

Digital Earth
AFRICA

DE Africa Quarterly Progress Report

April - June 2022

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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 April and June 2022, as aligned with DE Africa's 2022 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

DE Africa outcomes - our work has impact

- **Countries are empowered**, with Earth observation data about land, water resources and human settlements enabling them to make evidence-based policy decisions.
- **Lives are improved**, through access to information that empowers governments, individuals and communities to make informed choices.
- **Development activities are more effective** through access to information that provides insights to better understand the root cause of issues and develop impactful solutions. Development of decision ready products, and analysis ready services to support African Union Agenda 2063 and the UN SDGs.
- **Digital transformation is advanced** through industry uptake and innovation using products and services from DE Africa. Increased economic development and job creation, through access to data for commercial products and services development.
- **Over \$2bn USD of benefits to the African continent** are possible through accelerated industry growth, improvements in agricultural productivity and the detection and prevention of unregulated mining.

\$2.3bn

Even under conservative assumptions, the impact of Earth Observation could be higher than **\$2 billion** (USD) per year

Three key areas



\$500 million
Earth Observation industry
accelerated growth



\$900 million
Agricultural
productivity boost



\$900 million
unregulated gold mining
detection and prevention



Marine Observation
\$212 million



Disaster Risk Reduction
\$74 million



Public Health
\$113 million



Renewable Energies
\$27 million



Oil & Gas
\$15 million



Security and Civil Protection
\$96 million

"The analysis estimates that an overall socio-economic impact of approximately USD 540 million could be achieved per year while keeping the conservative assumption of a 10% application."

*Source; World Economic Forum Report '[Unlocking the Potential of Earth Observation to Address Africa's Critical Challenges](#)'

April - June 2022 highlights

Technical successes

- Cropland extent map now offers complete continental coverage
- Sentinel-1 1st analysis ready radar dataset endorsed by CEOS



Continental crop extent map

Strong partner support

- PMO leadership team onboarded
- New FAO collaboration
- New ACIAR support for water and food security



New UN FAO collaboration

Growing user capacity and engagement

- >2000 registered users.
- 10 workshops and awareness raising sessions
- 89 live sessions



DE Africa user milestone

Increasing engagement & awareness

- Geo Symposium, Kenya Space Expo, UN conference on use of space technology for water resources management
- Living Planet Symposium in Bonn



Living PLANet Symposium 2022

Governance

This quarter commenced with the 4th Governing Board on the 13th of April, with the Board welcoming George Mireku Duker, MP, Ghana's Deputy Minister for Lands and Natural Resources in attendance on behalf of Minister Jinapor.

A major topic for discussion was Digital Earth Africa's Future Funding Strategy and investment themes. The Governing Board members were invited to provide their feedback to the themes of:

- **Institutional Strengthening**
- **Climate Reporting:** drawing on the concepts laid out in the DE Africa Insight report Empowering Country-level Climate Action in Africa ([here](#))
- **Agricultural Forecasting:** drawing on the outcomes of the 11th meeting of the Technical Advisory Committee, March 10 2022, which focussed on food security
- **Impact Evaluation**

Key DE Africa forward events were highlighted with suggestions welcomed from the board members.



Governing Board members in their 4th meeting

Program transition to Africa

This quarter we welcomed our first official Africa based leadership team members:

- Farrah Naido, Program Manager, South Africa.
- Zviko Mudimu, Head of Operations, South Africa.
- Dr Ken Mubea, Capacity Development Lead, Kenya.

A substantial milestone was reached this quarter with the new DE Africa leadership team visiting Australia for two weeks in May. This meeting facilitated great team building between the African and Australia team members and enabled critical handover of knowledge from the conception of the platform, to how the technology works, to the strategic business planning. Dr Thembi Xaba, the incoming Managing Director, was kind enough to come to Australia before her official start date of July 01, 2022.

After this visit, both the Establishment Team and PMO team have been busy ramping up the program transition. This included designing and implementing the transition of platform ownership to SANSA as platform hosts, further Africa based recruitment, and a lot of information hand over. We are happy to say that Zviko and Farrah have gone above and beyond to get up to speed with the program, and are now eagerly taking the program forward.

The culmination of the program transition occurred on the 30th of June, with the official handover of program management to Africa. What was formerly known as the Establishment Team will become Senior Advisers to Digital Earth Africa, and remain on board to support and guide the Digital Earth Africa Program Office in their first months of leading the program.



