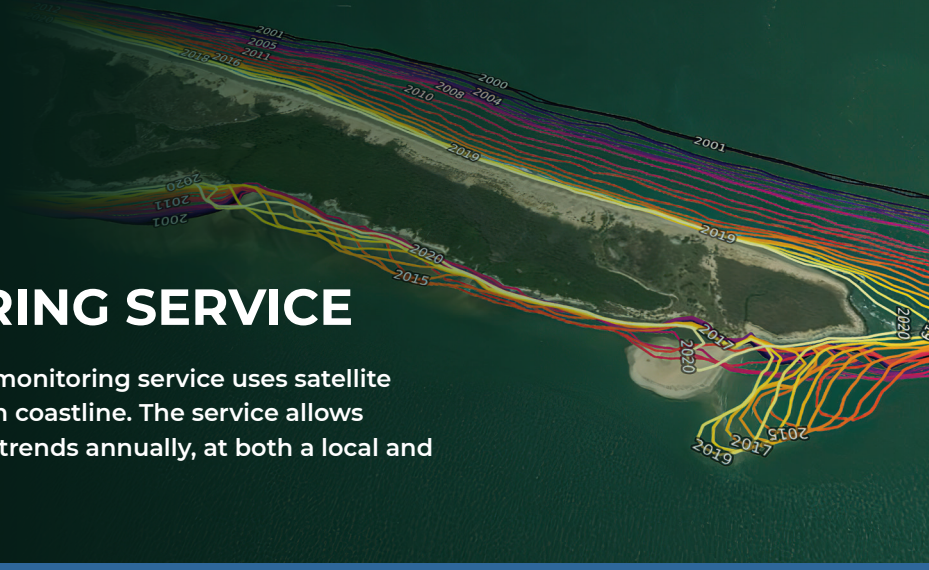
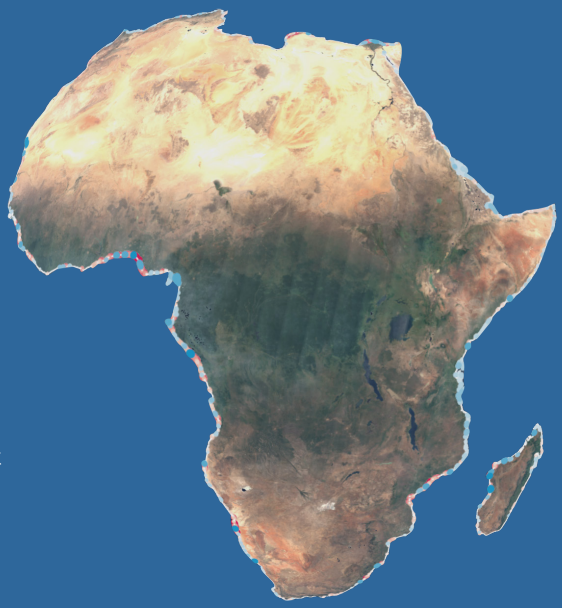
Digital Earth AFRICA



COASTLINE MONITORING SERVICE

The Digital Earth Africa (DE Africa) coastline monitoring service uses satellite data to map the typical location of the African coastline. The service allows users to examine coastal erosion and growth trends annually, at both a local and continental scale.

Coastal erosion is closely linked to a changing climate, as it is highly responsive to rising sea levels, changing precipitation patterns, and higher temperatures. Changes in coastal erosion can increase the salinity of coastal estuaries and groundwater resources, and alterations in river dynamics from changes in rainfall may exacerbate the loss of natural ecosystems along the coast[1].



The coastline monitoring service covers more than 60,000km of coastline around Africa, and demonstrates changes which have occurred to the coastline over time.

- The Coastline monitoring service maps coastline movement for all of Africa, presenting this as annual coastlines from the year 2000 onwards, including change rates and identification of hot spots;
- The service shows how coastlines respond to drivers of change, including extreme weather events, sea-level rise or human development;
- Coastline information will empower decision makers to prioritise and evaluate the impacts of local and regional coastal management based on historical coastline change.

By mitigating coastal erosion risks in 3 key sectors, Digital Earth Africa could inject ~$460 million per year into Africa's economy and change the lives of ~270 million people.

1 wacaprogram.org/sites/waca/files/knowdoc/The%20effects%20of%20erosion%20in%20West%20Africa_0.pdf

REAL ESTATE & AGRICULTURE

$101 million
of asset value (land & buildings) saved per year.

270 million
people who live in the proximity of coasts are positively impacted

FISHERY

$185 million
the potential benefits per year by alleviating the loss of fish catches.

30,000
direct and indirect jobs per year.

INSURANCE

$176 million
per year in additional profits & jobs for the insurance industry.

10,000
direct and indirect jobs.

Visit: **digitalearthafrica.org** | Explore: **maps.digitalearth.africa**
Tweet: **@DEarthAfrica** | Linkedin: **Digital Earth Africa**

EXPLORE FOR YOURSELF HERE

DIGITAL EARTH AFRICA:
COASTLINE MONITORING SERVICE

Image above: Overview of rate of coastal change in Saly Portudal including the Saly Portudal breakwaters.

The erosion of the **Senegal Coast, in particular the seaside resort of Saly Portudal which is located 80 km from Dakar on the Petite Côte**, was analysed by the Centre de Suivi Écologique (CSE) using the DE Africa Coastline monitoring service and notebooks from DE Africa Sandbox.

The CSE team assessed the coastal erosion along this stretch of coastline. Currently, beach losses are estimated at about 3 m/year on the southern part of the seaside resort of Saly Portudal.

Image 1: An example of coastal dynamic monitoring on a portion of the Saly Portudal coastline. The outlines represent median high tides from 2002 to 2021 from Landsat images and reference images, where lighter colours represent earlier years and darker colours represent more recent years.

Image 2: Annual evolution of coastal erosion in Saly Portudal between 2002 and 2021. Some areas have suffered a decline and others, an accretion. Recent construction work on the breakwaters is said to have contributed to the reduction of coastal erosion.

DE Africa continues to develop coastline tools and services to provide users with routine, reliable and decision-ready Earth Observation data. The Coastlines service will support decision-making in diverse infrastructure and livelihood-threatening situations, having an impact on the livelihoods of vulnerable communities as well as national economies.

Explore the Coastlines service on the Digital Earth Africa interactive map, the 'Digital Earth Africa Coastlines method' and 'Coastal Erosion' notebook on the Sandbox.

Sources

1. *Using the DE Africa coastlines tool for coastal erosion monitoring at Saly Portudal resort, Mbour-Senegal*
2. *wacaprogram.org/sites/waca/files/knowdoc/The%20effects%20of%20erosion%20in%20West%20Africa_0.pdf*