Australian Government
Geoscience Australia

Australia's Geospatial Foundations

Supporting a connected world

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Geoscience Australia

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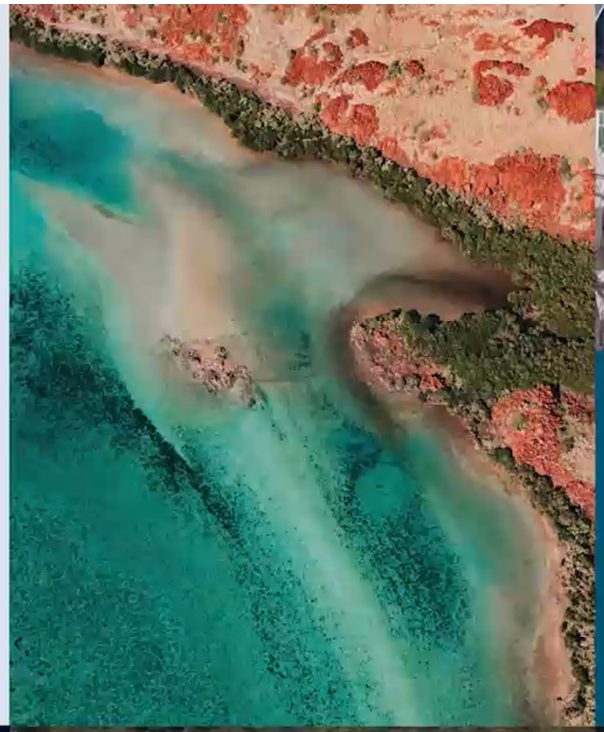
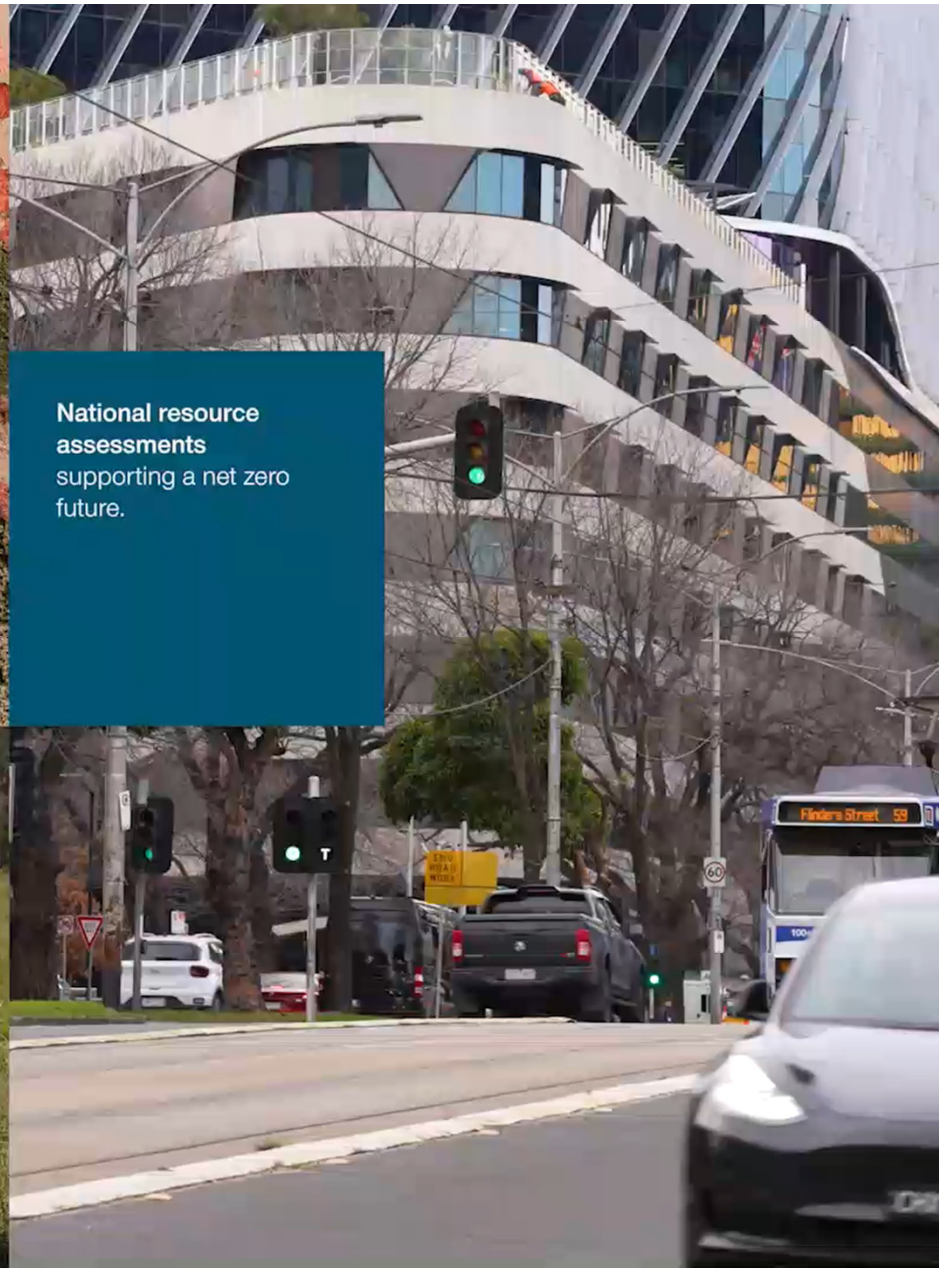
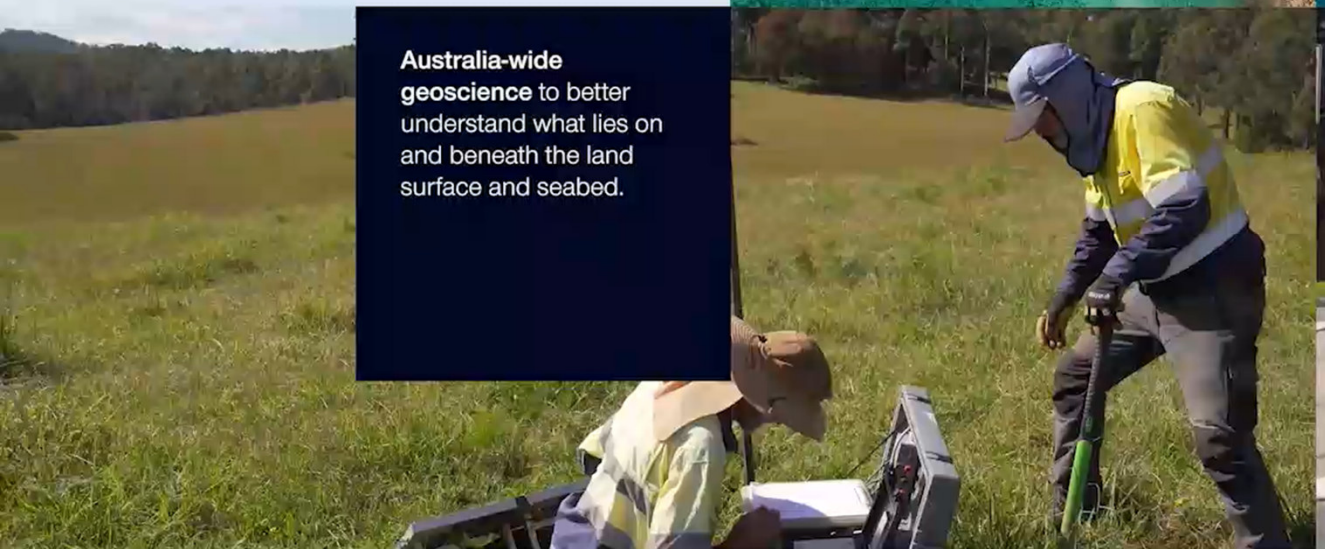
Resourcing Australia's Prosperity

