



**Digital Earth**  
AFRICA

Leveraging advanced  
technologies to support  
wetland assessment and  
monitoring

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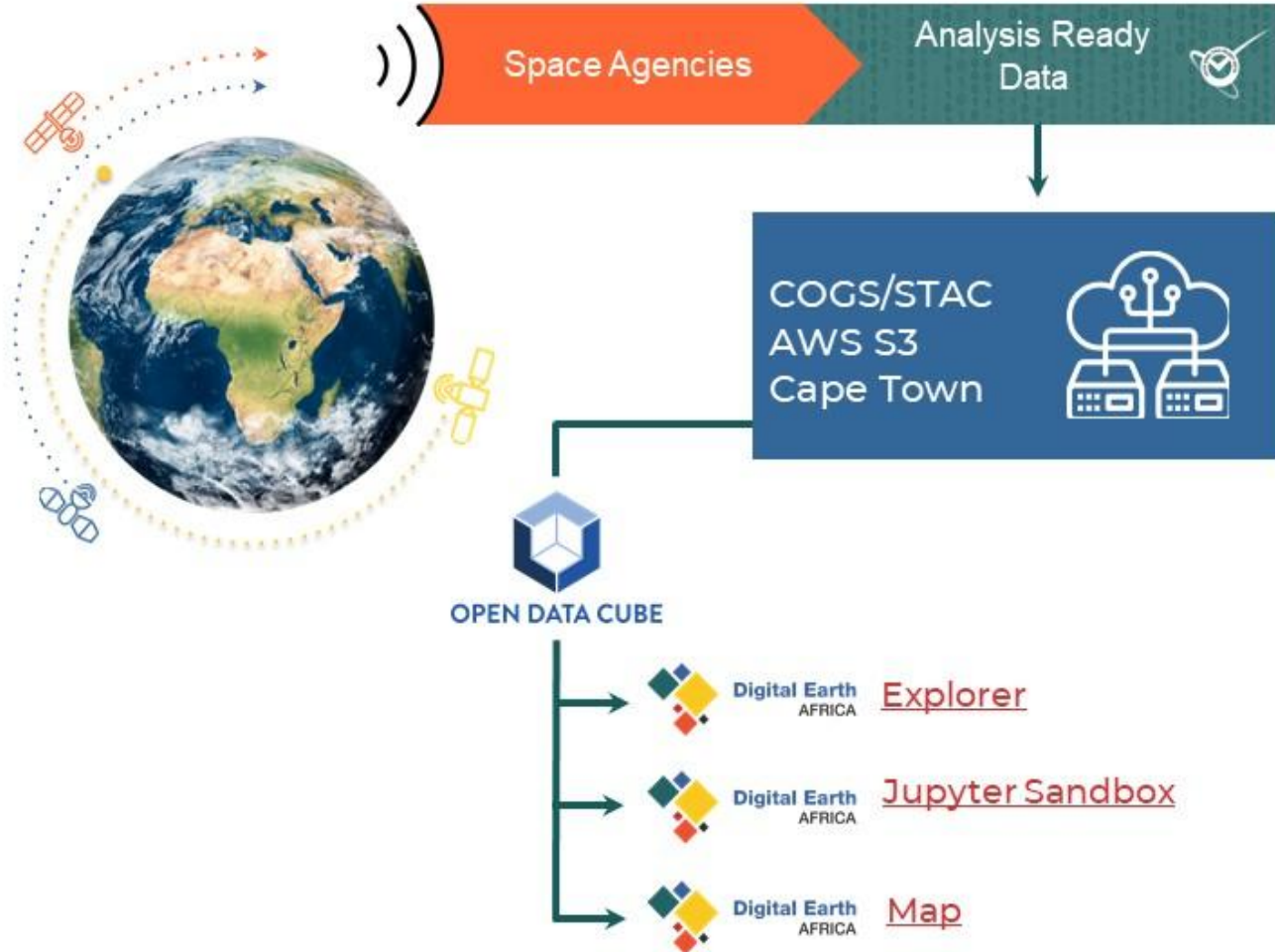
## Our Vision

DE Africa will provide a routine, reliable and operational service, using Earth observations to deliver decision-ready products enabling policy makers, scientists, the private sector and civil society to address social, environmental and economic changes on the continent and develop an ecosystem for innovation across sectors

Digital Earth Africa is an open platform for accessing satellite imagery specific to the African continent, which is also hosted on the continent. By packaging Earth observation data into accessible and free data sets, African governments, industry players, and decision-makers, can track changes across the continent in unprecedented detail.



