



**Digital Earth
AFRICA**



Digital Earth Africa empowering climate action through a continental coastal service


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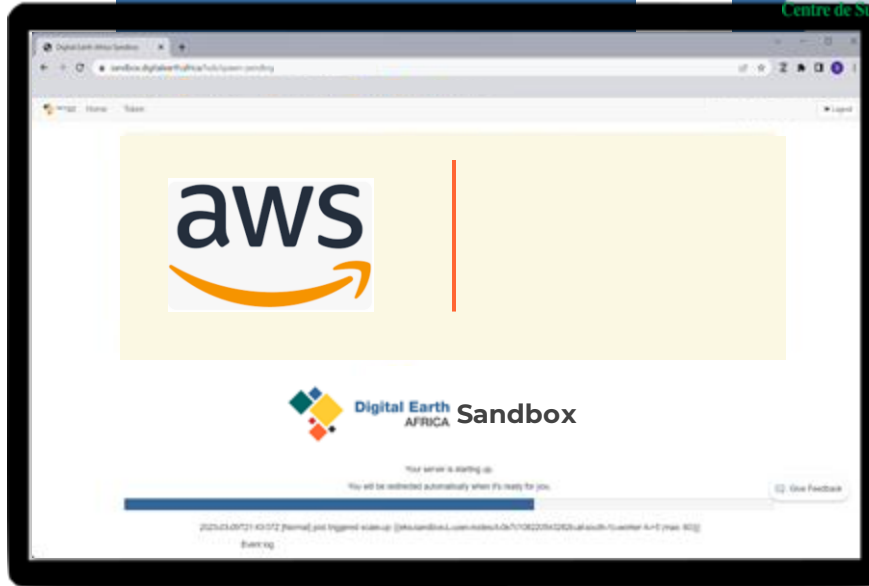
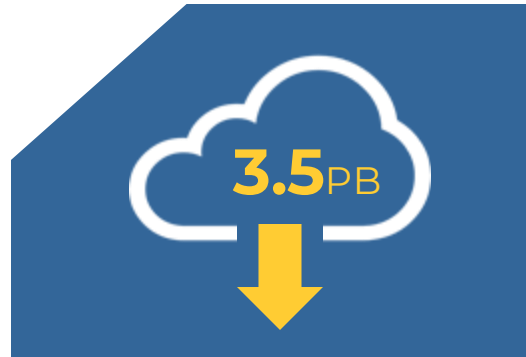
WORKSHOP

