

A DATA CUBE FOR AFRICA

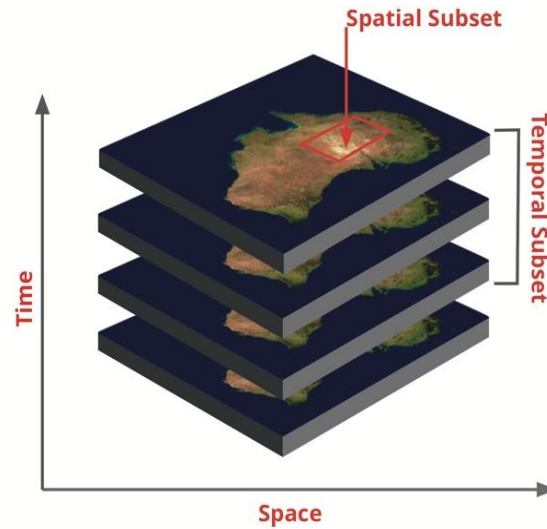
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MY AWAKNING



THE AUSTRALIAN DATA CUBE

A VISION

The establishment of a Data Cube for the whole of Africa incorporating 30+ years of Landsat data and also Copernicus Sentinel data.

The African Data Cube managed in Africa for Africans, and for the global community.

The African Data Cube will be updated on a regular basis with new Landsat and Sentinel data and will be much used by public and private entities in helping to address African development challenges

The African Data Cube is managed on a sustainable basis

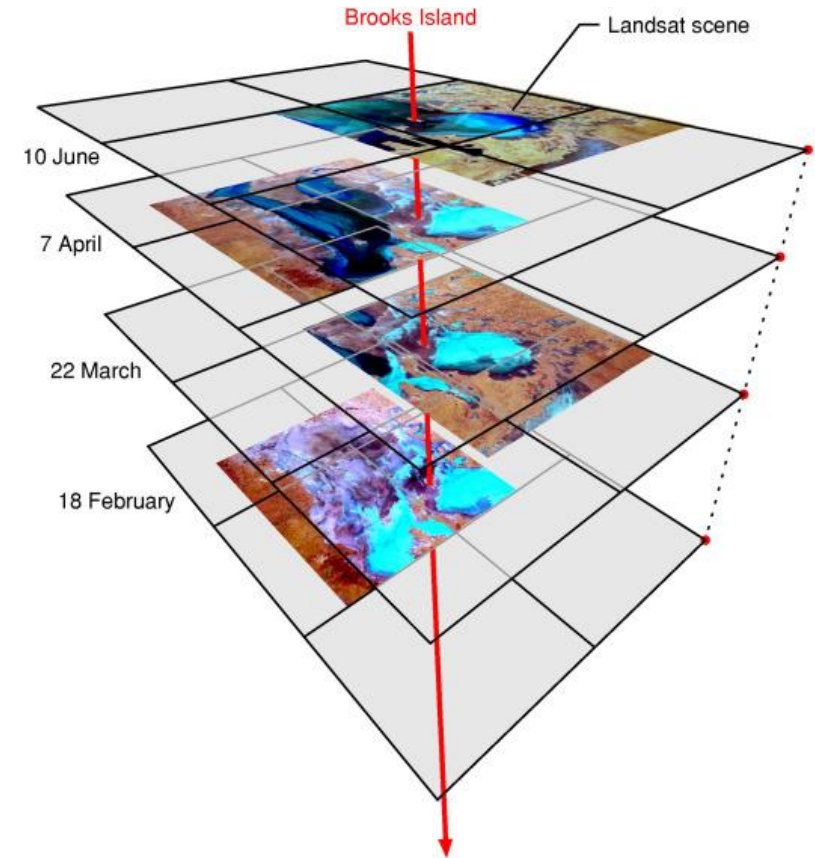
WHAT IS A DATA CUBE

Basically a stack of satellite images from different time periods in which each pixel is precisely georeferenced

