



**Digital Earth**  
AFRICA

# **DE Africa Quarterly Progress Report**

July - September 2023

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# About Digital Earth Africa

## 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.

## Our mission

DE Africa will process openly accessible and freely available data to produce decision-ready products. Working closely with the AfriGEO community, DE Africa will be responsive to the information needs, challenges and priorities of the African continent. DE Africa will leverage and build on existing capacity to enable the use of Earth observations to address key challenges across the continent.

## About this report

This Quarterly Progress Report provides a snapshot of DE Africa Phase II progress made between July and September 2023, as aligned with DE Africa's 2023 Annual Work Plan.



**Open and Free Data**

- Interoperability
- Privacy and Integrity



**Operational Service**

- Continental-scale
- Sustainable
- Domain expertise



**Accountability and transparency**

- Responsive to African priorities
- Agile, nimble and actions oriented



**Diversity and inclusion**

- Multi-sector perspectives
- Span data communities
- Foster collaboration

*The governance of DE Africa is guided by several key principles*

# Program Goals



## Livelihood strengthening

EO data will support more informed decision making at government, sectoral and other levels, contributing to direct and indirect benefits for individuals and communities.



## Economic development and job creation

Through access to data for commercial products and services development, DE Africa will support new business development and employment opportunities.



## Digital transformation is advanced

Through industry uptake and innovations, DE Africa will help to fuel the ongoing evolution of the digital economy in Africa.



## Development activities are more effective

Support enhanced understanding of development challenges and solutions, and in so doing, strengthen collective impact and ability to assess progress towards national priorities, African Union's Agenda 2063 and the UN SDGs

# Phase III | Strategic Priorities



## Enhance Country Engagement

We and our Implementing Partners will embed DE Africa products and services to **enhance and scale regional activities across Africa**.

Our team will create a roadmap for country engagements that will ensure consistent support for countries.



## Ensure our Sustainability

We are committed to delivering on funding partners' strategic goals and strengthening Technical Advisory Committee and Governing Board roles to **ensure sustainable governance**. We will operate efficiently, diversify income sources and **deepen key partnerships** for long-term sustainability.



## Enable Climate Action

We will empower climate action by **developing in-country knowledge and skills**. We will ensure decision-ready products are well placed to enable policymakers, scientists, the private sector and civil society to better address climate adaptation, mitigation and reporting.



## Engage the Community

We will address user needs, provide excellent support, increase platform use, continue to capture user impact, and increase visibility of platform champions.

We will serve an **audience that meets our diversity and inclusion strategy and** explore bridging science and community action.

# 2023 Annual Plan - Strategic Priorities

The Governing Board approved the following Strategic Priorities for the year:

- **Embed in Africa:** The DE Africa team and Implementing Partners will embed DE Africa products and services to support regional activities across Africa. The DE Africa team shall create a roadmap for country engagements that will ensure consistent support for countries.
- **Ensure our sustainability:** We shall strengthen the roles of the Technical Advisory Committee and Governing Board to ensure sustainable governance in the future. We maintain our commitment to delivering on the strategic goals of our funding partners.
- **Empower Climate Action:** We aim to empower climate action by developing in-country knowledge and skills. We will ensure decision-ready products are well placed to enable policymakers, scientists, the private sector and civil society to better address issues of climate adaptation, mitigation and reporting.
- **Enhance Community Engagement:** We need to understand our users, and their needs and provide excellent support that increases use of the platform. We must continue to capture the impact our users have and increase the visibility of the champions of the platform.

