



**Digital Earth**  
AFRICA

# 2023

## Overview of program progress

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Unlocking the Promise of Tomorrow from Patterns of the Past





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# 2023 Program Progress - Overview

Digital Earth Africa (DE Africa) is the only Earth observation platform offering free, open-source data and products for the entire African continent and is now the world's largest Open Data Cube implementation.

With support from our funding partners The Leona M. and Harry B. Helmsley Charitable Trust and the Australian Government Department of Foreign Affairs and Trade (DFAT), DE Africa is on track to improve the lives of African people by providing planners and policy makers with tailored Earth observation information to support better decision making and enhance sustainable development outcomes.



# Executive Summary

In 2023, DE Africa concluded Phase II activities, marking the end of the Establishment Phase and its transition to Africa. An independent evaluation found that by March 2023 DE Africa had largely delivered against all its expected intermediate outcomes and exceeded delivery expectations in many areas, making strong progress towards achieving its 3 End-of-Program Outcomes. The evaluation also provided useful insights to inform the way forward.

The major highlight of the year was securing additional investment for Phase III delivery. DE Africa attracted additional investments from partners the Leona M. and Harry B. Helmsley Charitable Trust and the Australian Government Department of Foreign Affairs and Trade, with continued commitments from Amazon Web Services and Esri to provide in-kind support that is crucial to the operational success of the platform.

Key to the program's ongoing success are its enabling partnerships, which continued to grow during the year. Existing implementing partners such as AGHRYMET, AFRIGIST, CSE, OSS, and RCMRD showed continued commitment, contributing to the program's success. Other partners delivered on programs that expanded DE Africa's reach, such as GPSDD, which completed the capacity development program in Somalia; ASARECA and CCARDESA, which supported capacity development projects in six countries; and the State University of Zanzibar which trained students and community action in Zanzibar.

DE Africa achieved technical milestones, adding seven external datasets, and launching two new continental services: the NDVI Mean and Anomalies, and the Rolling Monthly GeoMAD. The training portal was actively maintained, releasing five new online courses, and expanding its user base, with over 600 completion certificates awarded.

Overall, DE Africa's 2023 activities demonstrate its commitment to advancing Earth observation in Africa, supported by strong partnerships and a strategic approach to program delivery. The conclusion of Phase II and positive evaluation outcomes set a solid foundation for Phase III and beyond.

# DIGITAL EARTH AFRICA – AT A GLANCE

## CAPACITY DEVELOPMENT

### USER ENGAGEMENT AND TRAINING



**>19,000**  
UNIQUE  
DE AFRICA  
MAP USERS



**>600**  
COMPLETED  
TRAINING



**>4,800**  
REGISTERED  
USERS  
IN SANDBOX

### USER ENGAGEMENT AND TRAINING

#### A growing portfolio

with >33 new published use cases addressing Africa's priority development issues and >140 open-source notebooks.



## AWARDS

Three international Awards for Capacity Development and Community Engagement



## VALUE AND IMPACT

POTENTIAL ECONOMIC BENEFITS BY THE NUMBERS

**\$2.84BN\***

Even under conservative assumptions the potential economic benefits of DE Africa could exceed USD 2 billion a year by 2024

**\$500M**  
EO industry accelerated growth

**\$900M**  
Agricultural productivity boost

**\$900M**  
Agricultural productivity boost

\*World Economic Forum and DISAL Consulting

**\$580M\*\***

By mitigating coastal erosion risks in 3 key sectors DE Africa could inject \$580 million per year into Africa's economy and change the lives of 270 million people.

**\$90M**  
Real Estate & Agriculture

**\$275M**  
Fishery

**\$215M**  
Insurance

\*\*Costs to Coasts – DISAL Consulting and DE Africa

## SERVICES AND INFRASTRUCTURE

DATA STORAGE EXPANDED AT AWS AFRICA (CAPE TOWN) REGION



**~4 PETABYTES**  
of data stored by Amazon Sustainability Data Initiative

FIVE CONTINUOUSLY UPDATED DATA PIPELINES

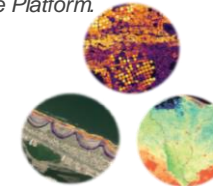
WORLD LEADING OPERATIONAL PLATFORM OF ITS KIND.

- ✓ Analysis ready data
- ✓ Decision ready products & services
- ✓ Routine updates to Landsat, Sentinel 2 and Sentinel 1 to cloud optimised format



DE Africa now has eight continental services available on the Platform.

- ✓ Water Observations from Space
- ✓ Cropland Extent Map
- ✓ Coastlines
- ✓ Fractional Cover
- ✓ GeoMAD
- ✓ Rolling Monthly GeoMAD
- ✓ NDVI Climatologies
- ✓ NDVI Mean and Anomalies



## PARTNERSHIPS AND OUTREACH

Participated in over 40 events, workshops and conferences worldwide

Signed two new MOUs with organisations.

Renewed partnerships with **Implementing Partners**

and continued collaboration with **over 30 partner organisations.**



## GOVERNANCE

### GOVERNING BOARD

62% M 38% F

75% of the Governing Board members are from African countries.

### AFRICA TEAM

38% M 62% F

The Africa based team is now fully staffed.

### TECHNICAL ADVISORY COMMITTEE

63% M 37% F

The TAC held two meetings in 2023.

## AFRICAN OPERATIONS

- ✓ Expanded African operations
- ✓ Staff across 4 countries
- ✓ Program management office fully operational
- ✓ 6 pan-African Implementing Partners

DE Africa Staff  
DE Africa Implementing Partners



Note: these numbers are current as of December 2023

# A snapshot of 2023



## Embed in Africa

DE Africa is now established as an Africa-based program, with a Program Management Office hosted at the South African National Space Agency (SANSA), Pretoria, South Africa. In line with its objective of creating a distributed operational model DE Africa is also leveraging its network of Pan-African implementing partners effectively to expand the reach and utility of its services.

DE Africa operational infrastructure is successfully established in Africa, offering timely and reliable Earth observation data and decision-ready insights accessible to diverse user groups. In collaboration with Amazon Web Services' Amazon Sustainability Data Initiative DE Africa now has approximately 4 Petabytes of data stored at the AWS Africa (Cape Town) region. This storage underpins the provision of a secure, stable, and high performing platform for users across Africa.