Resourcing Australia's Prosperity will map Australia's resources, focusing on critical minerals, strategic materials and groundwater systems, which are all essential for the net zero transition. The initiative will also map offshore areas of Australia, pointing the way to sites for carbon capture and storage, as well as possible sites for offshore wind.





National resource assessments supporting a net zero future.



Australia-wide geoscience to better understand what lies on and beneath the land surface and seabed.

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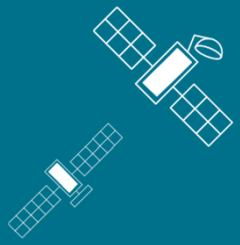
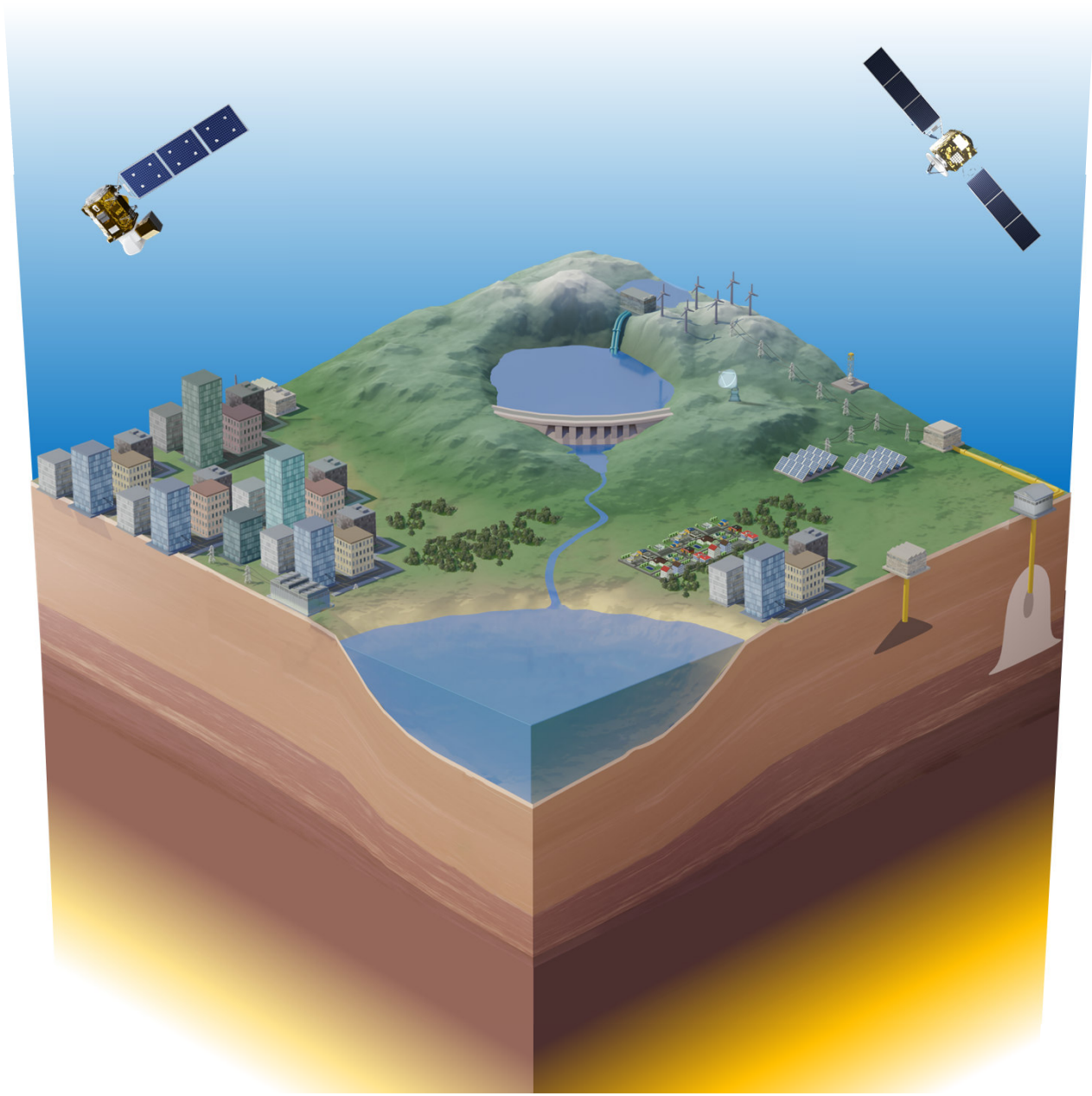


