CEOS – GEO Infrastructure update

Paola De Salvo

- Data – Knowledge Working Group
- Post2025 strategy
- Focus areas
- GIDTT discussion
- GEO infrastructure and national geos
- GKH
- ODOK24

GEO
Data and Knowledge Working Group

In-situ data subgroup

Overall objective: continued development and promotion of a strategy for GEO that addresses the barriers to sharing and re-use of in-situ data

Tools and priorities

GEO In-situ Data Strategy

Fairification tool

G-reqs

Data Sharing and Data Management Principles subgroup

Tools and priorities

Data Management Principles
(+ Crosswalk of DMPs)

Data Sharing Principles implementation Guidelines

Self-assessment tool

Dialogue series
(6th and 13th of November for the GWP activities)

Collaborating in support to Open Knowledge through the different GEO activities

- Other GEO WG (e.g., Capacity building, Youth, GIDTT)
- Co-organization of ODOK 2024

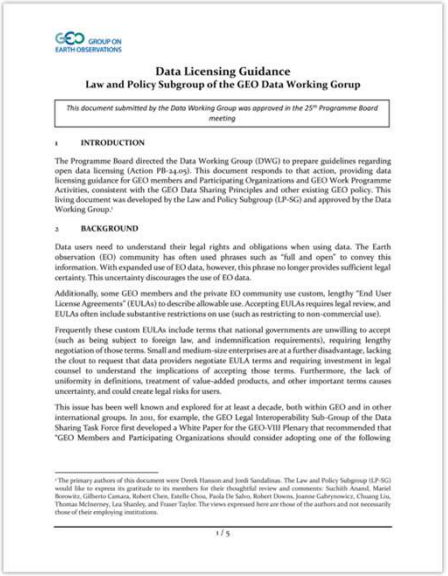
Law & Policy subgroup

Overall objective: engage with GWP Activities to better understand and leverage open data license

Tools and priorities

Data Licensing Guidance ✓	Increase adoption of the GEO Licensing guidance
Survey on Data License launched at ODOK 2024	Engagement with GWP Activities 21st November Webinar on Open Data License

Data License Guidance



Data Licensing Guidance
Law and Policy Subgroup of the GEO Data Working Gorup

This document submitted by the Data Working Group was approved in the 25th Programme Board meeting

1 INTRODUCTION

The Programme Board directed the Data Working Group (DWG) to prepare guidelines regarding open data licensing (Action PB-24.05). This document responds to that action, providing data licensing guidance for GEO members and Participating Organizations and GEO Work Programme Activities, consistent with the GEO Data Sharing Principles and other existing GEO policy. This living document was developed by the Law and Policy Subgroup (LP-SG) and approved by the Data Working Group.[1]

2 BACKGROUND

Data users need to understand their legal rights and obligations when using data. The Earth observation (EO) community has often used phrases such as "full and open" to convey this information. With expanded use of EO data, however, this phrase no longer provides sufficient legal certainty. This uncertainty discourages the use of EO data.

Additionally, some GEO members and the private EO community use custom, lengthy "End User License Agreements" (EULAs) to describe allowable use. Accepting EULAs requires legal review, and EULAs often include substantive restrictions on use (such as restricting to non-commercial use).

Frequently these custom EULAs include terms that national governments are unwilling to accept (such as being subject to foreign law, and indemnification requirements), requiring lengthy negotiation of those terms. Small and medium-size enterprises are at a further disadvantage, lacking the clout to request that data providers negotiate EULA terms and requiring investment in legal counsel to understand the implications of accepting those terms. Furthermore, the lack of uniformity in definitions, treatment of value-added products, and other important terms causes uncertainty, and could create legal risks for users.

This issue has been well known and explored for at least a decade, both within GEO and in other international groups. In 2011, for example, the GEO Legal Interoperability Sub-Group of the Data Sharing Task Force first developed a White Paper for the GEO VIII Plenary that recommended that "GEO Members and Participating Organizations should consider adopting one of the following

[1] The primary authors of this document were Derek Hanson and Jordi Sandalinas. The Law and Policy Subgroup (LP-SG) would like to express its gratitude to its members for their thoughtful review and comments: Suchith Anand, Mariel Borowitz, Gilberto Camara, Robert Chen, Estelle Chua, Paola De Salvo, Robert Downs, Joanne Gabrynowicz, Chuang Liu, Thomas McInerney, Lea Shanley, and Fraser Taylor. The views expressed here are those of the authors and not necessarily those of their employing institutions.

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There is also planned next steps

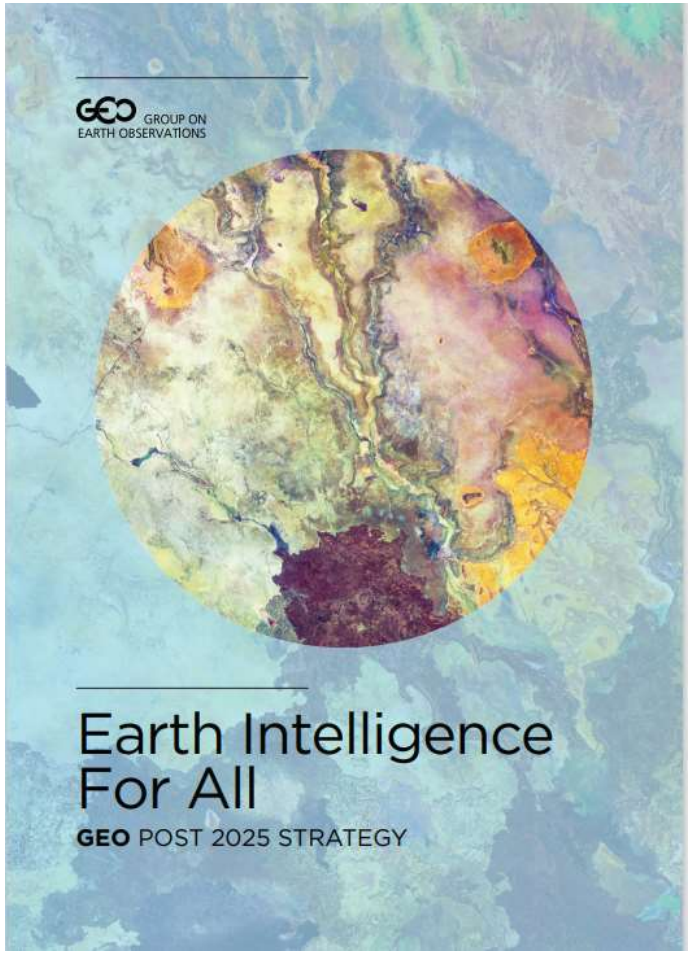
- Software Licensing
- Collaboration with the Artificial Intelligence subgroup (Just approved in PB)