DE Africa PMO team visits Australia

Sustainment

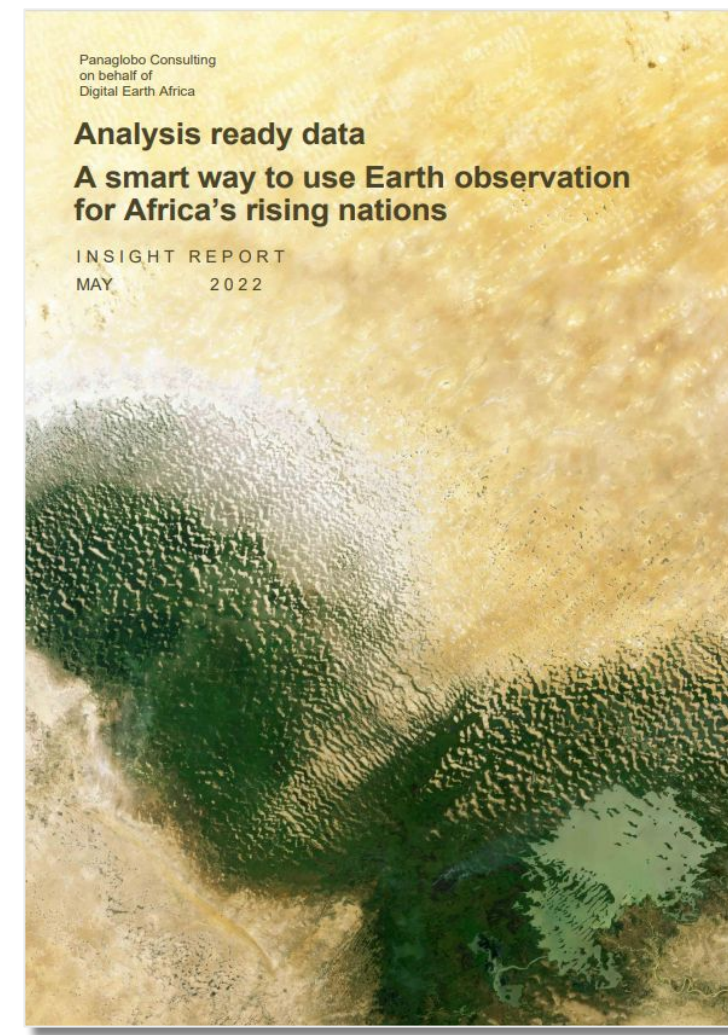
In June, Digital Earth Africa was delighted to secure additional funding from the Australian Centre for International Agricultural Research (ACIAR), in collaboration with the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and International Water Management Institute (IWMI). The funding will support consultations with African agricultural and water management agencies to understand the needs, opportunities and gaps for using Earth observations (EO)-based services to increase agricultural productivity and sustainability.

We continue to seek further funding, and have submitted further proposals for consideration.

In May Digital Earth Africa published a new economic value report, Analysis Ready Data: A smart way to use Earth observation for Africa's rising nations. The report explores how the Digital Earth Africa platform helps to translate analysis ready data into knowledge to tackle challenges facing Africa such as:

- Food security
- Urban planning
- Supply chain efficiencies
- Deforestation and more.

You can find the insight report [here](#).

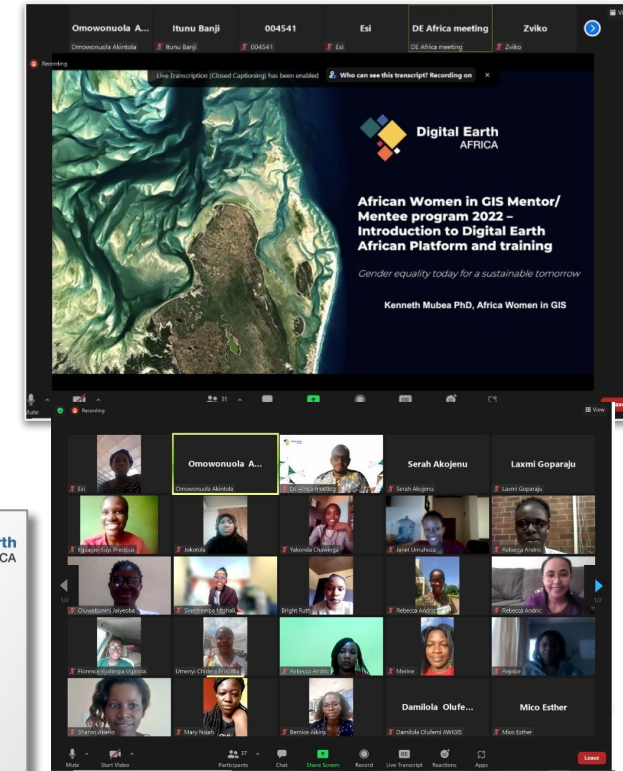
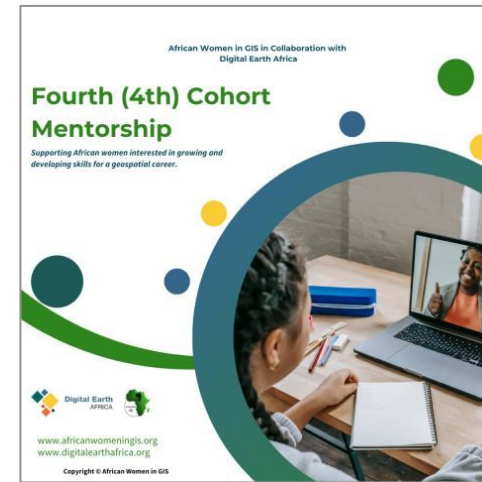