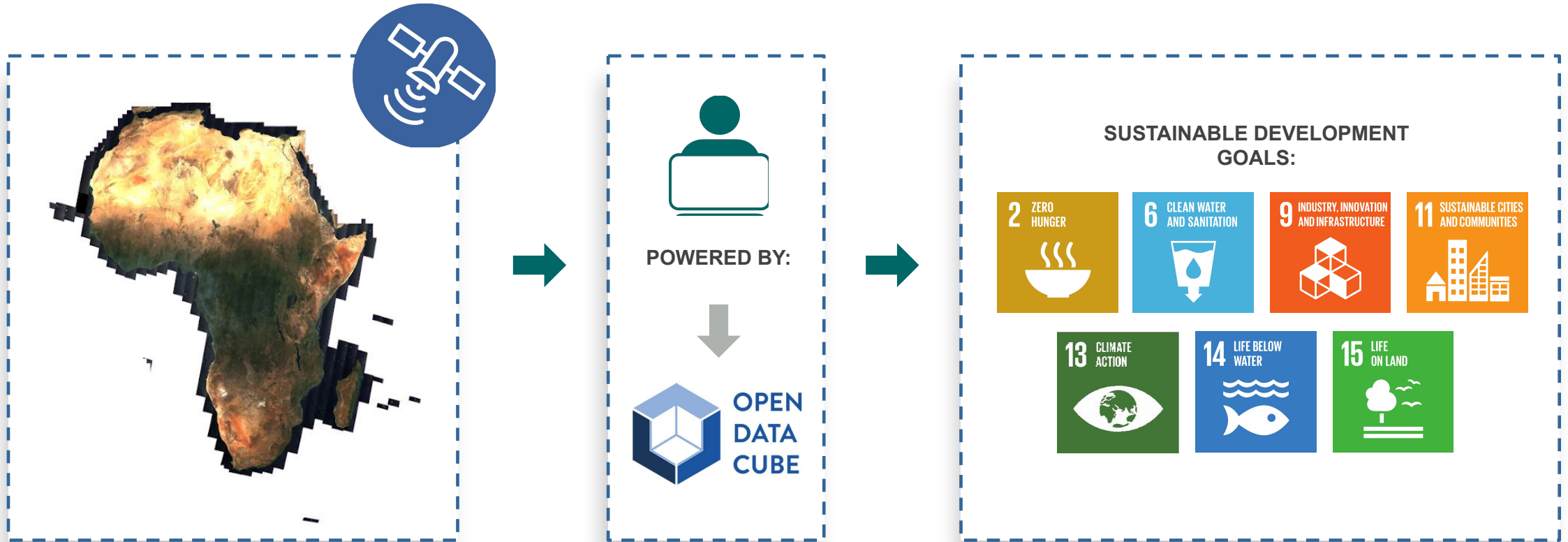
# Satellite data and platforms



- Largest global Open Data Cube implementation; entirely cloud native
- Continental scale satellite archive
- Completely free, even for commercial use, with optimized EO data for web processing
- Co-designed continental scale services with complete visibility from the data to the product
- Extensive library of analysis tools and training materials to support climate action
- Capacity building program
- Different interfaces for different needs, and a free online learning platform & helpdesk



