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

**Australia’s ICA Commitment**

**Professor William Cartwright** AM

Immediate ICA Past-President ICA 2011 - 2014  
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**
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. 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’.

Extract from

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.

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<tbody>
<tr>
<td>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</td>
<td>75%</td>
<td>80%</td>
<td>85%</td>
<td>90%</td>
</tr>
<tr>
<td>Geoscience Australia's spatial data products meet the requirements of relevant legislation and policy implementation</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Delivery of Surface Reflectance product from initial receipt of satellite data</td>
<td>&lt; 90 days</td>
<td>&lt; 30 days</td>
<td>&lt; 14 days</td>
<td>&lt; 7 days</td>
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Extracted from

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 just a selected subset of state government systems that have been released recently.

<table>
<thead>
<tr>
<th>State Government system</th>
<th>Link</th>
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<tbody>
<tr>
<td>Tasmanina - Land Information System - the LIST</td>
<td><a href="https://www.thelist.tas.gov.au/app/content/home">https://www.thelist.tas.gov.au/app/content/home</a></td>
</tr>
<tr>
<td>Victoria – Vicmap</td>
<td><a href="https://services.land.vic.gov.au/landchannel/content/productcatalogue">https://services.land.vic.gov.au/landchannel/content/productcatalogue</a></td>
</tr>
</tbody>
</table>

**Spatial Data Catalogue Projects**

<table>
<thead>
<tr>
<th>Government system</th>
<th>Link</th>
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<tbody>
<tr>
<td>Queensland Spatial data Catalogue - QSpatial</td>
<td><a href="http://qldspatial.information.qld.gov.au">http://qldspatial.information.qld.gov.au</a></td>
</tr>
<tr>
<td>Western Australia – Open data</td>
<td><a href="https://data.wa.gov.au/">https://data.wa.gov.au/</a></td>
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</tbody>
</table>

**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:

- 1st 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’iātean 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 overlayed 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


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.

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
- 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.
Online Resources

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

Educatedu List of Geography and Cartography programs in Australia -
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  