

# OPEN DATA & OPEN KNOWLEDGE Workshop

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04/07/2023



**Digital Earth**  
AFRICA



# Digital Earth Africa

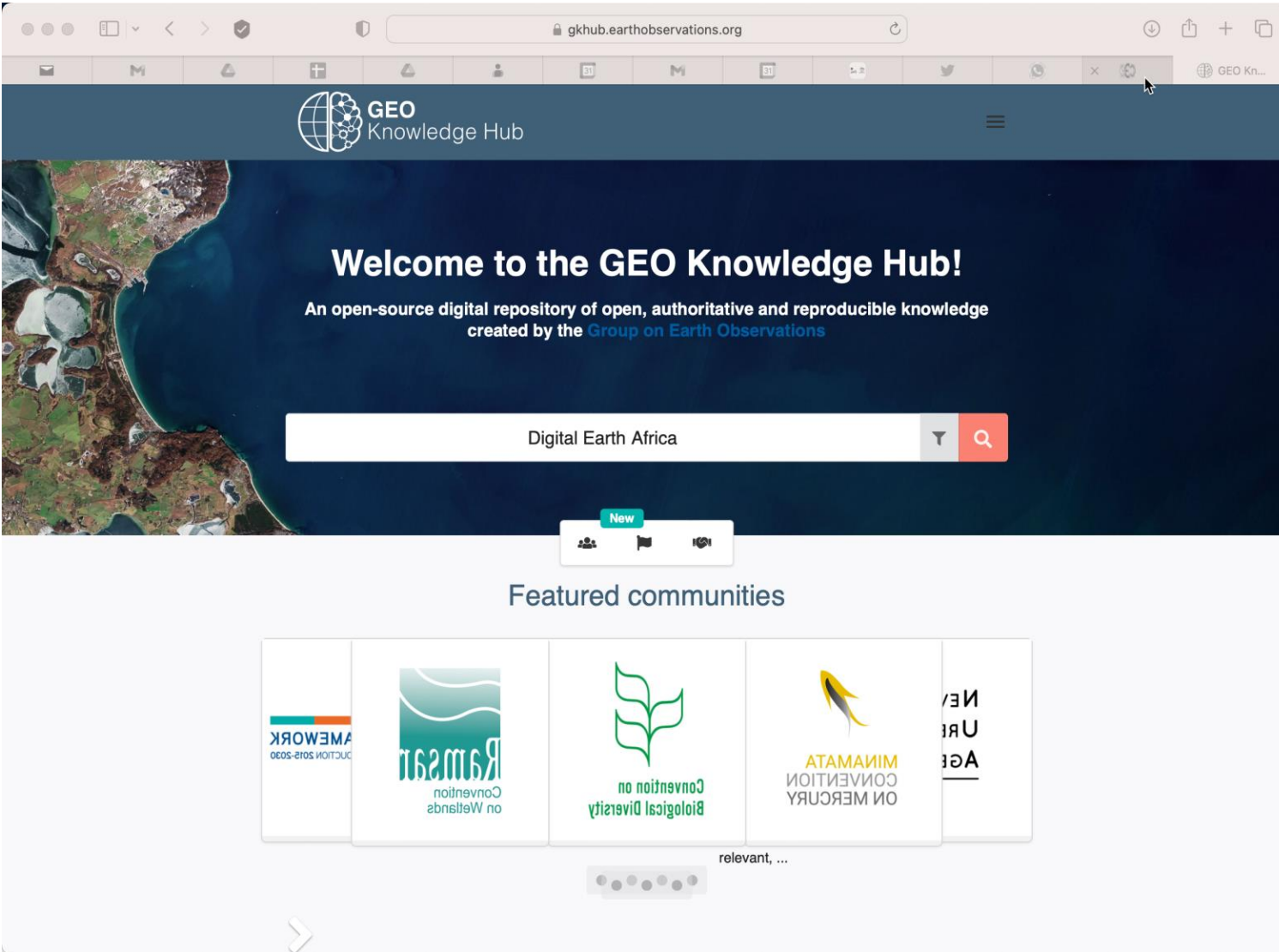


## Digital Earth Africa - GEO Knowledge Hub

Empowering countries across Africa with Earth observation data to enable climate adaptation and mitigation, greater food security and more sustainable development.