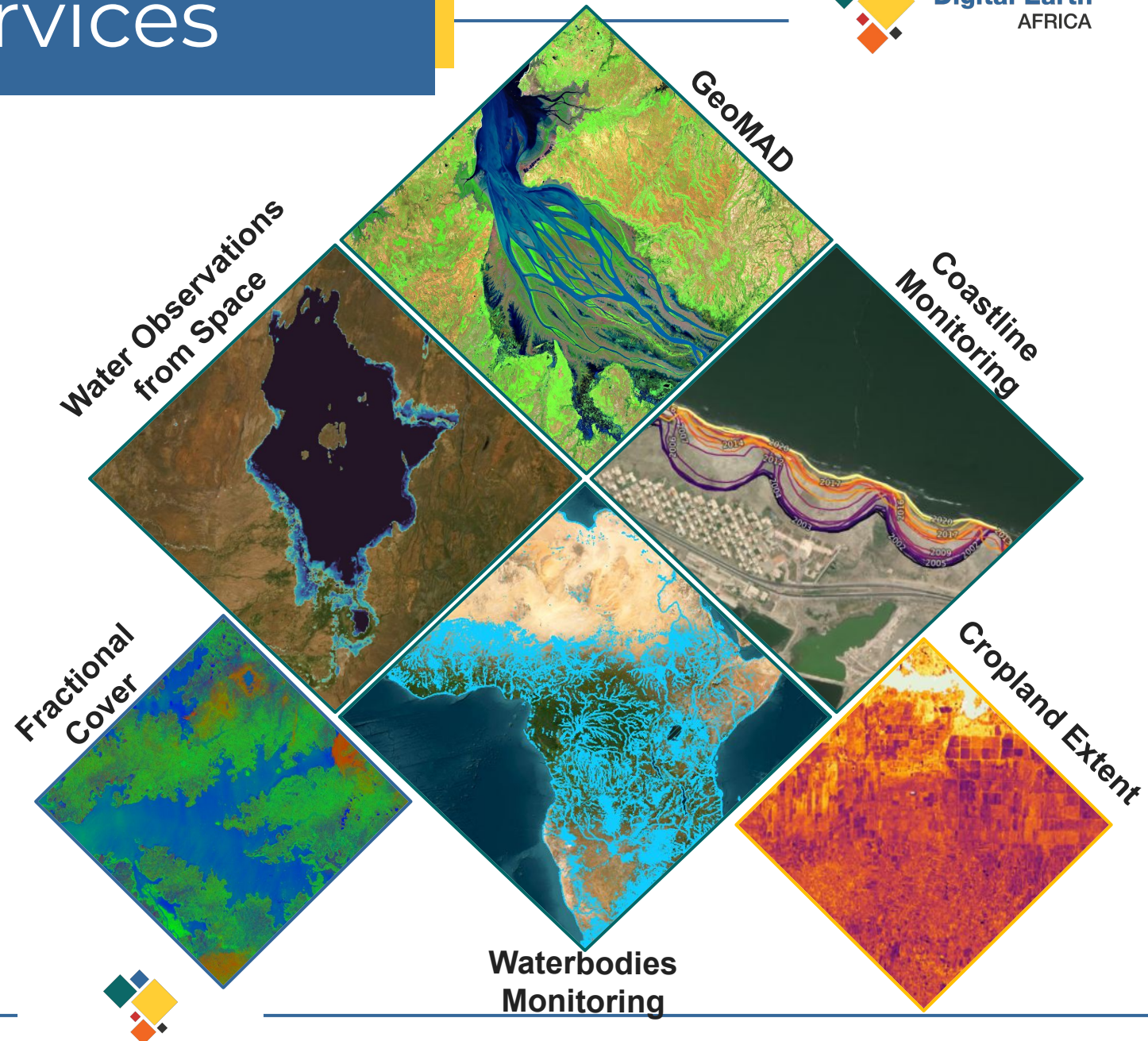
# Data to insights



