



GEO Knowledge Hub to preserve and share EO Applications: Introduction and practice

GEO Knowledge Hub team

Date: 5th of October from 11:15 to 12:00

Where: Open Earth Monitor – Global Workshop 2023 (Bolzano / Italy)

GEO Knowledge Hub team



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We are not alone! Our team thanks everyone who worked with us, especially Gilberto Camara, Douglas Cripe, Gilberto Queiroz, Florian Franziskakis, Hendrik Baeyens, and the InvenioRDM community

Material availability

All the materials used during this workshop are available in the following GitHub repository:



[geo-knowledge-hub/geo-knowledge-hub-workshop](#)

Group on Earth Observations (GEO)

GEO is a partnership of more than 110 national governments and in excess of 100 Participating Organizations



Group on Earth Observations (GEO)

GEO envisions a future where **decisions** and **actions** for the benefit of humankind are **informed** by coordinated, comprehensive and sustained **Earth observations**



Group on Earth Observations (GEO)



GEO Data Sharing principles



23rd Programme Board Meeting – 21-22 June 2022

PB-23.12

Revised GEO Data Sharing and Data Management Principles

This document is submitted by the Secretariat to the Programme Board for decision.

1 INTRODUCTION

In 2015, the GEO Data Management Principles Task Force was tasked with defining a common set GEO Data Management Principles¹. These principles address the need for discovery, accessibility, usability, preservation, and curation of data and related resources that are shared. Such resources also should be shared as open data in accordance with the GEO Data Sharing Principles². The GEO Data Management Principles complement the FAIR Principles and TRUST Principles, which also are being adopted across research communities. The GEO Data Management Principles can be applied to the entire data management lifecycle,

Open Knowledge Statement



21st Programme Board Meeting – 28-30 September 2021

PB-21.17

GEO Statement on Open Knowledge

This document is submitted by the Secretariat to the Programme Board for decision.

1 INTRODUCTION

This document presents a revision of the GEO Statement on Open Science (see Annex A) that was presented to the Programme Board at its 19th meeting in January 2021. Based on consultations with the GEO community, the Secretariat proposes that the statement be reformulated to focus on “Open Knowledge”. This concept, while inclusive of Open Science, is considered to be more closely aligned with the GEO Mission and Vision, which aim to support decision making and not only or primarily science.

Group on Earth Observations (GEO)



Download the [GEO Work Programme 2023-2025 Summary Document](#), which contains short descriptions of each of the GEO Flagships, Initiatives, Pilot Initiatives and Regional GEOS that comprise the GEO Work Programme.



GEO Knowledge Hub

The **GEO Knowledge Hub** is a digital library for the **GEO Community**

GEO Knowledge Hub



GEO Knowledge Hub



Helps the GEO Community to **share** EO Applications

GEO Knowledge Hub



Helps the GEO Community to **share** EO Applications

Preserves materials from the EO Applications

GEO Knowledge Hub



Helps the GEO Community to **share** EO Applications

Preserves materials from the EO Applications

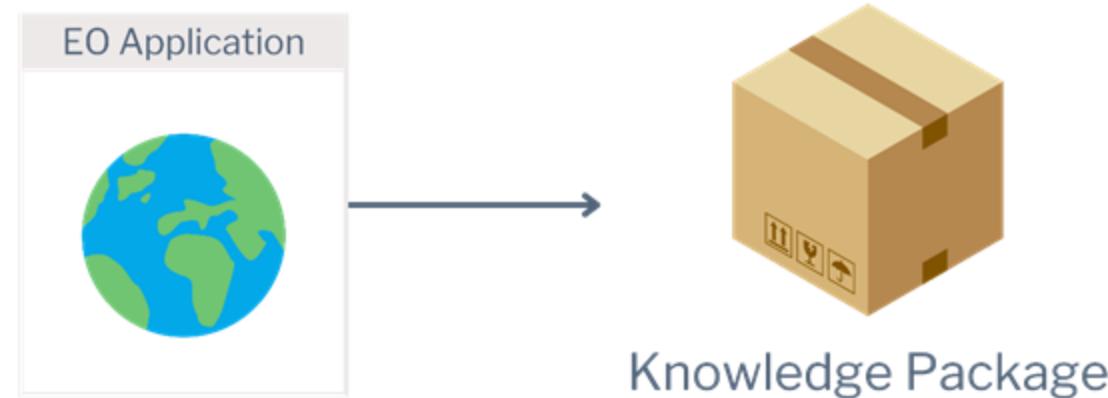
Helps the community to **find** and **access** EO Applications

