



Earth Observations  
for Asia-Oceania



Australian Government  
Geoscience Australia

# AOGEO Task Group 11: Data hubs and cubes

An Australian perspective  
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# **GEOSCIENCE AUSTRALIA**

Our mission is to be the trusted source of information on Australia's geology and geography for government, industry and community decision making.

This will contribute to a safer, more prosperous and well-informed Australia.



# Space and spatial integration



## Space

Space provides data for spatial applications

## Spatial

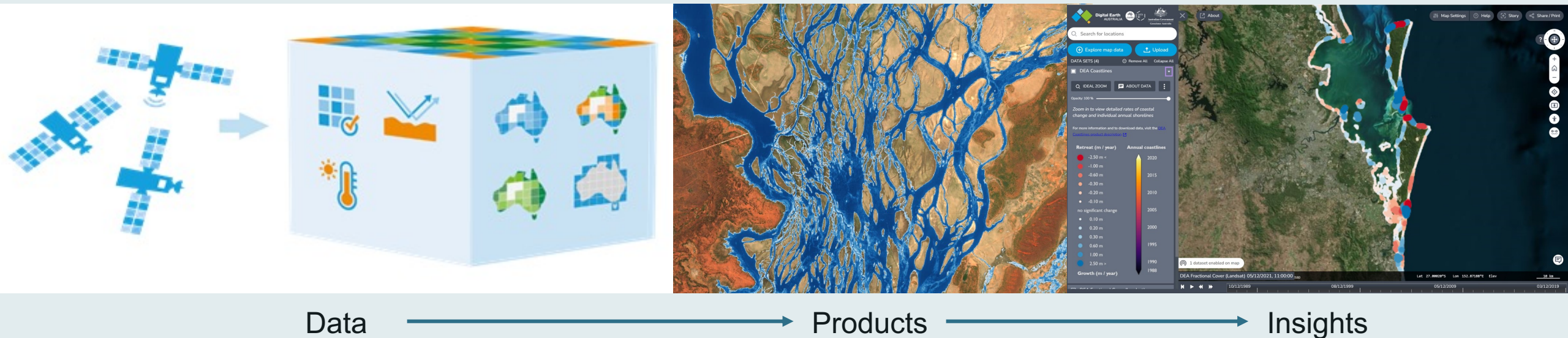
Spatial applications underpin the values of space capabilities

## Development opportunities for a location-enabled Australia



# Digital Earth Australia – Open Data Cube

- Making satellite data accessible and manageable
- Free, open, national-scale satellite imagery
- Changes in the Australian landscape in unprecedented detail



# Digital Earth Australia Products

- Explore and quantify patterns of change over time
- Multiple applications, including climate change

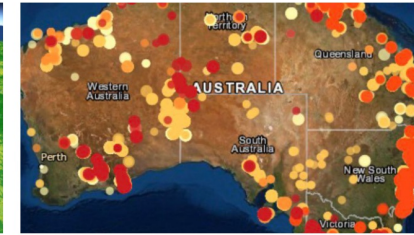
[www.dea.ga.gov.au/products](http://www.dea.ga.gov.au/products)



## DEA Land Cover

Continent-scale annual maps of Australia's land cover since 1988

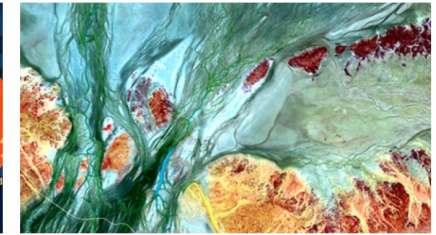
[View product](#) ➔



## DEA Hotspots

National bushfire monitoring system to detect areas of high infrared radiation to identify potential fire locations

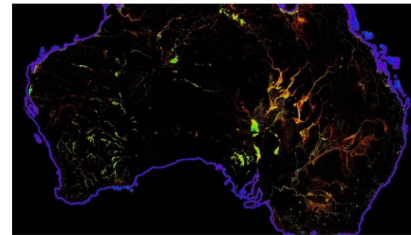
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## DEA Surface Reflectance

Baseline data from Landsat and Sentinel-2 satellites, validated, calibrated and adjusted for Australian conditions