# 2023 Outcomes and Activities

## Sustainment

1. Strong and effective ***governance and program operations***
2. Efficient and effective Pan-African ***program delivery***
3. Supportive stakeholders and enabling ***partnerships***
4. Sustainable business model developed, and ***future funding*** secured
5. World leading ***technical capability***, responsive to African priorities

## Uptake and impact

1. African ***government/ country level*** engagement and support
2. DE Africa services customised to meet diverse in-country ***user needs***
3. Effective ***capacity building*** targeting diverse cross-sector user groups
4. Rapid continental wide growth in DE Africa services ***uptake and usage***
5. Diverse, cross-sector ***use cases and impact studies***, demonstrating DE Africa's *social, environmental and economic value*

# July-September 2023 Highlights

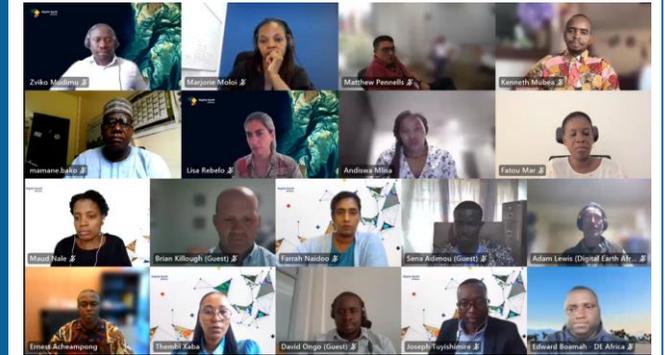
## Enhance Country Engagement

- East Africa Office launch
- Six face-to-face training courses held across six countries



## Ensure our Sustainability

- Two TAC meetings held
- Additional in-kind support for Phase III



## Enable Climate Action

- New continent wide GeoMAD service launched supporting food security



## Engage the Community

- SUZA industrial training program launched
- Two YouthMappers use cases published



# Governance and Program Operations

In this quarter, DE Africa held two Technical Advisory Committee (TAC) meetings - taking the total number of DE Africa TAC meetings held to 14.

The first (TAC-13) was held on 6 July 2023, (originally postponed from 19th June), and the second (TAC-14) on 5 September 2023. Key TAC meeting outcomes included:

- The TAC endorsed an update to the TAC Terms of Reference, to widen the scope of advice the committee provides. This included a change of name to Advisory Committee. Amendments will now be elevated to the Governing Board for final endorsement.
- The TAC agreed to form new sub-committees to guide the DE Africa Communications Strategy Phase III update and a DE Africa Phase III Platform Strategy review.
- TAC endorsement to proceed with the Technical Road Map update,

The DE Africa Governing Board meeting for Q3 was postponed due to member availability.

In August, during the RCMRD International Conference (RIC 2023), DE Africa celebrated the opening of a new office in Nairobi, Kenya, hosted by our Implementing Partner, Regional Centre for Mapping and Resources for Development (RCMRD). The new office will provide a centralised location to engage with East African users and ensure the program continues to serve the continent.



*DE Africa East Africa Office launch in Nairobi, Kenya*

# Diversity and Inclusion

Diversity and inclusion highlights from the quarter include the following activities:

- With support from the wider Geoscience Australia team, Jokotola Omidiji from the African Women in GIS community, was able to display her poster presentation at the IGARSS conference in San Diego, detailing her mangrove mapping project using DE Africa.
- In September, Joseph Tuyishimire provided a DE Africa introductory session to the Rwandan Geography Students Association in Kigali. The students will now complete the DE Africa on-line training and undertake specialised sessions on urban and environmental monitoring
- DE Africa sponsored participation of four youth attendees to the AfriGEO Conference in Swakopmund, Namibia. The individuals were the centrepiece of a special Youth Session aimed at young professionals, which was hosted by DE Africa's Ken Mubea.
- DE Africa was honoured to be invited to provide training on the platform to the Machakos Technical Institute for the Blind, Kenya, with the founder of the Chemi Chemi Foundation, Ms Nancy Marangu, completing the platform training as part of the IAFWS engagements. Marangu empowers people with disabilities and will work with DE Africa to ensure the platform is accessible to the wider community, using the unique skills of the stakeholders she represents.

Other D&I initiatives included the launch of the DE Africa Industrial Training program at SUZA (see Capacity Development slide).



