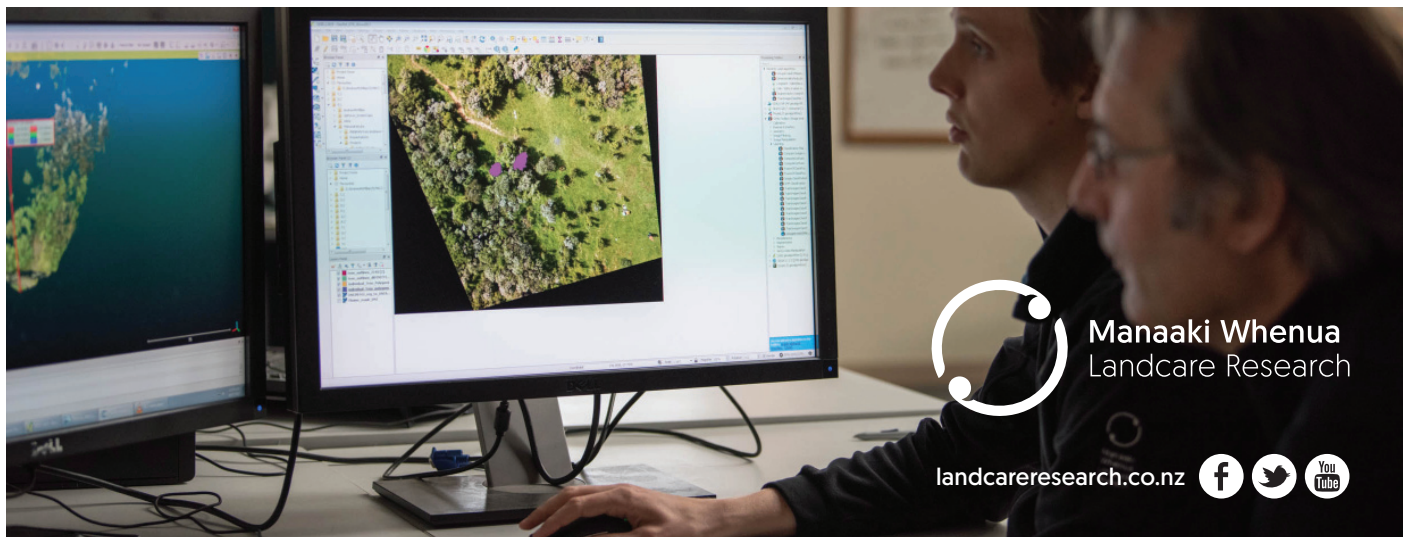
National and International Engagement

People from the Informatics team participate in national and international initiatives including:

- The Open Geospatial Consortium
- Earth Science Information Partners (ESIP)
- Standards New Zealand
- FAO Global Soil Partnership
- International Spatial Accuracy Research Association
- Information services for Antarctica and the South Pacific
- NZ National Herbarium Network
- Biological Heritage National Science Challenge
- Species 2000 Global Committee
- Global Biodiversity Information Facility (GBIF)
- Taxonomic Database Working Group (TDWG)
- International Union of Biological Scientists
- Herbarium Information Systems Committee
- [Australasian] Council of Heads of Australasian Herbaria
- IUSS WG Soil Information Standards

For more information, contact:

Nick Spencer
Informatics Science Team Leader
E: spencern@landcareresearch.co.nz



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landcareresearch.co.nz