In outer space we play a crucial role in managing space technologies.

On land we map topography, surface water, infrastructure, buildings, land boundaries, and more.

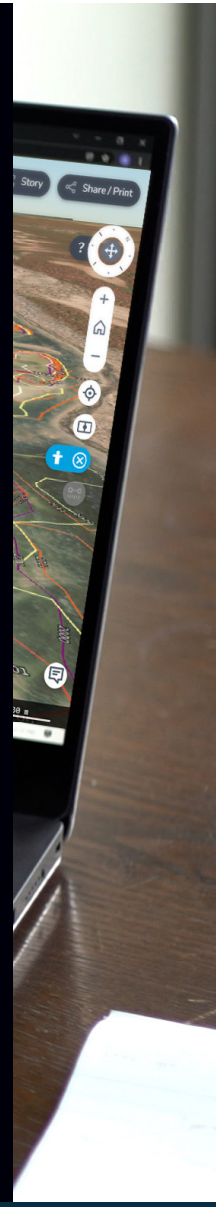
Below land we map mineral, energy and groundwater resources, earthquake activity among others.



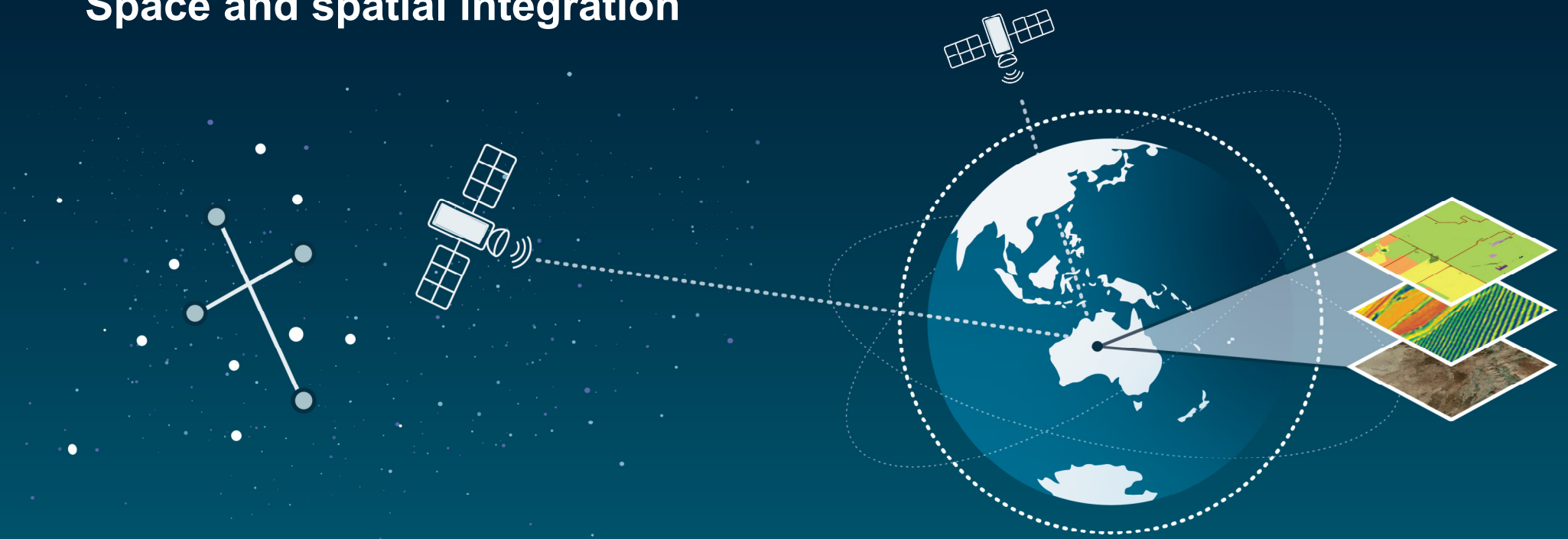
Geoscience Australia manages

23 PB

of data and growing at a rate of a petabyte a year supporting over 170 Australian Government programs.