*Above: YouthMappers engaging with women in the community to understand water availability and quality.*



*Above: Intro session with the Rwanda Geography Students Association (GEOSAR)*

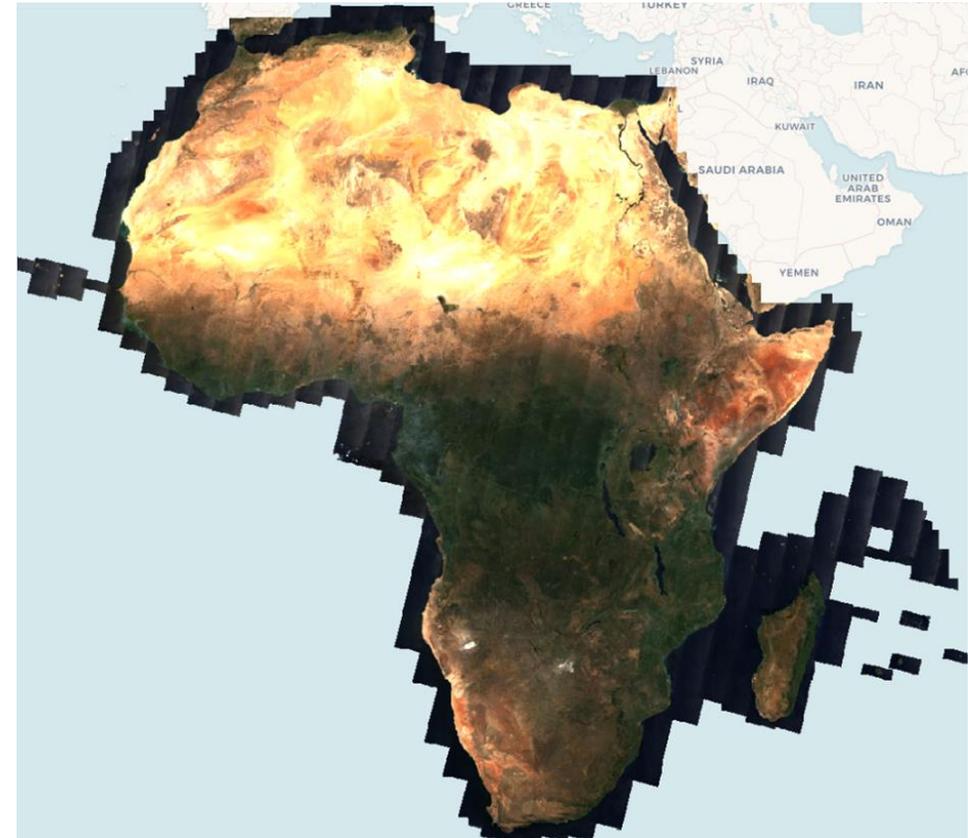
# Platform

The platform team continue to deliver dedicated support to ensure the ongoing availability of our tools and services. Platform operations continued to be efficient and effective, with no major service outages and an uptime of 99%.

Amazon Web Services continues to provide in-kind support that now exceeds 4 Pb of Data

The following key activities were completed in the quarter:

- Upgrade of JupyterHub Lab from 1.5 to 2.0
- PDS Bucket Policy Migration
- Terraform Upgrade
- Coastlines Sandbox Volume Update
- Cognito User Pool Migration on Development
- Latency checker support



*DE Africa's Rolling Monthly Geomedian Continental Service*

# Science

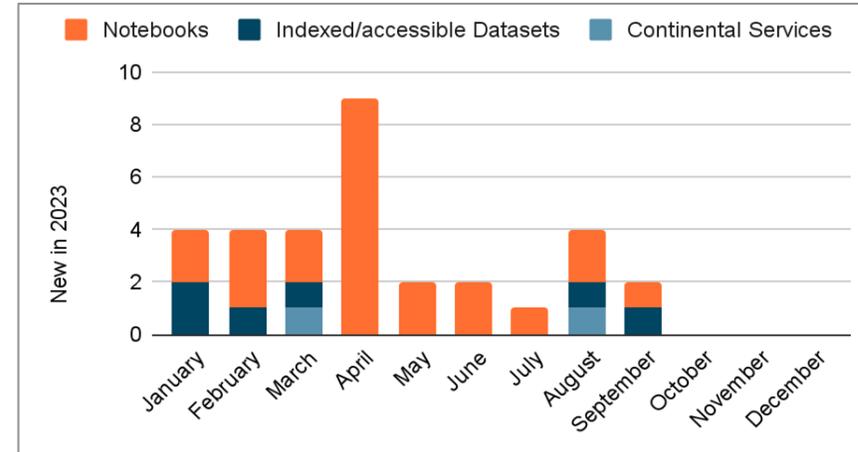
This quarter saw the development and launch of a new operational continental service, providing monthly, high-resolution cloud-free composites for the entire African continent. Calculated over a three-month rolling window, this [DE Africa Rolling Monthly GeoMAD](#) service plays a crucial role in measuring and monitoring changes in the Earth's surface and is particularly suited to classification and change detection applications, such as in agriculture and forestry.

