

Acknowledgement of Country

Geoscience Australia acknowledges the traditional owners and custodians of Country throughout Australia and acknowledges their continuing connection to land, waters and community. We pay our respects to the people, the cultures and the elders past and present.

Image: Caterpillar Tracks: Artwork by Roseanne Kemarre Ellis on Geoscience Australia's Alice Springs antenna



Geoscience Australia

- Our vision is to be a **world-leading organisation informing evidence-based decisions** through integrated **Earth sciences to secure Australia's future**.
- We are **inclusive, innovative, respectful and collaborative** in leading **Earth sciences for government, communities and industry**. This contributes to a **strong economy, a resilient society and a sustainable environment**.
- We deliver **Earth sciences for Australia's future**



Australian Government

Geoscience Australia



Key programs – delivering value

- Positioning Australia
- Exploring for the Future
- Locate
 - Australian Climate Service
 - Digital Atlas of Australia
- Digital Earth Australia
- Critical Minerals



Chief of Space Division Alison Rose

Positioning Australia
Martine Woolf

**Commercial,
Governance and
Program
Assurance**
Myra Sefton

Digital Earth
Maree Wilson

**Satellite Land Imaging
Collection**
Jonathon Ross (A/g)

National Geodesy

Positioning Australia

Digital Earth Australia

Satellite Data Access

Positioning Systems

SouthPAN

- Projects

Satellite Data Quality and Assurance

GNSS Infrastructure and Informatics

- Services and Support

GNSS Analysis

- Engagement and Innovation

Positioning Australia PMO

Digital Earth Africa
Digital Earth Antarctica

National Planning and
International Relations

Branch Support

Delivering earth observations and precise positioning to enable a sustainable environment, resilient society and strong economy.

National space-based geoscience leadership:

Earth Observation

Digital images of the Earth's surface compiled from spectral data collected by sensors carried on satellites.

Position, Navigation and Timing

Accurate and precise determination of location and orientation three-dimensionally from global navigation satellite systems.

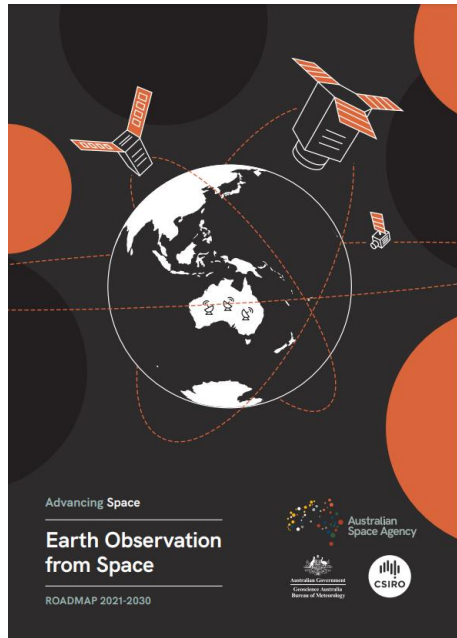
Geodesy

Accurate measurement of the shape, orientation and gravity field of the Earth and how it changes over time.