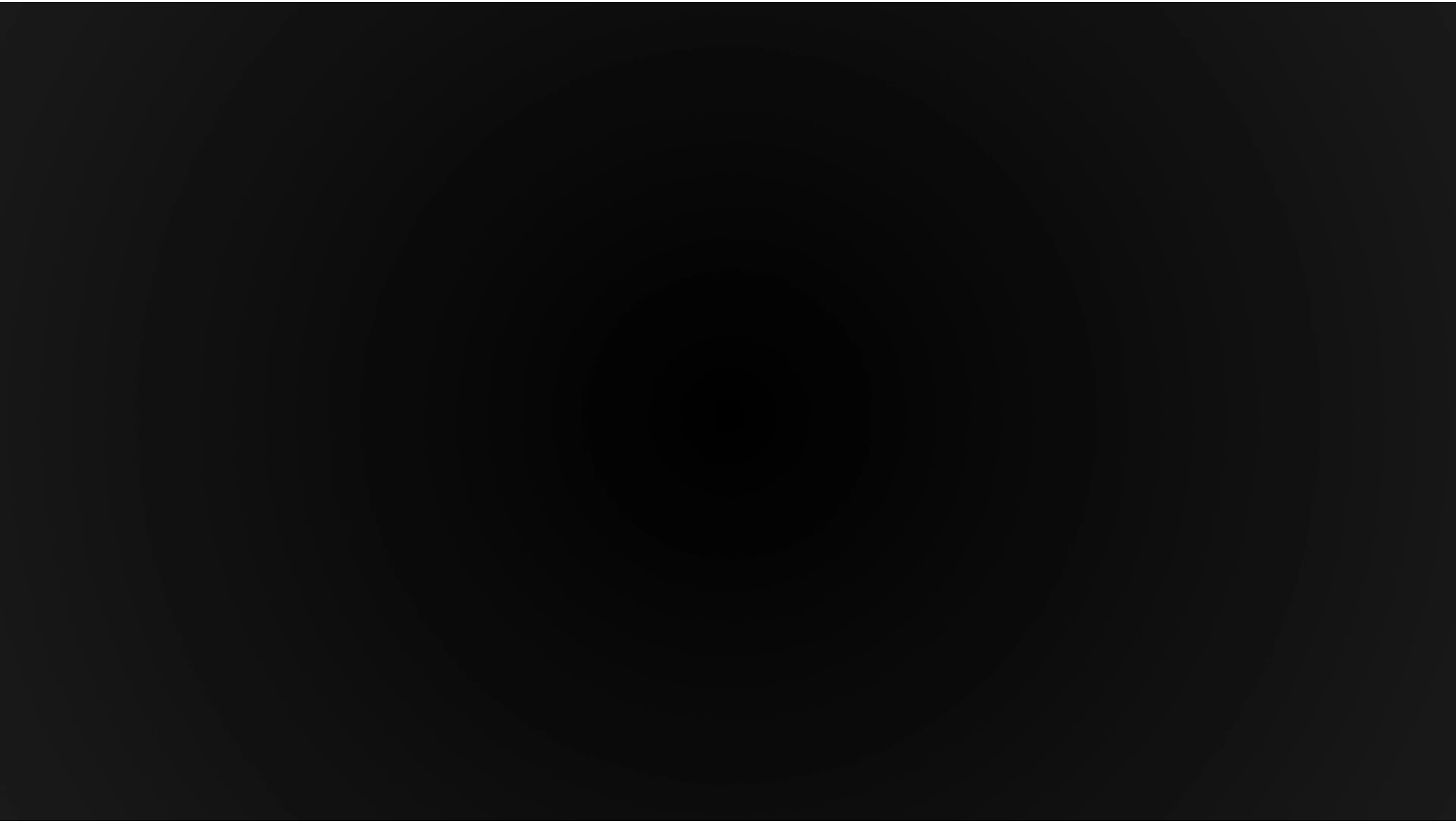
Space and spatial integration



Space
Space provides data for spatial applications

Spatial
Spatial applications underpin the value of space capabilities


An Australian Government Initiative
DIGITAL ATLAS
OF AUSTRALIA



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Community Safety

Supporting Australia's emergencies

- National Seismic Hazard Assessment
- Tropical Cyclone Scenario Selector
- Tsunami inundation modelling

National Earthquake Alerts Centre (NEAC)

Based in Canberra, the NEAC is staffed 24 hours a day, 7 days a week to monitor earthquakes in Australia and abroad.

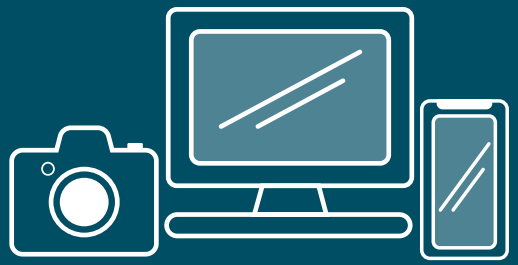
24/7

On average Australia experiences approximately 100 earthquakes of magnitude 3.0 or larger every year.