## Ensure our sustainability

In March 2023, DE Africa was happy to announce that the program has secured an additional 3 years of funding thanks to our ongoing partners The Leona M. and Harry B. Helmsley Charitable Trust, ensuring that DE Africa will be operational until 2026. This funding will focus on driving uptake of the platform, embedding the services across the continent and delivering greater impact.

DE Africa also secured additional funding from the Australian Government Department of Foreign Affairs and Trade (DFAT). This funding will support the delivery of a climate action toolkit, Capacity Development engagements and the delivery of products and services in collaboration with Digital Earth Australia.



## Empower Climate Action

DE Africa now provides a total of nine continental scale services, including two new services developed this year (NDVI Mean and Anomalies and Rolling Monthly GeoMAD). In addition, DE Africa now has over 140 notebooks available in the DE Africa sandbox, supporting progress towards seven Sustainable Development Goals (SDGs). Seven new external datasets were also made available to users including Open Street Map human settlements, CIESIN and META population density, ESA 2021 land use land cover, iSDA soil data, ALOS PALSAR 2022 annual mosaic, and the ESA and DLR World Settlement Footprint layers.



## Enhance Community Engagement

DE Africa has continued to strengthen and empower users across the continent to harness the power of Earth observation data and services for better decision-making.

DE Africa continues to provide bi-lingual training (English and French) and user community support services with online training registrations of over 2,400 users in 2023. The Sandbox technical analysis tool had over 2,000 new registrations while almost 20,000 unique users accessed the less technical DE Africa Maps to view products and services.



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# About Digital Earth Africa

Digital Earth Africa (DE Africa) aims to improve the lives across Africa by providing planners and policy makers with crucial Earth observation information to support better decision making, and through enhanced access to satellite data to progress sustainable development outcomes.



**DE Africa Vision:** To 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.



**DE Africa Mission:** To 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.

The long-term DE Africa Goal is: DE Africa improves the lives of Africans through access to tailored information for decision making. This encompasses:

- ◆ Livelihood strengthening – Earth Observation (EO) data will support more informed decision making at government, sectoral and other levels, contributing to direct and indirect benefits for individuals and communities.
- ◆ Development effectiveness – DE Africa will support enhanced understanding of development challenges and solutions, and in so doing, strengthen collective impact and ability to assess progress towards national priorities, Agenda2063 and the Sustainable Development Goals.
- ◆ Digital transformation – through industry uptake and innovations, DE Africa will help fuel ongoing evolution of the digital economy in Africa.
- ◆ 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.

# 2023 Strategic priorities

Aligned with long-term program outcomes, the DE Africa Team focused on the following priorities through 2023:

- ◆ **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.
  - End Of Program Outcome 3: DE Africa is a flagship initiative that promotes the benefits of open and free earth observation data.
- ◆ **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. We will ensure we operate efficiently, diversify our sources of income, and deepen key partnerships for long-term sustainability.
  - End Of Program Outcome 1: DE Africa is an operationally, technically, and financially sustainable, and inclusive entity in Africa.
- ◆ **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.
  - End Of Program Outcome 2: DE Africa is demonstrating environmental and development impact.
- ◆ **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. We will serve an audience that meets our diversity and inclusion strategy and explore how to bridge science and community action.
  - End Of Program Outcome 2: DE Africa is demonstrating environmental and development impact.



# Outcome 1 Sustainment



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# 1.1 Governance and program delivery

**Outcome:** Continued stakeholder confidence in DE Africa's governance (Board and Advisory groups), operations and transparency, building the reputation of DE Africa as a trusted and reliable, pan-African capability with a widely recognised mandate to operate.

In 2023, DE Africa:

- ◆ Held two Technical Advisory Committee meetings and two Governing Board meetings.
- ◆ Continued to deliver against established DE Africa policies and frameworks – including progressing DE Africa Phase III Monitoring, Evaluation and Learning Framework update.
- ◆ Maintained a strong focus on diversity and inclusion, a guiding principle of DE Africa's Governance Framework.
- ◆ Continued to work with Implementing Partners across the continent, with key delivery on DE Africa thematic areas.

# Governance

The Governing Board and Technical Advisory Committee continued to provide strategic advice and technical leadership in 2023, with the Governing Board endorsing the updated Risk Management Plan.

DE Africa engaged the Strategic Development Group during 2023 to perform the End of Phase II Independent Evaluation, which included a review of the current governance framework. The evaluation reviewed program performance from March 2019 until February 2023 against the stated Theory of Change and the Monitoring, Evaluation and Learning framework. The evaluation included engaging with a wide range of program stakeholders and partners to gauge their thoughts on the program's progress. Strategic Development Group found that DE Africa had largely delivered against all its expected intermediate outcomes and exceeded delivery expectations in many areas.

The evaluators found that DE Africa has a solid foundation to increase the likelihood of the program's benefits continuing, including the quality and reliability of the platform, the strong partnerships built by the program, the establishment of an African PMO and the steps it will take in 2024 to review the governance structure to ensure effective oversight of the performance and compliance of the program into the future.

# Diversity and inclusion

DE Africa remains committed to being an exemplar of diversity and inclusivity by embedding the principles into all levels of the program.

In 2023, DE Africa partnered with YouthMappers to kick start the Technical Challenge and with African Women in GIS to support their 2023 Mentoring Program. The program also worked with the Chemichemi Foundation, presenting at the Dissemination of the Braille Digital Infrastructure Divide and conducting training to the Machakos Technical Institute for the Blind in Kenya.

DE Africa continued to showcase and promote diverse leaders and practitioners across the Earth observation sector, through a series of blog series featuring women in geospatial science, utilising social media networks and continued engagement at a range of international events.



DE Africa also sponsored events focused on engaging with young professionals focusing on the space sector and how it intersects with sustainability. DE Africa sponsored the 7th Space Generation Advisory Council (SGAC) in Harare, Zimbabwe and presented to an audience of over 100 students, young professionals, industry experts and government stakeholders from across the African continent.

The SGAC workshop provides an unparalleled opportunity for the future leaders of Africa's space sector to proactively establish strong relationships, exchange ideas and knowledge, and to collaborate on novel ways in which space technology can be utilized for the benefit of Africa.