The new service is a key component of a DE Africa end-to-end framework for crop type mapping, which is essential to understanding and addressing national scale food security and identifying potential risks.

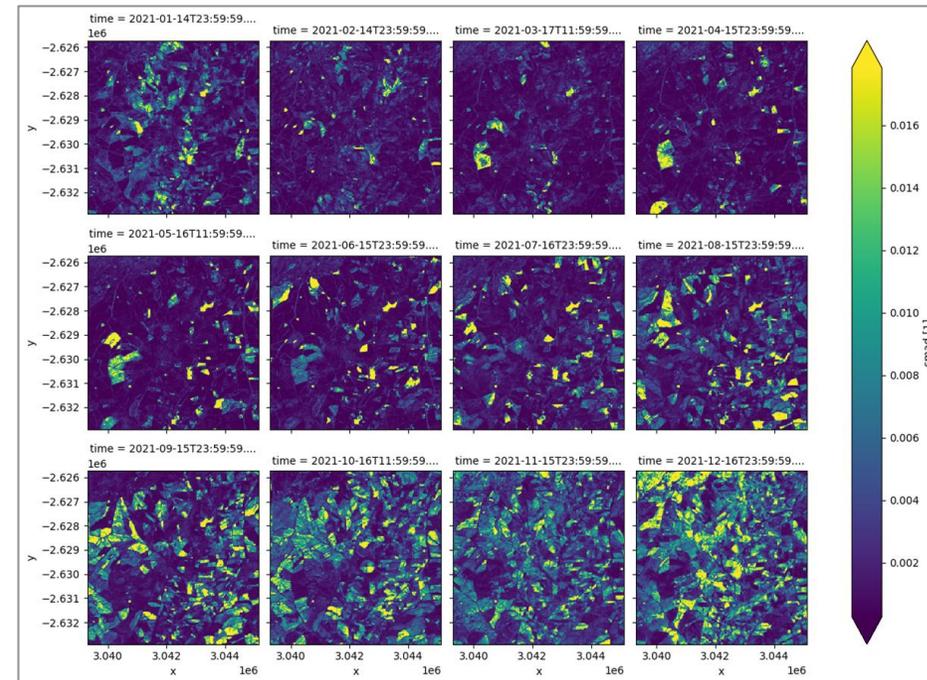
Two new external datasets were made available for users of the DE Africa platform;

- the World Settlement Footprint, and
- the ALOS PALSAR 2022 Annual Mosaic.

Four new notebooks were released including for the Rolling Monthly GeoMAD service, as well as for the World Settlement Footprint dataset, monitoring floating marine debris, and mapping and monitoring coastlines for islands.



Left: Number of new datasets, continental services, and notebooks available through DE Africa



Left: DE Africa's Rolling Monthly GeoMAD Continental Service over a sugarcane plantation in Zimbabwe, showing the SMAD bands which quantify spectral variance