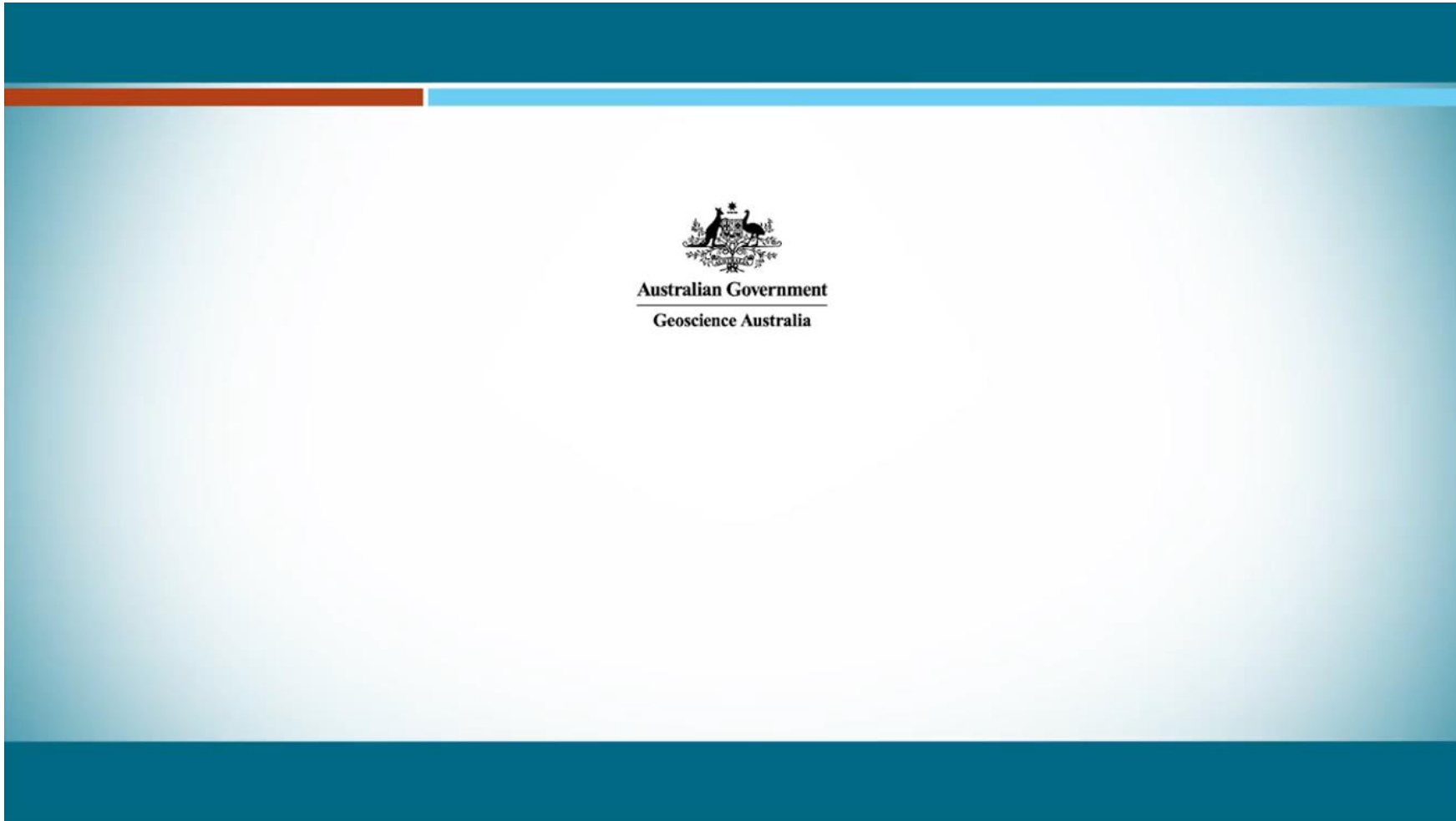
It's a way of storing and ordering spatial data

DATA CUBE – SOME KEY FEATURES

- Contains multiple images at different times
- Every pixel in all the images is georeferenced
- New imagery can be slotted into the Data Cube automatically
- Provides a basis for time and location based analytics ... the more time series data in the Cube the better machine learning algorithms will perform
- Track changes over time from the individual pixel (10m x 10m in the case of Sentinel) level to any other user defined area



AUSTRALIA GEOSCIENCE DATA CUBE: OPERATING EXAMPLE



SOME USES FOR AN AFRICA DATA CUBE

- Track urban area growth and change
- Monitor vegetation coverage change with implications for food production, biodiversity, stormwater run-off, livestock stocking levels etc
- Sustainable Development Goals monitoring and reporting
- Carbon sequestration through forest coverage changes
- Monitor surface water change and impacts of climate change
- Locating new infrastructure
- Fire burn detection and recovery monitoring
- Monitor mining activities and post mine closure rehabilitation
- Etc etc etc

SOME KEY ISSUES

- Cost of imagery Landsat and Sentinel data are free
- Bandwidth for imagery downloading ... some places got necessary bandwidth but others not
- Access to computing power Capacity exists in Africa
- Technical expertise Capacity exists in Africa
- Funding Needed now, but aim would be self financing
- Widespread and effective usage Awareness raising needed
- African leadership Opportunities exist but official conformation needed

WAY FORWARD – SOME INITIAL FOCUS AREAS

- Preliminary technical investigations
- Preliminary Return on Investment exercise
- Confirmation of roles and responsibilities
- Secure funding
- Confirm availability of imagery
- Develop network with researchers and others around the world to ensure best practices solutions adopted
- Develop pilot proof of concept

THANK YOU

