

# REPORT TO THE INTERNATIONAL CARTOGRAPHIC ASSOCIATION GENERAL ASSEMBLY TOKYO 2019



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## **Mapping Science Institute Australia**

The Mapping Sciences Institute, Australia, is an incorporated company representing Australian cartographers and geographic information technologists. Its forerunner, the Australian Institute of Cartographers, was formed in 1952 and the name-change was registered in 1995. The purpose of the change of name was to recognize the emergence of the disparate disciplines involved in the management of geospatial information.

Mapping sciences are defined as those disciplines that deal with acquisition, management and communication of geospatial information and the MSIA promotes the theory, practice and understanding of all facets of these sciences through the collegiate expertise of its members. Membership is available to all persons engaged in the mapping sciences, admitted at grades commensurate with relevant academic qualifications and experience.

Management of the MSIA is effected at national level through the National Council which comprises a President, Secretary, Treasurer and Chairman of an Executive Committee, together with representatives from the States. MSIA is financially accountable to the Australian Securities and

Investments Commission and in this regard, the Treasurer, Secretary and Chairman are the Company Directors. All office-bearers serve in an honorary capacity.

## National Council

**President:** William Cartwright President 2017

John McCormack. President 2018

**Chair of Executive:** Alan Armitage – 2016

Les Isdale – 2017 2018

**Secretary:** Keith Smith

**Treasurer:** John McCormack

**Promotion & Management:** John McCormack

**Membership:** Alan Unkles

**Heritage:** Trevor Menzies

**Research & Scholarship:** David Fraser

**Journal of Spatial Science:** Graeme Wright

**International:** William Cartwright 2016 & Graeme Wright 2017 2018

**News newsletter:** Les Isdale

**Webmaster:** Shane Oates

**Barbara Petchenik Children's Map Competition:** Doug Herrick 2016 2017

John McCormack 2018

**CARTOGRAPHY periodical:** David Fraser

**Council 2016 - 2018**

**Bathurst Division representative:** Doug Herrick 2016,  
2017

**NSW Division representative:** Michael Turner

**NSW Division representative:** Colin Mitford

**Queensland Division:** Les Isdale

**Queensland Division:** Alan Armitage

**Northern Territory Division:** Trevor Menzies

**Invited Councillor:** Patrick Killoran

### National Contact details:

Mapping Sciences Institute, Australia

GPO Box 1817

Brisbane QLD 4001

Email: [national.secretary@mappingsciences.org.au](mailto:national.secretary@mappingsciences.org.au)

## Australia's ICA Commitment

**Professor William Cartwright AM**

President ICA 2007–2011.

Immediate ICA Past-President ICA 2011 - 2014

Vice-President ICA 2003 - 2007.

ICA representative and Chair, Joint Board of Geospatial Information Societies  
2011-2014.

Editor – International Journal of Cartography

Member, Commission on Art and Cartography

**Dr David Fraser**

Editor, eCARTO online newsletter for the ICA  
Member, Commission on Education and Training  
Member, Commission on Early Warning and Crises  
Management

**Dr Amy Griffin**

Chair, Commission on Cognitive Issues in Geographic Information Visualization

**Ron Furness**

Chair, Working Group on Marine Cartography

## Australian Cartography

### National Mapping

ANZLIC – the Spatial Information Council is the peak intergovernmental organisation providing leadership in the collection, management and use of spatial information in Australia and New Zealand. It comprises, as equal partners, senior officials from Australian, state and territory governments and the New Zealand Government.

‘In April 2014, ANZLIC—The Spatial Information Council published the latest update to the Foundational Spatial Data Framework (FSDF) at [http://www.anzlic.gov.au/foundation\\_spatial\\_data\\_framework](http://www.anzlic.gov.au/foundation_spatial_data_framework). The aim is to provide public access to datasets with ‘a national coverage of the best available, most current, authoritative source of foundation spatial data which is standardised and quality controlled’. The Intergovernmental Committee on Surveying and Mapping (ICSM) is a standing committee of ANZLIC and performs a key role in implementing the national spatial policy through the delivery of the FSDF’. 1

*Extract from*

1. The Australian and New Zealand Foundation Spatial Data Framework: Making common foundation spatial data ubiquitous across Australia and New Zealand Edition 2 – April 2014  
[http://www.anzlic.gov.au/\\_\\_data/assets/pdf\\_file/0017/47321/FSDF\\_Booklet\\_edition\\_2\\_web.pdf](http://www.anzlic.gov.au/__data/assets/pdf_file/0017/47321/FSDF_Booklet_edition_2_web.pdf)

Key agencies that act as data theme sponsors for the FSDF include the Bureau of Meteorology, Australian Bureau of Statistics, and the Department of Communications, assisted by Geoscience Australia.