Knowledge Packages



Knowledge Package

Knowledge Packages



Knowledge Packages

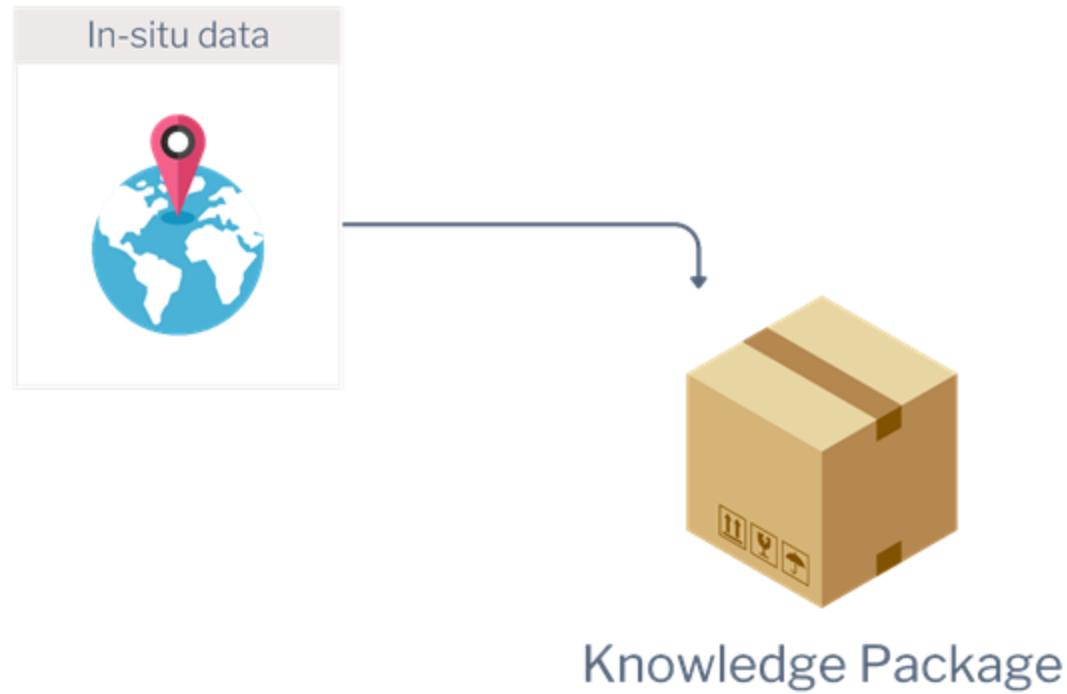


Knowledge Packages

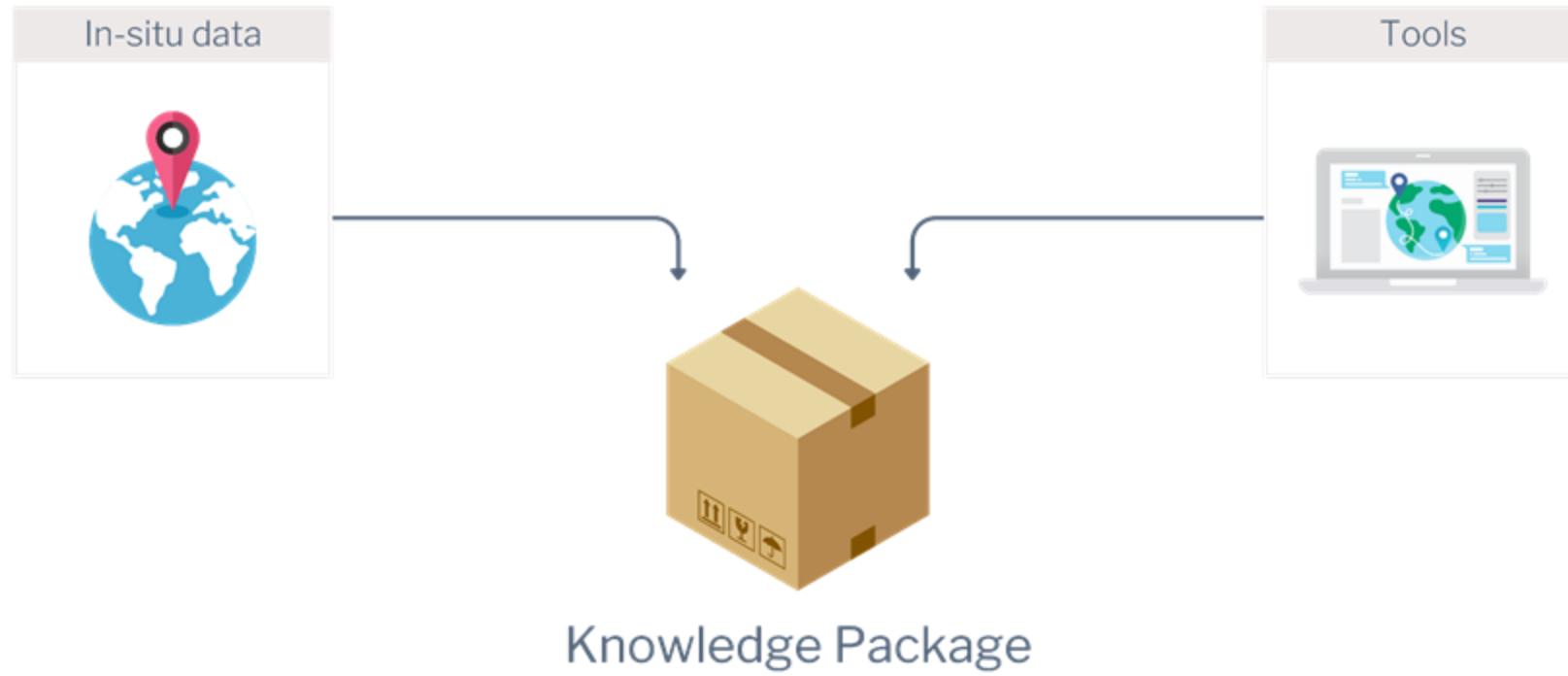


Knowledge Package

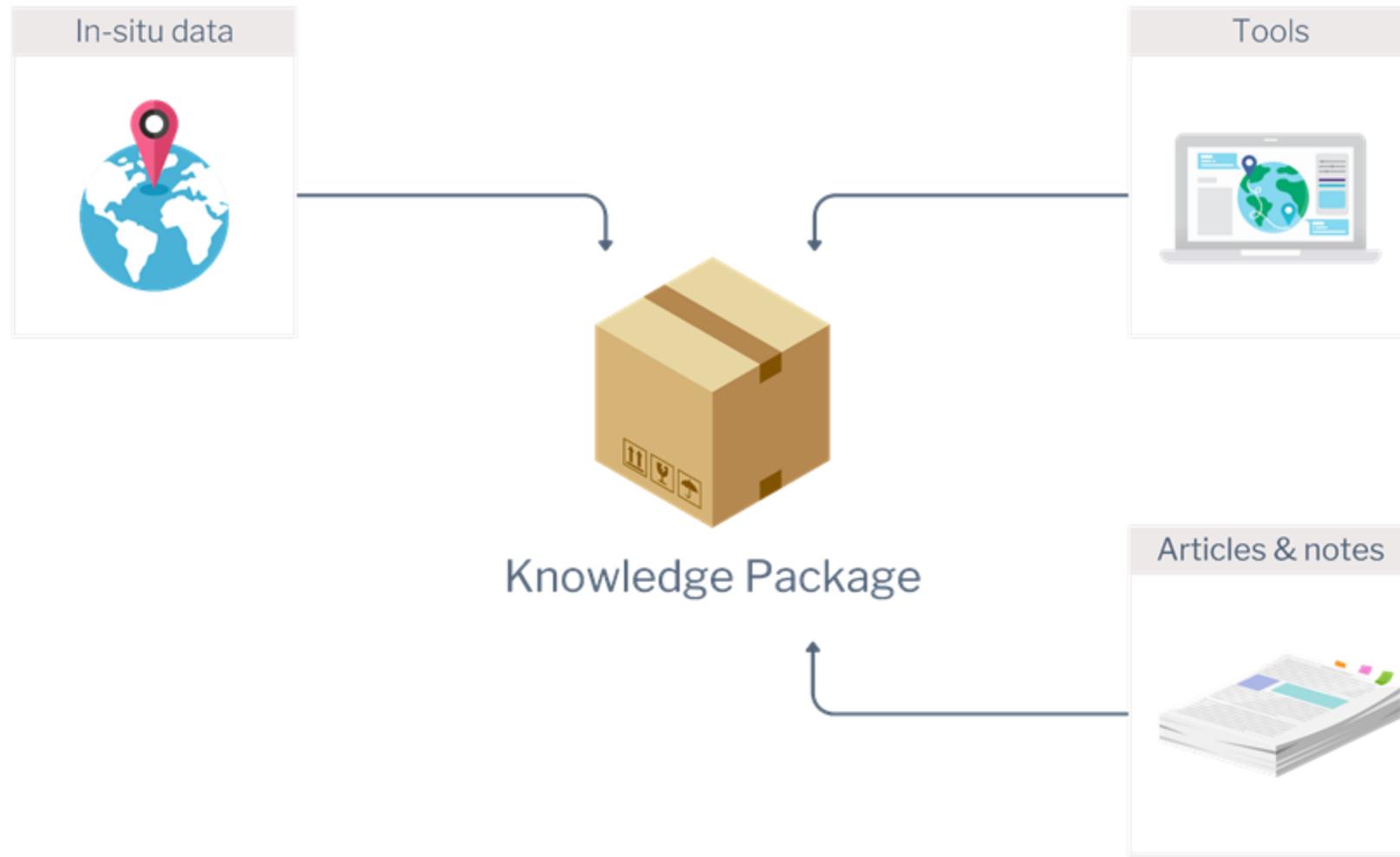
Knowledge Packages



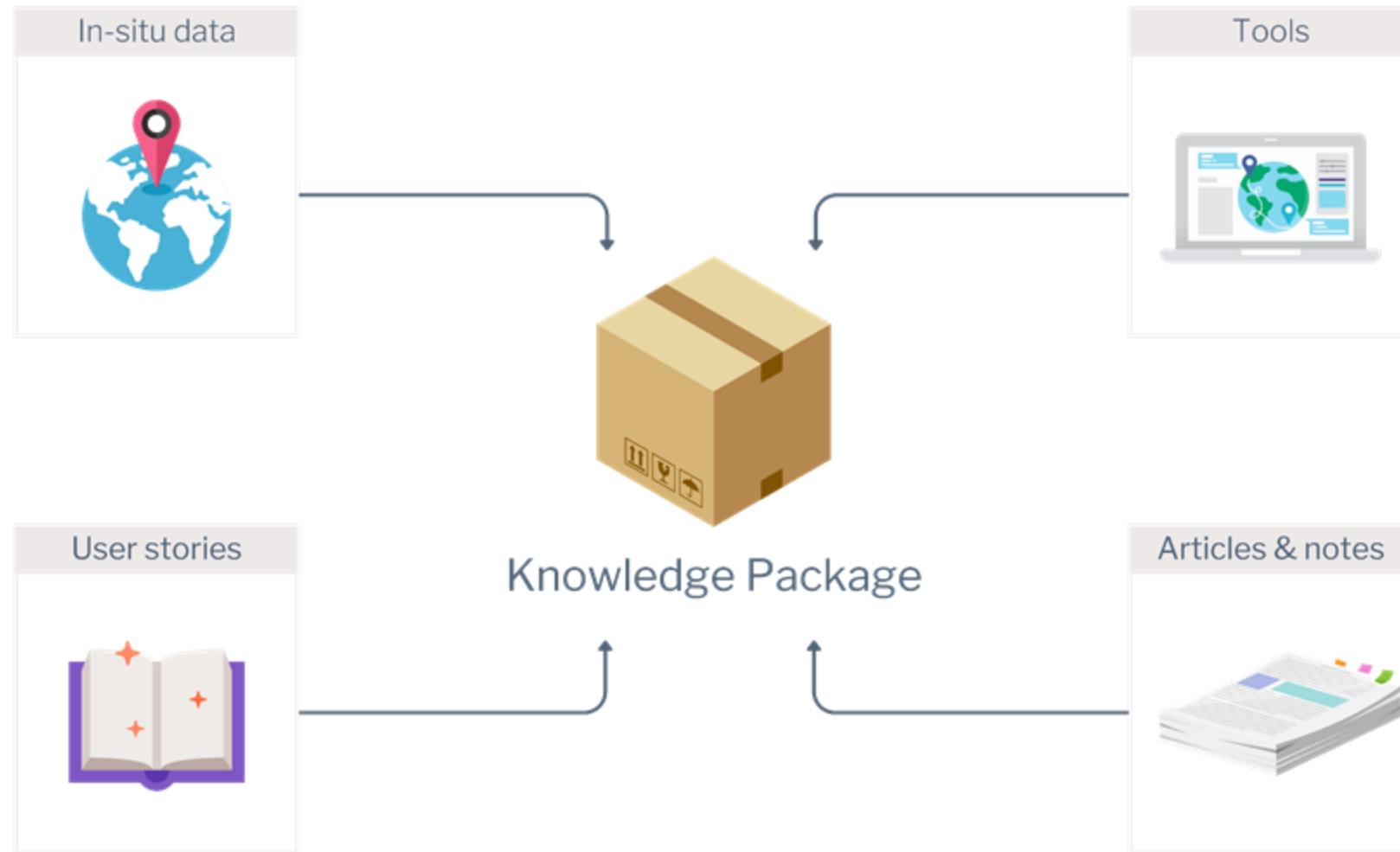
Knowledge Packages



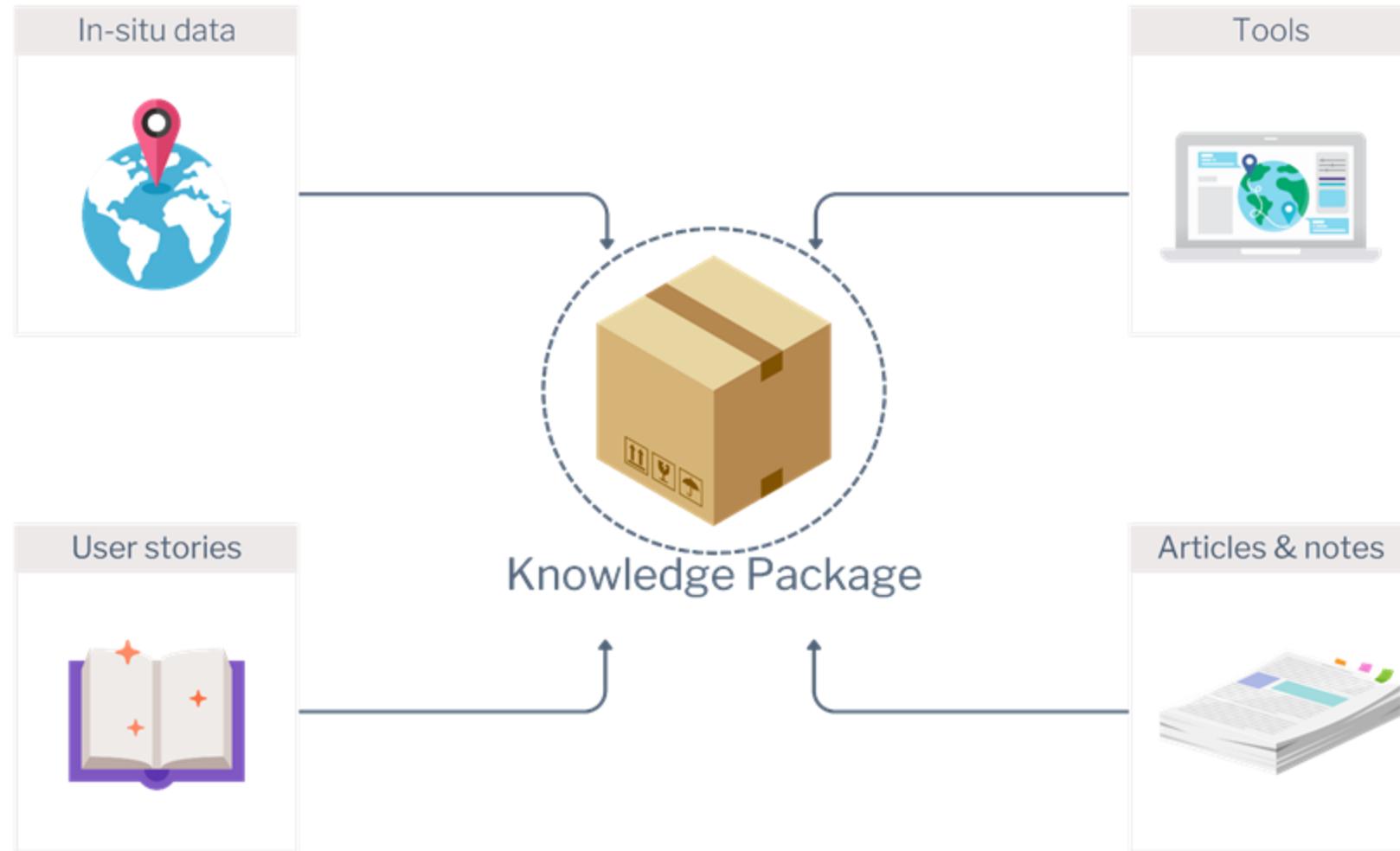
Knowledge Packages



Knowledge Packages



Knowledge Packages



Knowledge Packages



Knowledge Package

Knowledge Packages

Define metadata



Knowledge Package