Survey on Data License

Engagement with GWP

GEO Work Programme

Post 2025 Strategy



GEO Post 2025 Strategy Full Document.pdf (earthobservations.org)

GEO GROUP ON EARTH OBSERVATIONS

Earth intelligence for all — GEO Symposium & ODOK Workshop — FROM VISION TO ACTION

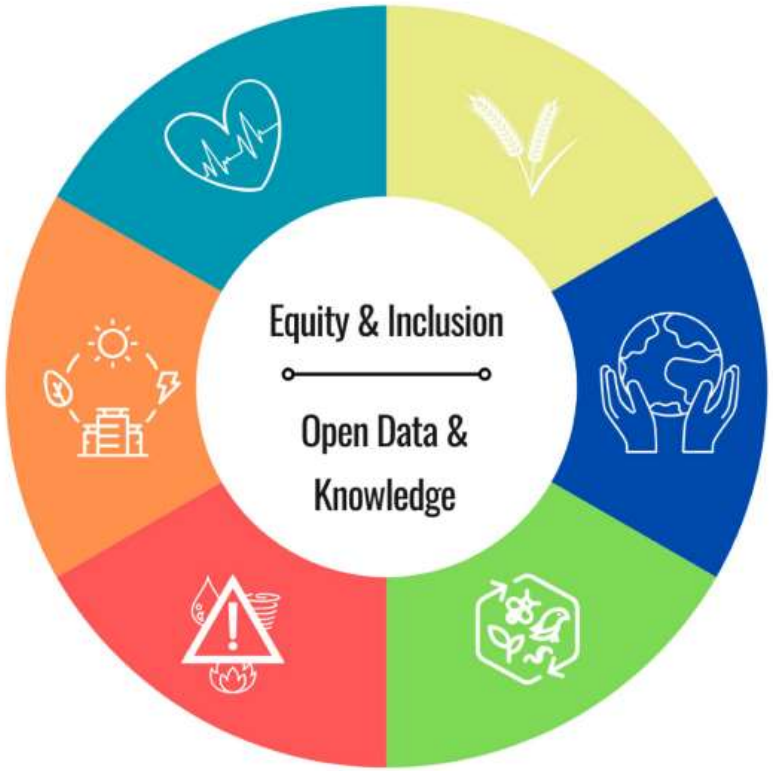
.....This global context sets the stage for a new chapter of GEO. There is a clear need for a global partnership where data providers and users from all communities work together, leading to better coordination, greater inclusion, reduced duplication, and faster action.....

. This means that GEO will continue to facilitate the supply of Earth observation data, but at the same time strengthen demand-led activities, providing users with insights for better decision-making, sourced from across the Earth observation value chain and covering multiple thematic areas.....

GEO Work Programme Activities

INITIAL FOCUS AREAS

- AGRICULTURE & FOOD SECURITY
- WATER & LAND SUSTAINABILITY
- ECOSYSTEMS-BIODIVERSITY & CARBON MANAGEMENT
- WEATHER & DISASTER RESILIENCE
- CLIMATE, ENERGY, & URBANIZATION
- ONE HEALTH
- EQUITY & INCLUSION
- OPEN DATA & KNOWLEDGE