Delivering on Australia's Civil Space Strategy

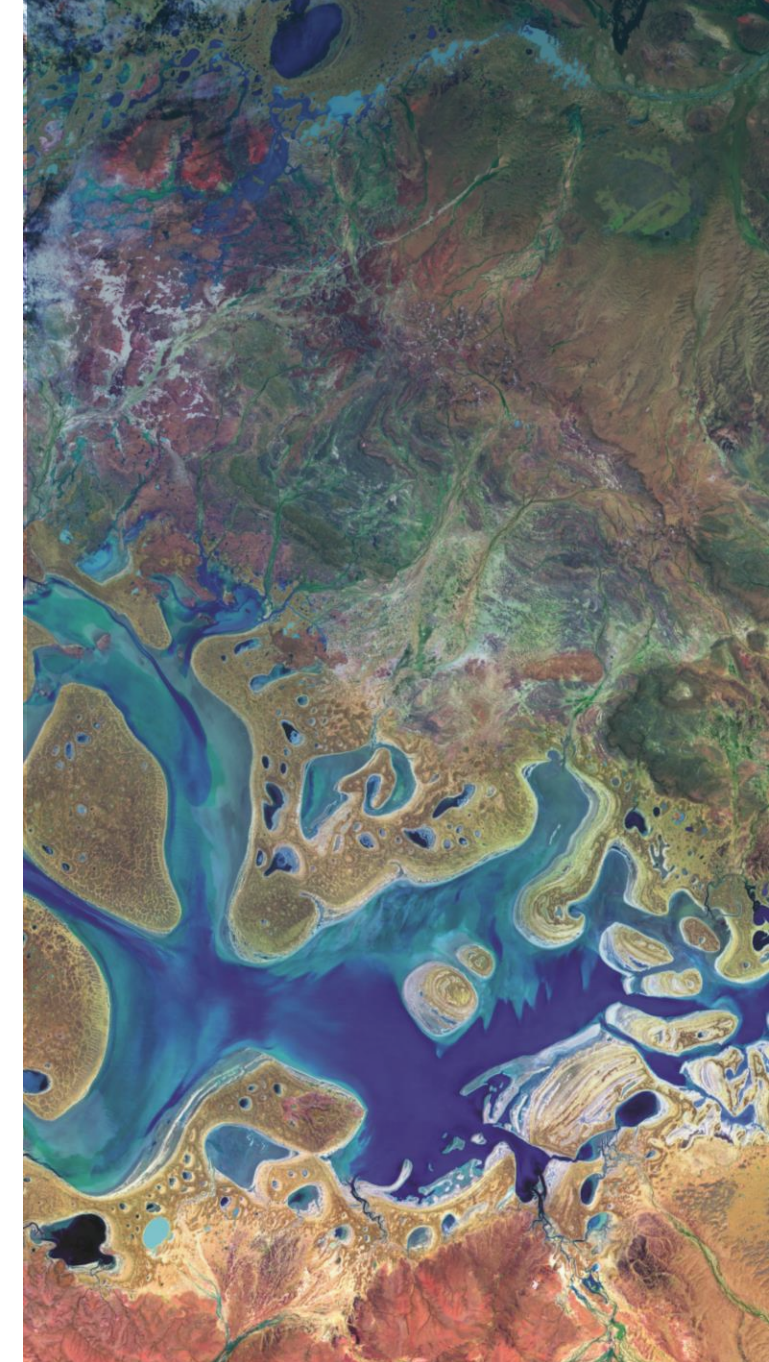
Earth Observation From Space Roadmap



Australian Civil Space Strategy



Bushfire Earth Observation Taskforce



Delivering on Strategy 2028

- **10cm** positioning across Australia, and **3-5cm** in areas of mobile coverage
- Earth observation platform for **Government and business**
- Assuring streamlined access to satellite land imaging for the nation



Building
Australia's
resources
wealth

Supporting
Australia's
community
safety

Securing
Australia's
water
resources

Managing
Australia's
marine
jurisdictions

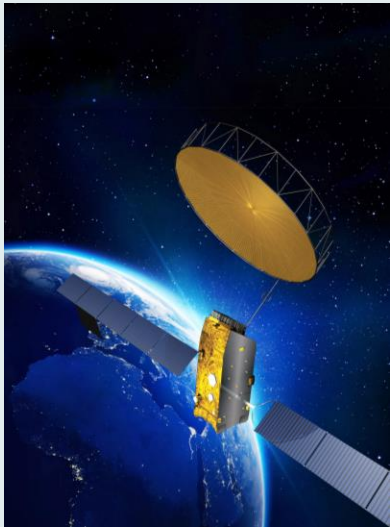
Enabling an
informed
Australia

Ensuring
a high
performing
organisation

Creating a location-
enabled Australia

Positioning Australia Branch

- **The national authority** on geodesy and position verification
- **Australian Government lead** for position and navigation
- Operate **world-class geodetic infrastructure** and applied geoscience research
- **Deliver precise positioning services** that are **reliable, accurate, nationally consistent,** and **openly accessible**
- Provides **key positioning infrastructure, computational tools, processing capability** and **trusted platforms.**



Regional Navigation Satellite System Constellations

- 4** Global
- 2** Regional

Geostationary payloads (coming)

- 2** Satellites



- 2** SBAS uplink stations (coming)
- 2** Satellite Laser Ranging + 3 VLBI stations
- 235** GNSS reference stations
- 15** Absolute gravity ground stations