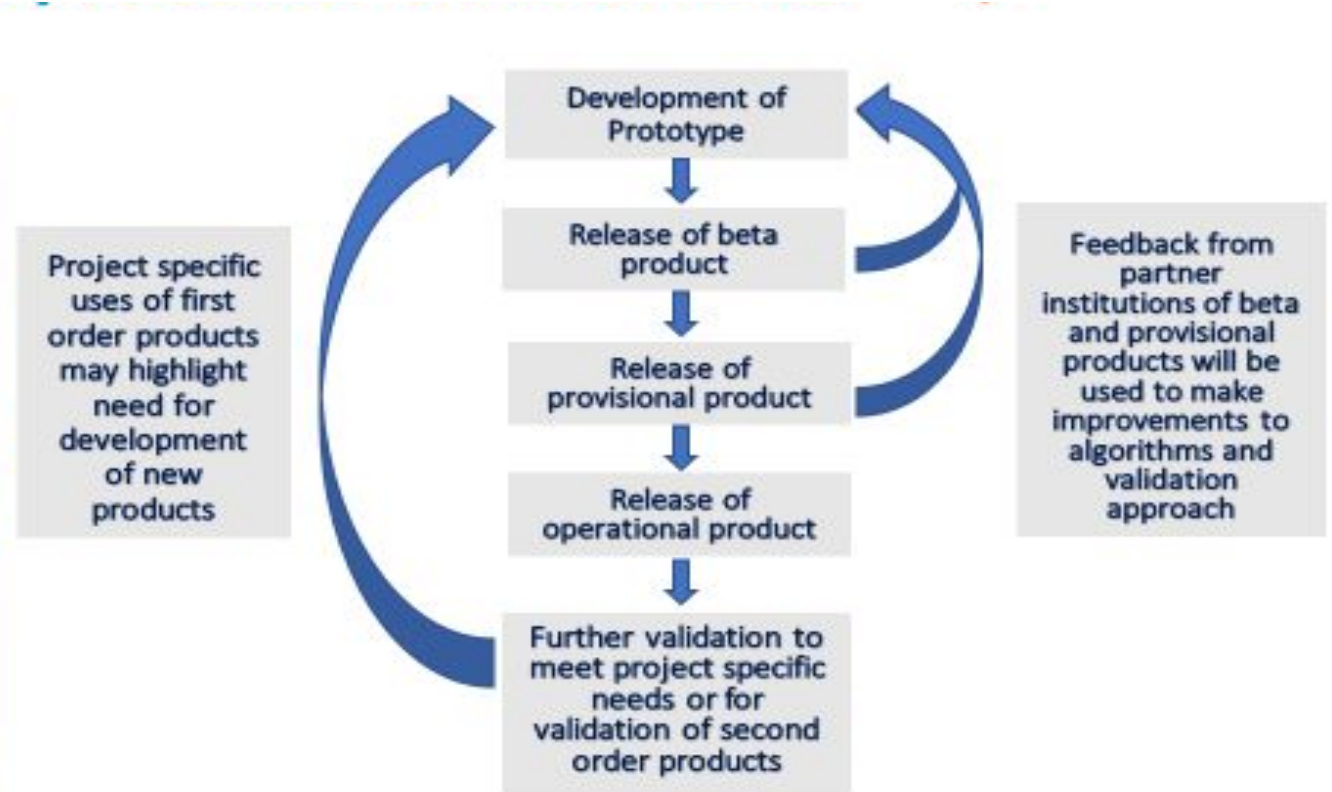
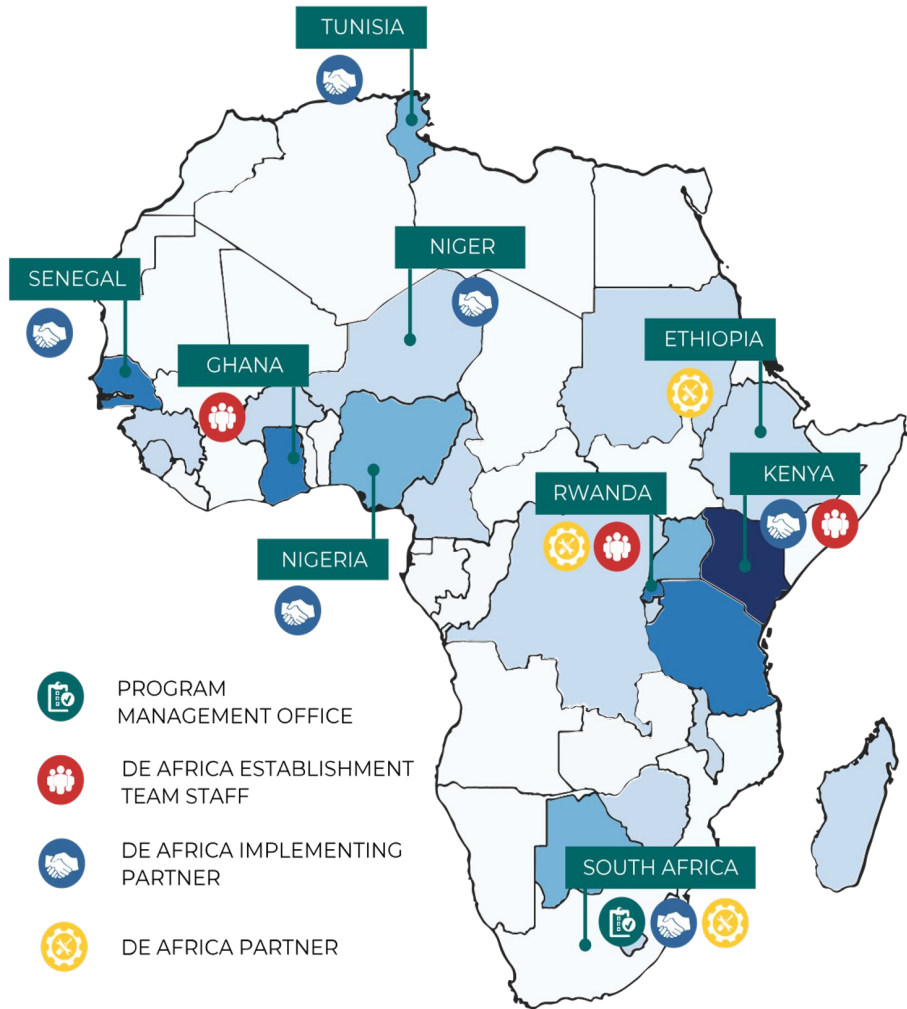