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[kenneth.mubea@digitalearthafrika.org](mailto:kenneth.mubea@digitalearthafrika.org)



References: blogs, user stories, PDF, shapefile, geojson

DE-AFRICA July 8, 2022 (v1) Computational Environment Metadata-only

## Digital Earth Africa Cloud Computing Environment

Digital Earth Africa

The Digital Earth Africa (DE Africa) Sandbox is a cloud-based computational platform that operates through Jupyter Lab environment. It provides a limited, but free computational resource for technical users and data scientists to explore DE Africa's data and products. The Sandbox provides users with access to remote-sensing data and analysis too...

Uploaded on January 4, 2023

1

DE-AFRICA July 20, 2022 (v1) Knowledge Package Open

## Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

Digital Earth Africa

What it is about Digital Earth Africa's (DEA) Monitoring Mangrove Extent application uses data derived from Sentinel-2 in combination with Jupyter Notebooks, to produce a time-series-analysis that identifies a change in mangrove extent over time. The analysis parameters for this notebook have been set using a central pair of coordinates along th...

Uploaded on January 4, 2023

2

DE-AFRICA July 8, 2022 (v1) User Story Metadata-only

## Time series for nature: Preserving mangroves in Zanzibar, Tanzania

Digital Earth Africa

Testimonial supporting how Earth observations (EO) are supporting Tanzania to make data driven decisions on conserving the biodiversity of mangroves in Zanzibar. Specifically highlighting how the use of Digital Earth Africa's analysis-ready-data has been used to produce time-series-analyses which identify the impacts of mangrove conservation in ...

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3

DE-AFRICA December 14, 2022 (v1) User Story Metadata-only

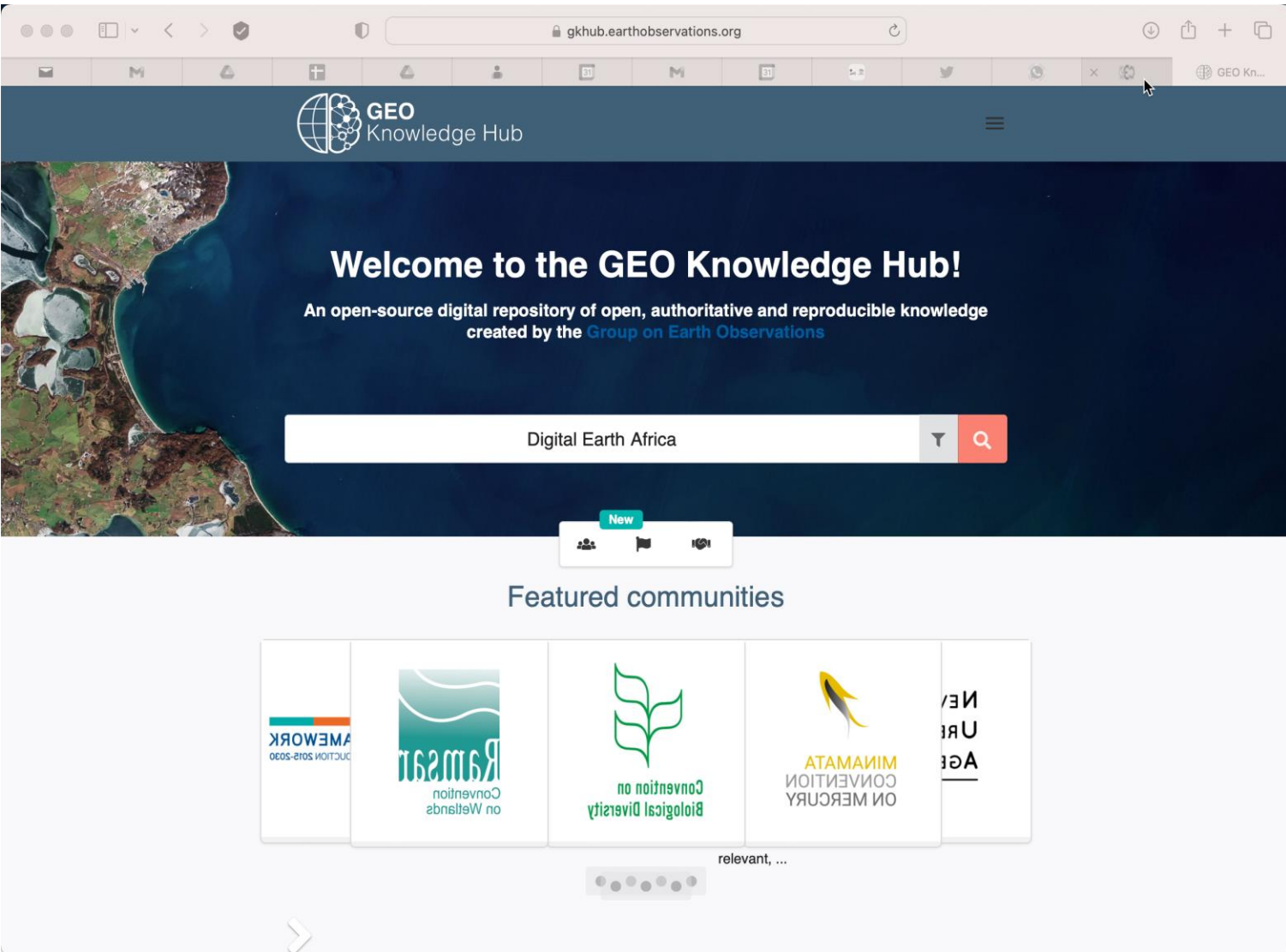
## Big Data Ghana works towards more sustainable agriculture with the help of Digital Earth Africa