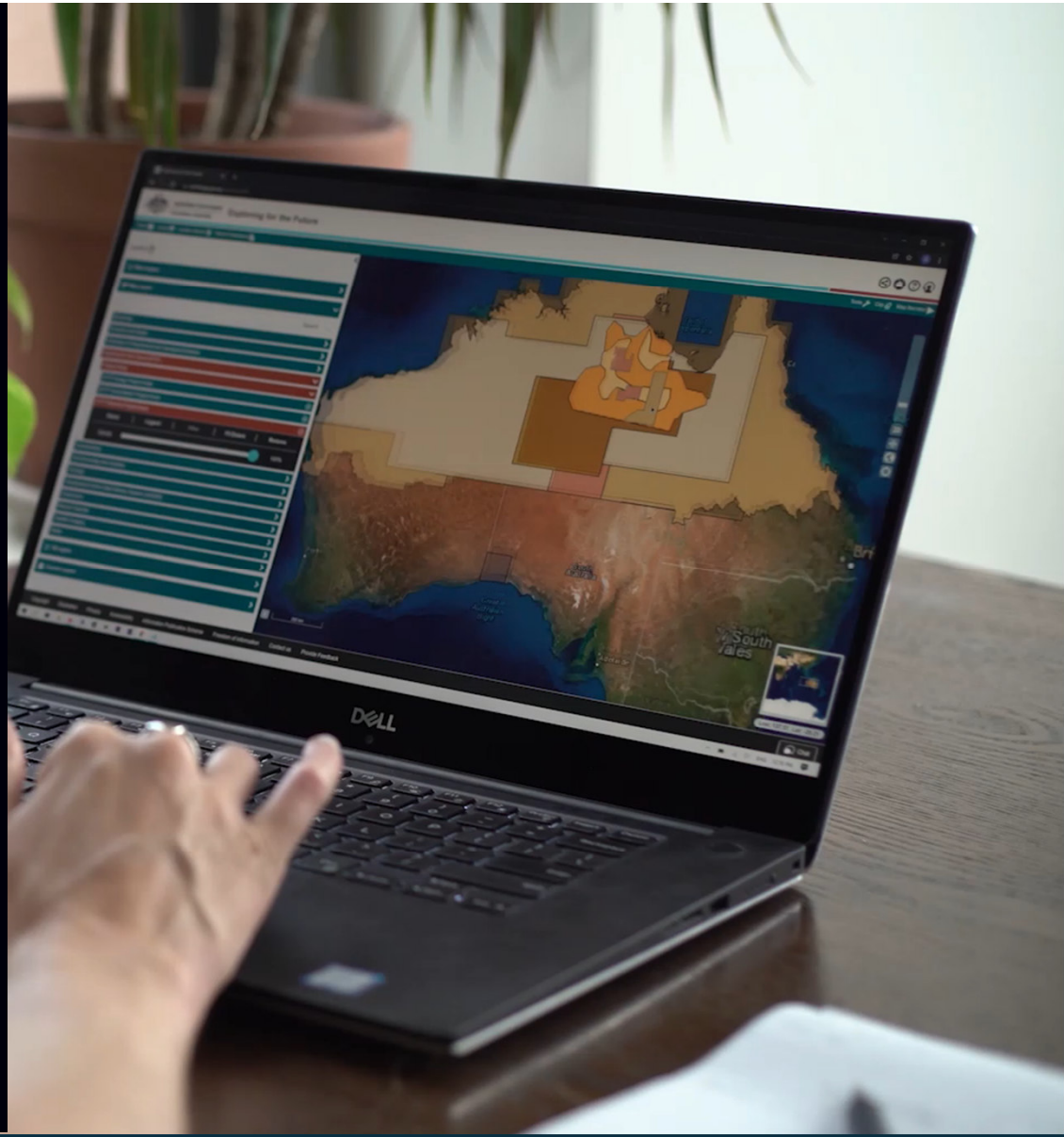
Managing our marine jurisdictions

Australia's marine jurisdiction accounts for around 4% of the global ocean.

Minerals for Australia's future



More than 40 metals and rare earths are used to produce a single smart phone and similar technologies.



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Resourcing Australia's Prosperity

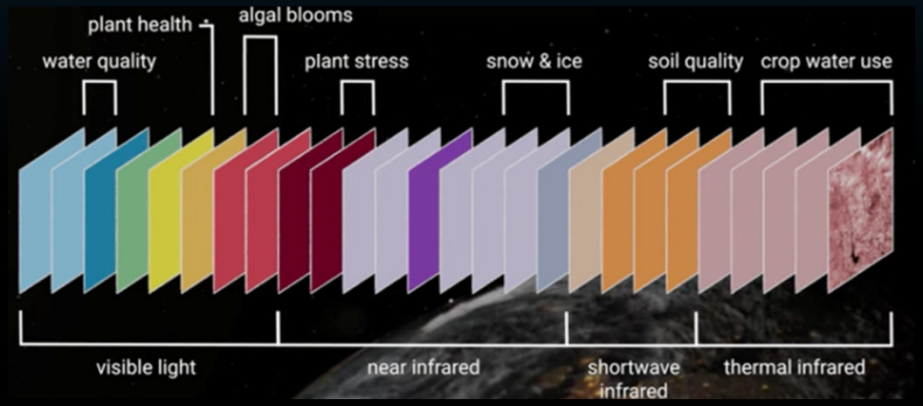
Mapping Australia's resources for a sustainable future

Geoscience Australia is delivering

significant Australian Government investment in space through Positioning, Navigation and Timing, and Earth observation.