Geoscience Australia is the Australian Government’s national geoscience agency that acts as technical advisor on all aspects of geoscience as well as custodian of the geographical (and geological) data and knowledge of the nation.

‘It is a key player in the development and implementation of the FSDF, managing 16 of the 36 datasets, including datasets for positioning services, elevation and bathymetry, place names, earth observation, surface water, transport, maritime boundaries and land cover. This custodianship role aligns with Geoscience Australia’s mandate for the provision of fundamental geographic information.’

‘Geoscience Australia is responsible for Australia’s contribution to the Global Geodetic Reference Frame (GGRF), upon which global positioning system (GPS) applications are based. The Global Geodetic Reference Frame is reliant on cooperation and contributions from many countries.

Geoscience Australia is supporting a process initiated by the United Nations Committee of Experts on Global Geospatial Information Management to strengthen international cooperation, infrastructure investment and data sharing, with the aim of refining the GGRF. The use of positioning technologies yields efficiencies in many industries, including agriculture, mining, transport, engineering and land administration; it also underpins a number of global monitoring sciences, including the monitoring of sea level rise.'

'Geoscience Australia has implemented new capabilities in data stewardship to improve and encourage the discovery, access, interoperability and use of science data. Geoscience Australia has focused on improving data standards and governance; developing innovative data-sharing tools; and making data openly accessible via web services, to maximise the uptake and use of authoritative geoscience data by government, industry, research and the public. Geoscience Australia data can now be discovered and accessed online via a wide range of institutional and community portals, including data.gov.au and FIND (find.ga.gov.au), a search portal launched by Geoscience Australia in 2014 to improve discovery and access to Australian Government spatial data. Geoscience Australia has partnered with the Department of Communications and National ICT Australia to develop the National Map (<http://nationalmap.gov.au/>), which is an interactive online map designed to help members of the public to use data available from Geoscience Australia, the Bureau of Meteorology, other government agencies and science institutions, and state and territory government agencies.'

To demonstrate Australia's continuing commitment to a national framework Geoscience Australia's Key Strategies for providing Geographical Information over the next 4 years are listed below;

## Environment

Australia has a vast and rich landscape. Geographic data provides the nation with a multifaceted view of Australia's landscape through time.

Geoscience data and information are a significant national resource with enduring value for the Australian community. Understanding and analysing when and where things are happening is essential for government, industry and researchers to make decisions and improve national economic, environmental and social outcomes for the nation.

## Our Role

Provide reliable national fundamental information about the geographies of the nation.

## Desired outcomes

- Australia has an authoritative source of national fundamental geographic information including maps, data and global navigation information.
- Australia has timely and accurate geospatial information to monitor changes to the natural and built environment through time.

## Work Activities and Capability

### Digital Earth Australia

Geoscience Australia, through its Digital Earth Australia program, provides environmental monitoring products and services to government and industry through the preparation and analysis of Earth observations from satellites and other remote sensing platforms. Geoscience Australia uses images and information recorded by satellites to detect physical changes across Australia in unprecedented detail and makes this available to governments and industry for easy use.

Geoscience Australia's work enables the processing, interrogation and presentation of Earth observation data in response to the government's priority information needs. It also supports Australia's developing digital economy by providing businesses with access to reliable, standardised satellite data that can be used to build new products and services for commercial purposes. This will generate new opportunities, particularly for small to medium sized enterprises where such data was previously out of reach.

### National Location Information Framework

Australia's set of foundation spatial datasets underpin a diverse range of public safety, service delivery, policy making, law enforcement, environmental protection and economic investment decisions. Across all these sectors, informed decision making by government, business and the community depends upon access to accurate, reliable and relevant location information, that is easily accessible and able to link to other data.

Geoscience Australia, in collaboration with other government and private sector entities, will operate components of the Australian Spatial Data Infrastructure and lead the curation of, and connection of users to, Australia's national foundation spatial datasets, including datasets related to Australia's maritime and other administrative boundaries, place names and topography.

### Positioning

A national positioning infrastructure capability will provide Australians with access to highly accurate and reliable positioning information anytime and anywhere. An improved positioning capability will enhance a range of location services including, help farmers reduce costs and waste, enable the Royal Flying Doctor Service to land in more locations, make it easier to dock a ship in a busy port, and improve safety on construction and mining sites.