The 7th SGAC attendees SGAC working group identified existing initiatives, challenges, opportunities and solutions for sustainability. DE Africa's Capacity Development Lead hosted a special Youth Session at the AfriGEO Conference in Swakopmund, Namibia, where four youth attendees, sponsored by DE Africa, engaged with other young professionals.



## 1.2 Enabling partnerships

**Outcome:** African governments and regional institutions are actively supportive of DE Africa pursuing financial sustainment and moving beyond aid funding, based on their appreciation of the value and mode of operations of DE Africa.

In 2023, DE Africa:

- ◆ Continued collaboration with many key groups including: Esri, the UN Economic Commission for Africa, the Group on Earth Observations, and the Australian Government.
- ◆ Signed new MOUs with the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), and the Centre for Coordination of Agricultural Research and Development in Southern Africa (CCARDESA).

DE Africa continues to be enabled through its Implementing Partners, who, throughout 2023, showed commitment and engagement with the program.



# Implementing partners

**AGHRYMET**'s work program focused on Food Security in the Sahel region through crop type mapping in Burkina Faso and Niger. AGHRYMET completed its work program during the year after challenges of instability in Burkina Faso had delayed field data collection. AGHRYMET has highlighted key opportunities for DE Africa to connect with the Global Environment Facility (GEF) project to support the Great Green Wall.

**AFRIGIST** is the key implementing partner for capacity development for the program. The AFRIGIST team supported the delivery of four new online learning modules during the early part of the year. AFRIGIST has integrated the DE Africa training modules into its curriculum and encourages students to use the learning portal for training. This collaboration has been key to ensuring the learning platform continues to have a growing user base.

**Centre de Suivi Ecologique (CSE)** had a work program focussing on the Coastline Monitoring Service and Wetlands. CSE also hosted International Women's Day in Dakar, a diversity and inclusion event that invited young women to visit the CSE head office and experience the Earth observation and remote sensing sectors. The CSE team also organised a workshop for the West Africa Regional Coastal Observatory (WARCO) network where DE Africa helped countries in the West Africa region to understand how to leverage the continental service to measure the impact of climate change on coastlines.

# Implementing partners cont.

**Sahara and Sahel Observatory (OSS)** supported DE Africa to connect with a wider network of users by presenting at a pre-conference workshop for GEO LDN before the AfriGEO Symposium in Swakopmund. OSS also hosted a hackathon with DE Africa at Mauritania's GMES and Africa Workshop.

**The Regional Centre for Mapping Resources and Development (RCMRD)** continued its multifaceted collaboration with the PMO during the year. DE Africa had a strong presence at the 2023 RCMRD International Conference.

RCMRD also supported the development of a wetland product for East Africa. DE Africa participated and supported the 7th AfriGEO Symposium in Swakopmund, Namibia on 18th to 22nd September 2023. AfriGEO symposia are held annually and provide an opportunity to engage, connect, and build meaningful areas of collaborations that support addressing varied development challenges on the continent using Earth observations. The AfriGEO Symposium theme was “Earth Observation for Africa prosperity” and included three pre-conference workshops from 18th to 19th September 2023 each workshop was led by DE Africa, Esri and Geo LDN respectively.



# Memorandums of Understanding

DE Africa was proud to sign a new MOU with the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), with the partnership focused on stakeholder engagement and education, with a particular focus on agricultural research and development. Through this partnership with ASARECA, DE Africa also signed an MoU with the Centre for Coordination of Agricultural Research and Development in Southern Africa (CCARDESA). DE Africa attended the ASARECA Conference and had a side event on the strategy of enhancing the use of EO. This partnership will broaden the program's reach in the southern Africa region, leveraging CCARDESA's convening power amongst agricultural departments and agencies. The partnerships with both ASARECA and CCARDESA arose from the Information for Food, Agriculture, and Water Security project funded by the Australian Centre for International Agricultural Research (ACIAR).

The team also continued collaborations with a range of other organisations, including the UN Economic Commission for Africa (UNECA), Rwanda Space Agency and University of Energy and Natural Resources, Ghana.

DE Africa partnered with Global Partnership for Sustainable Development Data (GPSDD), with support from the Islamic Development Bank Institute (IsDB Institute) and the Somali National Bureau of Statistics to host dignitaries to engage and educate on using Earth Observation capabilities to monitor SDG indicators in Somalia. Through this engagement, DE Africa will be working with the Somali National Bureau of Statistics to develop two Use Cases; monitoring Somalia's coastline to inform forward strategy on mitigating coastal erosion and addressing vegetation change identified through the platform in the northwest of Buule Xaji from 2017 to 2021.

Earlier in the year, the Food and Agriculture Organisation (FAO) in collaboration with DE Africa and FrontierSI, completed a project prototyping land cover and crop type mapping workflows for Rwanda and Mozambique, along with a series of 9 notebooks and several training events.

# Africa – Australia Engagement

The PMO visited Australian Department of Foreign Affairs and Trade (DFAT) Posts in Ethiopia, South Africa, and Zimbabwe, further strengthening partnerships and identifying opportunities for collaboration.

DE Africa was awarded a Direct Aid Project funding by the Australian High Commission to Mauritius to support capacity development in Madagascar. The project kicked off in 2023 and will be concluded in 2024. The continued engagement and support from DFAT Heads of Mission has been instrumental in driving progress in identifying and understanding the needs of intermediary and end users.



# 1.3 Sustainment and business model development

**Outcome:** Development and implementation of a cross-sector business model that supports diversifying revenue sources, sustained operations, and contributions with funding secured beyond the end of Phase III

In 2023, DE Africa:

- ◆ Secured additional Phase III funding from the Helmsley Charitable Trust and Australian Government.
- ◆ Confirmed continued Phase III in-kind contribution from AWS.
- ◆ Confirmed additional Phase III in-kind contribution from ESRI.
- ◆ Received further Direct Aid Program funding from DFAT for targeted capacity development work.



# Phase III investment

The Leona M. and Harry B Helmsley Charitable Trust has confirmed its commitment to support Phase III from 2023 to 2026, ensuring that DE Africa can continue to develop and expand its capabilities. The team appreciates the continued commitment from the Helmsley Charitable Trust to extend its financial support.