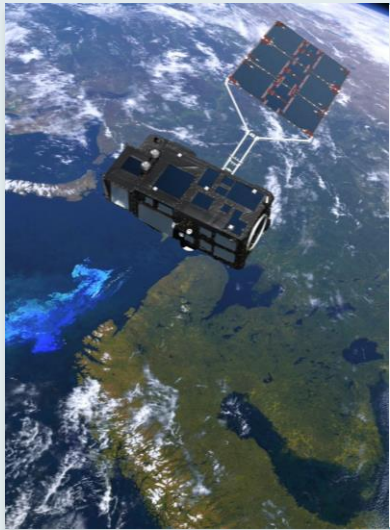
3000+users
3.5cm Services across
96% of mobile coverage

Early 10cm
Services this
year to
~3.4BN
devices



Satellite Land Imaging Collection Branch

- **Assure the nation's streamlined access** to quality-assured imagery of lands and coasts
- **Deliver on international partnerships** with the United States, European Union and Japan
- Engage multi-laterally on standards and methods that **improve interoperability** between different foreign data sources and reduce risk
- Develop techniques to monitor the **quality and integrity** of foreign satellite imagery



1 Copernicus Regional Data Hub

6.3 Petabytes of high-quality data available to users

25 Nations served in South-East Asia and the Pacific



3 Landsat missions supported with command/control

4 Antennas at our Alice Springs Satellite Ground Station Facility

40+ Years of reliable operation



Digital Earth

For processing, analysis and access

Other users

Businesses, government agencies, researchers, communities

Digital Earth Branch

- Provides continental-scale, time-series, medium-resolution, analysis ready Earth observation (satellite land imaging) data and derivative products.
- Leads Digital Earth Australia Program and recently-announced Digital Earth Antarctica.
- Enables users to monitor change underpinned by world-leading science, calibrated and validated to allow for country and continental conditions.
- Engages with multiagency organisations that promote the availability, access and use of Earth observations across Australian and international communities.