Ocean Observation and Prediction for Coastal Sustainability in Africa

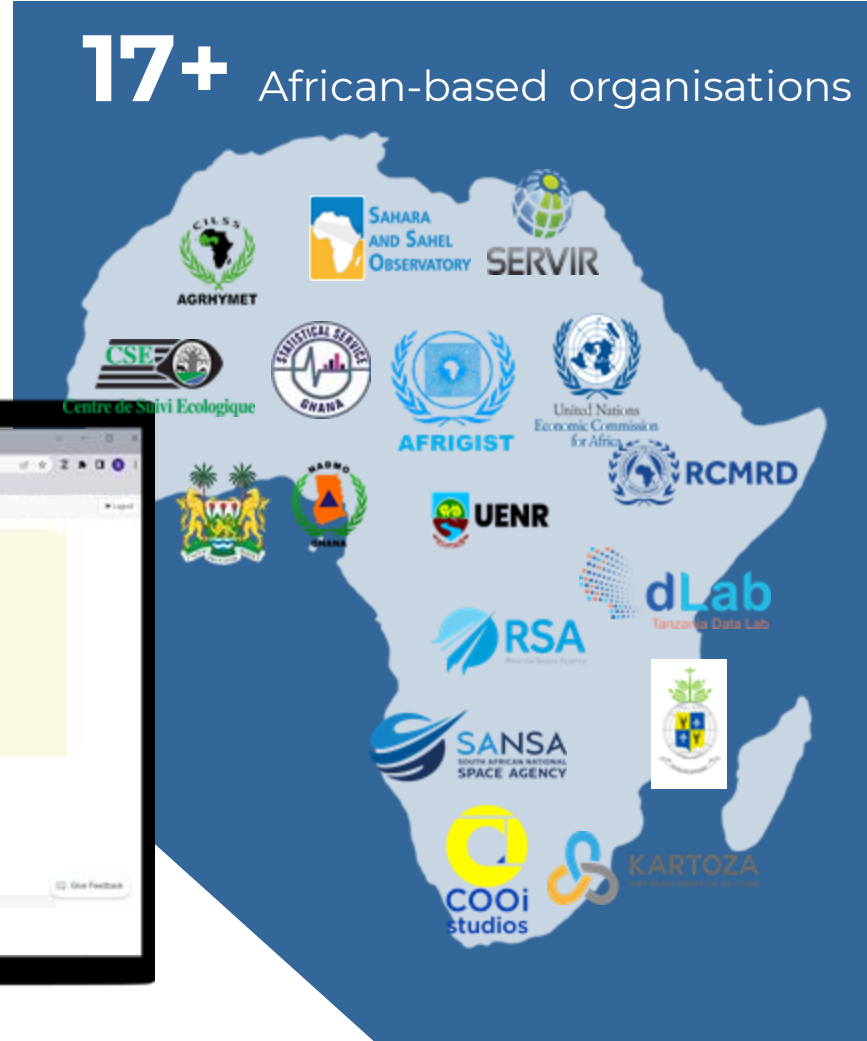
 **4 - 7 March 2024**
UNEP HQ, Nairobi, Kenya



Digital Earth Africa



17+ African-based organisations



6

Continental Services



The Context



Coasts serve as major socio-economic hubs for 38 African countries:

- Africa's coastal areas host half of the 15 African megacities which are fast expanding due to migration and population growth
- Coastal communities and the blue economy are vulnerable to the impacts of climate change

Issues

- Rising sea levels and rates of coastal erosion
- Need for effective management of coastal changes and mitigation of risk, as well as sustainable coastal zone management