The Australian Department of Foreign Affairs and Trade have also confirmed additional funding for Phase III of DE Africa. The additional funding will focus on Capacity Development on the African Continent, as well as the further development of the Climate Action Toolkit, which will support African-led climate adaptation, mitigation and reporting initiatives.

There was also additional funding secured through the Australian High Commission to Mauritius, through their Direct Aid Program, to support an Earth Observation Capacity project in Madagascar. This project will see DE Africa hosting Capacity Development workshops for the Madagascan Ministry of Mines and Natural Resources, the Ministry of Agriculture, and at the University of Antananarivo. This project will kick off in August and continue into 2024 and aim to enhance data literacy, resource management, and agricultural practices in the country, with a special focus on the inclusion and empowerment of women and youth.

DE Africa was also proud to secure the commitment of continued in-kind support for Phase III from some of our key partners.

AWS have committed to a further three years of support through their Amazon Sustainability Data Initiative (ASDI), storing over 4 Petabytes of data at the AWS Africa (Cape Town) facility. This in-kind contribution accelerates sustainability research by reducing the barrier to entry usually experienced when trying to acquire and analyse large sustainability datasets.

Esri's continued in-kind support includes support and engagement with Esri's science, capacity development and strategy teams. This partnership is key to enabling DE Africa to connect with Esri's large user groups and leveraging Esri's user interfaces, such as the Africa Geoportal, to engage with a wider audience with various skill sets.

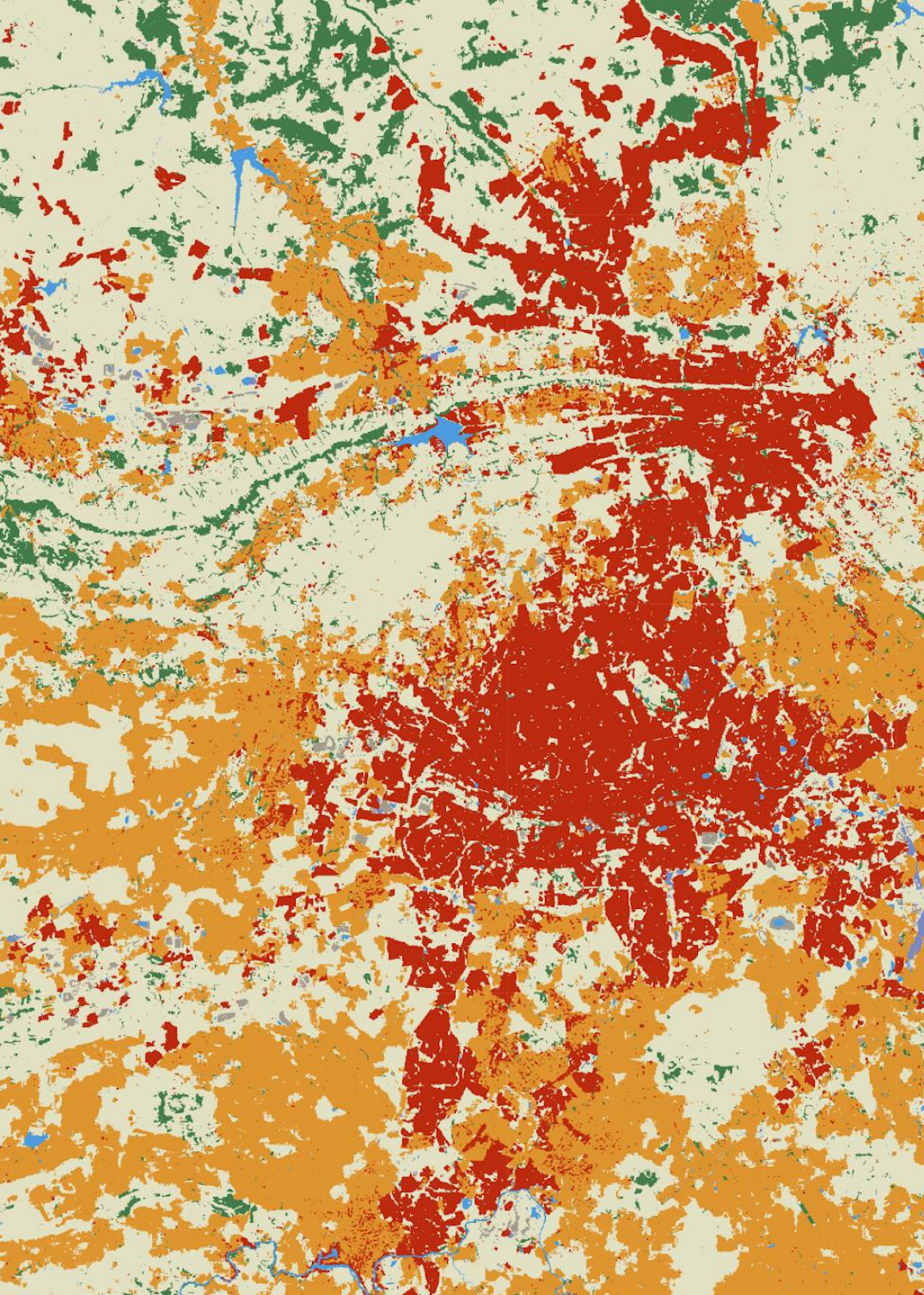


# 1.4 Platform and science

Outcome: The DE Africa science and technical platform continues as a living, robust, operational and world leading capability that is responsive to Africa's requirements.

In 2023, DE Africa:

- ◆ Hosts over 4 Petabytes of data in AWS Africa (Cape Town) Region.
- ◆ Maintained existing operational data pipelines.
- ◆ Made seven externally produced thematic datasets available to users.
- ◆ Released the Rolling Monthly GeoMAD and NDVI Mean and Anomalies continental services.
- ◆ Developed 22 new publicly available notebooks, including real-world use cases.
- ◆ Released new user guides.



*Land Use Land Cover map of the Gaungeng Province, South Africa*

# Africa-based infrastructure and Analysis Ready Data pipelines

As of the end of 2023, DE Africa now hosts over 4 Petabytes of data in the AWS Africa Region - equivalent to >2,000 billion pages of standard printed text - thanks to continued support from Amazon Web Services through the Amazon Sustainability Data Initiative. DE Africa strives to ensure that the data available to users is functional and relevant to the continent, with external datasets added to support user needs.