2 Global Land Imaging Satellite System Constellations

Each imaging the same location every **5-16** Days



2 Open processing environments



4 Drones to calibrate satellite data

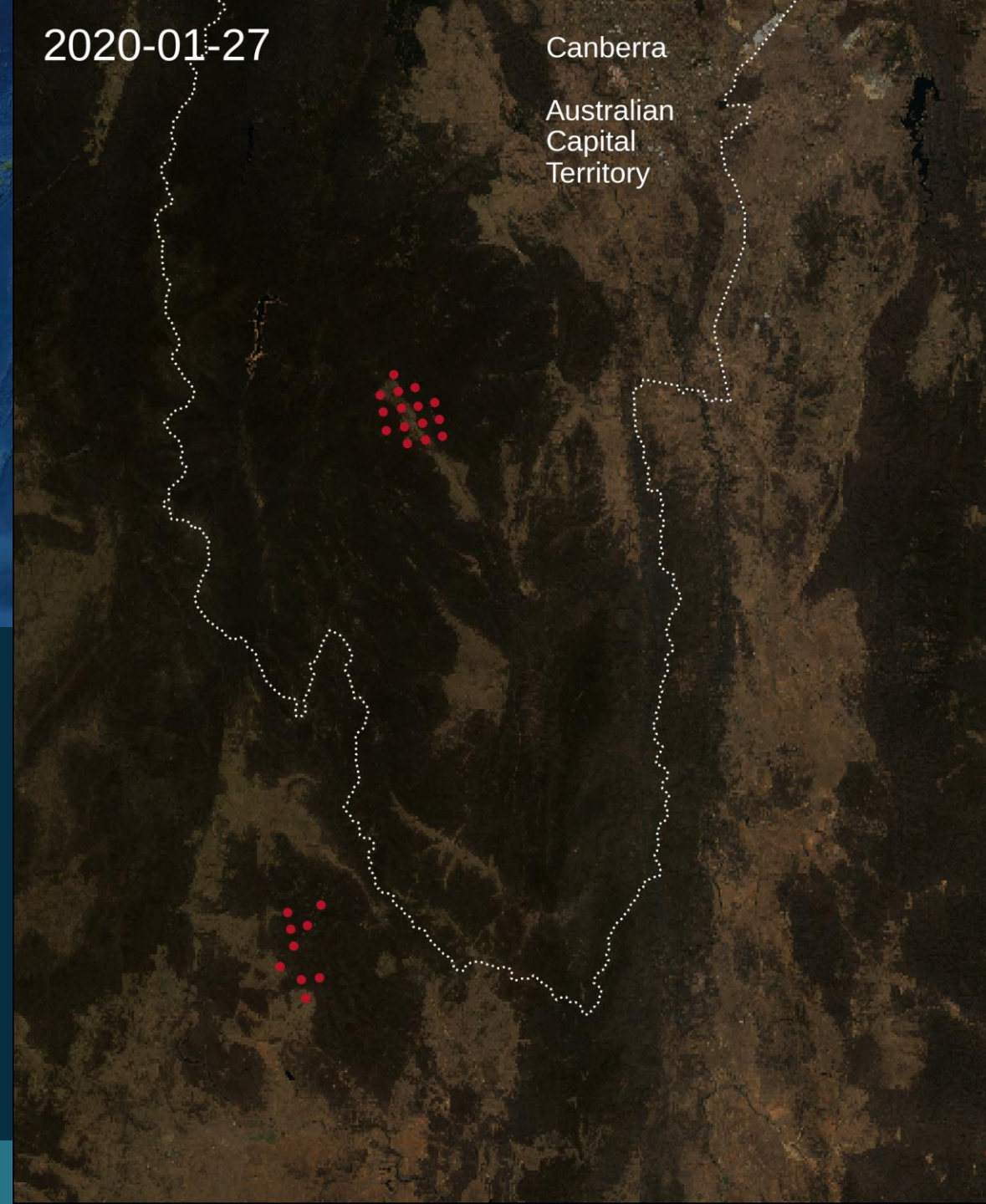


DEA

2,600 Registered Users

5.2PB Data in Storage

~600TB Growth per Year



2020-01-27

Canberra
Australian
Capital
Territory

\$5.3BN

per annum to the
Australian economy
now

\$2TN

per annum to the
regional economy
by **2030**



Earth observation impact



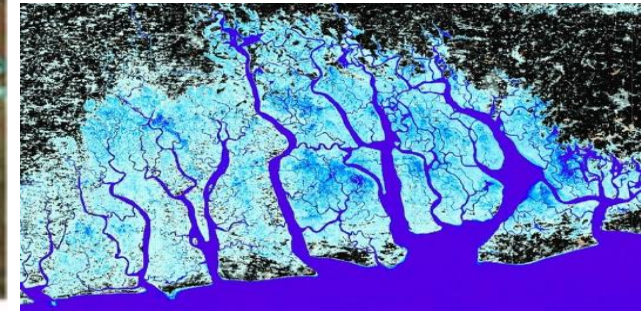
DEA Intertidal Extents



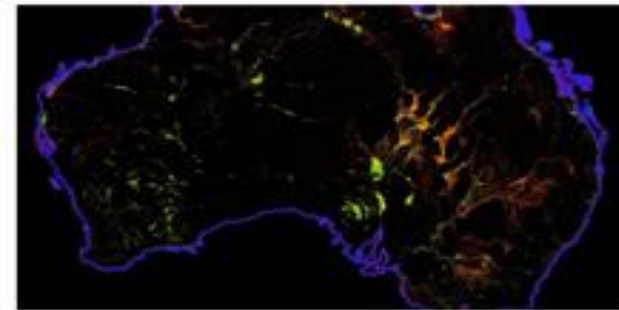
DEA High and Low Tide Imagery



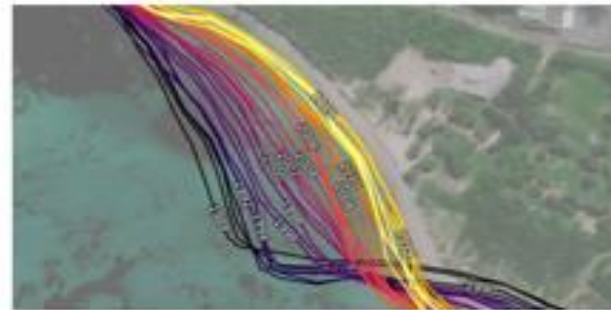
DEA Waterbodies