Geoscience Australia is responsible for maintaining Australia's geospatial reference system, contributing to the global geospatial reference system, and providing access to these systems through positioning and geodetic infrastructure, analysis and service delivery components.

In response to new Australian Government measures and funding, Geoscience Australia will work to make reliable positioning data accurate to 10 centimetres available throughout Australia's onshore and offshore jurisdiction. Areas with mobile coverage will have access to positioning data accurate to 3 centimetres.

This will involve testing how Australia could potentially benefit from investing in a satellite-based augmentation system (SBAS). SBAS augments and corrects positioning signals transmitted to Australia by GPS, improving accuracy, availability and reliability. Additional work will focus on

establishing a national ground station network, improving coordination across government and the private sector, and ensuring Australian industry has access to world-leading software tools for positioning.

## Strategic Priorities and Performance Criteria

Geoscience Australia's work program is delivered through six key strategic priority areas. Each priority area outlines the role of the organisation, the desired outcomes to be achieved, and the core work activities and capabilities.

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

Key Performance Indicators	2018-2019	2019-2020	2020-2021	2021-2022
Geoscience Australia's foundation spatial data products, including authoritative representations of Australia's maritime boundaries and topography, are updated and/or accessible through interactive mapping platforms	75%	80%	85%	90%
Geoscience Australia's spatial data products meet the requirements of relevant legislation and policy implementation	100%	100%	100%	100%
Delivery of Surface Reflectance product from initial receipt of satellite data	< 90 days	< 30 days	< 14 days	< 7 days

*Extracted from*

Geoscience Australia website: <http://www.ga.gov.au/about/what-we-do/role/providing-fundamental-geographicinformation>

## State Mapping

In support of the FSDf and as a consequence of the rapid development and availability of new technologies for spatial data delivery, there has been a large focus on investment at the state and territory government levels at online spatial data delivery systems. This includes spatial data directories and web mapping applications. Below is a selected subset of state government systems that have been released recently.

State Government system	Link
New South Wales - Land & Property Information - NSW GLOBE	<a href="http://globe.six.nsw.gov.au/">http://globe.six.nsw.gov.au/</a>

Queensland - Business and industry portal – Queensland Globe	<a href="https://www.business.qld.gov.au/business/support-toolsgrants/services/mapping-data-imagery/queensland-globe">https://www.business.qld.gov.au/business/support-toolsgrants/services/mapping-data-imagery/queensland-globe</a>
Tasmania - Land Information System - the LIST	<a href="https://www.thelist.tas.gov.au/app/content/home">https://www.thelist.tas.gov.au/app/content/home</a>
Victoria – Vicmap	<a href="https://services.land.vic.gov.au/landchannel/content/productcatalogue">https://services.land.vic.gov.au/landchannel/content/productcatalogue</a>
South Australia - Location SA Viewer	<a href="http://www.location.sa.gov.au/">http://www.location.sa.gov.au/</a>

### Spatial Data Catalogue Projects

Government system	Link
Geoscience Australia	<a href="http://www.ga.gov.au/">http://www.ga.gov.au/</a>
New South Wales Spatial Data Catalogue	<a href="https://sdi.nsw.gov.au/nswsdi/catalog/main/home.page">https://sdi.nsw.gov.au/nswsdi/catalog/main/home.page</a>
Queensland Spatial data Catalogue - QSpatial	<a href="http://qldspatial.information.qld.gov.au">http://qldspatial.information.qld.gov.au</a>
Western Australia – Open data	<a href="https://data.wa.gov.au/">https://data.wa.gov.au/</a>
Victoria – open data directory	<a href="https://www.data.vic.gov.au/">https://www.data.vic.gov.au/</a>
Northern Territory – Spatial Data download	<a href="http://www.ntlis.nt.gov.au/forum/ntlis_documents/downloading-spatial-data-from-the-nt-government">http://www.ntlis.nt.gov.au/forum/ntlis_documents/downloading-spatial-data-from-the-nt-government</a> <a href="http://www.ntlis.nt.gov.au/forum/ntlis_documents">http://www.ntlis.nt.gov.au/forum/ntlis_documents</a>
Tasmania - open data	<a href="https://listdata.thelist.tas.gov.au/opendata/">https://listdata.thelist.tas.gov.au/opendata/</a>
South Australia – Data SA	<a href="https://data.sa.gov.au/">https://data.sa.gov.au/</a>

### Australia Government Mapping Organisations

#### Commonwealth agencies

[Geoscience Australia \(GA\)](#)

[Australian Centre for Remote Sensing \(ACRES\)](#)