Food Insecurity-Agriculture

Weather & Disaster

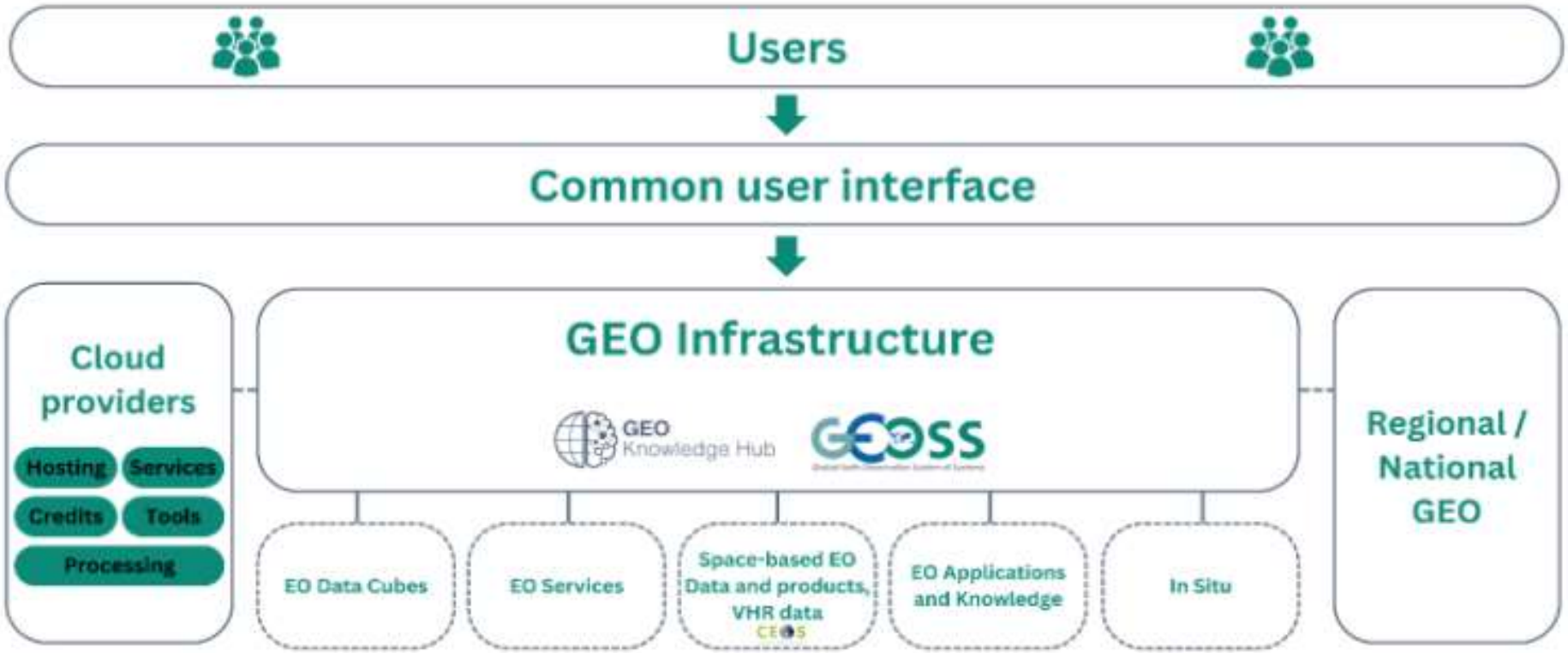
Water & Land Sustainability

Climate, Urban & Energy

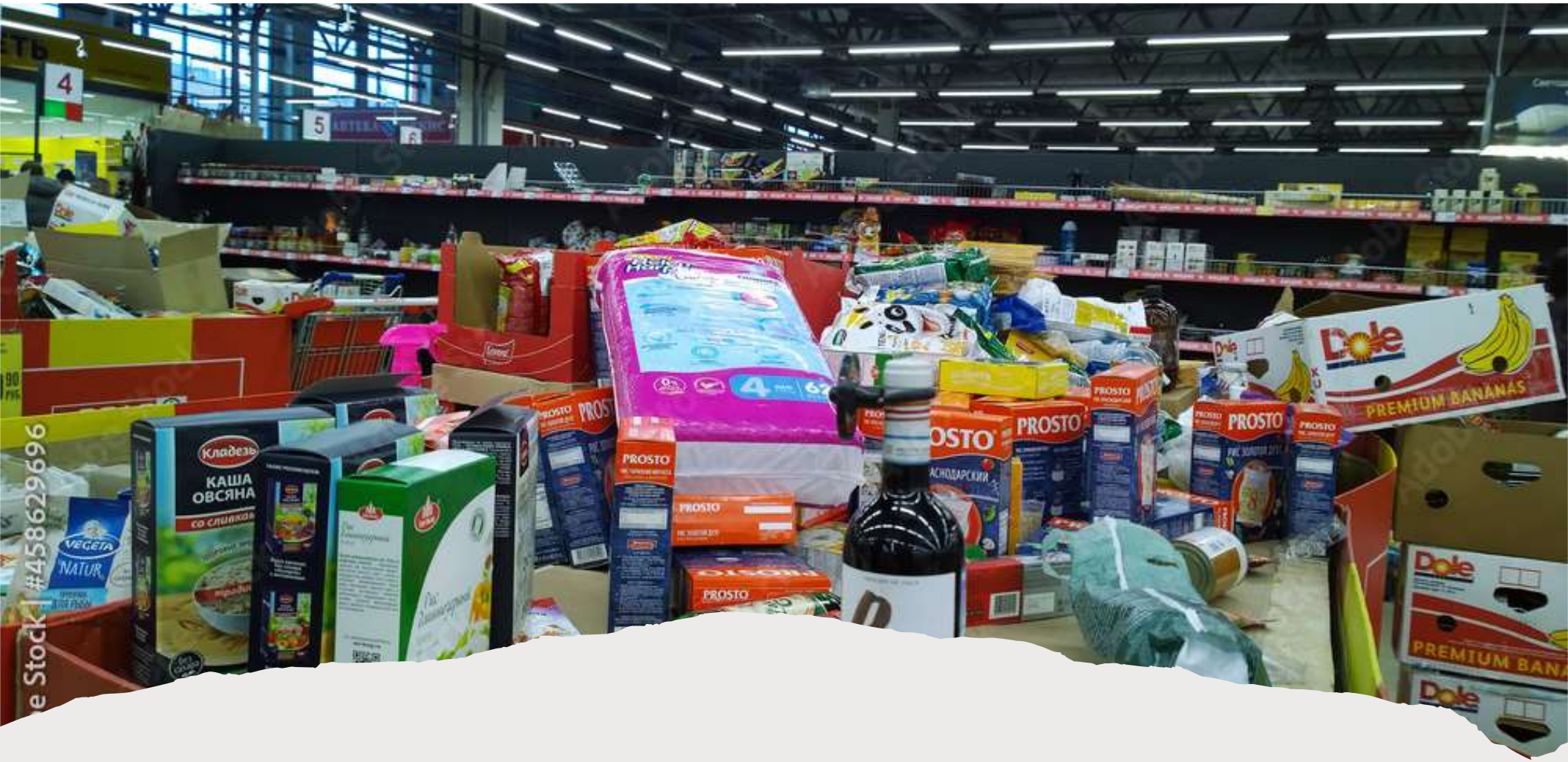
Ecosystem, Biodiversity and Carbon Management

One Health

GIDTT Discussions




What problem are you trying to solve ?
Why
Agriculture & Food Security
Water & Land Sustainability
Ecosystems-Biodiversity & Carbon Management
Weather & Disaster Resilience
Climate, Energy & Urbanization
One Health
Who
Developer
GIS specialist
What's your profile ?
Non-technical
Where
When
Location and time
What
Data and resources
Satellite data and datacube
In situ
Services
Tools
EO Derived
Applications
Knowledge


Кладезь
КАША
ОВСЯНА
со сливками
VEGETA
NATUR
PROSTO
Dole
PREMIUM BANANAS
e Stock | #458629696

GEOSS

GEO Infrastructure

Food Security and Agriculture

E.g. Crop Monitor

- GEO Infrastructure as a place where the User can find Organized by Categories the essential Ingredients and the relative source to use – and Reuse to respond to the main challenge/application

Space based data

Data Cubes/STAC

Tools: Copernicus Space Based Data Ecosystem; etc…

Executable notebooks

In situ data & In situ data Variables

Available existing applications

Training Material….