Digital Earth Africa

The team at Big Data Ghana were able to draw from Digital Earth Africa's open and analysis ready data and services, including Climate Hazards Group InfraRed Precipitation with Station (CHIRPS) and NDVI, to identify areas of green vegetation. These, and other data sources form the basis of an app that visualises insights about irrigation, soil an...

Uploaded on January 4, 2023

4



References: blogs, user stories, PDF, shapefile, geojson

- 5** **Forecasting Cropland Vegetation Condition Data**  
Digital Earth Africa  
This information describes the data products used to create the Forecasting Cropland Vegetation Condition application. Analysis Ready Data (ARD) is contained wholly within Digital Earth Africa's (DE Africa) Sandbox environment. Data required to run the computation is contained within the Sandbox, there is no need to pull data from outside the Sa...  
Uploaded on January 4, 2023
- 6** **Identifyng Active Cropping Data**  
Digital Earth Africa  
This information describes the data products used to create the Identifying Active Irrigated Cropping application. Analysis Ready Data (ARD) is contained wholly within Digital Earth Africa's (DE Africa) Sandbox environment. Data required to run the computation is contained within the Sandbox, there is no need to pull data from outside the Sandbo...  
Uploaded on January 4, 2023
- 7** **Monitoring Chlorophyll-a in African Waterbodies Data**  
Digital Earth Africa  
This information describes the data products used to create the Monitoring Chlorophyll-a in African Waterbodies application. Analysis Ready Data (ARD) is contained wholly within Digital Earth Africa's (DE Africa) Sandbox environment. Data required to run the computation is contained within the Sandbox, there is no need to pull data from outside ...  
Uploaded on January 4, 2023
- 8** **Measuring Crop Health Data**  
Digital Earth Africa  
This information describes the data products used to create the Measuring Crop Health application. Analysis Ready Data (ARD) is contained wholly within Digital Earth Africa's (DE Africa) Sandbox environment. Data required to run the computation is contained within the Sandbox, there is no need to pull data from outside the Sandbox. Across all DE...  
Uploaded on Januarv 4. 2023

# Time series for nature: Preserving mangroves in Zanzibar, Tanzania

## Citation

Style APA

Digital Earth Africa. (2022). Time series for nature: Preserving mangroves in Zanzibar, Tanzania. GEO Knowledge Hub. <https://doi.org/10.5072/hgdfp-z9r30>



## Description

Testimonial supporting how Earth observations (EO) are supporting Tanzania to make data driven decisions on conserving the biodiversity of mangroves in Zanzibar. Specifically highlighting how the use of Digital Earth Africa's analysis-ready-data has been used to produce time-series-analyses which identify the impacts of mangrove conservation in Zanzibar, Tanzania.

Digital Earth Africa provides information on [the use of analysis-ready-data to preserve mangroves in Zanzibar](#).

Amazon Web Services and Digital Earth Africa, explored [how mangroves play an essential role in protecting African communities from the impacts of climate change](#).

This is a component for the application named **Monitoring mangrove Extent in Africa using Digital Earth Africa Data Cube**.