Diversity and inclusion

Digital Earth Africa is partnering with African Women in GIS to support their 2022 Mentoring Program. All participants of the mentoring program will receive training and complete projects that use Digital Earth Africa data and platform. The team delivered a live training session in May to 48 female participants from across Africa and will continue to support the participants with training and access to weekly live sessions throughout the program. DE Africa also promoted this activity at the WGCapD and EOTEC DevNet meetings in June.

DE Africa continues to profile and showcasing diverse leaders and practitioners across the sector through social media networks and in all its communications, for example:

- Dr Ken Mubea presented the work DE Africa is doing to improve inclusion of women in the "Harnessing the Power of Inclusive Voice in GEO" session at the GEO Symposium.
- Dr Meghan Halabisky and Dr Fang Yuan participated as panelists in the "Cultivating an inclusive future in remote sensing and Earth observation" session at the Living Planet Symposium.
- A blog article featuring Jamilatou Begou from DE Africa partner AGRHYMET was published in both [English](#) and [French](#) as the first in a series to highlight women in STEM.





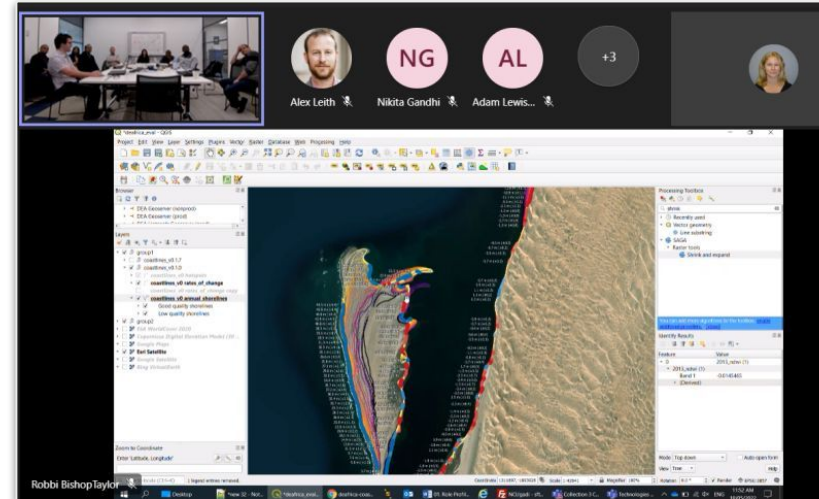
Platform and data

Digital Earth Africa now has over 3.2 Petabytes of freely available data stored in Amazon Web Service's (AWS) Cape Town Region facility.