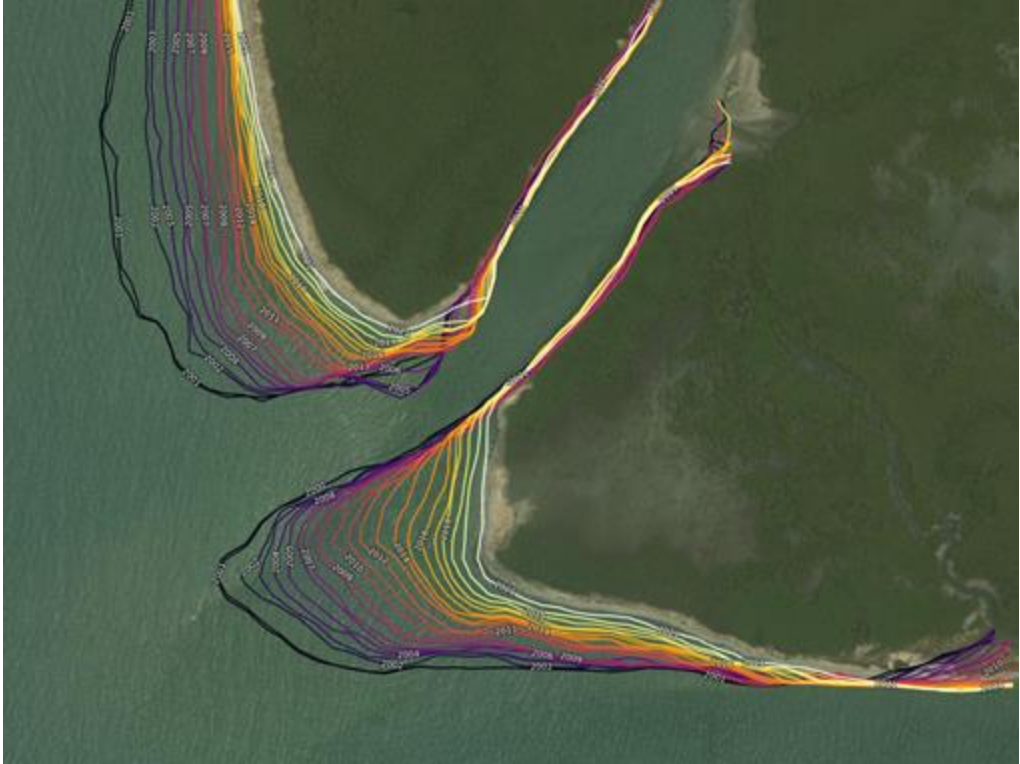
Digital Earth Africa Coastlines



- **Adapted from the Australian Coastlines**
- **Co-developed and validated** with implementing **partners in Africa: Centre de Suivi Ecologique (CSE)**
– Senegal, RCMRD - Kenya
- **First Africa-wide Coastlines monitoring service**
- Tracks continental changes **from 2000 to present**
- Monitors more than **60,000 km of coast** with **30 m spatial resolution**
- Provides **free interactive access** to
 - Hotspots
 - Rates of changes
 - Average yearly shorelines