New capabilities

- ✓ **Improved revisit frequency**
- ✓ **Higher spatial resolution**
- ✓ **Additional spectral bands**
- ✓ **Ensure continuity of the archive**
- ✓ **Science-grade mission data**



New science

Information on crop health & productivity, water quality and bushfire impact.

Analysing small agricultural fields, water availability in farm dams and forest disturbance.

Emerging applications in water quality, soil/mineral mapping, drought resilience, hazard monitoring, snow and ice monitoring.

50-year time series record of change over all lands and coasts.

Builds trusted information products, provide quality assurance, and unlock the value of commercial EO.

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Digital Earth Australia

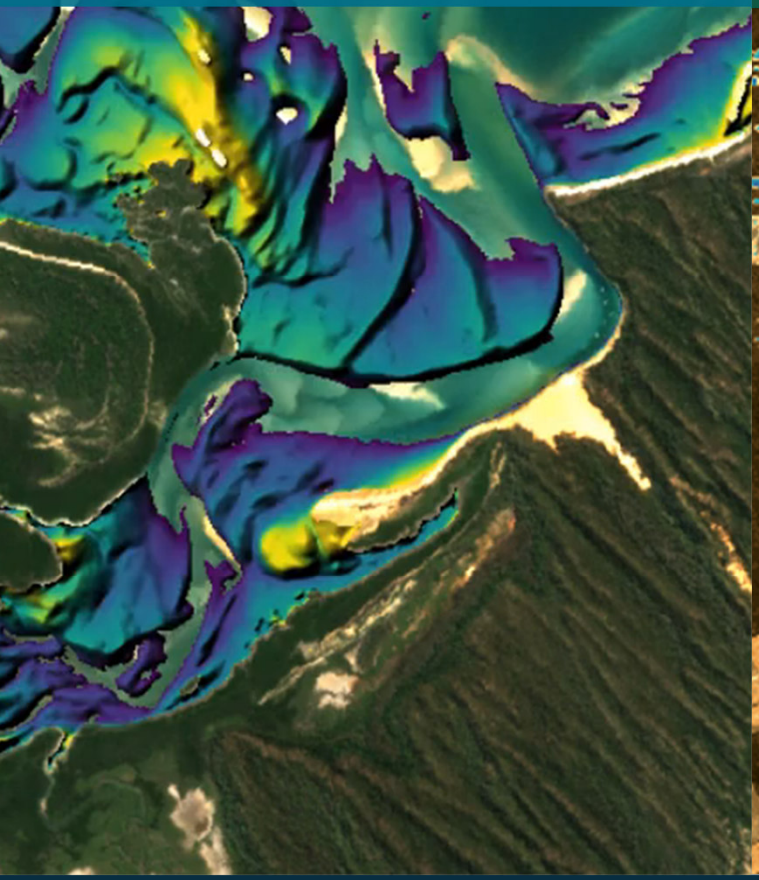
Creating free and open satellite data products for the benefit of Australia.

30 years

of satellite imagery and data.

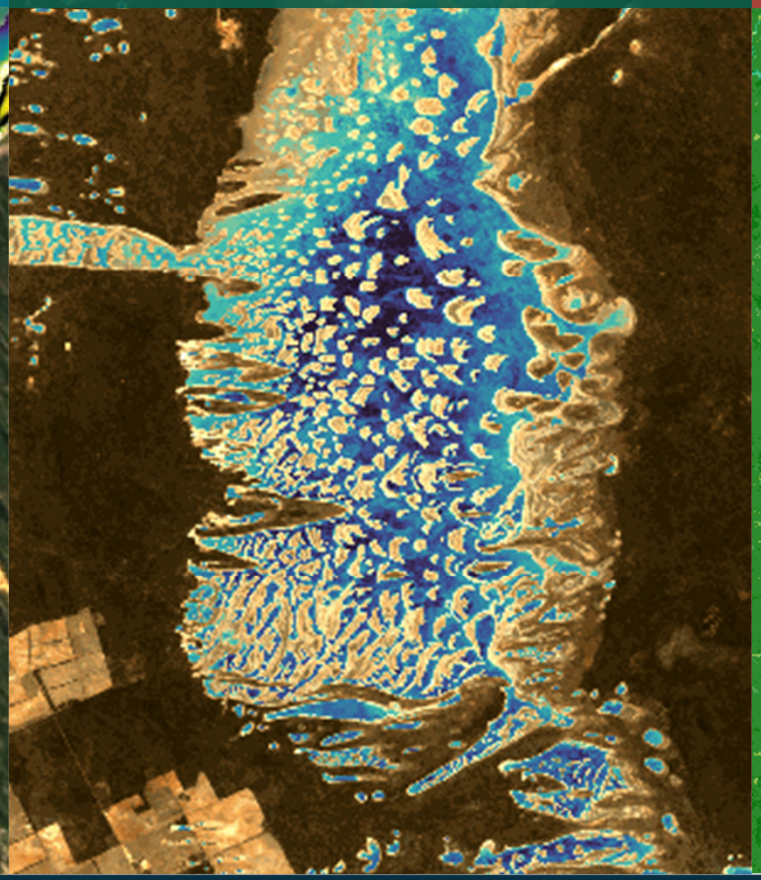
Coastline monitoring

Image: Cape Capricorn, Queensland showing the changing 3D shape of the coastline over the past seven years.