## Versions

Version v1  
(Jul 8, 2022)

## Any question ?

 Ask the provider

## Feedback space

 Learn the community experience with this package

## Details

### DOI

DOI [10.5072/hgdfp-z9r30](https://doi.org/10.5072/hgdfp-z9r30)

### Resource type

User Story

### Publisher

GEO Knowledge Hub

### Languages

English

## Share

## Export

JSON

Export

# Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

## Citation

Digital Earth Africa. (2022). Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube. GEO Knowledge Hub. <https://doi.org/10.5072/1f0cq-zc482>

## Description

### What it is about

Digital Earth Africa's (DEA) Monitoring Mangrove Extent application uses data derived from Sentinel-2 in combination with Jupyter Notebooks, to produce a time-series-analysis that identifies a change in mangrove extent over time. The analysis parameters for this notebook have been set using a central pair of coordinates along the coastline of southwestern Guinea-Bissau, Africa. **This notebook allows for easy replication of analysis across Africa, through simply changing the analysis parameters.** The user guide provides an overview of the analysis, resources used/supplied and directions on how to reproduce the analysis.

This knowledge package includes the necessary data, computational resources and instructions required to reproduce the methodology used in Digital Earth Africa's 'Monitoring Mangrove Extent' Jupyter Notebook.

The **User's Guide** provides an overview of the application.

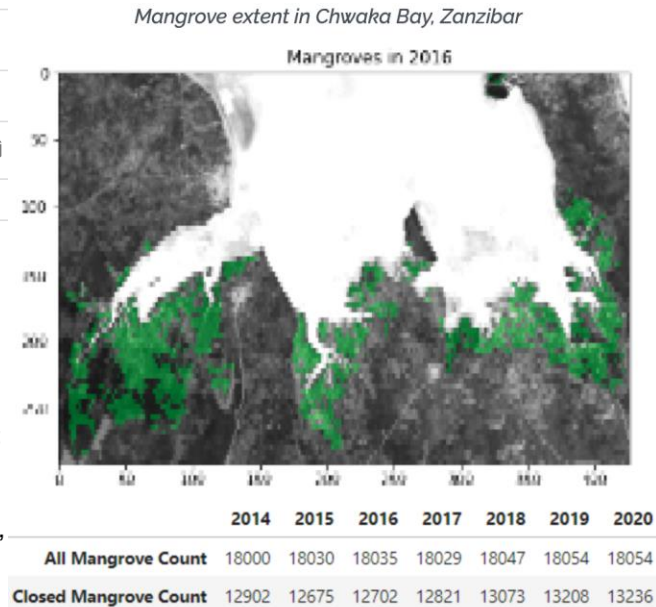
## User Stories

Time series for nature: Preserving mangroves in Zanzibar, Tanzania

Testimonial supporting how Earth observations (EO) are supporting Tanzania to make data driven decisions on conserving the biodiversity o...

Learn more

Style



Mangrove extent in Makoba Bay, Zanzibar

## Elements of the Knowledge Package

Dataset



1 resources

Publication



1 resources

Software



2 resources

Other



1 resources

Digital Earth Africa. (2022). Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube. GEO Knowledge Hub. <https://doi.org/10.5072/1f0cq-zc482>

<https://gkhub.earthobservations.org/packages/1f0cq-zc482>

# Monitoring mangrove forest degradation in parts of Niger Delta using freely available Earth Observation data from Digital Earth Africa

**DIGITAL EARTH AFRICA & AFRICAN WOMEN IN GIS TECHNICAL CHALLENGE 2022**

**WINNER**

Jokotola Omidiji Winner

**JOKOTOLA OMIDIJI**

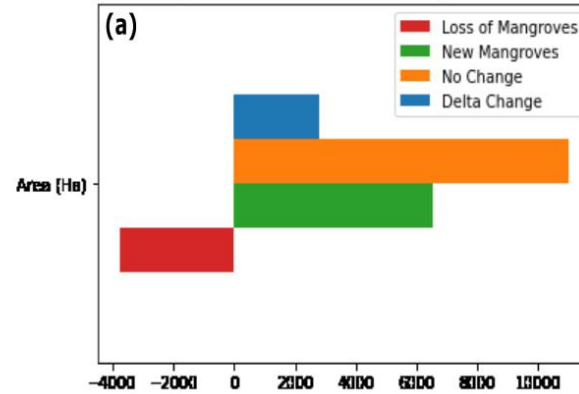
**PROJECT**  
Monitoring mangrove forest degradation in parts of Niger Delta using freely available Earth observation data from Digital Earth Africa