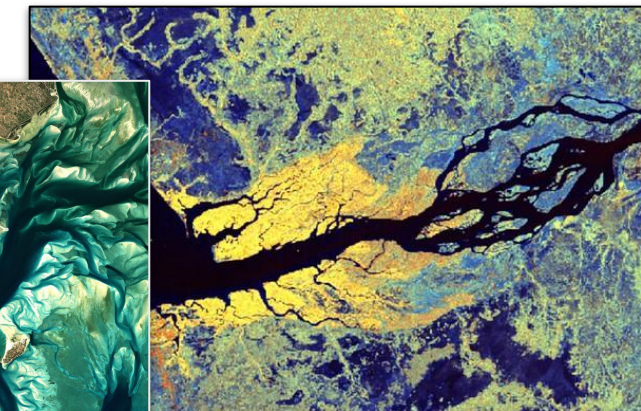
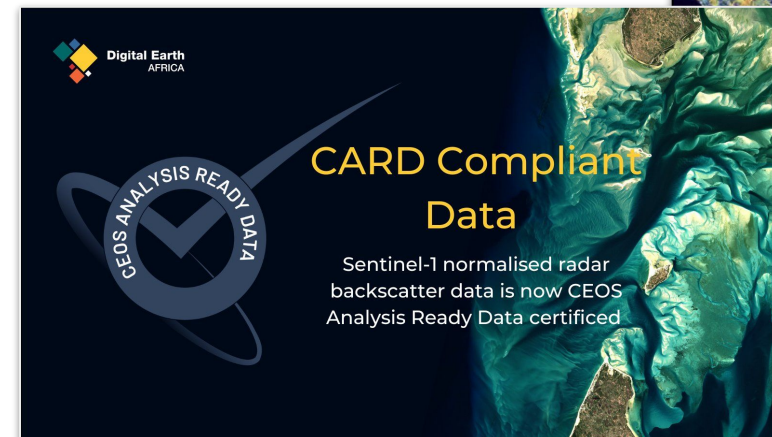
DE Africa's Sentinel-1 radar backscatter product was endorsed by the Committee on Earth Observation Satellites (CEOS) to be compliant with the CEOS Analysis Ready Data (CARD) specifications. This is the first radar dataset to receive this endorsement.

The Digital Earth Africa platform transition is nearly complete, to be handed over to the SANSA team as the platform host. The development account is now fully managed by SANSA, with the production account is expected to be transferred beginning of July.

As part of Digital Earth Africa's Power User trial, 12 users from 7 countries have been granted access to a Sandbox with a larger compute power to enable large scale analysis. The user get 3 months of Power User access, and will provide a brief report on the project outcomes.



DE Africa platform transition workshop



Sentinel-1 over Congo River, DRC

Services and analysis tools

The provisional Cropland Extent Map now offers complete coverage of the entire African continent. The continental Cropland Extent Map is the culmination of over 18 months of co-design and validation with a range of institutions across Africa including RCMRD (Kenya), AfriGIST (Nigeria), OSS (Tunisia), NADMO (Ghana) and AGRHYMET (Niger).

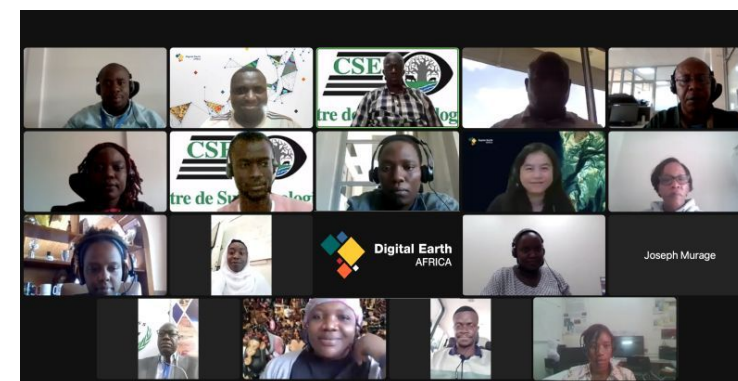
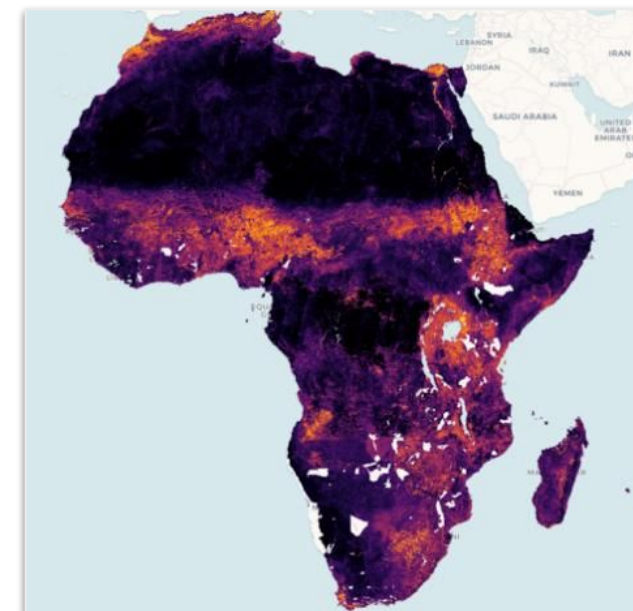
Development of a Coastlines service has kicked off, with a prototype workflow tested to work at continental scale. This prototype will be further refined and tested before becoming available for users.

DE Africa now has 100 notebooks available which support 7 SDGs and 16 indicators. Examples of new analysis tools (Jupyter Notebooks) which have been developed last quarter include:

- Mountain Green Cover Index (SDG 15.4.2), in collaboration with the FAO
- Temperature trend analysis
- Water turbidity estimate

A guide is now available on how Digital Earth Africa data and services can be used to support Sustainable Development Goals (SDGs). You can find the guide [here](#).