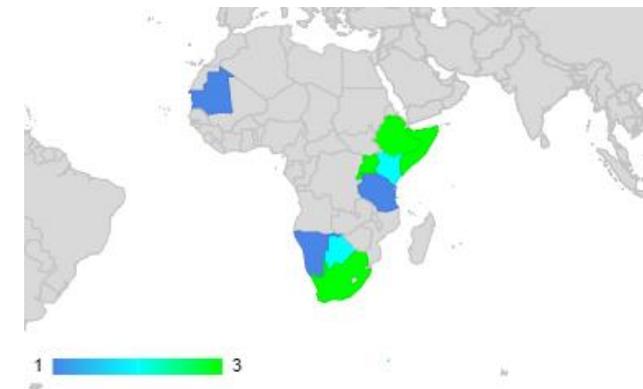
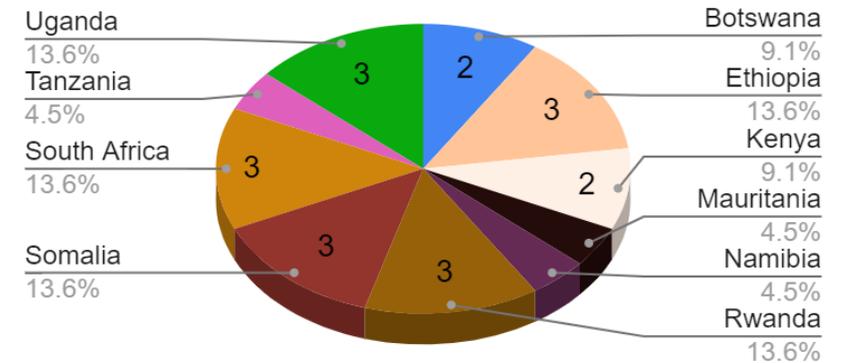
# Capacity Development

This quarter saw the launch of the [DE Africa Industrial Training Program at the State University of Zanzibar \(SUZA\)](#), Tanzania. This 8-week program allows students to develop the skills learnt throughout their academic career to real world scenarios, using the DE Africa platform. The program focused on analysis of mangrove species and has a key focus on engagement with the local community, to ensure a wider understanding of the importance of mangrove species to addressing critical climate issues..

This quarter, DE Africa held more than six face to face capacity development and user engagement workshops this quarter, across six different countries. These included:

- Awareness session; Machakos Technical Institute for the Blind, Kenya, 7 July
- UN Space Ungana workshop, Kenya, 10 - 12 July
- Pre-conference training at the RCMRD International Conference, Nairobi, Kenya. 8 - 10 August
- 7th [Advances in Geomatics Research Conference \(AGRC2023\)](#), Makerere, Uganda, 14 - 18 August, pre-conference workshop online and in person
- Rwanda Geography Students Association (GEOSAR), 7 September
- 7th AfriGEO Symposium training, Namibia, 17 & 18 September
- Food Security Hackathon, in collaboration with GMES and Africa, Mauritania, 20 - 22 Sept
- Variety Hour organised by WILDLABS.net [conservation network] - 27 September
- Geo Dialogue series - Overarching goals of Open Knowledge - 28 September

## DE Africa Workshops Complete - 2023



Face-to-face DE Africa Capacity Building and Engagement Workshops held in 2023

# Growing user community

DE Africa's user community continued to grow during quarter three. Online course registrations showed a promising 13% increase, with over 200 people registering for online courses in the quarter. Additionally, the Sandbox platform saw a 12% rise in registrations, with over 400 users accessing the platform in the quarter. DE Africa can now boast 18,000 unique map users.

13 [DE Africa Live Sessions](#) were conducted this quarter, with a total of 200 participants (38 female). Highlights included:

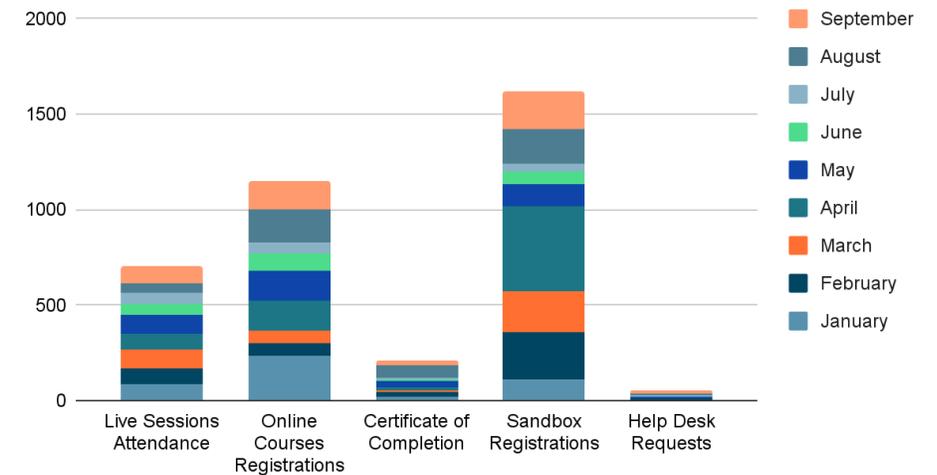
- [Monitoring Water Quality of Lake Jipe, Kenya, conducted by PhD Student, Eileen Magero \(English\)](#)
- [Monitoring Dams in Burkina Faso Using DE Africa, conducted by PhD Student Rodrigue Lele \(French\)](#)
- [How Universities are using the DE Africa Platform, a Round table of DE Africa's university champions, discussing how they have integrated the DE Africa platform into their curriculums.](#)

This quarter saw the launch of a new training courses on our learning platform, educating our users on applications of the [DE Africa Coastlines service](#). This course is delivered in English, with the French version due to be available in the next quarter. This course, along with the other new training courses introduced earlier this year, have proven popular with 202 users engaging with them this quarter, with close to a third of those users successfully certifying in their chosen course.

## All time User Community



## Monthly User Engagement



# Latest use case studies and user stories

This quarter the DE Africa team published the following use cases and impact stories:

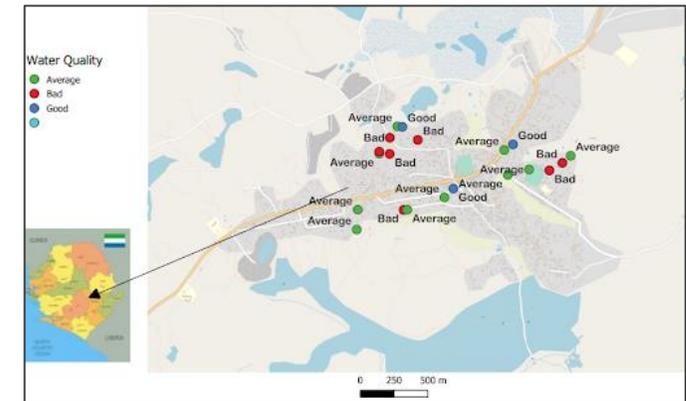
- [Monitoring Dams in Burkina Faso using Digital Earth Africa | Digital Earth Africa](#)

Rodrigue Lele, PhD student from Burkina Faso, uses the Water Observations from Space (WOfS) tool on the DE Africa platform as part of his studies to monitor water resources for safety and sustainability, ensuring dam walls are suitably stable for the expected water quantities.

- [YouthMappers using Earth observation to achieve more sustainable water management practices | Digital Earth Africa](#)

The YouthMappers team from the Eastern Technical University of Sierra Leone successfully completed their project, mapping water resources and quality within rural communities of Kinema District, Sierra Leone. The study found that four out of five towns investigated had limited access to permanent water, with the 5th town being faced with recurring floods. It also highlighted that only four out of 43 water sources were suitable for drinking and domestic use. The team are now investigating ways to mobilise the resources required to implement their recommendations.

- YouthMappers at [Malawi University of Science and Technology](#) led by Joshua Kacheyo, analysed the extent and pace of deforestation in the Dzalanyama forest reserve, assessed the impacts of climate change in the region, and shed light on food insecurity.