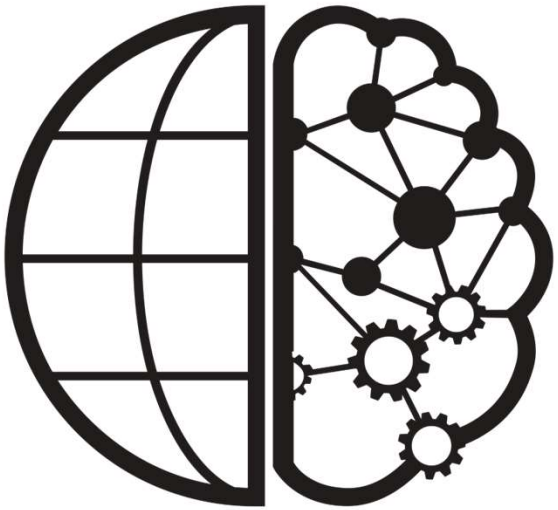
National GEOs and their Main challenges

e.g. Italy:

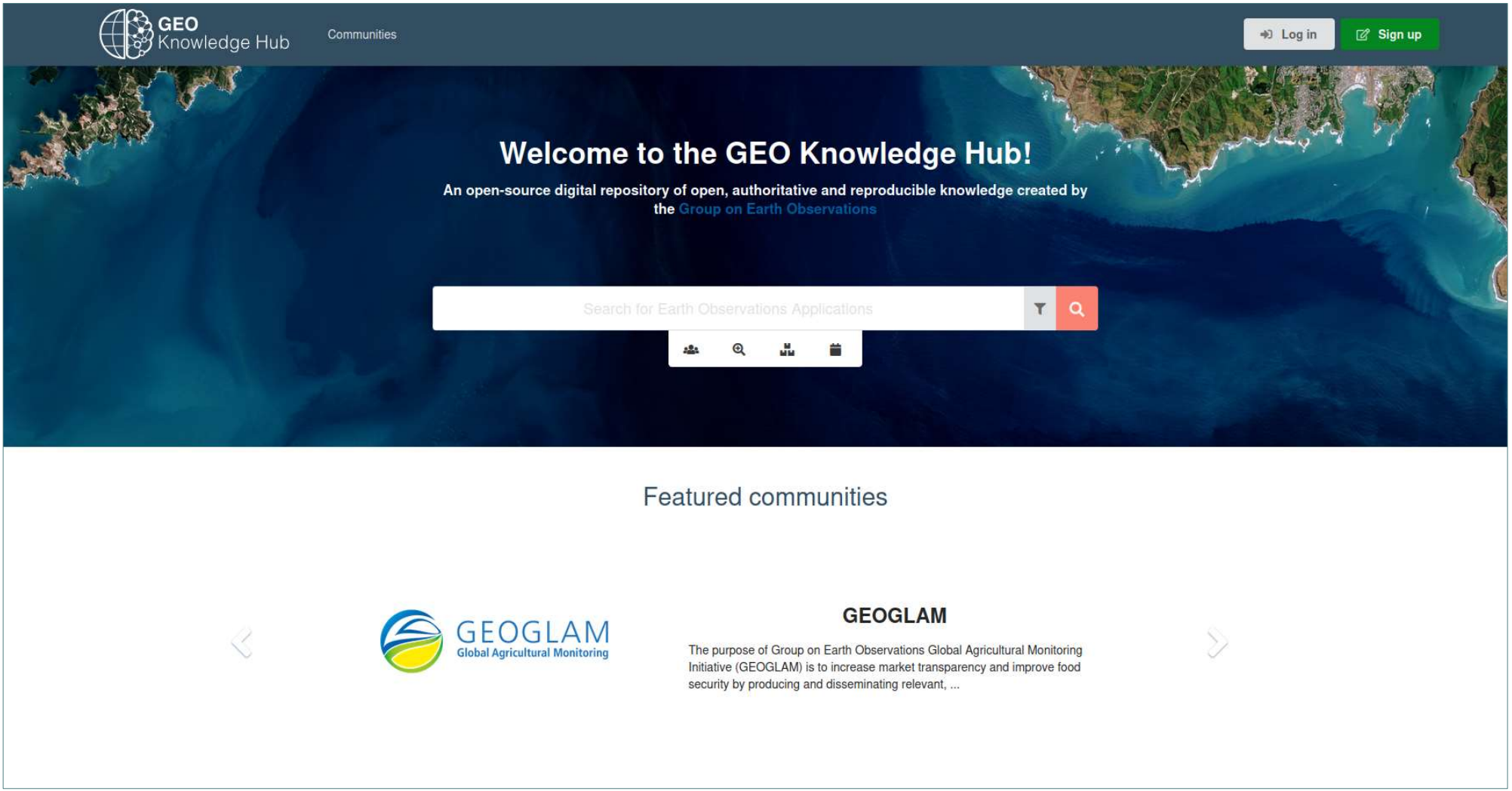
1. **Land Use and Urbanization**: Rapid urbanization and land use change threaten ecosystems and agricultural lands. EO can help monitor urban sprawl, assess land cover changes, and support sustainable land management practices.
2. **Climate Change Impacts**: Italy is experiencing increased extreme weather events, such as floods and droughts. EO can provide valuable data for climate modeling, disaster preparedness, and assessing the impacts of climate change on various regions.
3. **Biodiversity Loss**: Habitat destruction and pollution are driving biodiversity decline. EO can monitor habitat changes, track species distribution, and support conservation efforts by providing insights into ecosystem health.
4. **Soil Degradation and Erosion**: Intensive agricultural practices and deforestation contribute to soil erosion and degradation. EO can help assess soil health, monitor erosion patterns, and guide sustainable agricultural practices.
5. **Air Quality and Pollution**: Urban areas in Italy often face air quality issues due to industrial emissions and traffic. EO can be used to monitor air pollution levels, identify pollution sources, and inform policy decisions aimed at improving air quality.