Knowledge Packages



Knowledge Package

Define metadata

Upload files

Knowledge Packages



Knowledge Package

Define metadata

Upload files

Link external resources

Knowledge Packages



Knowledge Package

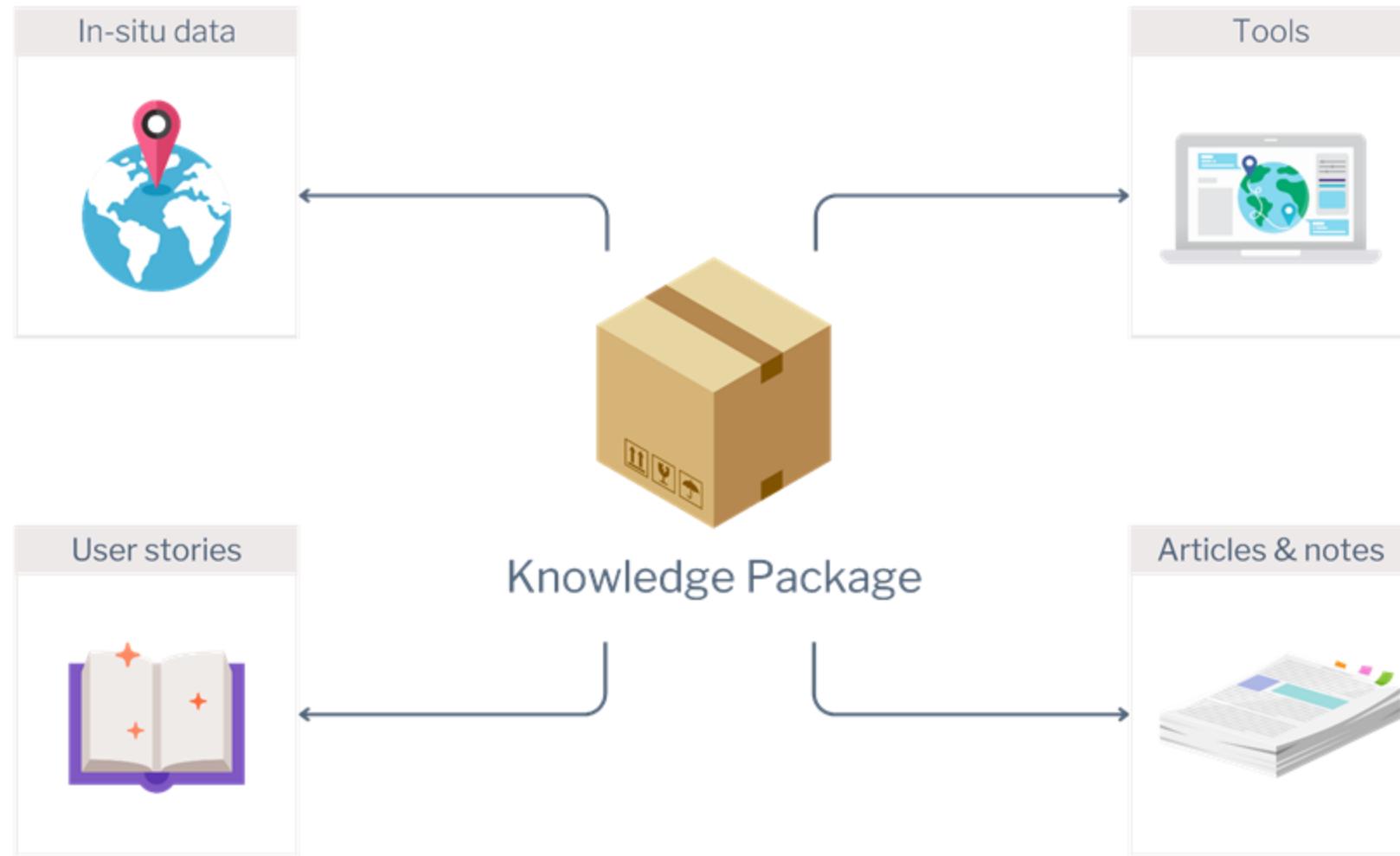
Define metadata

Upload files

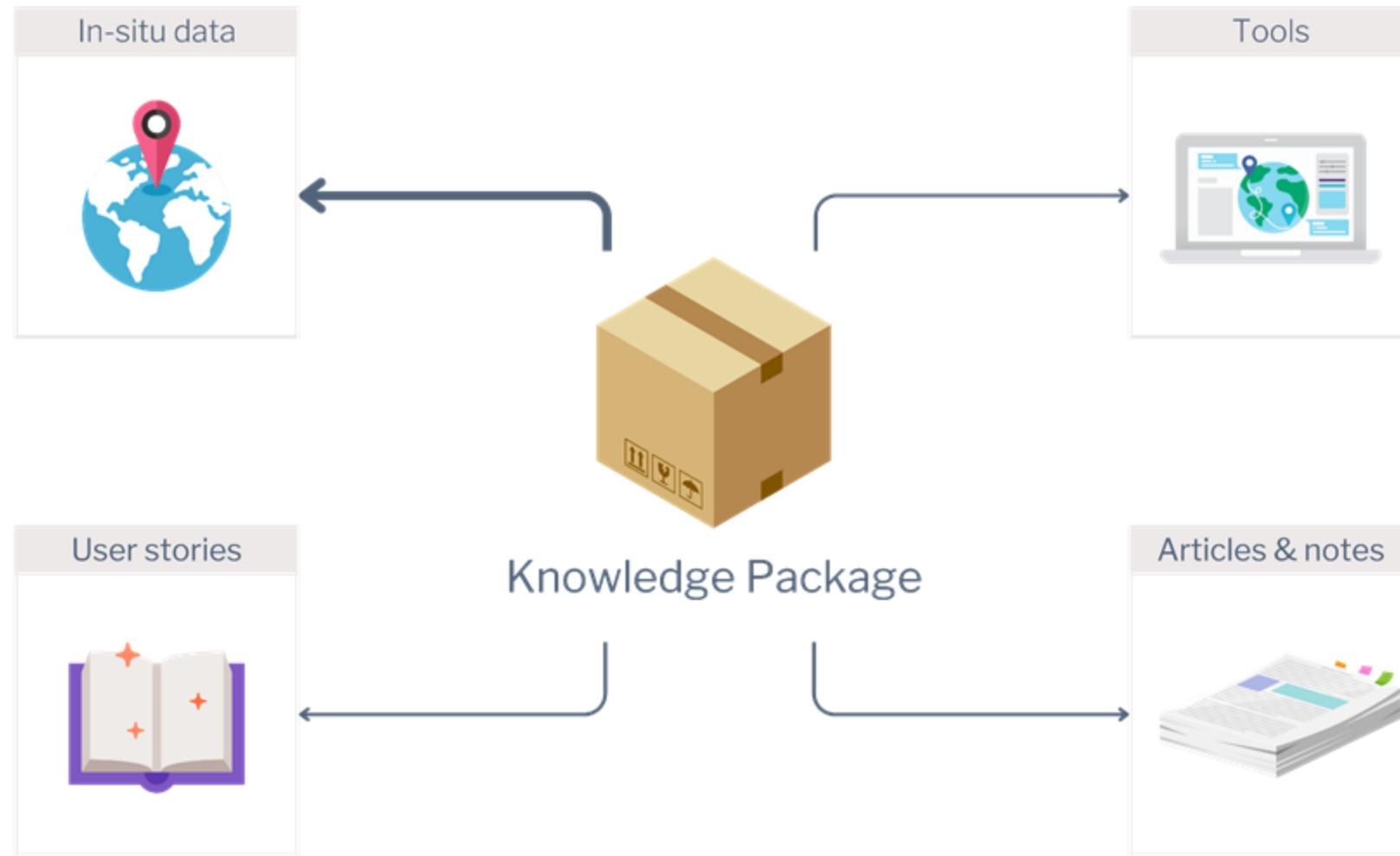
Link external resources

Associate/Create DOI

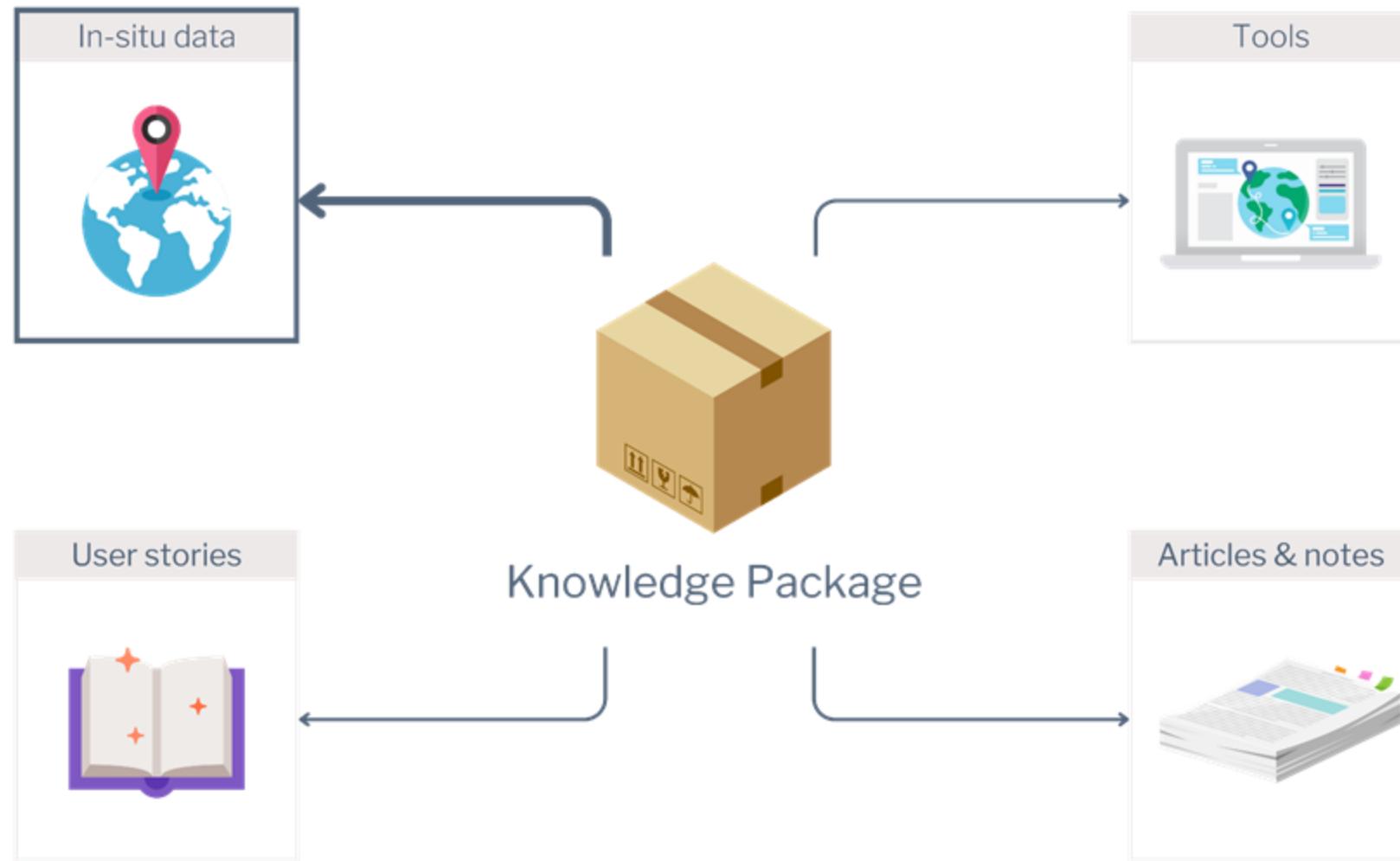
Knowledge Packages



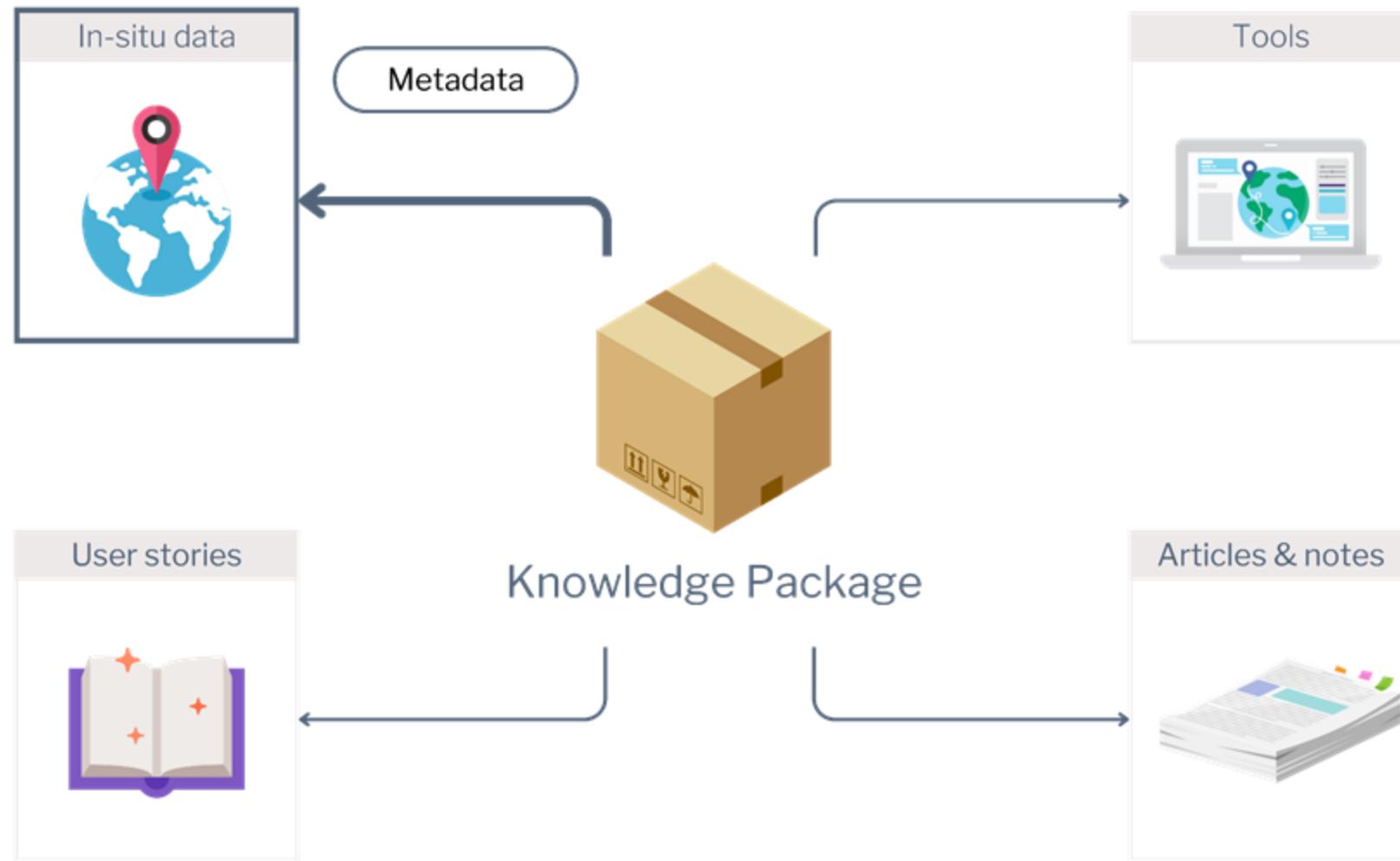
Knowledge Packages



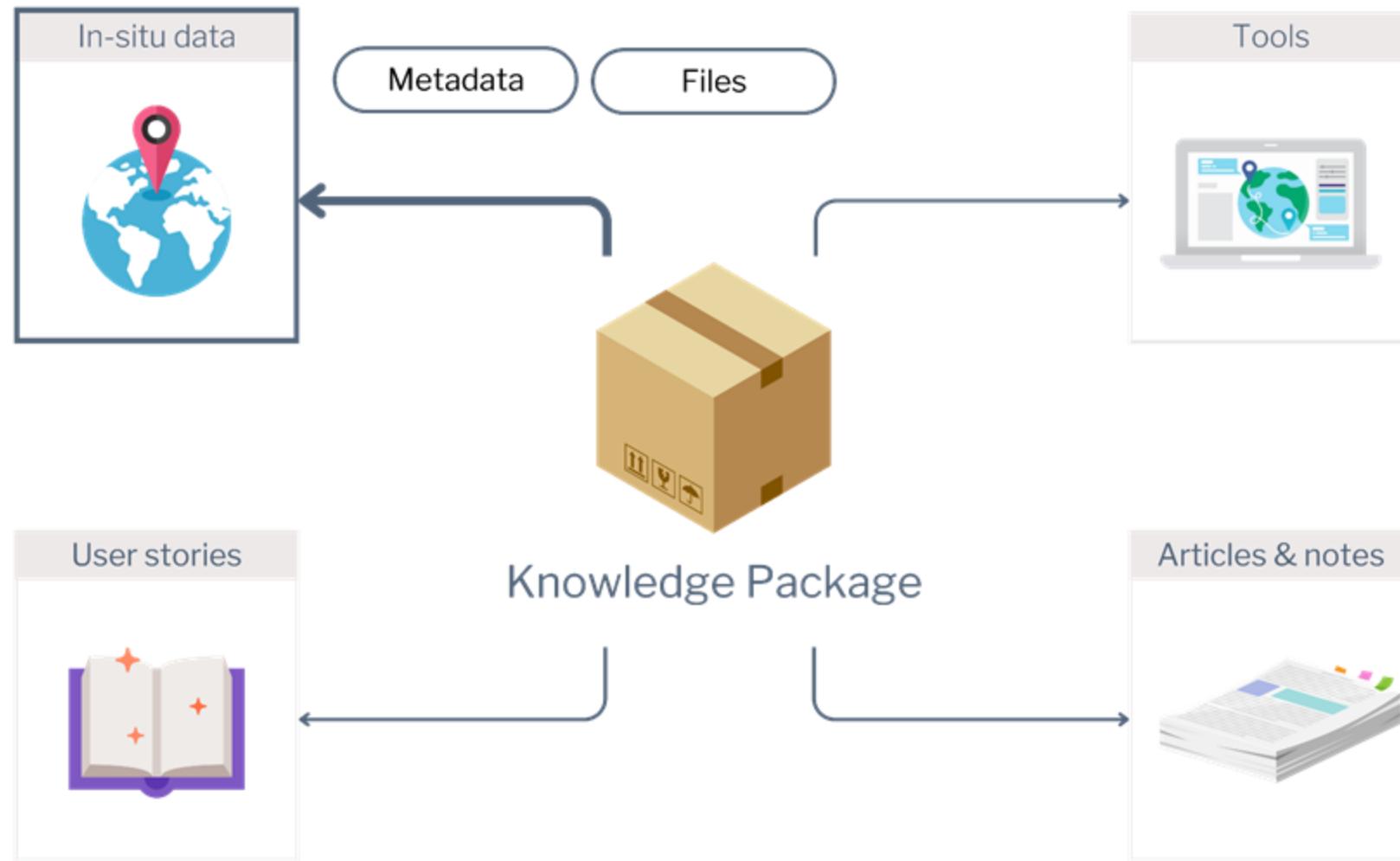
Knowledge Packages