*Water Quality and Quantity maps created by YouthMappers*



# Projects with Partners

DE Africa continues to work with a wide range of implementing and enabling partner organisations across Africa. Examples of partner activities undertaken this quarter include:

## Implementing Partners

- The Sahara Sahel Observatory (OSS) and The Global Monitoring for Environment and Security and Africa (GMES and Africa) held a **'Crop Mapping' Hackathon 20-23** September in Nouakchott, Mauritania, using DE Africa. Winners of the hackathon will be awarded technical support and mentoring from the DE Africa team, plus additional compute power.
- AGRHYMET and OSS, along with FAO, the Economic Community of West African States and SERVIR West Africa, launched the new publication *West African Land Cover Reference System (WALCRS)* through a virtual event on 26 July 2023. There were 180 attendees from 46 countries and 88 organisations including regional, governmental, UN, private and academia. WALCRS is a result of a joint initiative to harmonise land cover monitoring among nations and regional and international organisations.
- CSE undertook new field work in Senegal to support validation of the DE Africa Coastlines product at a national level (see image on the right). This field work will be presented as part of the WACCA/WARCO Network Meeting to be held in Senegal in November.
- AGRHYMET are progressing crop type mapping focusing on regions in Niger and Burkina Faso.

## Industry Engagement

- DE Africa was proud to partner with the [Africa Earth Observation Challenge](#) for the third year. This open innovation Challenge provides incubation support for business founders working in the space sector. 2023 challenge winners were announced in Cape Town during September.



# Communications Impact

Social media followers have increased across the board. Key metrics:

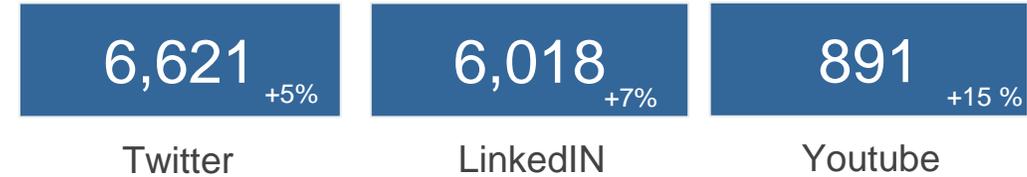
- LinkedIn - this is our best performing social media platform with 6,018 followers, a growth of 380 followers over the three months
- Twitter – 6621 followers, a growth of 301 over three months
- YouTube -We have experienced great growth of YouTube over the past three months, with a total of 891 subscribers, 118 new ones this quarter, 4,300 views and 218,2 watch hours

DE Africa received positive coverage in the media and partner blogs:

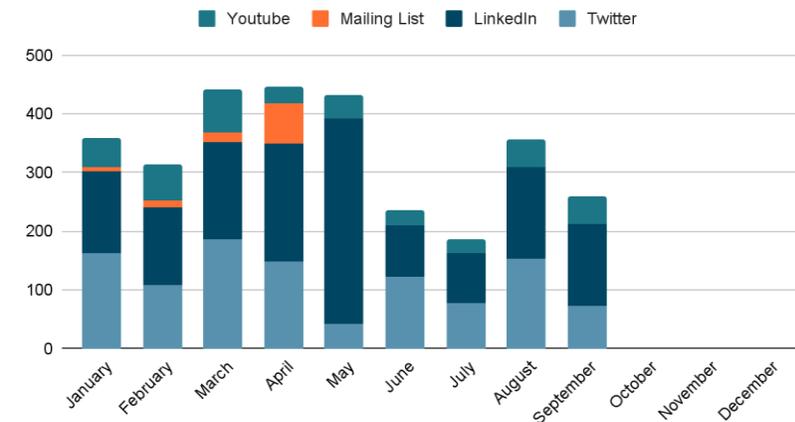
- [Digital Earth Africa launches office in Kenya to boost research](#) - Kenya Broadcasting Corporation (KBC), Kenya
- [Mechanisation to re-configure smallholder production](#) - The Herald, Zimbabwe’s largest daily newspaper.
- [How leading-edge Landsat based Earth observation products and tools are helping us to understand Africa’s and Australia’s coastlines](#) - USGS blog post, USA

DE Africa was proud to feature at Stockholm Water Week, where Walter Panzire spoke on behalf of the Helmsley Charitable Trust to highlight the capacity of DE Africa to inform responsible water management for the future.

## Communications Metrics



New Followers on Communications Platforms



### Top 5 Visitor locations (number of users)

United States – 1,100; Kenya – 936,  
South Africa – 653, Australia – 418,  
Uganda – 408

# Events and Engagements

This quarter, the DE Africa team attended more than 14 events, conferences, and externally hosted workshops, across nine different countries. Face-to-face events are listed below.