GEO GROUP ON EARTH OBSERVATIONS

Earth intelligence for all
GEO Symposium & ODOK Workshop
FROM VISION TO ACTION

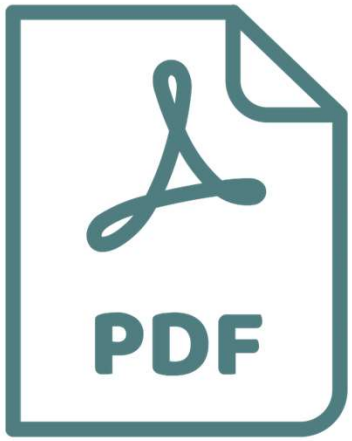


GEO Knowledge Hub



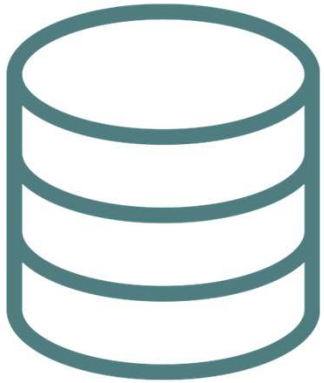
gkhub.earthobservations.org


In-situ data
Tools
Knowledge Package
User stories
Articles & notes

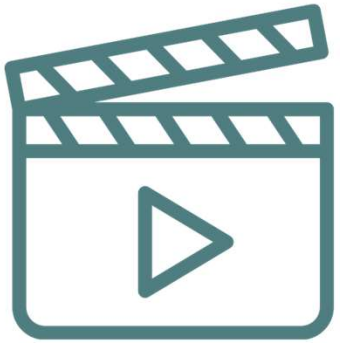


Documents

Code



Data



Video

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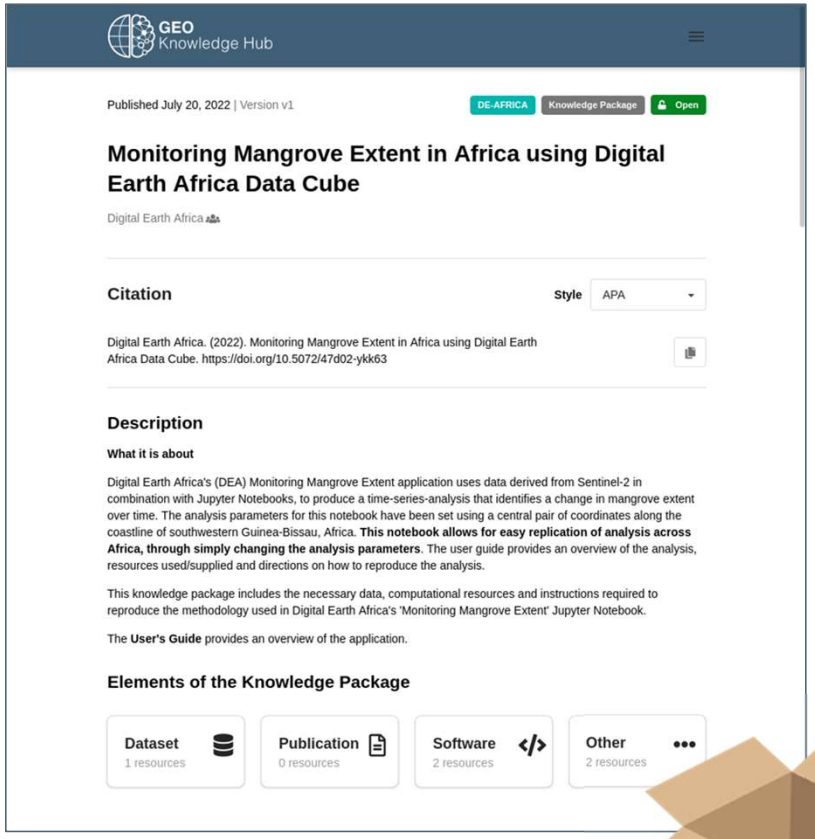
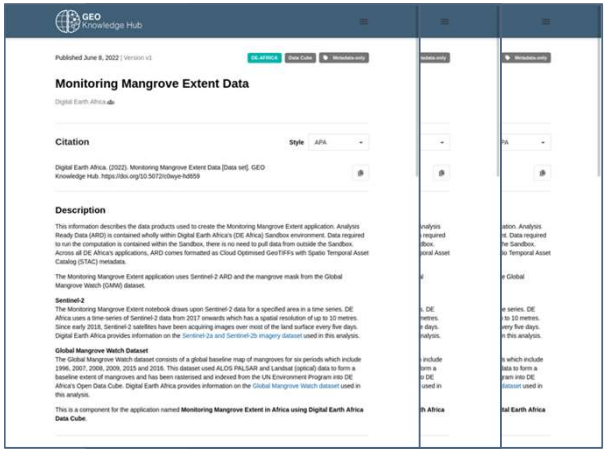
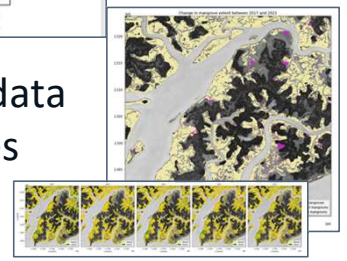