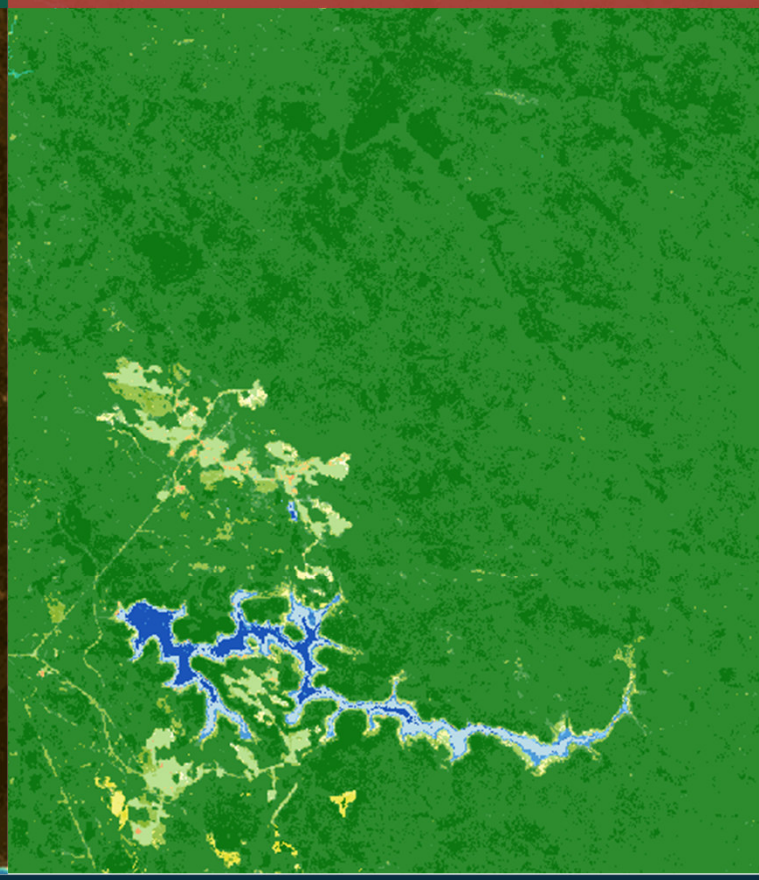
Environment sector

Image: Annual Water Observation Statistics over Lake Dundas, WA, 1988 to 2023.



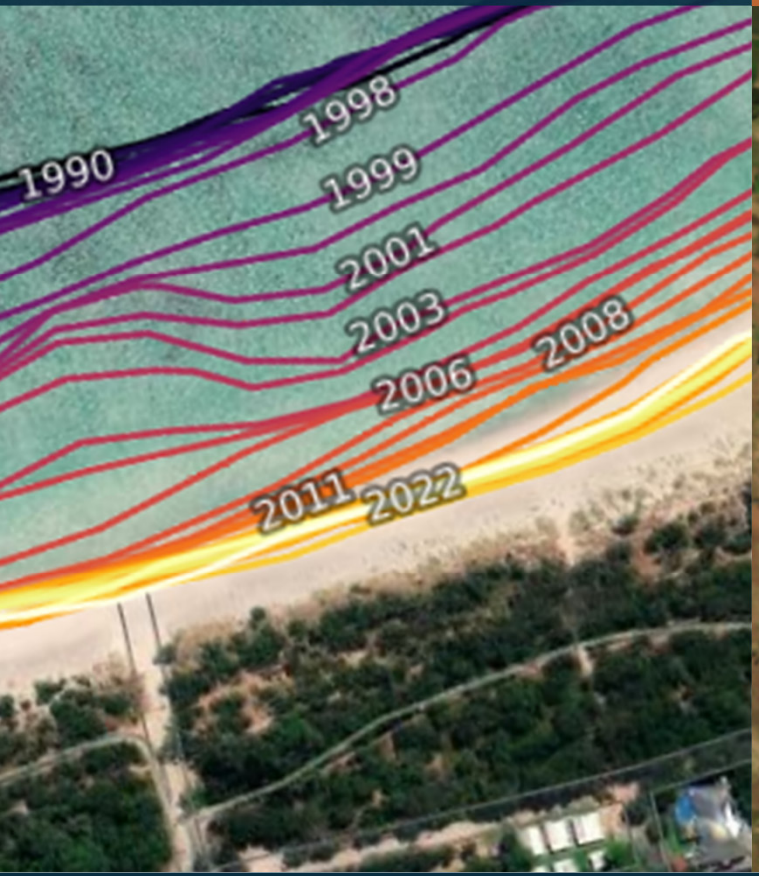
Resources sector

Animation: Bauxite Mining and Recovery between 1988 to 2020.



Insurance sector

Image: DEA Coastlines showing coastal erosion at Busselton, Western Australia



Utility sector

Image: Sentinel-2B image of a solar farm in Uralla, NSW, June 2024.