DE Africa Wetlands Working Group, comprising teams from Centre De Suivi Écologique and Regional Centre for Mapping of Resources for Development shared their plans and progress in using DE Africa tools and services to map and monitor wetlands in their regions.



Capacity development

AGRHYMET Regional Center hosted a workshop on “using advanced remote sensing and cloud computing for satellite image processing” in May to train users on Digital Earth Africa’s Sandbox platform, and help individuals to develop the techniques they need to process and explore Earth observation data. The workshop welcomed 40 participants from the Abdou Moumouni University, the university of Diffa, the Ministry of Agriculture, Livestock, NGOs and the AGRHYMET Regional Centre.

Digital Earth Africa ran a hybrid workshop on using Earth observation for water monitoring before the 5th International Conference on the Use of Space Technology for Water Resources Management.

Together with UNSD and FAO, Digital Earth Africa delivered a workshop to the National Institute of Statistics of Rwanda on “strengthening the use of geospatial information for the production of SDG indicators”. Participants learned about Digital Earth Africa platform and how to use DE Africa tools to monitor Mountain Green Cover Index (SDG 15.4.2) following FAO developed methodology. The same workshop was also provide to several institutions (ISTEEBU, IGEPU, OBPE and BCG) in Burundi.

AFRIGIST delivered trainings on “water resource and flood risk management” and “agriculture and food security”, each in French and English. The training materials will be incorporated into two training modules for the Digital Earth Africa learning platform.



AGRHYMET Regional Centre workshop



AFRIGIST food security workshop



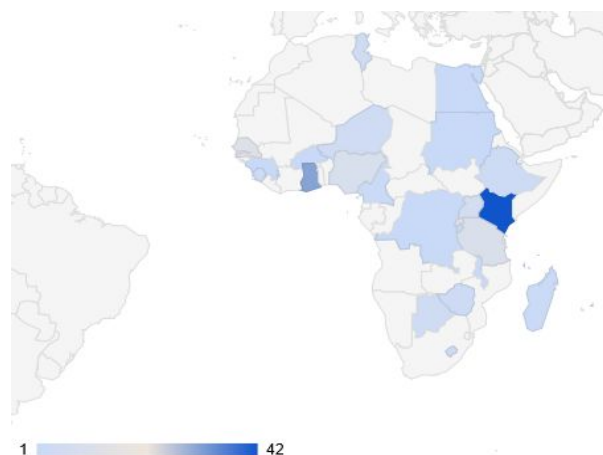
5th International Conference on the Use of Space Technology for Water Resources Management

Growing user community - by the numbers

Weekly live sessions

86

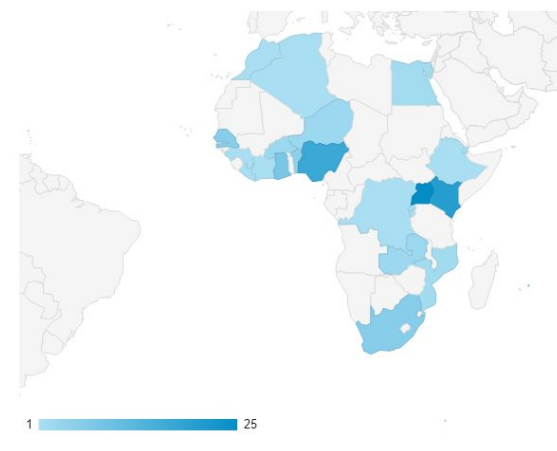
now in EN and FR -204
unique attendants from 31
countries