Uptime monitoring of platform services was implemented, including for the TerriaMaps portal, learning platform, and explorer. This confirmed >98% uptime for each of these services. Uptime of Sandbox services was monitored, and outages remedied in a timely manner. DE Africa continues to engage with platform service providers in order to optimise platform resource use efficiency.

DE Africa continued to upgrade and enhance the operational data. Additional datasets added during 2023 include:

- ◆ ALOS PALSAR Annual Mosaic
- ◆ European Space Agency 2021 Land Use Land Cover
- ◆ OpenStreetMap data
- ◆ World Settlement Footprint and Evolution
- ◆ iSDA soil data
- ◆ Population density

# New continental services

## NDVI Mean and Anomalies

Provides monthly estimates of vegetation health compared to the long-term average conditions, this service can provide valuable insights for decision-makers in crop monitoring, drought and water management, forest monitoring, and land cover change detection.

## Rolling Monthly GeoMAD

Provides a monthly, high-resolution, and cloud-free composite for the entire African continent. It is calculated over a three-month rolling window and plays a critical role in measuring and monitoring changes in the Earth's surface. This is particularly suited to classification and change detection applications, such as agriculture and forestry. This service is a key component of DE Africa's end-to-end framework for crop type mapping, which is essential to understanding and addressing national scale food security and identifying potential risks.



# Analysis tools and user guides

DE Africa now hosts over 140 notebooks, supporting Africa to drive progress towards meeting over seven SDGs. In 2023, new notebooks were developed to support the new continental services and external datasets, as well as for a range of use cases. In total 22 new notebooks were created, and the entire notebook repository was updated during the year. Real-world examples and use cases included:

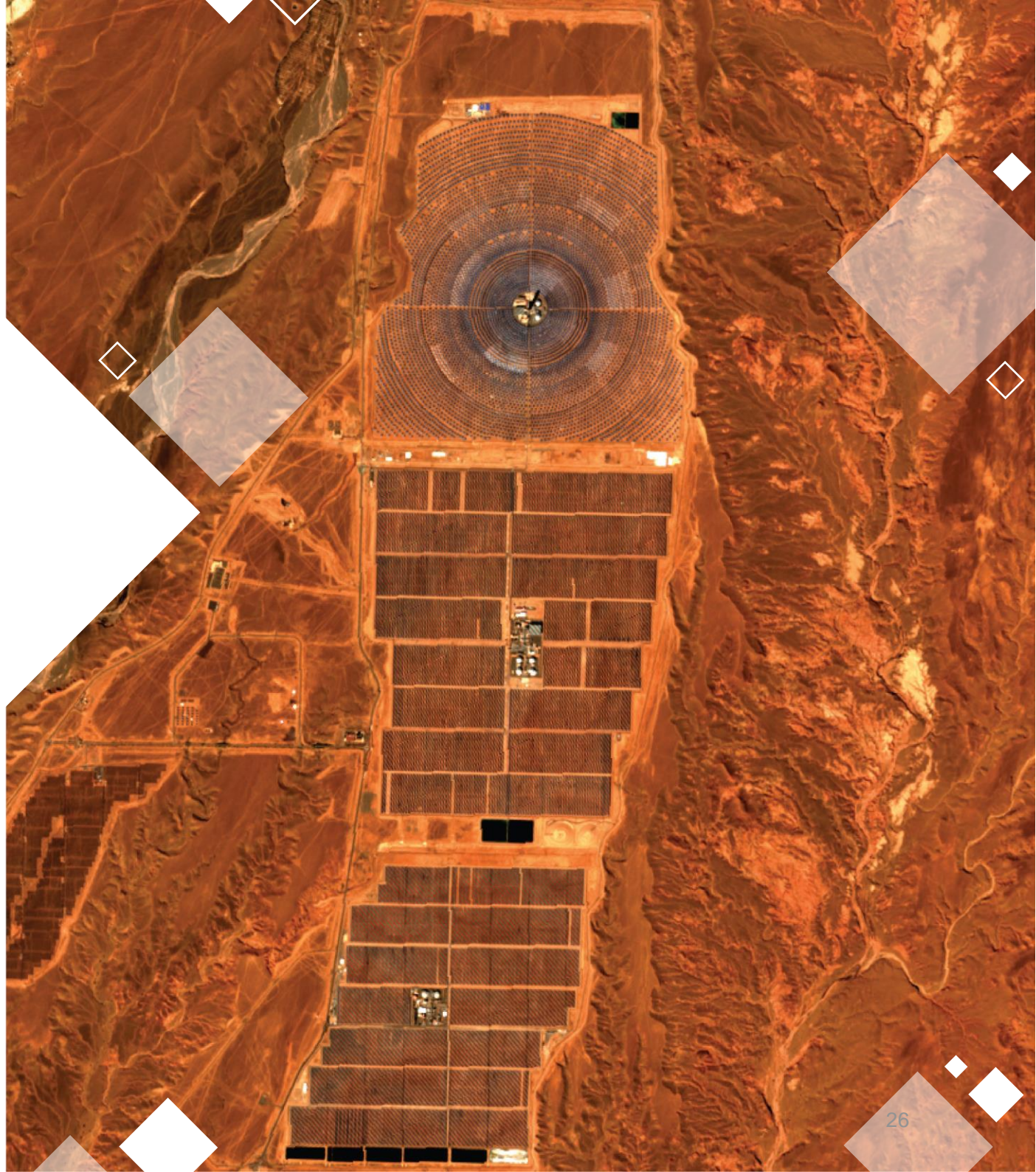
- ◆ Coastlines for islands and cloudy coasts
- ◆ Generating continental scale animations
- ◆ Mapping floating marine debris
- ◆ Crop type mapping workflow
- ◆ Enhanced Vegetation Index

DE Africa was invited by the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA) to present on 'Operational systems for climate monitoring for Least Developed Countries' at Earth Information Day in a plenary setting at COP28, focusing on urban resilience. Africa is undergoing an unprecedented urban and climate transition; EO datasets such as those available through the DE Africa platform, provide a cost-effective and accurate means of mapping cities' urban extent and evolution.