Urban planning

Image: Urban expansion between 1988 and 2020 in Brisbane, Queensland.

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Positioning Australia

Since September 2022 SouthPAN early Open Services are being accessed by a diverse range of industries.

ARTIST IMPRESSION

The power of positioning

Geospatial

Mapping applications

Rural cadastral surveys

Accurate data collection in remote regions.

Roads

Automated driving

Cooperative Intelligent Transport Systems

3D digital mapping

Regulatory vehicle speed determination

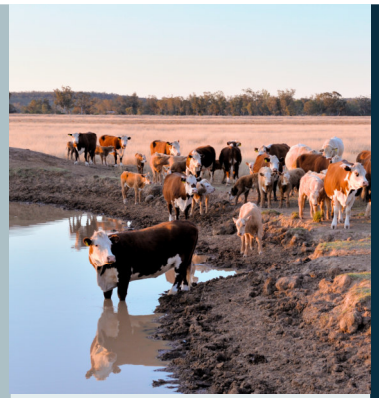
Real-time road pricing

Rail

Advanced train management systems

Track surveys

Track worker and track vehicle safety system



Agriculture

Virtual fencing for strip grazing

Behaviour modelling to enable disease detection

Quantification of reproductive relationships

Herd dynamics

Tracking feeding zones for pasture management

Maritime

Safer navigation

Tracking container movements

Aviation

Approach procedures with vertical guidance (APV)

Helicopter procedures

Availability of Instrument Flight Procedures (IPF)

Bridging the gap between upstream satellite data acquisition and downstream data use.

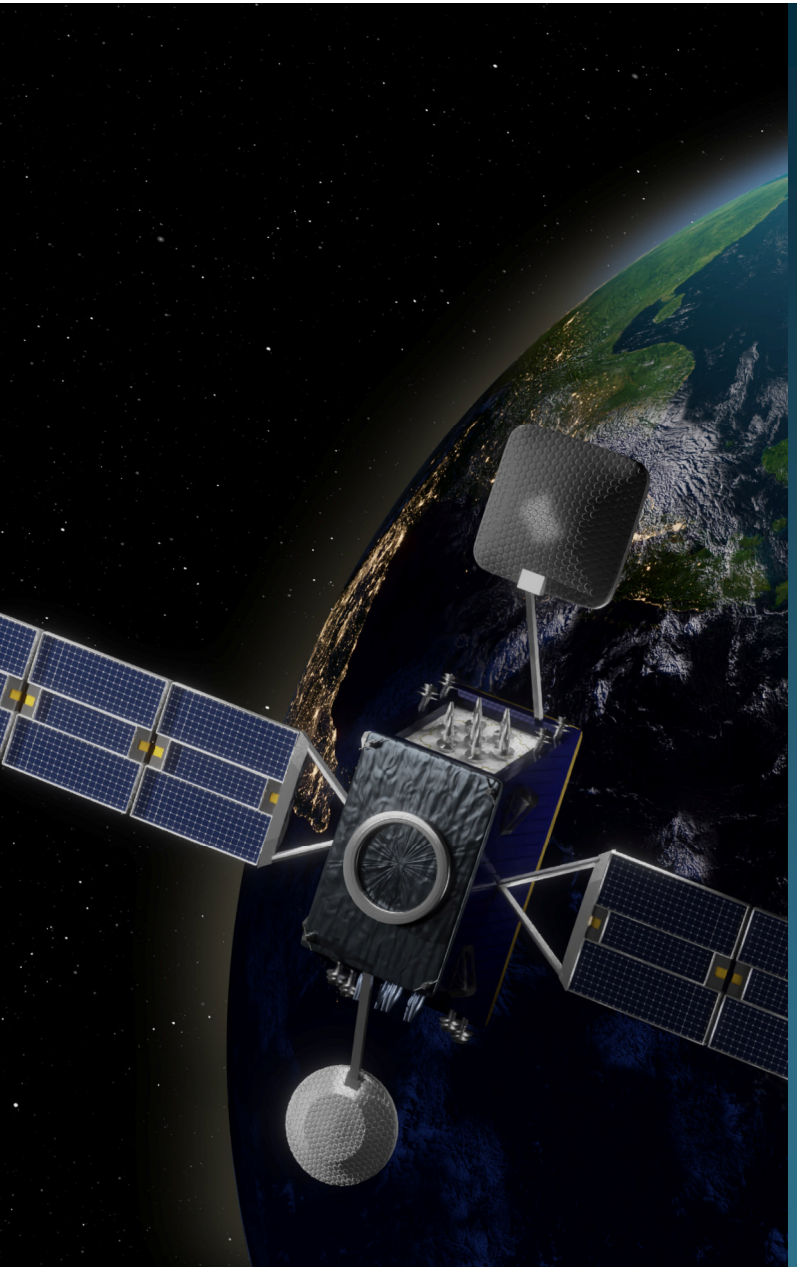
Emergency Management

Positioning (PNT):
- Emergency messaging via satellite
- Location of response teams

Earth Observations:
- Flood delineation
- Water depth
- Water quality

Geospatial:
- Road closures
- Infrastructure assets
- Critical infrastructure (hospitals, emergency services)

Disaster Impact Modelling:
- Residential building damage
- Commercial building damage
- Long term economic disruption
- Cost-benefit analysis of flood mitigation investments



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Thank you

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