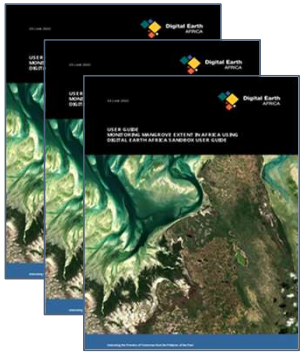
Knowledge Resources

Resources content

Executable Notebook



Auxiliary data and files



Publications

Content

Users uptake

Development

Content

154

Packages

816

Resources

GWP in the GEO Knowledge Hub

Digital Earth AFRICA

GEO GOS4M GLOBAL OBSERVATION SYSTEM FOR MERCURY

EO4SENDAI Monitoring

GWIS

GEO ECO

EO4SDG

GEO GLOWS GLOBAL WATER SUSTAINABILITY

OPEN EARTH ALLIANCE

GEO Human Planet Initiative

GEO VENER VISION FOR ENERGY

GEOMIN

GEO Value

GEO MOUNTAINS Observing Mountain Environments

Data Working Group

GEO GLAM GLOBAL AGRICULTURAL MONITORING

Eiffel

GEOSS APPLICATIONS
FOR CLIMATE CHANGE

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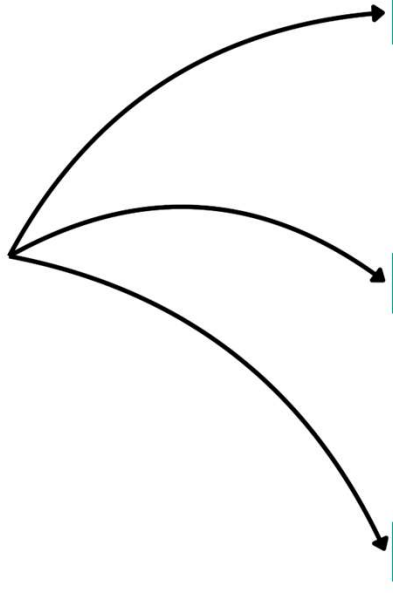
Empower