# Outcome 2 Uptake and Impact



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## 2.1 In-country engagement

**Outcome:** Tailoring of DE Africa continental services to address specific in-country needs, especially in areas such as coastline monitoring and/or food security and connecting these to end-users both directly and through partners, governments, the private sector, and communities.

In 2023, DE Africa:

- ◆ Completed the Information for Agriculture, Food and Water Security (IAFWS) Project in partnership with Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and Centre for Coordination of Agricultural Research and Development for Southern Africa (CARDESA), funded by Australian Centre for International Agricultural Research (ACIAR).



IAFWS Workshop attendees, Botswana

# Information for Agriculture, Food and Water Security Project – user needs

This project, funded by the Australian Centre for International Agricultural Research (ACIAR), was led by DE Africa and implemented in partnership with Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA).

The team consulted with a range of agricultural and water management agencies, research and farmer organisations and agriculture communities based in Eastern and Southern Africa to identify the specific needs, opportunities and gaps that could be addressed using Earth observation services to increase agricultural productivity and sustainability, including improved water management. The project resulted in a Roadmap that guides the co-development of fit-for-purpose solutions that leverage Earth Observation through the DE Africa platform.



## 2.2 Capacity development

**Outcome:** Further development of training and capacity-building materials and methods to support, and which are being used by, a diverse range of users, from decision-makers through to in-country specialists, supporting specific products from DE Africa.

In 2023 DE Africa:

- ◆ Participated in 40 face-to-face training and awareness events and workshops in 10 countries.
- ◆ Co-developed four Learning Platform bilingual training modules with program Implementing Partners.
- ◆ Awarded >200 training completion certificates. The team also saw over 1,700 additional Learning Platform registrations.
- ◆ Released the first out of three Learn ArcGIS lessons in collaboration with Esri.
- ◆ Held the 150th live training session and regular sessions in French.



*Mpho Sadiki, DE Africa EO Scientist, at the ISPRS Geospatial Week 2023*

# Training and support

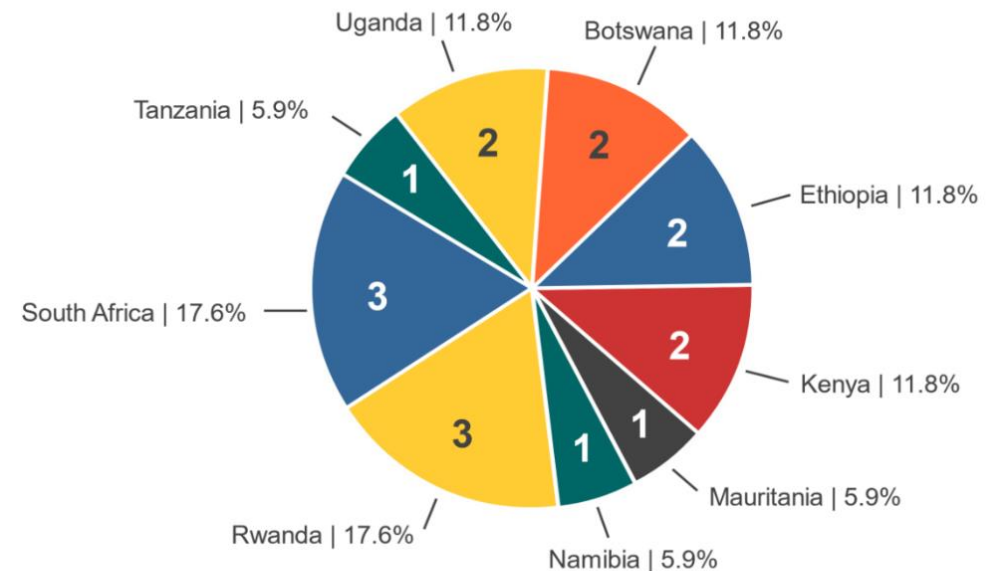
During the year, the team has participated in over 40 face-to-face training and awareness events and workshops across 10 countries in Africa, reaching over 400 people from over 55 institutions. Many of these workshops have been run thanks to support from the program Implementing Partners, and partners through collaborative projects supported by aligned programs.

The training portal has been actively maintained in English and French, with new modules developed regularly. These modules focused on the themes of food security, water resources, urbanisation, and land degradation.

The portal has been used effectively by end users for self-paced training and by implementing partners to deliver training courses. In 2023, five new online courses were released, attracting registrations and demonstrating a growing interest in DE Africa's offerings.



DE Africa Workshop Complete – 2023





## 2.3 User engagement and uptake

**Outcome:** Continued growth in uptake of DE Africa services including the Map and the Sandbox, and direct use of DE Africa services.

In 2023 DE Africa:

- ◆ Saw an over 40% (~6,400) increase in DE Africa map users and 80% (>1,870) increase in DE Africa Sandbox unique logins.
- ◆ Continued to maintain the DE Africa Help Desk and added several online knowledge base articles.
- ◆ Conducted a pilot project with the State University of Zanzibar.

# Growing our user community

The State University of Zanzibar (SUZA) completed the DE Africa-sponsored SUZA Industrial Training Program as a pilot project. The program was coordinated by SUZA staff under the guidance of the Digital Earth Africa team and was completed by 20 students from various programs. This diverse group of students brought various perspectives and expertise to the programme. Aligned with the strategic priorities of Empowering Climate Action and Enhancing Community Engagement, the training programme had well-defined learning objectives.

Students gained skills in visualising mangrove species attributes using the DE Africa platform, community engagement, field activities such as ground truthing, data verification and correction, and classification and accuracy assessment of mangrove species using the Digital Earth Platform.







## 2.4 Demonstrating impact

**Outcome:** A growing number of diverse use-cases where DE Africa services are providing information that is empowering community decision-making and improving lives. Successful engagement with decision-makers and African governments, and institutional strengthening to the point where African governments are utilising DE Africa services and systems to inform policy, plans and actions.

In 2023, DE Africa:

- ◆ Co-developed, published and promoted 9 new use cases, across 6 different countries.
- ◆ Supported multiple industry engagement initiatives, including the Africa Earth Observation Challenge.
- ◆ DE Africa is on track in expanding awareness. DE Africa has a growing presence on various social media platforms, with significant growth in followers and engagement.
- ◆ DE Africa participated in over 50 events, workshops, and conferences worldwide, including sponsorships of key events such as the RCMRD International Conference and AfriGEO.
- ◆ Symposium and participation in GEO-LDN Workshops<sub>33</sub> in Namibia and South Africa.