[Australian Hydrographic Service](#)

[Defence Imagery & Geospatial Organisation \(DIGO\)](#)

[Australian Antarctic Division](#)

[Intergovernmental Committee on Surveying and Mapping \(ICSM\)](#)



## State and Territory agencies

[ACT – Environment, Planning and Sustainable Development Directorate - Planning](#)

[NSW – Spatial Services](#)

[NT - Dept. of Lands, Planning and the Environment](#)

[Qld - Dept. of Natural Resources Mines and Energy](#)

[SA - Dept. for Environment, Water & Natural Resources](#)

[SA - Primary Industries & Regions](#)

[Tas - Dept. of Primary Industries, Parks, Water and Environment](#)

[Tas - Land Information System](#)

[Vic – Planning & Land Use](#)

[Vic - Land Channel](#)

[WA - Landgate](#)

## Awards

Professor William Cartwright received an Honorary Fellowship from the ICA, awarded at the ICA Conference and General Assembly, Washington, D.C. in 2017. Professor Cartwright has achieved an undoubted exceptional international reputation for his work with cartography and is highly regarded as a world leading expert on the field of cartography and GIScience in general.

## Australia – Events 2016-2019

An indicative selection:

- 1<sup>st</sup> DigitalGlobe Australia User Meet 2016
- Annual Mapping Seminar, MSIA - New South Wales Division
- Annual RMIT University - Geospatial Students Association Dinner
- ANZMapS conference, Wollongong, 2016, Melbourne 2017
- Brisbane’s GIS Day, 2016, 2017 and 2018
- ESRI Australia conference – Brisbane, Sydney and Melbourne 2018
- GeoCart’2016 and 2018 – jointly organized by the New Zealand Cartographic Society and the Australian and New Zealand Map Society
- MSIA Mapping Sciences professional development seminar, Ultimo, October 2017
- LOCATE Conference – Sydney 2017 and 2018, Melbourne 2019
- SIBA National Breakfast Series

Some specifics:

## Conferences

### Locate conference

The annual **Locate Conference** is Australia & New Zealand’s leading Spatial event consolidating the top Australian spatial industry events. It provides a central meeting point for industry, government and academia in one of the fastest growing industries. Locate Conference Series is designed to

energise the location industry, inspire both producers and consumers of location information, and drive greater awareness, adoption and innovation. An integral part of this conference is the **Research@Locate**, which brings together Australian researchers working in the geospatial sciences.

### Joint conference

For a number of years the Australian and New Zealand Map Society (ANZMapS ) and MSIA have cooperated in the organisation of a bi-annual conference event. In 2018 the Mapping Sciences Institute, Australia decided to offer sponsorship to the New Zealand Cartographic Society for their Geocart 2018 conference and ANZMapS were also involved in this conference. It was very beneficial to all and a closer agreement on collaboration was established.

## Exhibitions

### Mapping, National Library Australia - A meeting of two cosmologies Tupaia's map of the South Pacific

On Cook's first voyage across the Pacific, Tupaia, a Ra'iatean priest and navigator joined the voyage in 1769 and became an invaluable navigator aboard the Endeavour, helping them to reach far flung islands and communicate with other Polynesian cultures. Tupaia also drew a map for which he is long remembered.

Tupaia's original map is lost but Cook's copy of it survives in the papers of Joseph Banks, and a version of it was published by the naturalist on Cook's second voyage, Johann Forster.

Little is written in Cook's journal about the map, leading to the idea that Cook simply overlaid his own knowledge system. But the truth was more than that, and several attempts have been made to decipher the surviving versions of Tupaia's map made on the Endeavour voyage, and perhaps to recover some aspects of the methods that his drawings recorded.

See link below for more details

<https://www.nla.gov.au/blogs/exhibitions/2018/12/14/a-meeting-of-two-cosmologies>

Report supplied by Dr Martin Woods, Curator of Maps, National Library Australia

### Barbara Petchenik Children's World Map Competition Australian Exhibition 2019

The MSIA is once again participating in the Barbara Petchenik Children Map Drawing competition. The competition is still open at this time and we hope to receive some entries even though the competition is running over the Christmas break which is not a good time for attracting student involvement.

<https://mappingsciences.org.au/barbara-petchenik-childrens-map-competition-2019/>

## International Cartographic Exhibition

MSIA has also coordinated the Australian entries for the International Cartographic exhibition being held in conjunction with the ICC2019.