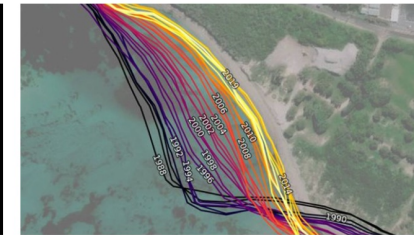
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## DEA Water Observations

Continent-scale map of surface water that classifies each pixel from Landsat satellite imagery as wet, dry or invalid

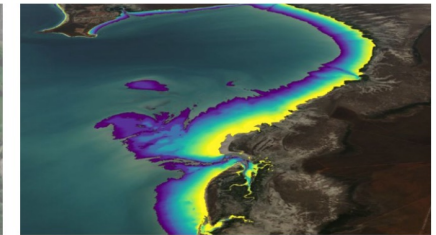
[View product](#) ➔



## DEA Coastlines

Satellite data combined with tidal modelling to map typical annual locations of mean sea level coastlines since 1988

[View product](#) ➔



## DEA Intertidal Elevation

Australia's intertidal zone mapped in 3D, providing 25 m resolution elevation data of beaches, tidal flats and shores

[View product](#) ➔



## DEA Intertidal Extents

Lowest and highest observed tides for a chosen geographic cell, revealing the satellite-observed tidal range

[View product](#) ➔



## DEA High and Low Tide Imagery

Cloud-free mosaics of the Australian coast, calculating geometric medians of highest and lowest 20% of tides

[View product](#) ➔



## DEA Waterbodies

Mapping of more than 300,000 waterbodies across Australia with wet surface area present more than 10% of the time

[View product](#) ➔



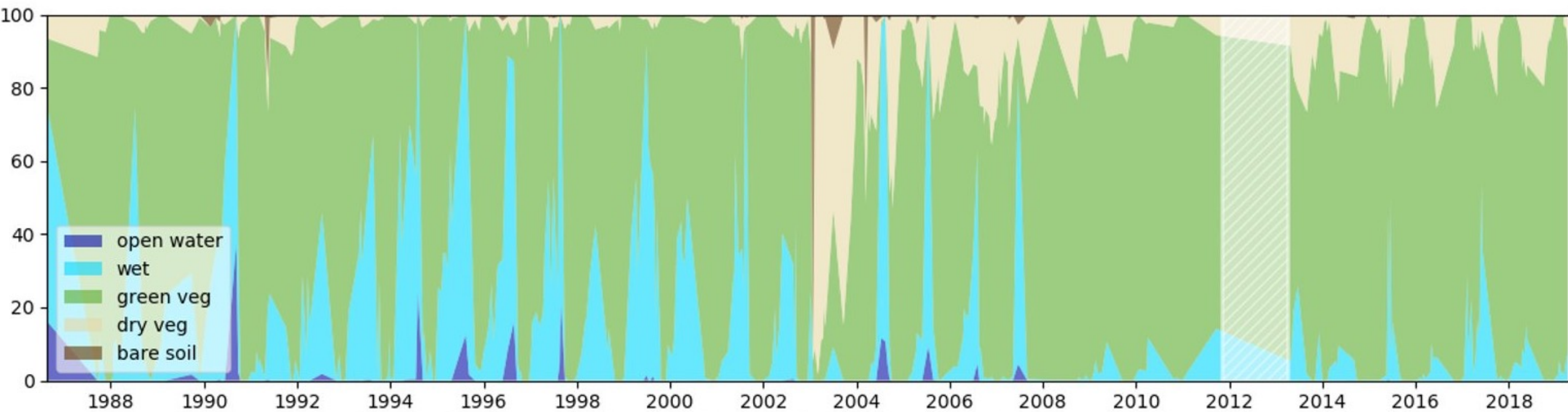
# DEA Coastlines



<https://maps.dea.ga.gov.au/#share=s-DEACoastlines&playStory=1>



# Ginini Flats Wetlands



*The Fractional Cover algorithm developed by the Joint Remote Sensing Research Program and the Water Observations from Space algorithm developed by Geoscience Australia are used in the production of this data*