Digital Earth AFRICA

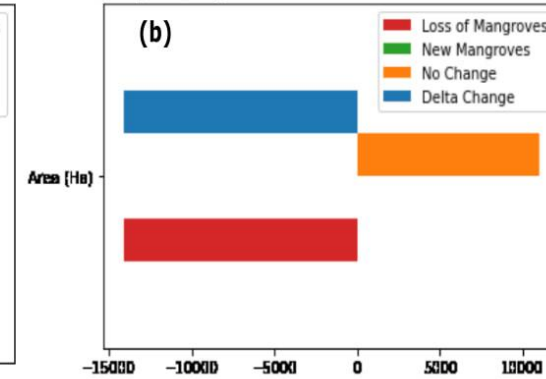
AFRICAN WOMEN IN GIS

Dr Thembi Xaba  
Digital Earth Africa Managing Director

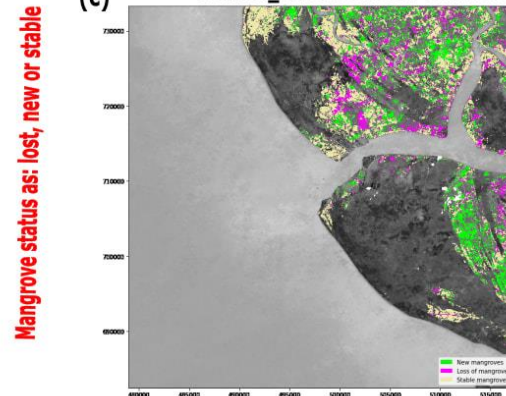
Change in mangrove extent between Sentinel\_2 2017 and 2021



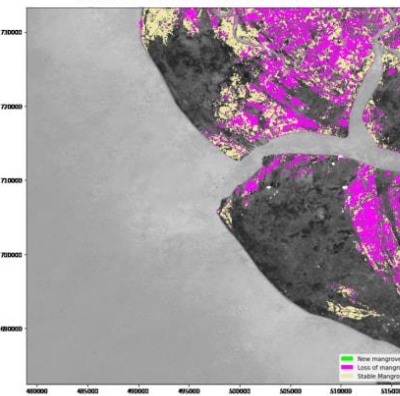
Change in mangrove extent between GMW 1996 and 2021



(c) Sentinel\_2: between 2017 and 2021



(d) GMW: between 1996 and 2021



Publication: AGU Fall Meeting Abstracts, Pub Date: December 2022  
 Authors: Mubea, Kenneth, Omidiji, Jokotola, Seck, Dieynaba  
<https://ui.adsabs.harvard.edu/abs/2022AGUFMGC44B..01M/abstract>

# Big Data Ghana works towards more sustainable agriculture with the help of Digital Earth Africa

Research groups: Ghana Irrigation Development Authority ;

Big Data Ghana 

## Citation

Style APA 

Digital Earth Africa. (2022). Big Data Ghana works towards more sustainable agriculture with the help of Digital Earth Africa. GEO Knowledge Hub. <https://doi.org/10.5072/ttr2j-qq47>




## Description


The team at Big Data Ghana were able to draw from Digital Earth Africa's open and analysis ready data and services, including Climate Hazards Group InfraRed Precipitation with Station (CHIRPS) and NDVI, to identify areas of green vegetation. These, and other data sources form the basis of an app that visualises insights about irrigation, soil and productivity. The team also benefited from working with FrontierSI's Caitlin Adams, renowned for her work in pushing the boundaries of science in Earth observation.


Digital Earth Africa. (2022). Big Data Ghana works towards more sustainable agriculture with the help of Digital Earth Africa. GEO Knowledge Hub. <https://doi.org/10.5072/ttr2j-qq47>

<https://gkhub.earthobservations.org/records/ttr2j-qq47>


Data sets have informed crop health monitoring: phenology, soil moisture, rainfall anomalies, vegetation anomalies.