# Continental scale services

Empower climate action through continental scale, decision-ready Earth observation based services which provide locally relevant information and insights to address social, environmental and economic change on the continent.



# Co-development of services



# Building scalable workflows

A modular toolkit for multi-scale wetland assessments across Africa, leveraging DE Africa continental-scale products and services and large network of users

## Continental scale services pre-processed for easier & faster implementation

- Water observations (WOfS)
- Geomedians
- Multi-scale terrain indices
- Sentinel 1 monthly mosaics

## End-to-end, modular workflow

- Modular, complementary set of Jupyter notebooks for extension and adaptation
- Sustainable & repeatable (e.g. as new training data is developed)
- Multi-scale (site – country – region – continent)

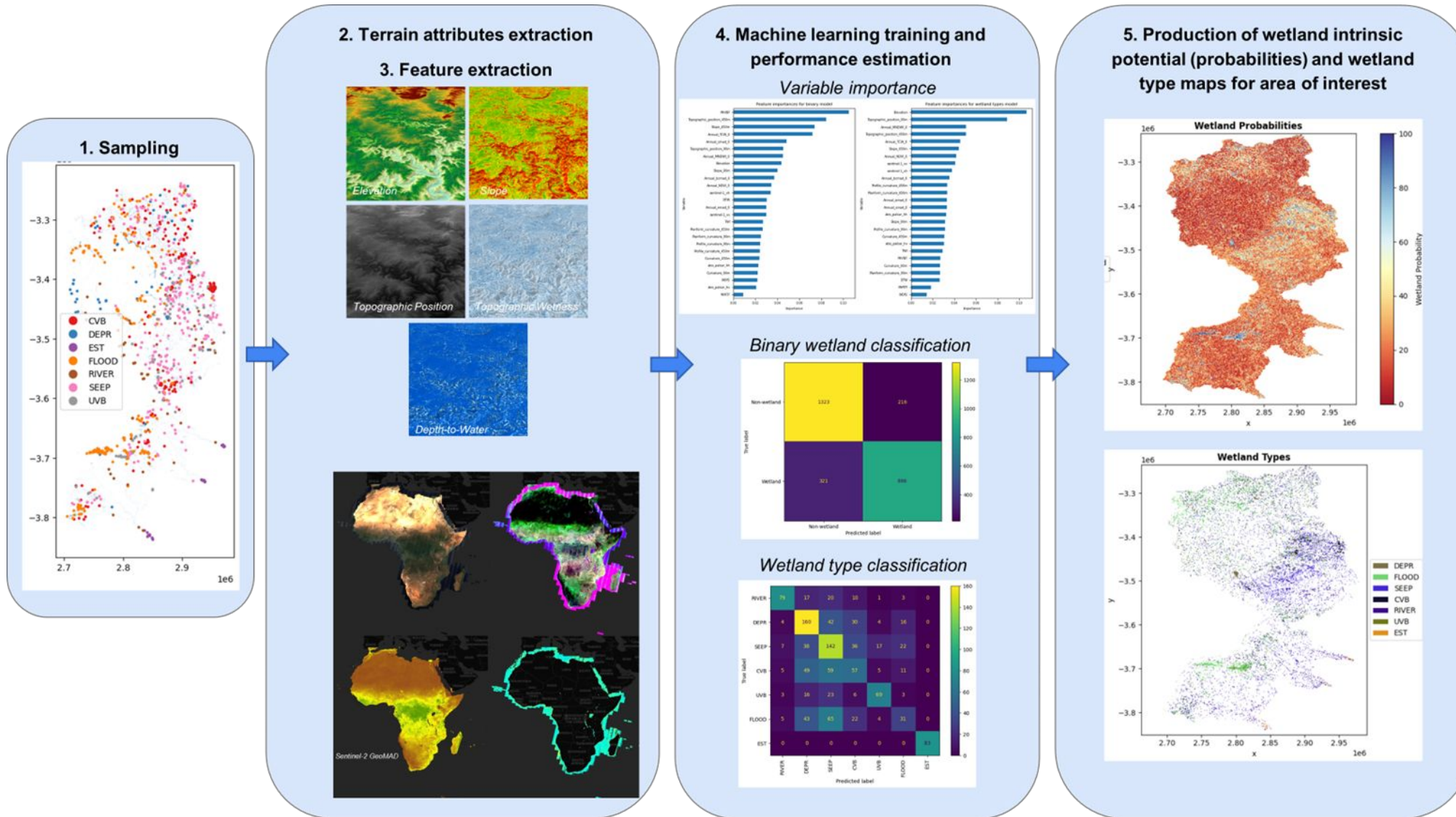
## Mapping, monitoring, assessment

- Create an improved wetland inventory
- Reconstruct changes in wetland hydrology and vegetation cover
- Develop tools for long-term wetland monitoring and landcover change at landscape scale (water increasing or decreasing through time)
- Run site level tools to gain insight for a wetland of interest (Wetland Insight tool) Can be summarized for a region, watershed, or country.
- Further characterize wetlands (e.g., predict above and below ground carbon stocks in carbon-rich wetlands)



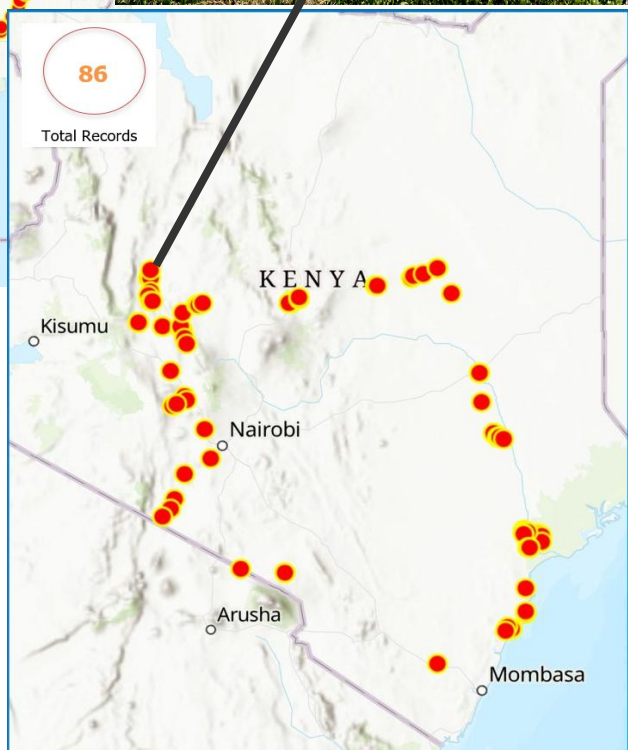
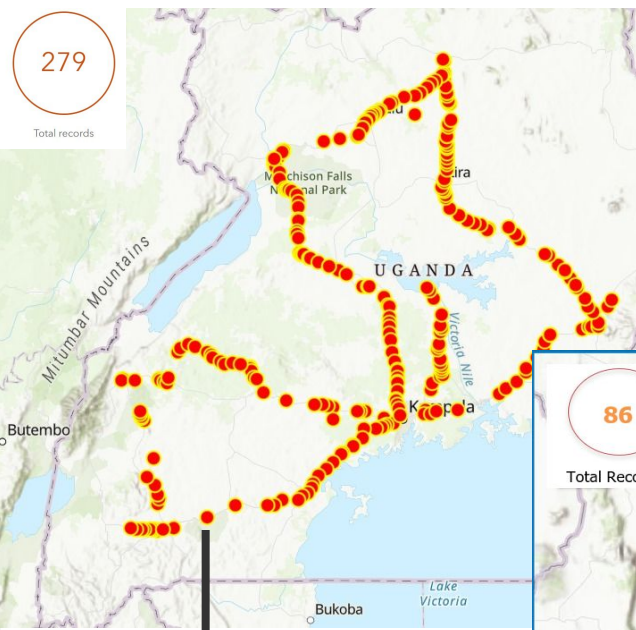