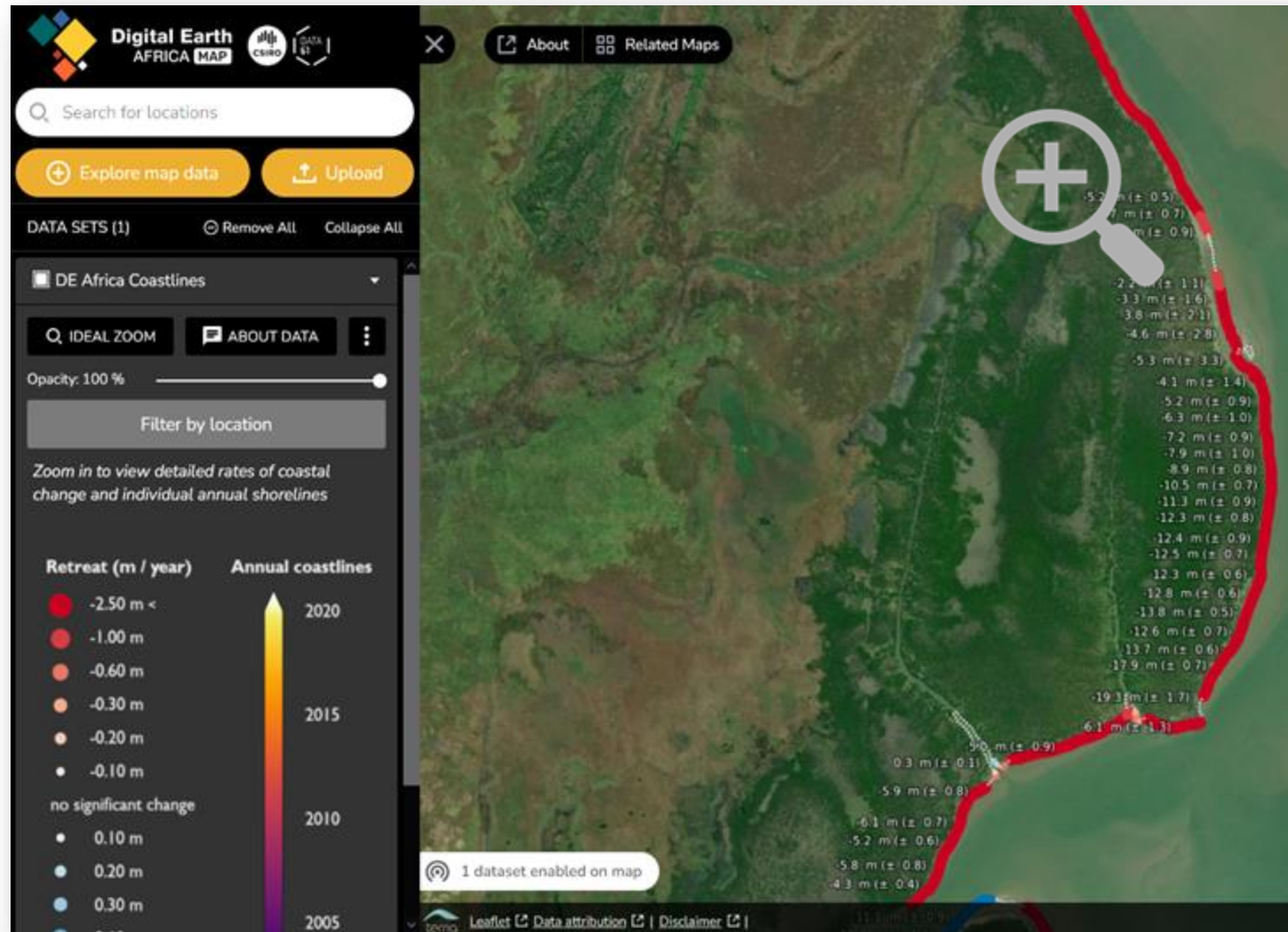


Digital Earth Africa Coastline Monitoring Service



Free access: Digital Earth Africa Map, DE Africa Sandbox
Web Services: QGIS, Esri, Africa Geoportal

Identify hot spots and rates of change



Mangrove dynamics in Mozambique



200 meters of shoreline retreat, Madagascar

View it on the DE Africa Maps

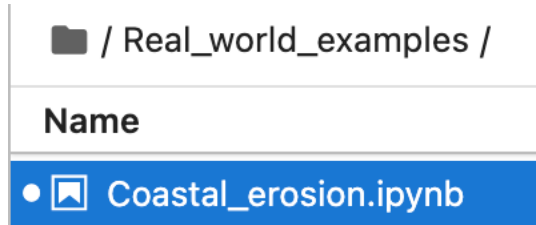
<https://maps.digitalearth.africa/>

DE Africa coastal erosion and coastline notebooks



Sandbox

<https://sandbox.digitalearth.africa/>



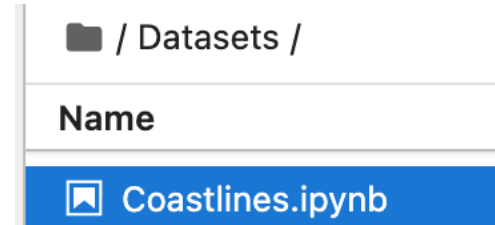
Coastal erosion

This notebook shows how to load, plot, and conduct coastal erosion using the `Digital Earth Africa Coastlines`

1. Query the satellite data and select best available product
2. Process the selected data and generate annual composite images for each year
3. Extract shorelines and calculate rates of coastal change

Example: lat=-12.27, lon=43.726, buffer=0.01, Fomboni, Comoros

https://github.com/digitalearthafrika/deafrica-sandbox-notebooks/blob/main/Real_world_examples/Coastal_erosion.ipynb



Coastlines

This notebook shows how to load, plot, and conduct a simple analysis using the `Digital Earth Africa Coastlines`