Online training

347
+12%

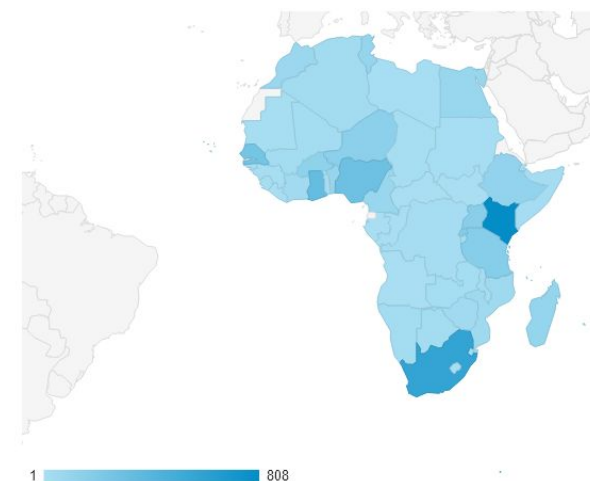
Certificates of completion



Users

2178
+18 %

Registration in Sandbox



Users

10,783
+19 %

Unique DE Africa map users

13

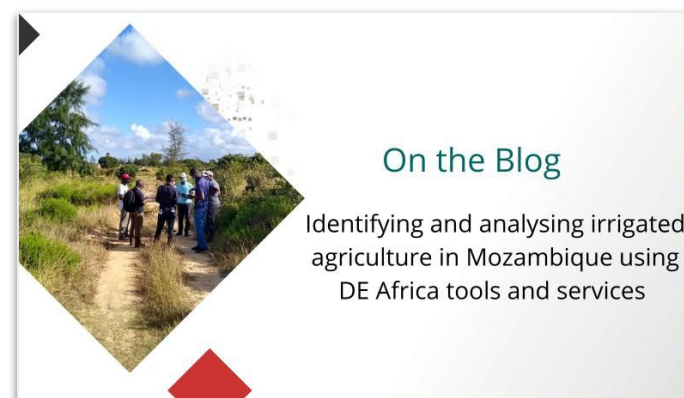
Latest use case studies

Published/In Press

- [Identifying and analysing irrigated agriculture in Mozambique using DE Africa tools and services](#)
- [Digital Earth Africa helps to remotely assess the productivity of mango farms in Ghana](#)
- [Digital Earth Africa - a use case for Earth observation from the UN Big Data Task Team](#)
- [Creating an open-source framework for crop-type mapping in Africa, Zambia](#)
- [Developing an Operational Surface Water Monitoring Framework for Northern Rangelands Trust \(NRT\), Kenya](#)
- EO for Coastline Erosion Monitoring in Saly-Portudal/Senegal

In scoping and development

- Combined Drought Index, Uganda
- Crop Monitoring in Guinea
- Decline in crop productivity in Subukia, Nakuru Country, Kenya
- Soil Erosion and water quality, DRC
- Water bodies/wetlands monitoring in and around Volcanoes National Park in collaboration with KRC/DFGI-Rwanda
- Monitoring of secondary Cities in Rwanda in collaboration with RSA
- Monitoring mangroves in Mtwapa creek, Mombasa, Kenya - Technical University of Mombasa (Dr. Cosmas Munga)

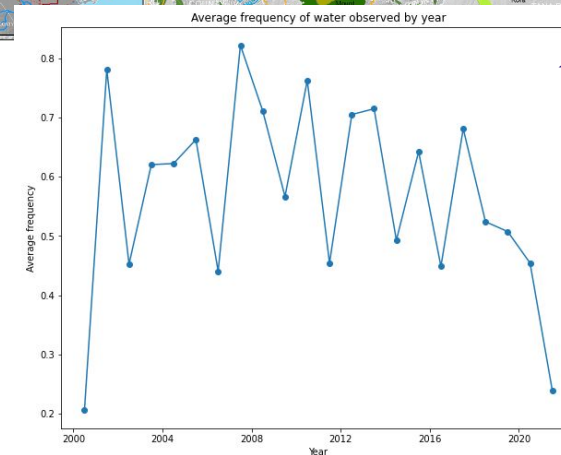
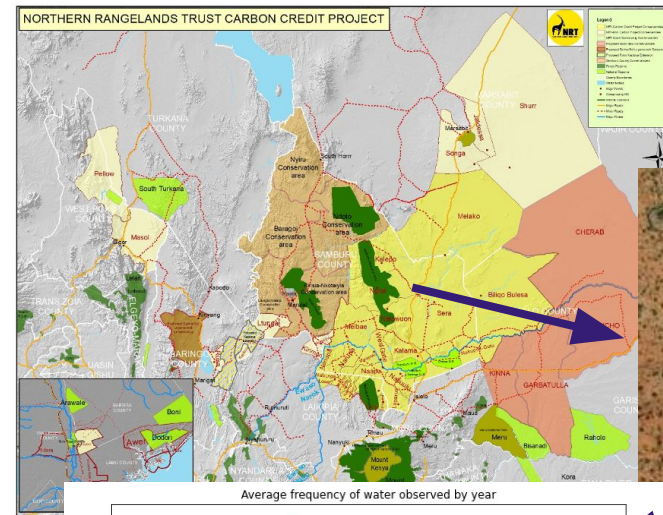


Operational Surface Water Monitoring

Northern Rangelands Trust (NRT) Community Conservancies, Kenya

Operational Surface Water Monitoring Framework for Northern Rangelands Trust (NRT) Community Conservancies

NTR are using DE Africa tools to identify individual water bodies and track water body extent over time, providing a critical missing piece of information in planned grazing management. Pastoralists select forage sites near where water is available and this information on water availability provided near real time helps pastoralists to make timely decisions, including more effectively reacting to drought conditions.