# Digital Earth Africa

- Open, free, accessible and country agnostic Earth observation data
- Empowering decision makers across Africa to take climate action
- Cost effective solutions for countries to set up independent, country-led and owned, national greenhouse gas inventory systems for reporting, mitigation and adaptation

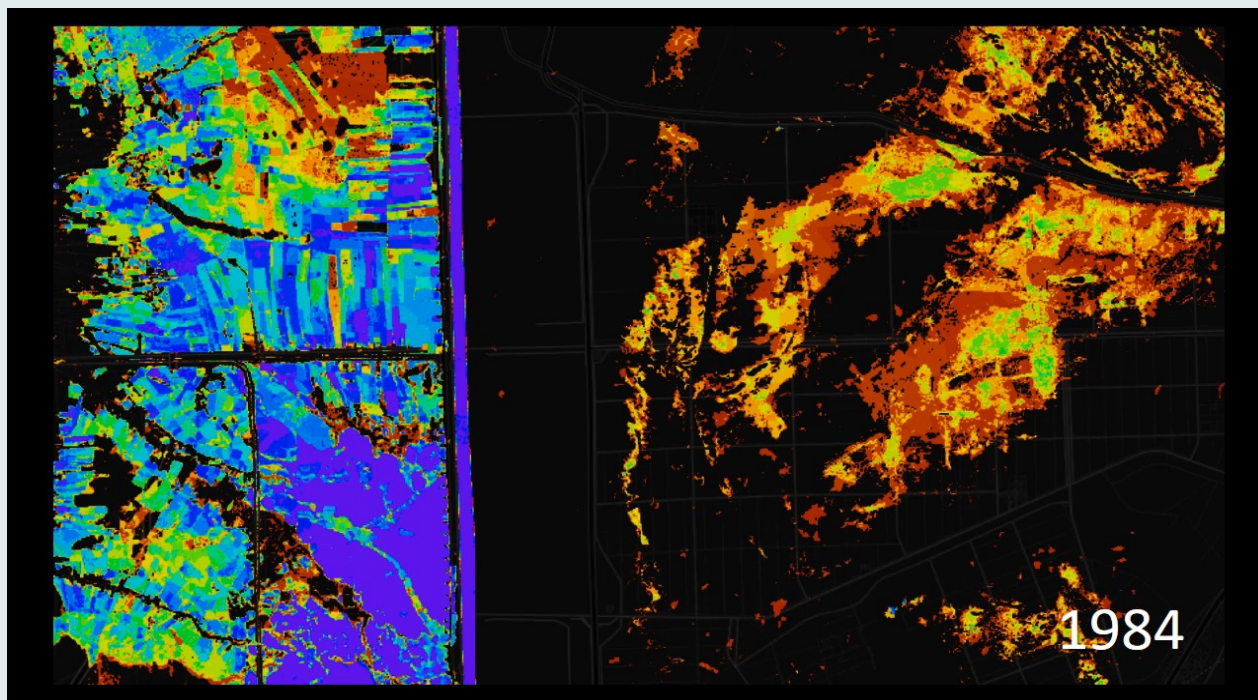




# Applications

- Monitoring fragile ecosystems
- Limiting deforestation and assessing reforestation
- Rapid natural disaster assessment and mitigation
- Monitoring of coastal erosion for urban planning

- Land cover mapping and change detection
- National inventory reporting
- Water mapping for availability and supply
- Crop mapping for climate resilient cropping