# Wetland inventory workflow





# Field data collection





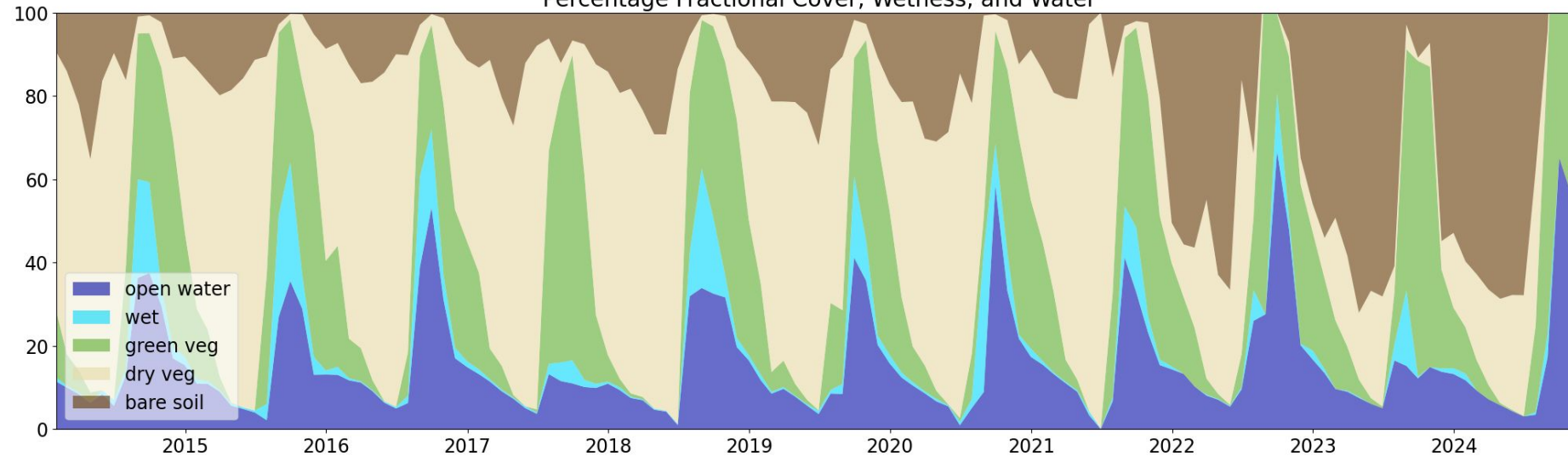
# Wetland Insight Tool

- A spatiotemporal summary of a wetland that combines multiple datasets
- As the input datasets are processed operationally by DE Africa the tool can be applied to any wetland across the continent
- Provides insights into a wetland's seasonal and interannual dynamics.