Average filled portion of the water body for each calendar year

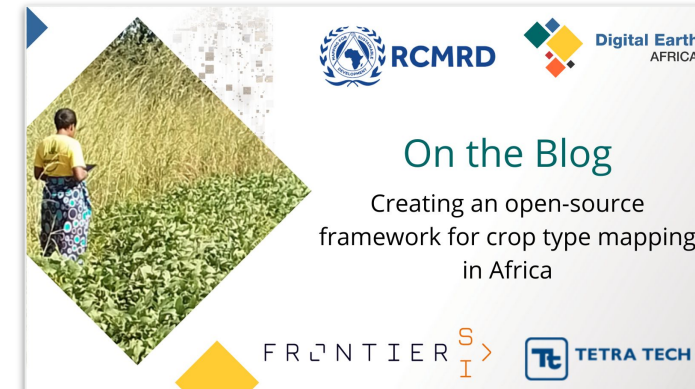
Partnerships and aligned programs

Digital Earth Africa commenced a new project in collaboration with the Food and Agriculture Organisation of the United Nations (the FAO) and FrontierSI, to upscale existing work from the FAO in land cover and crop mapping using DE Africa's tools, services and experience to expand the impact into more areas across Africa. The aim of the project is for the new systems to be used by National Statistics Offices across Africa and in FAO's existing Hand in Hand Initiative. Find out more [here](#).

Digital Earth Africa is working with UNSD and FAO to increase the availability, timeliness and disaggregation of national Sustainable Development Goal data while integrating the use of new and innovative sources, methods and technologies.

Digital Earth Africa is progressing the project supported by the Enabling Crop Analytics at Scale (ECAAS) initiative, in partnership with RCMRD and FrontierSI. The RCMRD team has completed field data collection in Zambia and handed over tablets installed with data collection tool to the Zambia Ministry of Agriculture team to support future field data collection. See [blog article](#) for more information.

Digital Earth Africa are proud to have been awarded the 'Award for International Partnership' with our partner FrontierSI, in collaboration with Cooi Studios and NGIS Australia at the Surveying & Social Sciences Institute (SSSI) Asia-Pacific Spatial Excellence Awards.



Community engagement

Digital Earth Africa team attended the GEO virtual symposium - *Global Action for Local Impact* held from the 2-5 May. Team presentations included, 'Global Action to Local Impact: How Do We Do That?' and 'Harnessing the Power of Inclusive Voice in GEO'. One of our Partners, Centre De Suivi Ecologique, presented in the session 'EO in Support of Integrated Coastal Zone Management and Marine Spatial Planning' on behalf of Digital Earth Africa.

Digital Earth Africa was a partner of the inaugural Kenya Space Expo 15-18 June. Dr Kenneth Mubea presented in a panel for 'Emerging Technologies in EO data utilisation' on June 16th and the team ran a booth throughout the Expo.

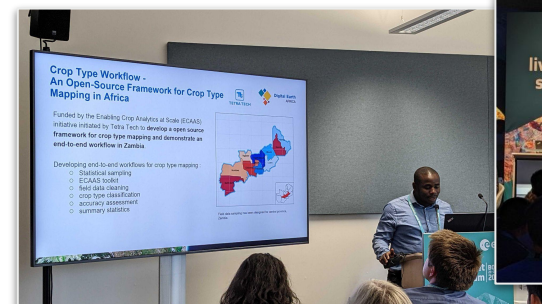
The Digital Earth Africa team attended the Living Planet Symposium in Bonn. Dr Meghan Halabisky and David Ongo (RCMRD) presented Digital Earth Africa's work in agriculture and food security in a GEOGLAM session. The Digital Earth Africa team also presented a poster in EO 4 Africa session. The event was a great opportunity to engage with ESA and the international EO community.

Digital Earth Africa was invited by the Dian Fossey Gorilla Fund International to run a workshop for their staff on how DE Africa products and services could contribute to their mission of "Helping People. Helping Gorillas."

Digital Earth Africa collaborated with OPEN-BURKINA to organize a workshop on EO for sustainable Cities.