## Competitions and Awards

Indicative selection:

- Annual MSIA David McInnes Memorial Prize to the best student in Cartography, year 3, at RMIT University
- Annual MSIA/ANZMaps Patricia Alonzo Memorial Prize, RMIT University
- Mapping Sciences Institute, Australia, student prize at QUT
- Annual SSSI Prize to Geospatial Sciences student, RMIT University
- Australian entries in the International Cartographic Map Exhibitions, ICC2015, ICC2017 ICC2019
- Australian entries in the Barbara Petchenik Childrens' Map Competition, ICC2017 Washington D.C., USA and ICC2019, Tokyo, Japan.
- GIS People, a Brisbane-based high-tech start-up company, won the title of Information Technology Champion at the Australian Small Business Champion Awards.
- ESRI Prize for Spatial Information Systems
- Australian Map Competition 2015, 2017
- Australian Map Competition 2019

## Publications

The Journal of Spatial Science is a joint publication for members of the MSIA as well as the SSSI. Members of the SSSI receive the Journal only in online format via the Taylor & Francis website which also provides access to a substantial catalogue of back issues for CARTOGRAPHY to 1957.

The Journal of Spatial Science (TJSS) is a peer-reviewed journal in the Mapping Sciences that is published twice yearly in March and September by Taylor & Francis (T&F). TJSS is a publication of The Mapping Sciences Institute, Australia (MSIA) and Surveying & Spatial Sciences Institute (SSSI) which publishes papers contributed by members of both MSIA and SSSI, and also contributors from across the world. These are original peer review Research and Review Papers contributing to the theory and practice of the mapping sciences representing new ideas and improvements on existing approaches to old problems. The Journal also publishes Professional Papers that describe aspects of professional practise and implementation of techniques related to cartography, geodesy, geographic information science, hydrography, photogrammetry, remote sensing or surveying. This provides an opportunity for professionals and practitioners to inform the world of their business and industry innovations.

### *Selection:*

Cartography – Australian edition of ECarto online newsletter

MSI-Connect: Newsletter of the Mapping Sciences Institute, Australia

Map Matters: the newsletter of the Australia on the Map Division of the Australasian Hydrographic Society.

Position magazine – Australian magazine of surveying, mapping and geoinformation

Online Resources

Spatial Source <http://www.spatialsource.com.au/>

## Map Library Collections Online

[National Library of Australia Map Collection](#)

Online Map Collections:

[State Library of New South Wales](#)

[State Library of Victoria](#)

[State Library of Queensland](#)

[State Library of Western Australia](#)

[State Library of South Australia](#)

[State Library of Tasmania](#)

## Academic Institutions teaching Cartography related courses

Australian Defence Force Academy (UNSW)

Charles Sturt University Faculty of Science

[Curtin University](#)

[Flinders University - Adelaide](#)

[Queensland University of Technology](#)

[RMIT University](#)

[RMIT TAFE](#)

The University of Melbourne

University of New South Wales

University of Newcastle

University of Queensland - Brisbane

University of Southern Queensland - Toowoomba

University of Tasmania

University of Western Australia - Perth

TAFE NSW

TAFE Tasmania

*Educaedu* List of Geography and Cartography programs in Australia -

<http://www.educaedu.com.au/geography-and-cartography>

## Cartography related professional institutes

[Mapping Sciences Institute, Australia](#)  
[Surveying and Spatial Sciences Institute](#)  
[Australian and New Zealand Map Society](#)  
[SIBA](#)  
[Australasian Hydrographic Society](#)

Other

[XNATMAP](#)  
[Australian Geography Teachers Association](#)  
[Cooperative Research Centre for Spatial Information](#)  
[Destination Spatial](#)  
[Intergovernmental Committee on Surveying and Mapping](#)  
[ANZLIC – the Spatial Information Council](#)  
[Australian Spatial Information Education and Research Association](#)  
[Map History](#)  
[Map-Librarians](#)  
[Australia on the Map](#)

## Australia Private Mapping Organisations

Representative selection only:

[1Spatial Australia](#)  
[AAM](#)  
[Carto Graphics](#)  
[Chart and Map Shop GIS](#)  
[People Pty Ltd.](#)  
[Hema Maps](#)  
[Map Centre Parramatta](#)  
[Melbourne Map Centre](#)  
[Melway](#)  
[NextByte Technologies Pvt Ltd](#)  
[Spatial Vision](#)  
[The Map Shop](#)  
[The Perth Map Centre](#)  
[UBD / Gregorys / Explore Australia](#)  
[Westprint Heritage Maps](#)  
[World Wide Maps](#)

Further information can be found at the Spatial Source Online Industry Directory  
<http://www.spatialsource.com.au/directory>