# Impact stories and use cases from our user community

Chima Iheaturu highlights the exciting potential for collaboration between researchers and DE Africa. His research is focused on modelling the dynamics of tropical forest patches and exploring new methodologies that address the need for locally tailored, high-resolution forest cover maps for West Africa. "DE Africa's cutting-edge infrastructure and data resources are opening new doors for research and innovation. I am particularly impressed by the DE Africa Sandbox, which provides a user-friendly platform for accessing and analysing massive datasets".

Read more here: [Spotlight on Chima: A Passionate Geospatial Scientist Championing Forest Conservation in Africa](#)



# Impact stories and use cases from our user community

Mangroves in Somalia play a vital role in reducing shoreline erosion, as well as providing critical habitats for the fauna of the area. With the longest coastline of mainland Africa, Somalia has a total mangrove forest coverage of 48 square kilometres, but this extent has decreased by 1.65 square kilometres between 1996 and 2020. Liban Hassan received training on DE Africa in Feb 2023 and is now using the platform to identify hotspots of change in mangrove coverage using many of DE Africa's products and services.

Read more here: [Timely Monitoring of Mangroves in Somalia](#)

## More Stories

- ◆ [Meet Khairiya Mudrik Masoud - Empowering the youth to solve the problems of tomorrow with Earth observation technology of today.](#)
- ◆ [Building a more sustainable and resilient future through youth empowerment.](#)
- ◆ [Monitoring Dams in Burkina Faso using Digital Earth Africa.](#)
- ◆ [YouthMappers using Earth observation to achieve more sustainable water management practices.](#)

# Industry engagement

DE Africa was also proud to continue to be a technical partner and to become a funding partner of the [Africa Earth Observation Challenge](#). The Africa Earth Observation Challenge seeks to identify some of the most innovative downstream applications of space technology and geospatial intelligence across Africa. It is aimed at improving various industries such as agriculture and food security, smart cities, and logistics. The Challenge was open to participants from across the continent and successfully received 80 relevant submissions received from 25 different African countries.



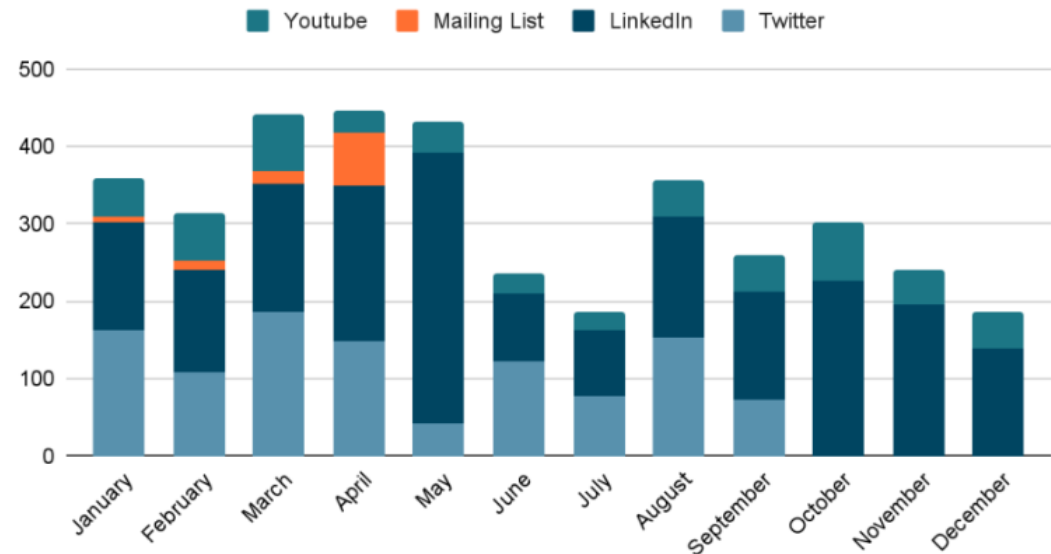
# A growing audience

This year, DE Africa saw continued steady growth in social media engagement, gaining approximately 1,800 new followers on X (Twitter) and 2,800 on LinkedIn, taking the total followers to over 6,600 and 6,300 respectively. Engagement with the website continues to grow with 90,500 all-time users (6,000 in 2023). The fastest-growing social media channel was the DE Africa YouTube Channel which grew over 75% and now has over 1,000 subscribers.