Ken (Capacity Development Manager) and Zviko (Head of Operations) at the Kenya Space Expo



David Ongo and Meghan Halabisky presenting at Living Planet Symposium

Building awareness

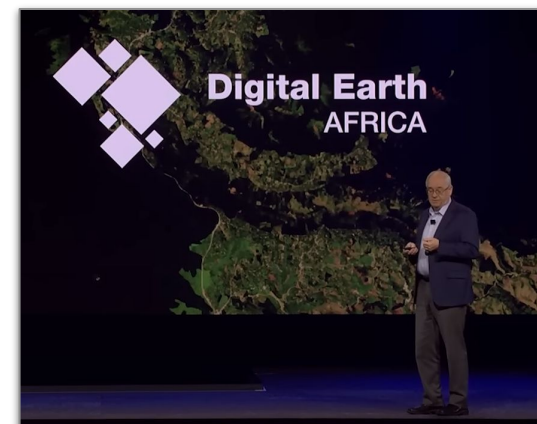
Digital Earth Africa was a topic of discussion at the Commonwealth Heads of Government Meeting (CHOGM) in June, with the Australian Minister for International Development and the Pacific, Minister Conroy, meeting with Minister Ingabire, the Rwandan Minister for ICT and Innovation and co-chair of the DE Africa Governing Board.

DE Africa was featured at the AWS Re:MARS Conference as part of a keynote speech delivered by Tom Soderstrom, the Director of Chief Technologists, AWS Public Sector. AWS continues to champion Digital Earth Africa and raise awareness of the platform to a broad audience.

Key media mentions this quarter included:

- American Geographic Society - [Company Spotlight](#)
- African Business - [Smarter management of water can help feed Africa](#)
- Space in Africa - [FAO, DE Africa and Frontier SI Collaborate to Enhance EO Use in Africa](#)
- Afrique IT News - [La FAO, DE Africa et Frontier SI collaborent pour améliorer l'utilisation de l'OT en Afrique](#)
- SpaceWatch.Global - [The Space Cafe Podcast #051: Steven Ramage – GEO, Earth observation, The big eye in the sky](#)
- Harvard International Review - [The Space Race Expands: Why African Nations Are Looking Beyond Earth](#)
- Amazon News - [AWS customers create sustainable solutions to impact climate change](#)

Community engagement on social media continues to grow, and statistics can be found on the following page.



Digital Earth Africa at AWS Re:MARS, Day 3
keynote by Tom Soderstrom



Tweet from the Rwandan Ministry of ICT
and Innovation

Communication metrics

Twitter

- There are now **over 4,400 Twitter followers** with 450 new followers gained this quarter
- **98.5K impressions** over the quarter
- **506 link clicks and 439 retweets** over the quarter

Website

- **9,947 visitors** over the quarter
- **41,094 unique page views** this quarter

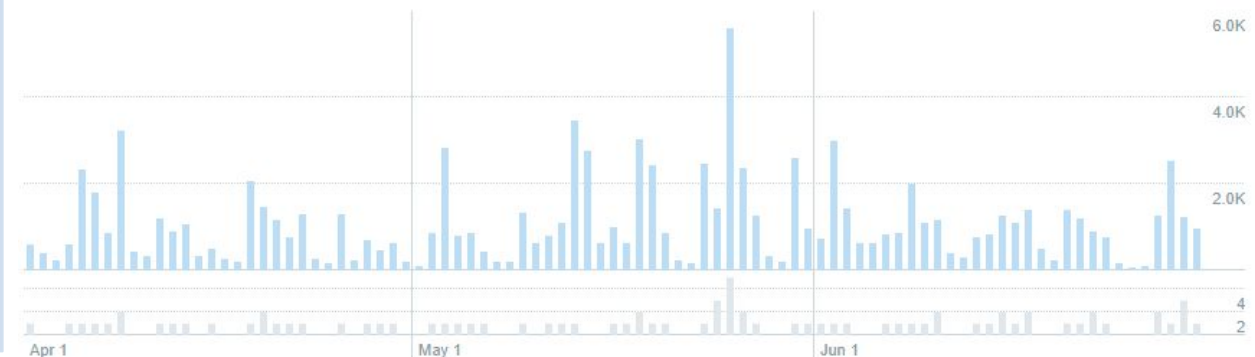
Visitor locations (% users)

USA (14.6%), Kenya (9%), South Africa (5.4%), Nigeria (4.5%) , Germany (3.7%), Australia (4%),

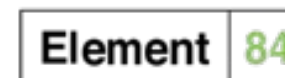
LinkedIn

- There are now **over 3,300 LinkedIn followers** with 1,106 new followers gained this quarter
- 99 new followers gained in one day
- A total **127K impressions** and 151 shares over the quarter

Tweet impressions April - June 2022



Acknowledgements



THANK YOU