## International events and conferences:

- Esri User Conference, San Diego USA
- RCMRD International Conference, Nairobi Kenya - DE Africa was a gold sponsor.
- UN-GGIM: Africa, Cape Town, South Africa
- Advances in Geomatic Research Conference, Kampala, Uganda
- National Space Conference, Pretoria, South Africa
- Africa Climate Week, Nairobi, Kenya
- AfriGEO Symposium, Swakopmund, Namibia
- Society for Ecological Restoration, Darwin, Australia
- AWS Summit Africa, Sandton, South Africa

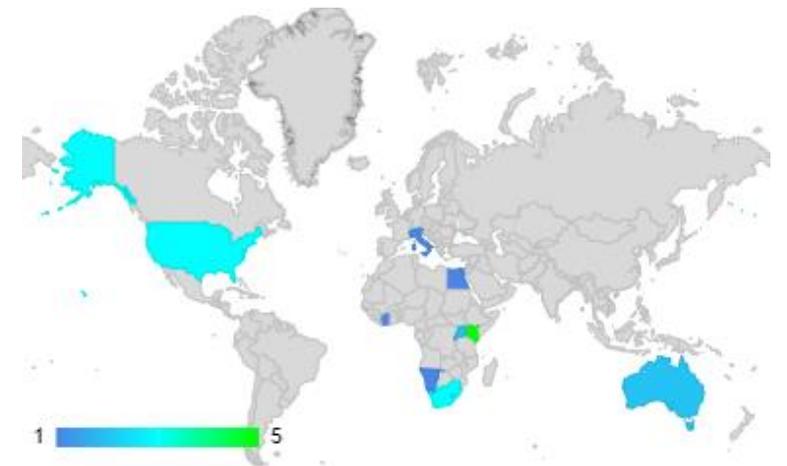
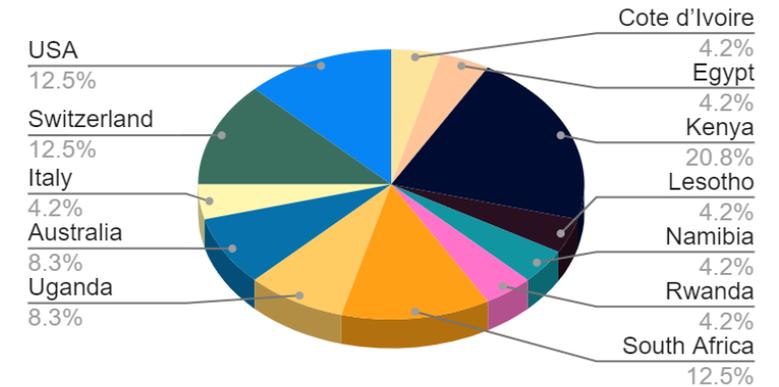
## Technical conferences, including scientific presentations by the DE Africa team and partners:

- IGRASS 2023, Pasadena, USA.
- International Society for Photogrammetry and Remote Sensing (ISPRS), Cairo, Egypt

## International externally hosted workshops:

- GEO Global Ecosystem Atlas, Switzerland
- GeoField Convening, “Leveraging EO for Impact Evaluations of Climate-Sensitive Agriculture”, Rome, Italy

DE Africa Conferences & Workshops Attended - 2023



# Event Highlights in Pictures



*Digital Earth Africa East Africa Office launch, Nairobi, Kenya*



*DE Africa Industrial Training Program launch, SUZA, Tanzania*



*Digital Earth Africa at 7th AfriGEO Symposium, Swakopmund, Namibia*



*AGRC 2022 DE Africa pre-conference workshop, Kampala, Uganda  
DE Africa at the 7th biennial Advances in Geomatics Research conference, Makerere University, Kampala, Uganda*

# Acknowledgements





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**AFRICA**

## Connect with us

- Website: <https://www.digitalearthafrika.org>
- Maps: <https://maps.digitalearth.africa>
- Learning Platform: <https://learn.digitalearthafrika.org>
- User guide: <https://docs.digitalearthafrika.org>

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