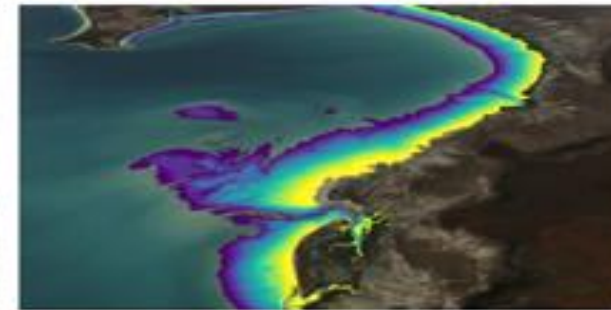
DE Africa Water Observations



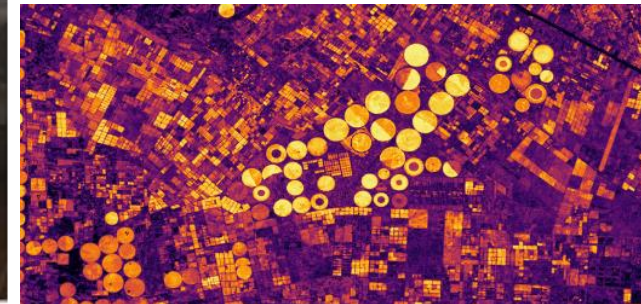
DEA Water Observations



DEA Coastlines



DEA Intertidal Elevation



DE Africa Cropland Extent



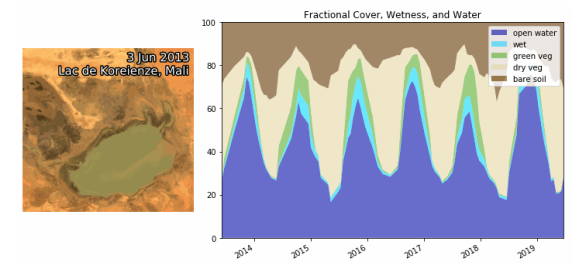
DEA Land Cover



DEA Hotspots



DEA Surface Reflectance



DE Africa Wetland Insights

Strategic focus: Space and spatial integration



Space

Space provides data for spatial applications

Spatial

Spatial applications underpin the values of space capabilities

Development opportunities for a location-enabled Australia

DIGITAL ATLAS OF AUSTRALIA

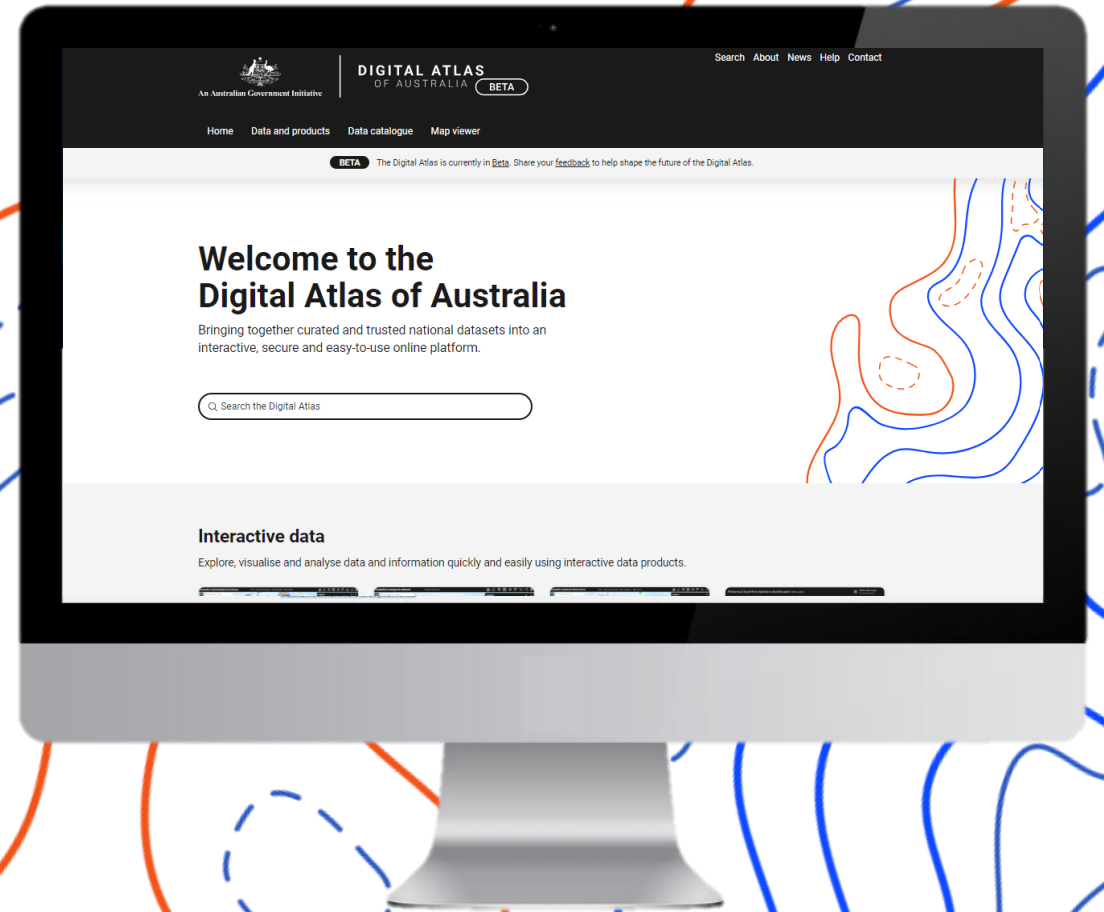
BETA

Interactive, secure and
easy-to-use geospatial platform.