&

Democratize



Knowledge **Share**

Knowledge **Reuse**

Knowledge **Creation**

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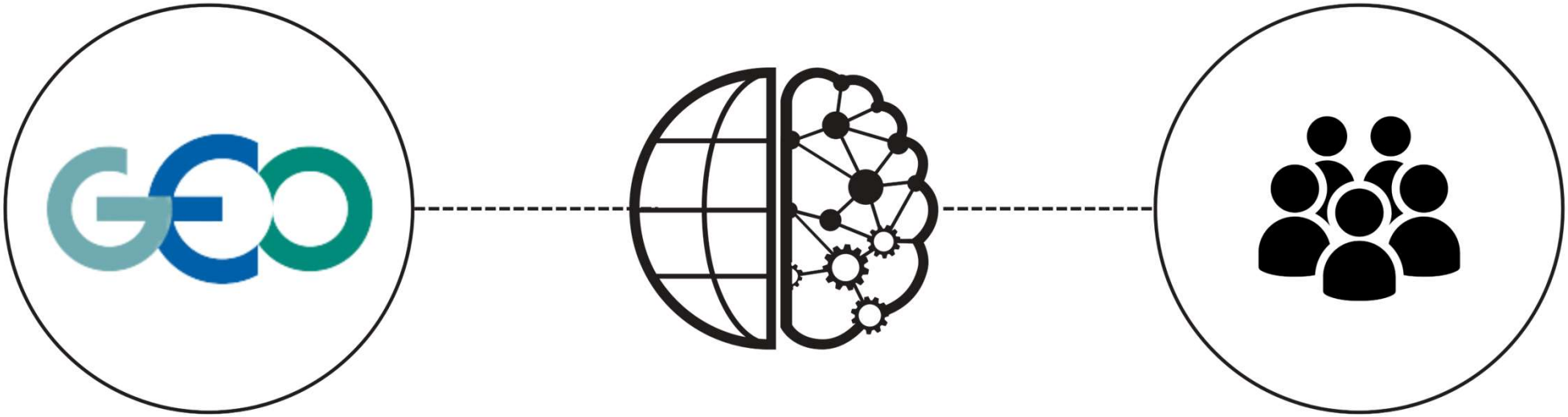
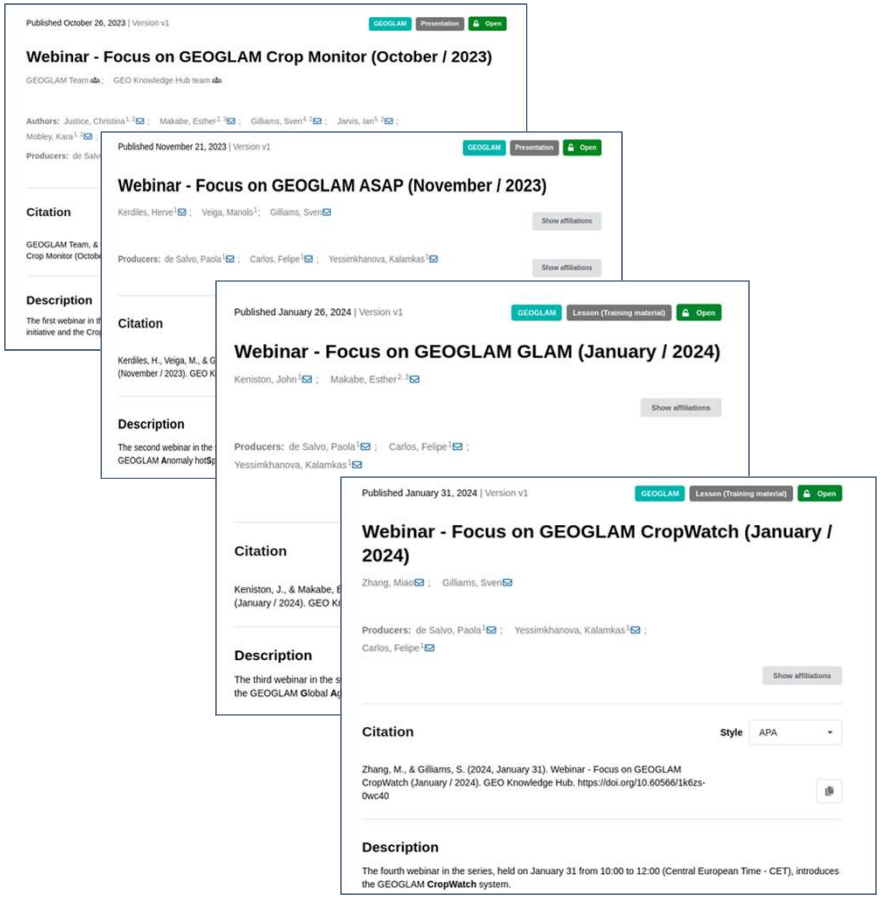
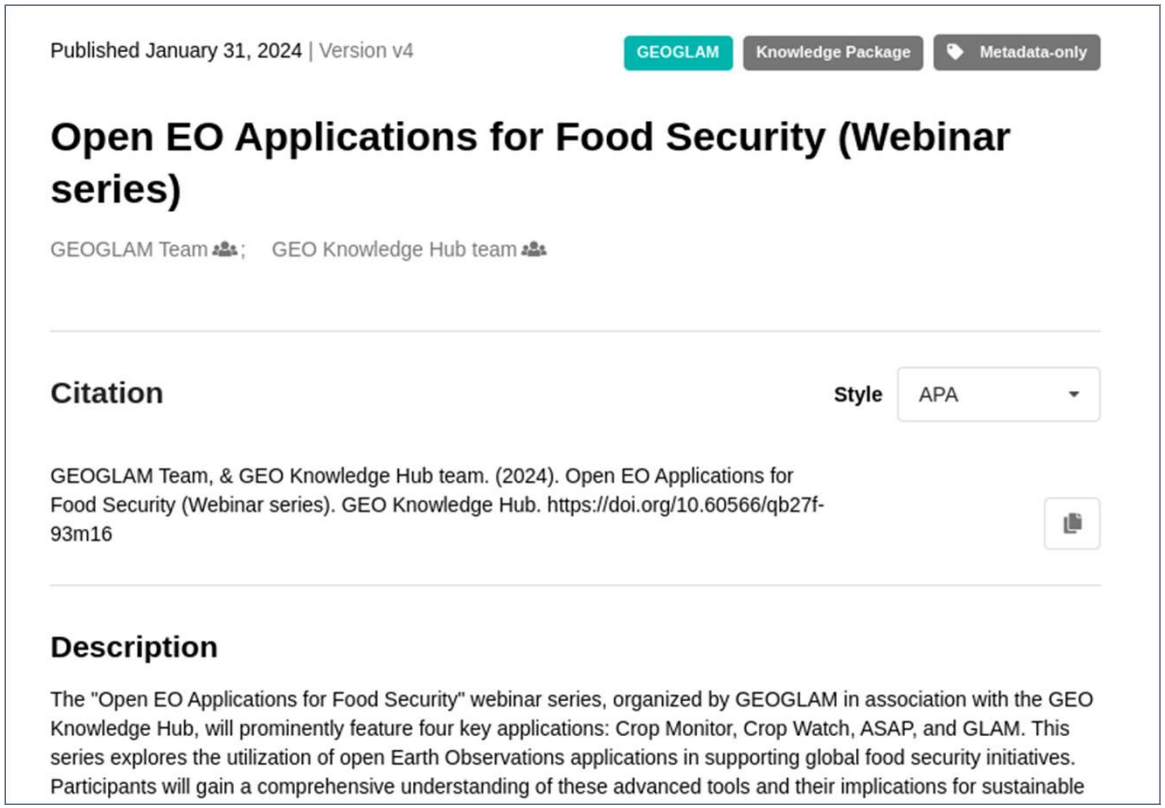
FROM VISION TO ACTION