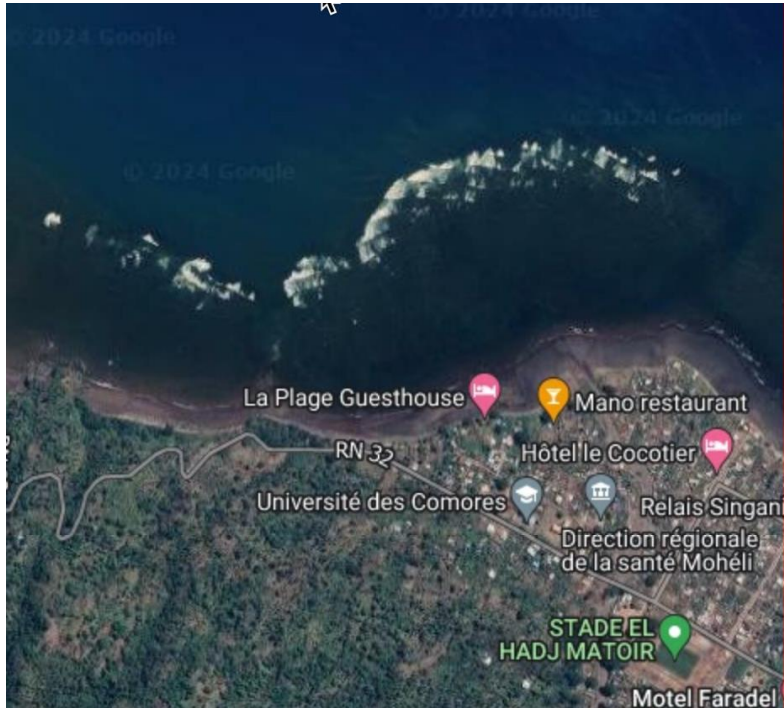
1. Loading DE Africa Coastlines annual shoreline data using the `get_coastlines` function.
2. Loading DE Africa Coastlines rates of change statistics data using the `get_coastlines` function.
3. Extracting shoreline data for one or multiple coastal transects using an interactive DE Africa Coastlines application.

Example: lat = -4.049068 and lon = 39.708946, Mombasa, Kenya

<https://github.com/digitalearthafrika/deafrica-sandbox-notebooks/blob/main/Datasets/Coastlines.ipynb>

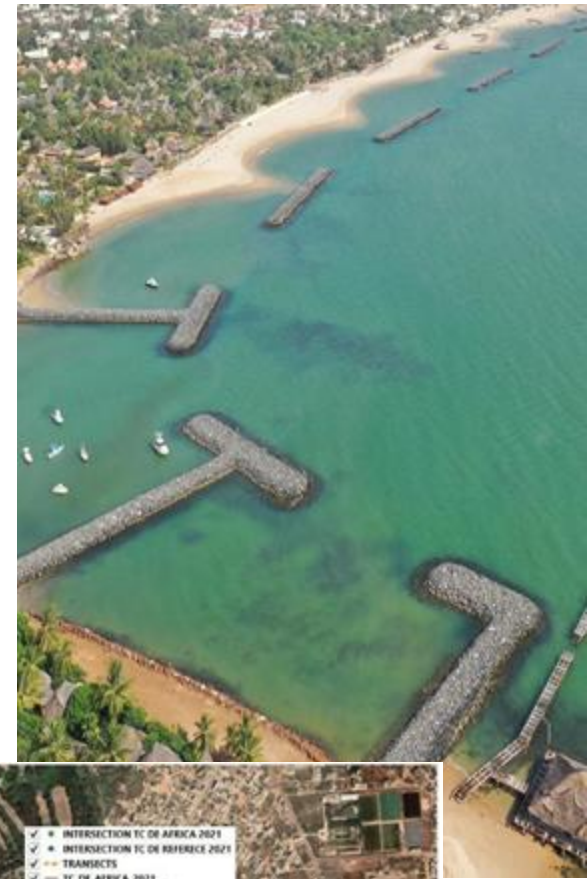
DE Africa coastal erosion

This notebook shows how to load, plot, and conduct a simple analysis using the `Digital Earth Africa Coastlines`
Calculate rates of coastal change: lat=-12.27, lon=43.726, buffer=0.01, Fomboni, Comoros KM



Free access to DE Africa Coastlines data

- No commercial license, free for all users, including Industry to create own Services
- Empower communities to access data to monitor coastlines
- Training tools are available to understand better the methods used and also to tailor the outputs to your need
- Direct integration in other GIS software such as QGIS, ArcGIS or any OGC Web Service compatible platform
- Leave no one behind