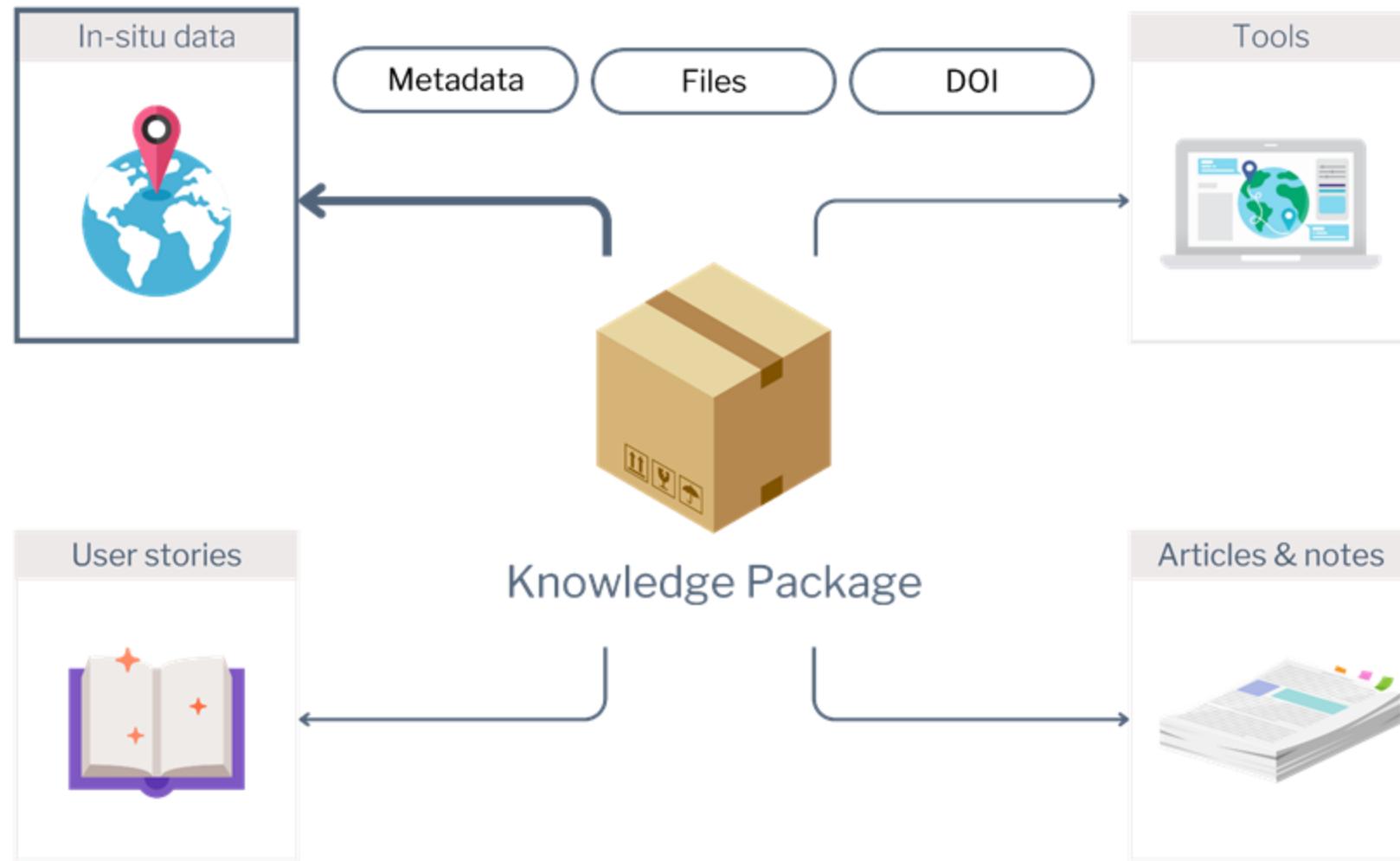
Knowledge Packages



Knowledge Packages



Knowledge Packages



Knowledge Package example



Digital Earth
AFRICA

Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

The screenshot shows a knowledge package page from the GEO Knowledge Hub. At the top, it displays the title 'Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube'. Below the title, there's a citation section with a 'Style' dropdown set to 'APA'. The citation text is: 'Digital Earth Africa. (2022). Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube. <https://doi.org/10.5072/47d02-ykk63>'.