User engagement – GEOGLAM



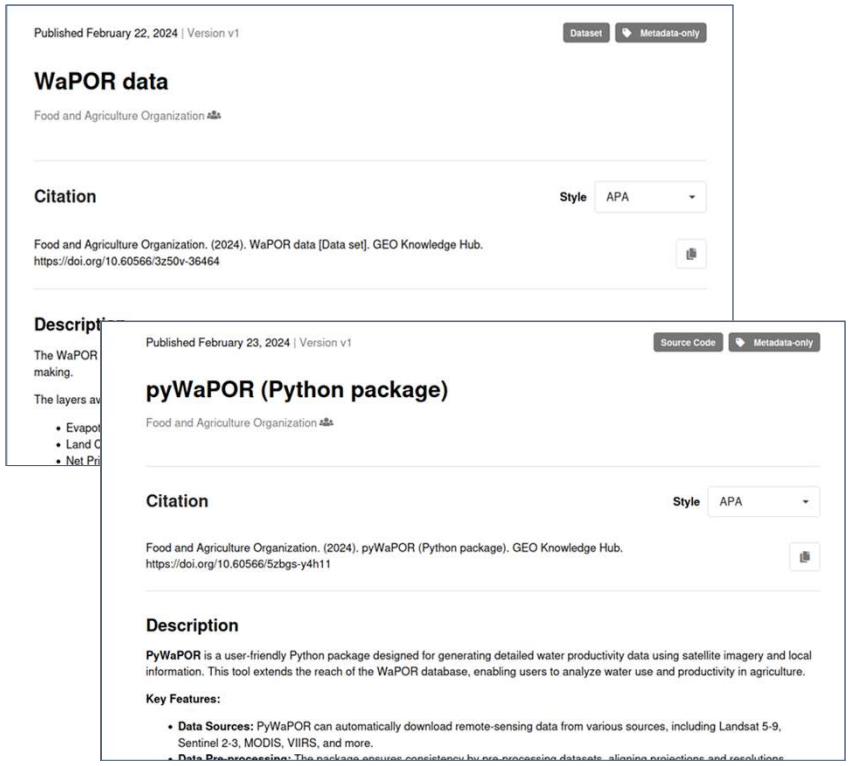


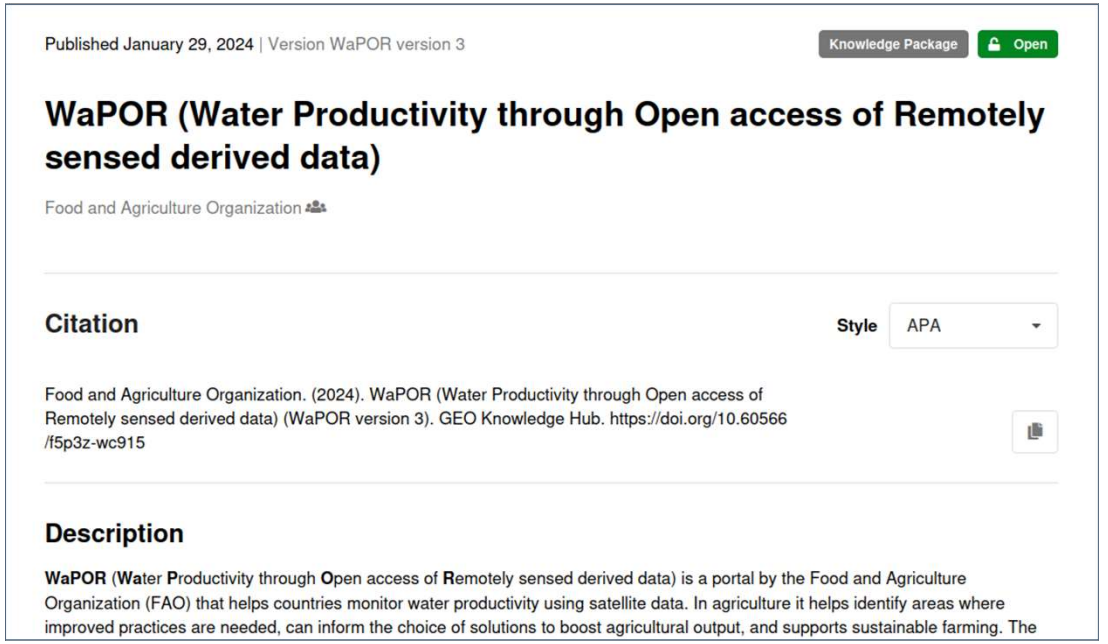
doi.org/10.60566/qb27f-93m16

User engagement – GEOGLAM

(4 webinars - Total attendees)

User engagement – FAO WaPOR





doi.org/10.60566/f5p3z-wc915

User engagement – FAO WaPOR

(1 webinar - Total attendees)

- **100%** = Webinars were useful
- **77%** = First contact with the tools presented
- **100%** = GEO should continue to organize these webinars

Users Feedback

- "Material provided were helpful and self-explanatory"
- "It widen our perspective in EO domain knowledge specially in Evapotranspiration for Irrigation management."
- "Added new perspectives on application of earth observations."
- "Helped with background knowledge, data collection and understanding uncertainty in the data."
- "Nice to see there is a centralized place which connects the different applications"

GEO Knowledge Hub and Youth

- Open Knowledge to empower Youth in countries
- Collaboration with Universities

GEO Knowledge Hub and National GEOs

- Open Knowledge to empower countries on specific challenges
- Collaboration with and among National GEOs

- Open
- Community effort
- On Demand Approach

New features

- Marketplace module
- Link Checker
- Social login support
  (e.g., ORCID login)
- File previewer improvements
  (e.g., IIIF viewer, new video player)
- Content recommendation module
- New e-mail service
- Mobile experience improvements
- Inclusion of GEO Focus Areas
  (in progress)

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FROM VISION TO ACTION

ODOK24

Session output

Space-based data

Marie-Françoise Voidrot, OGC
Steven Ramage, CEOS


Earth
intelligence
for all
GEO
Symposium
& ODOK
Workshop
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Space-based Data Session

Challenges

- The variety of remote sensing data keeps increasing, leading to a greater demand for access and applications.
- Awareness of open data policies is an urgent need for the EO community.
- A large variety of satellite imagery formats means there is a need for standardized RS product specifications.
- Research and applications of models and methods using Big Earth data are inadequate.
- **The scenario-driven fusion of data and services remains limited.**
- Insufficient/outdated resources on data cubes in GEO.

Actions

- Advocate for greater adoption of open standards and open data cubes in the GEO community.
- Build on existing [CEOS] Analysis Ready Data specifications
- Adopt developing technologies (Cloud and Quantum Computing, Docker, Kubernetes, Deep Learning).
- Enhance capabilities for joint calibration and validation of remote sensing data & products. See QA4EO and CEOS WG CalVal.
- **Strengthen regional collaboration and capacity building around space-based data in GEO.**
- Support open data policies and efforts and technologies based on CARE, FAIR and TRUST

Suggestions for the GEO Infrastructure

- GIDTT should look at the UN API Strategy from the UN Environment Programme and CODES.
- **GKH should be seen as the place to find out how to cook, including the recipes and the contents.**
  - Greater input was requested from across the GEO Work Programme, as well as CEOS
- **Communication around tools and services should be improved.**
- There is a lot of effort around the platform additional efforts on the content would also be welcome.
- GEO should foster collaboration, data accessibility, and capacity development (on the technology and the data analysis aspects).

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Thank you