## Communication Metrics



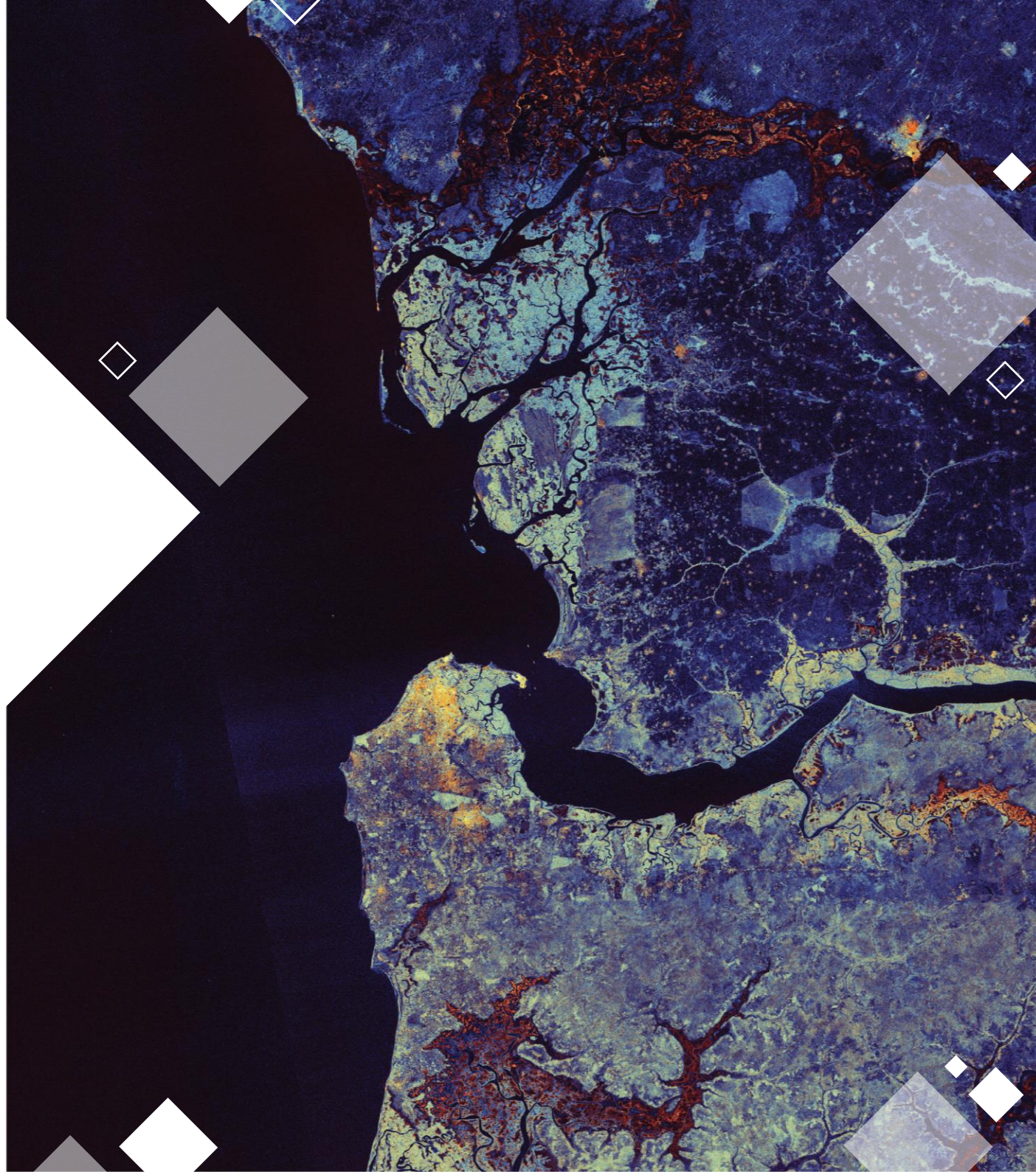
## New Followers on Communications Platforms



# Outlook for 2024



**Digital Earth**  
AFRICA



In 2024, the PMO will be focused on delivering the outcomes and associated indicators identified for the next three years (Phase 3) of the programme.

These deliverables are:

## OUTCOME 1 – SUSTAINMENT

### 1.1 Governance and program delivery

Continued stakeholder confidence in DE Africa's governance (Board and Advisory groups), operations and transparency, building the reputation of DE Africa as a trusted and reliable, pan-African capability with a widely recognised mandate to operate.

- ◆ Governance Board and Technical Advisory Committee Meetings are occurring according to Terms of References
- ◆ PMO operations fully embedded and leading the effective delivery of the DE Africa program
- ◆ Work planning and reporting frameworks effectively implemented
- ◆ DE Africa is internationally recognised as a trusted and reliable brand.
- ◆ All aspects of DE Africa are inclusive with a diverse user base including women, girls, and people with disabilities

### 1.2 Enabling partnerships

African governments and regional institutions are actively supportive of DE Africa pursuing financial sustainment and moving beyond aid funding, based on their appreciation of the value and mode of operations of DE Africa.

- ◆ Efficient and effective ecosystem of partners established
- ◆ Partnerships with key pan African organisations are strengthened
- ◆ Partnerships with African governments are formed for use of DE Africa data and services
- ◆ Partnerships with learning institutions formed for use of DE Africa data and services

### 1.3 Sustainment and business model development

Development and implementation of a cross-sector business model that supports diversifying revenue sources, sustained operations, and contributions with funding secured beyond the end of Phase III.

- ◆ Cross sector business model implemented
- ◆ Digital Earth Africa – 2023 Annual Progress Report 28
- ◆ Partnerships formed to fund further DE Africa activities
- ◆ Supplementary Phase III funding and in-kind support received (2023-2026) ◆ Funding received for future program delivery (2027-2029)

### 1.4 Technologies and science

The DE Africa science and technical platform continues as a living, robust, operational and world leading capability that is responsive to Africa's requirements.

- ◆ DE Africa's science effectively and efficiently meeting African countries' sustainable development needs.
- ◆ DE Africa's technical platform performing efficiently and meeting program and user needs.



## OUTCOME 2 – UPTAKE AND IMPACT

### 2.1 User needs/in-country engagement

Tailoring of DE Africa continental services to address specific in-country needs, especially in areas such as food security, and connecting these to end-users both directly and through partners, governments, the private sector, and communities:

- ◆ Stakeholder Engagement Strategy effectively implemented
- ◆ Increased number of partnerships with African governments formed
- ◆ Country engagement approach defined, and used to frame the annual work plan
- ◆ Increased number of countries with established needs assessment

### 2.2 Capacity development

Further development of training and capacity building materials and methods to support, and which are being used by, a diverse range of users, from decision-makers through to in-country specialists, supporting specific products from DE Africa:

- ◆ Capacity development strategy delivered
- ◆ Increased number of users completing DE Africa training course
- ◆ Evidence of trainees continuing to engage and use DE Africa data and services post training
- ◆ Capacity building for coastline monitoring, impact assessment and adaptation planning conducted
- ◆ Capacity building for diverse trainee base conducted

## 2.3 User engagement/ uptake

Rapid growth in uptake of DE Africa services including the Map and the Sandbox, and direct use of DE Africa services (e.g., coastline and WOfS):

- ◆ Training on all Continent-Wide Services
- ◆ Training on new interfaces supporting diverse user needs
- ◆ Increased range of diverse users across all DE Africa products and services

## 2.4 Demonstrating impact

A growing number of diverse use-cases where DE Africa services are providing information that is empowering community decision making and improving lives. Successful engagement with decision-makers and African governments, and institutional strengthening to the point where African governments are utilising DE Africa services and systems to inform policy, plans and actions:

- ◆ Evidence of benefit to users arising from the information provided
- ◆ Evidence of diverse, cross-sector use case development