## Ramsar site: Lac Magui, Mali

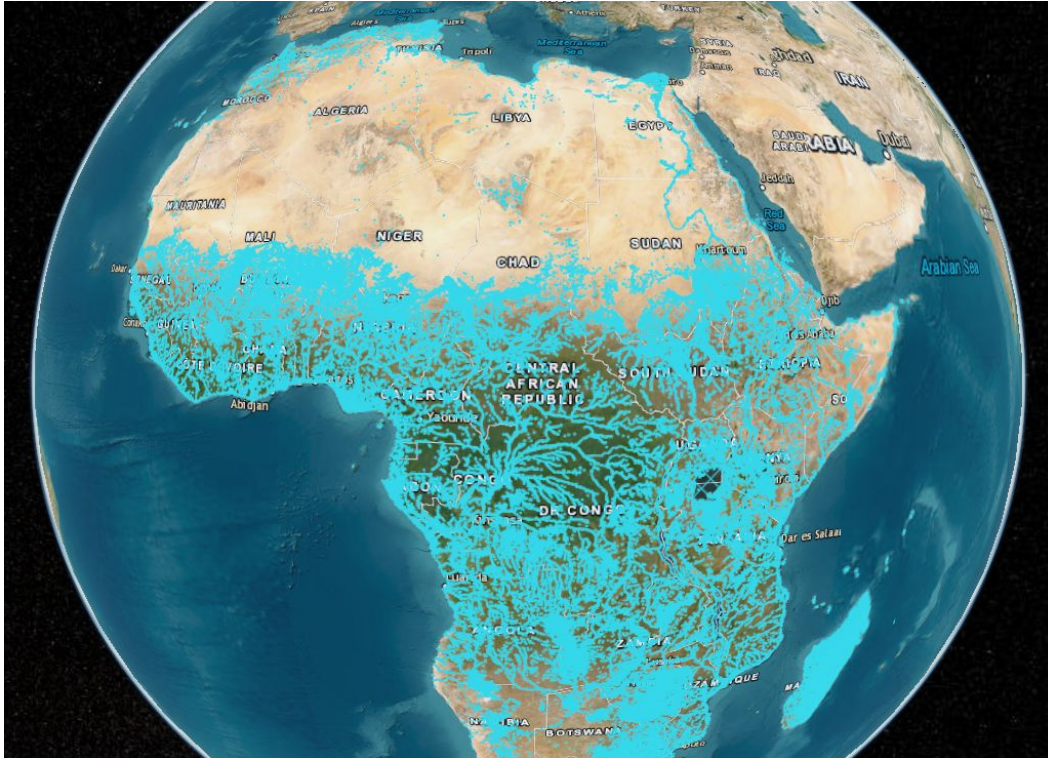


Percentage Fractional Cover, Wetness, and Water

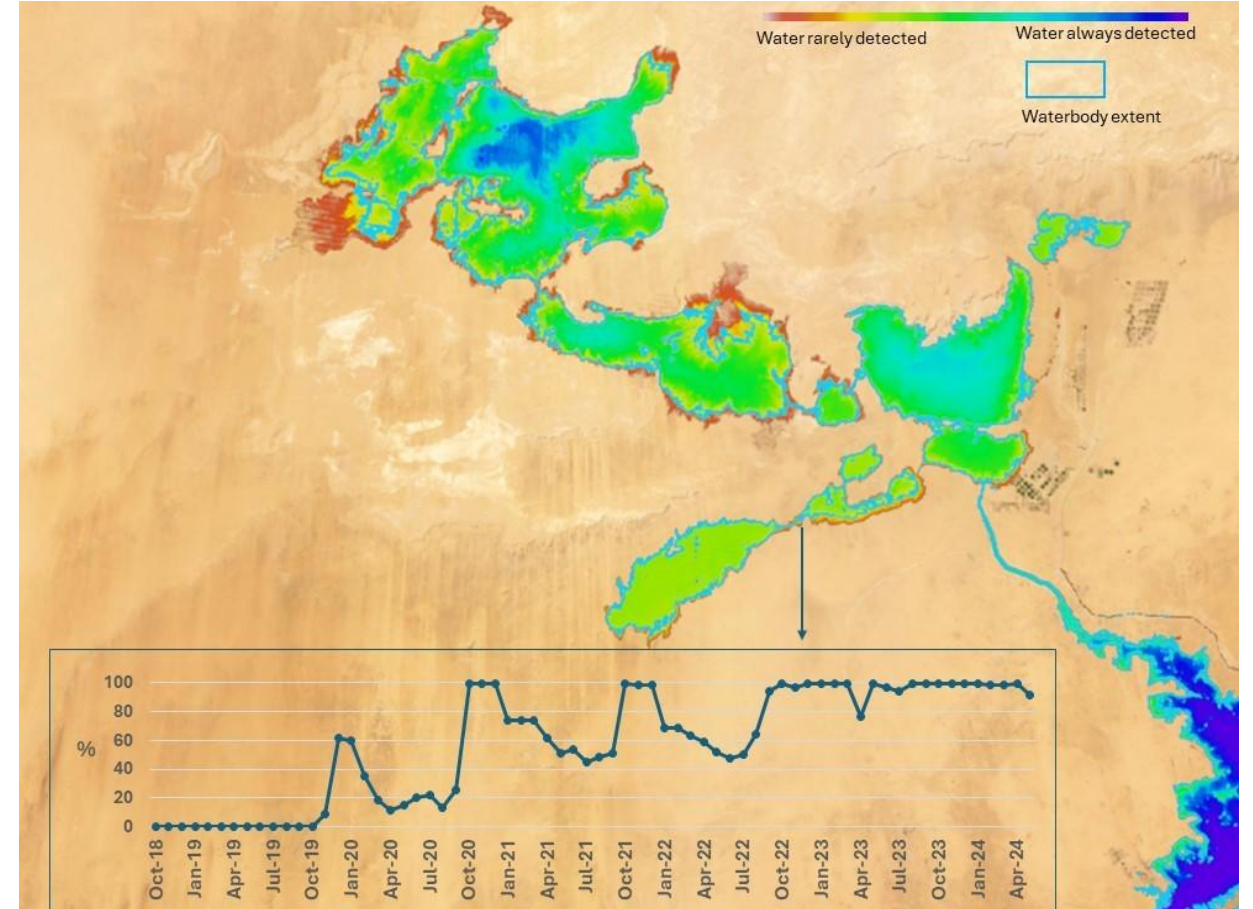




# Waterbodies Monitoring Service



Identifies over 700,000 unique water bodies across Africa, incorporating 40 years of satellite observations. Waterbodies include lakes, ponds, man-made reservoirs, wetlands, and segments of river systems.