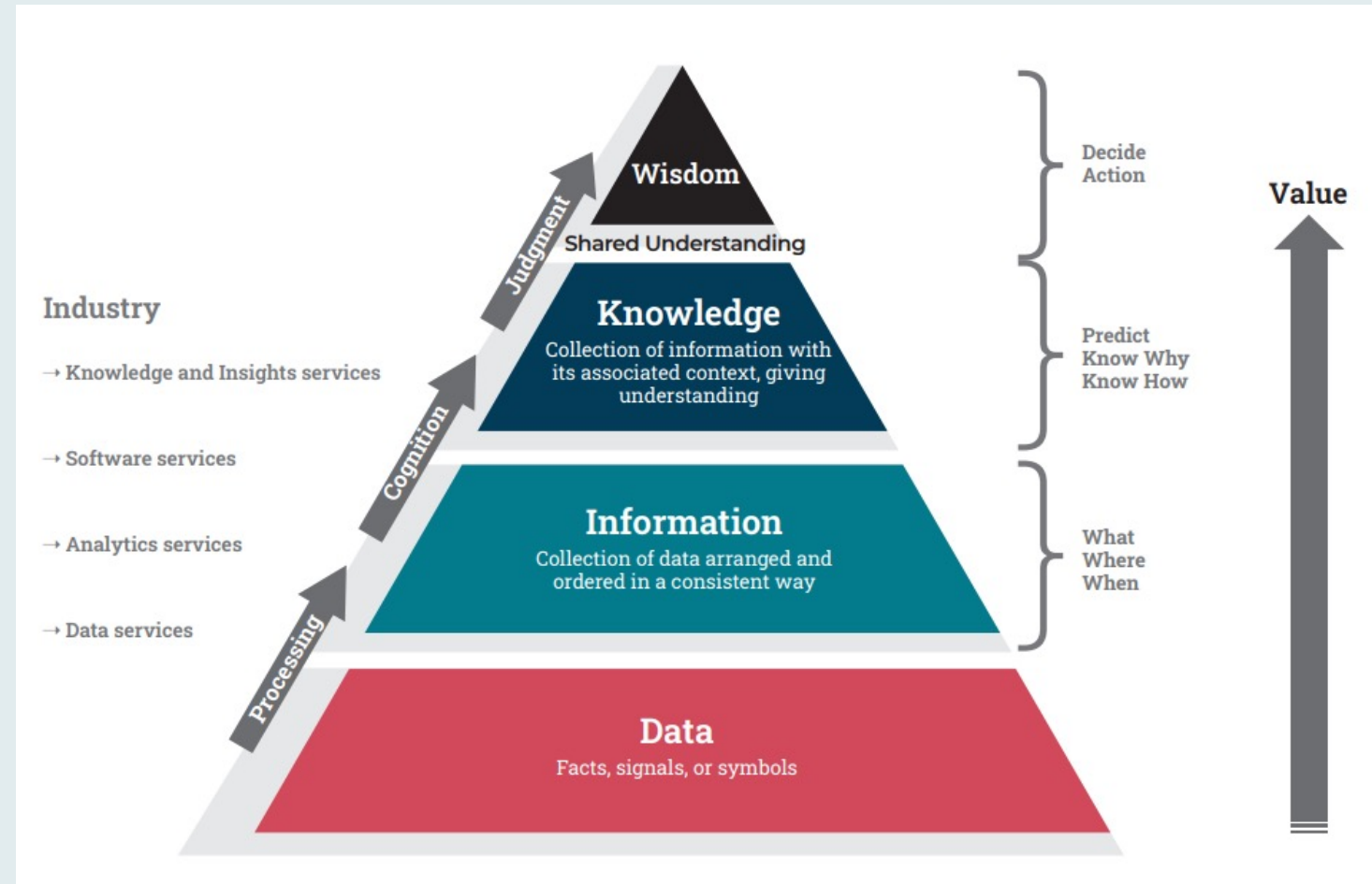
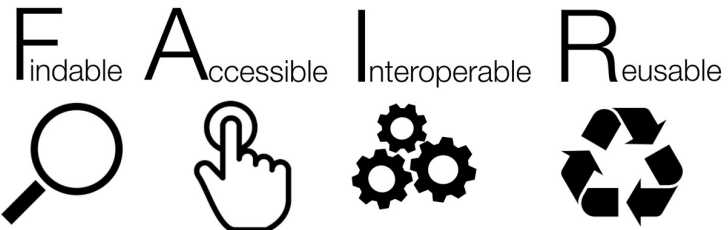


Water Observations from Space – Annual water summaries showing irrigation practices over Egypt



Crop area map – mapping agricultural practices in Morocco

# Future Data Needs



<https://geospatialmedia.net/pdf/GKI-White-Paper.pdf>





Australian Government  
Geoscience Australia

## Further information

[www.ga.gov.au](http://www.ga.gov.au)