Up-to-date national
datasets you can trust.

Explore, analyse and
visualise data by location.

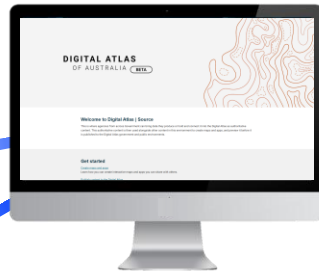
Make evidence-based,
data-driven decisions.



Making data easy to access and use

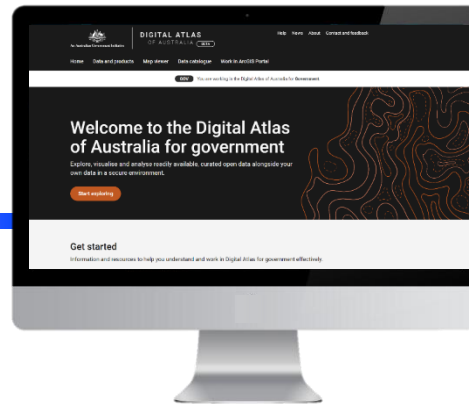
Meeting the needs of diverse users

Agency
Production
Systems



Digital Atlas | Source

Production system to test before publishing live data.



Digital Atlas for government

- Authenticated access for government users
- Restricted information sharing
- Collaborate, innovate and solve with partners across government



Digital Atlas for everyone

- Curated and trusted data that is publicly available
- Makes it easy to find and use data
- Fuse multiple publicly available data sets and even add your own data

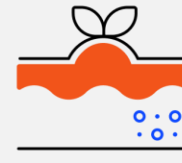
Foundation data in the Digital Atlas



Physical infrastructure
15 datasets available



Administrative boundaries
10 datasets available



Geology and soils
37 datasets available



Population distribution
81 datasets available



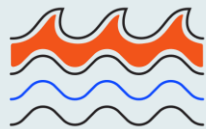
Buildings and settlements
5 datasets available



Elevation and depth
1 datasets available



Geocoded addresses
0 datasets available



Water
8 datasets available



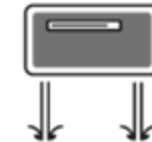
Land cover and land use
7 datasets available

Initiative data



Historical bushfire boundaries

Near real time bushfire boundaries



Place names
0 datasets available



Transport
12 datasets available



Land parcel and property
1 datasets available

gov

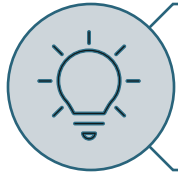


Imagery
0 datasets available

Delivering benefits for all Australian's



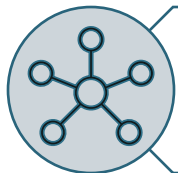
People of all levels of experience can easily find, access and use trusted geospatial data.



Drives evidence-based decision making across the public sector.



Saves Australian Government entities time and money by improving access to trusted geospatial data that is curated and fit-for-purpose.

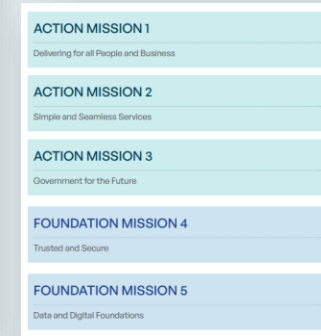


Australian Government entities can efficiently share their data in a way that allows people to connect and use it with other data and systems.



Enables community, academic, and private sectors to harness the power of geospatial insights by providing intuitive access to data and products.

Aligning with key government priorities



Demonstrated value

Sector | Emergency Management

Geoscience Australia's foundation spatial data for emergency management

over **\$396m** in estimated benefits by 2033*

The Impact of Geoscience Australia – An independent evaluation, ACIL Allen, January 2023

State | Digital Twin Victoria program

over **\$40m** in realized benefits since 2021

over **\$76m** savings in avoided costs since 2021



Australian Government
Geoscience Australia

Further information

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