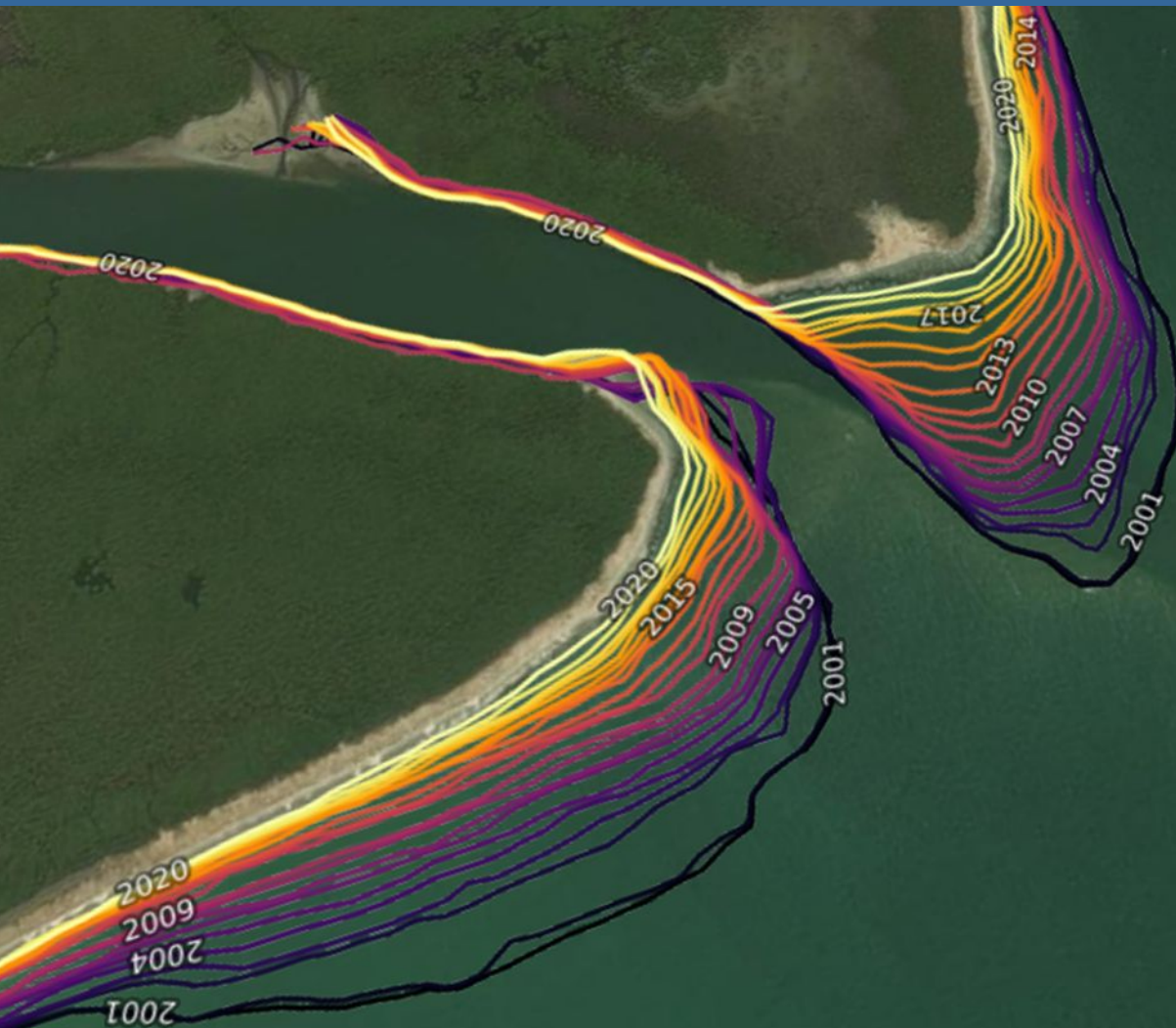


Updated weekly, the service maps persistent and seasonal waterbodies and changes in the surface area of water in each of these over time.





# Coastlines Monitoring Service



Providing free, interactive access to

- Hotspots
- Rates of changes
- Average yearly shorelines
- Uncertainty estimates

Enables monitoring of changes and threats to coastal wetlands



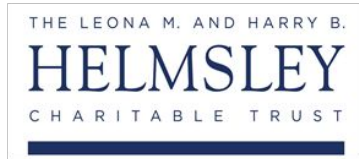
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- 1. Latest advancements in EO relevant to wetland inventory, assessment, and monitoring**
  - Open Data Cube technology combined with Analysis Ready Datasets enables the development of locally applicable approaches which can be applied over large scales
  - DE Africa provides the largest global implementation of these, for all 54 African countries
  - Demand driven and user-focused development
  - Tailored, scalable workflows
  - Simplified workflows for non-experts
  
- 2. How EO data and tools can be made accessible to and utilized by Contracting Parties in national wetland inventory through DE Africa:**
  - Open source, open access platforms and workflows
  - Data hosted on the continent for easy access
  - Multilingual capacity-building initiatives
  - Technical support across Africa
  - Digital Earth Africa learning platform with self paced modules
  - Importance of local ownership - we do not implement approaches and share results with partners - instead we build their capacity to implement the workflow themselves



# Acknowledgements







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**Thank you!**