Digital Earth Africa free online courses <https://learn.digitalearthafrika.org>

DE Africa coastline in Africa Geo Portal



Data Library

Learning Center

Geospatial Tools

Community ▼

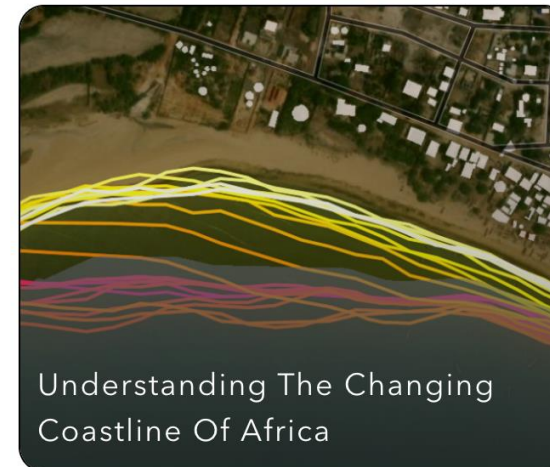
<https://www.africageoportal.com/>

DISCOVER

Featured Content

The Africa GeoPortal hosts an extensive collection of readily accessible datasets and maps. These resources include contributions from Esri, as well as data shared by users and organizations with a focus on Africa. By combining this data with your own, you can create a more comprehensive understanding, discover solutions, and improve your decision-making capabilities.

DATA LIBRARY



<https://storymaps.arcgis.com/stories/d3b9843486064c72a8d72cdc4e780fa3>

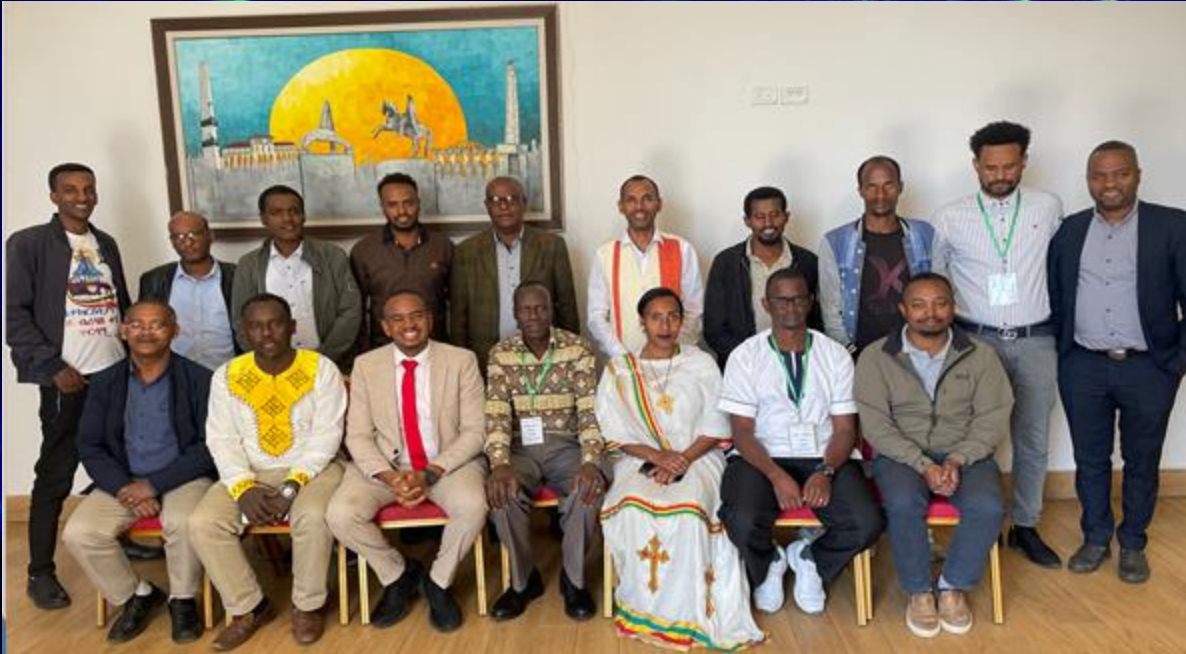
<https://africageoportal.maps.arcgis.com/apps/mapviewer/index.html?webmap=c25500f0271d481ea31aa2e321930b5c>

Acknowledgements



Thank you Merci obrigada

Asante. E şeun. Murakoze.



Digital Earth
AFRICA

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