 Rainfall Anomalies from Climate Hazards Group Infrared Precipitation with Station Data (Chirps) using Digital Earth Africa Data Cube Versions


Page size: 5 




### Versions

Version v1   
(Dec 14, 2022)

### Any question ?

 [Ask the provider](#)

### Feedback space

 [Learn the community experience with this package](#)

### Target audiences, engagement priorities and subjects

**Target Audience**

Agriculture and Forest Departments

GIS Technical experts in national agencies for agricultural

Farmers Decision Maker

### Details


DOI

DOI 10.5072/ttr2j-qq47

**Resource type**

User Story

### Rights

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# Impact stories

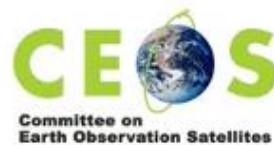
Theme	Institution	SDG	Brief	Article	Country
Agriculture	National Bureau of Statistics	2.4.1	The need to monitor agricultural statistics in terms of crop performance and yield in Simiyu, Tanzania	<a href="https://www.digitalearthafrika.org/index.php/news/policy-leaders-see-benefits-earth-observations-simiyu-agriculture-show">https://www.digitalearthafrika.org/index.php/news/policy-leaders-see-benefits-earth-observations-simiyu-agriculture-show</a>	Tanzania
Agriculture	WFP	2.4.1	Coffee production has been declining over the years due to diseases and competing economic activities such as animal husbandry, urbanisation. Thus, there is need for timely detection of coffee diseases, which is possible using earth observation, using innovations such as Digital Earth Africa (DE Africa).	<a href="https://www.digitalearthafrika.org/media-center/blog/intelligent-agriculture">https://www.digitalearthafrika.org/media-center/blog/intelligent-agriculture</a>	Kenya
Agriculture	Data Driven Agrics	2.4.1	The need to monitor agriculture in Western Kenya in terms of crop performance and yield	<a href="https://www.digitalearthafrika.org/media-center/blog/mapping-crop-phenology-key-addressing-food-security-kenya-stephen-korir">https://www.digitalearthafrika.org/media-center/blog/mapping-crop-phenology-key-addressing-food-security-kenya-stephen-korir</a>	Kenya
Agriculture	RCMRD, Agrhymet	2.4.1	Creating an open-source framework for crop-type mapping in Africa using ECAAS tool and Digital Earth Africa. This is helping support farmers in Zambia assess crop productivity and assess crop yield	<a href="https://www.digitalearthafrika.org/media-center/blog/creating-open-source-framework-crop-type-mapping-africa">https://www.digitalearthafrika.org/media-center/blog/creating-open-source-framework-crop-type-mapping-africa</a>	Kenya, Niger

Theme	Institution	SDG	Brief	Article	Country
Water, degradation	National Bureau of Statistics	6.6.1, 15.3	Scarcity of water affects livelihoods in Lake Sulunga . The country has experienced land degradation over the last decade due to climate change	<a href="https://www.digitalearthafrika.org/index.php/news/using-satellite-data-combat-drought-monitoring-lake-sulunga-tanzania">https://www.digitalearthafrika.org/index.php/news/using-satellite-data-combat-drought-monitoring-lake-sulunga-tanzania</a>	Tanzania
Water	University of Botswana	6.6.1	Scarcity of water affects livelihoods especially in Okavango delta		Botswana
Mangroves	State University of Zanzibar	14	Mangroves are one of the world’s most threatened tropical ecosystems. Quantifying mangrove in Zanzibar, which are key in disaster risk reduction due to coastal flooding	<a href="https://www.digitalearthafrika.org/index.php/news/time-series-nature-preserving-mangroves-zanzibar">https://www.digitalearthafrika.org/index.php/news/time-series-nature-preserving-mangroves-zanzibar</a>	Tanzania
Mangroves	University of Lagoes, Nigeria	14	Monitoring mangrove forest degradation in parts of Niger Delta using freely available Earth Observation data from Digital Earth Africa	<a href="https://ui.adsabs.harvard.edu/abs/2022AGUFMG.C44B..01M/abstract">https://ui.adsabs.harvard.edu/abs/2022AGUFMG.C44B..01M/abstract</a>	Nigeria

# Connect with DE Africa

- Website <https://www.digitalearthafrika.org>
- The opportunity to subscribe to the DE Africa community to receive quarterly newsletters and invitations to attend events  
<https://helpdesk.digitalearthafrika.org> and user guide  
<https://docs.digitalearthafrika.org/>
- DE Africa online learning <https://learn.digitalearthafrika.org>
- DE Africa weekly Live Learning Sessions: every Wednesday at 11am, GMT zero - ask questions and connect:  
<https://forms.gle/RbFB4HZ5EgUgCnS47>
- Email address [info@digitalearthafrika.org](mailto:info@digitalearthafrika.org)

# Acknowledgements





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Thank you    Merci    obrigada