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

The 'Elements of the Knowledge Package' section lists four categories: 'Dataset' (1 resource), 'Publication' (0 resources), 'Software' (2 resources), and 'Other' (2 resources). There is also a '...' button.

Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

The screenshot displays the GEO Knowledge Hub interface for the specified application. At the top, there's a header with the GEO logo and 'Knowledge Hub'. Below it, the application title is shown: 'Published July 20, 2022 | Version v1' and 'DE-AFRICA Knowledge Package Open'. The main content area is titled 'Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube'. It includes sections for 'Citation' (with a style dropdown set to APA) and 'Description'. The 'Description' section contains detailed text about the application's purpose, data sources (Sentinel-2 and Global Mangrove Watch), and methodology. At the bottom left, there's a 'Elements of the Knowledge Package' section with categories: Dataset (1 resources), Publication (0 resources), Software (2 resources), Other (2 resources), and a '...' button. A large orange cardboard box icon is positioned at the bottom right of the main content area.

Knowledge Resources

Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

The screenshot shows the GEO Knowledge Hub interface for the specified application. At the top, there's a header with the GEO logo and 'Knowledge Hub'. Below it, the application title is displayed: 'Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube'. The page includes sections for 'Citation', 'Description', and 'Elements of the Knowledge Package'. The 'Citation' section provides a reference in APA style. The 'Description' section details the application's purpose, data sources (Sentinel-2 and Global Mangrove Watch), and methodology. The 'Elements of the Knowledge Package' section lists resources: Dataset (1 resource), Publication (0 resources), Software (2 resources), Other (2 resources), and a '...' button. A large orange cardboard box icon is positioned at the bottom right of the page.

Resources content

Knowledge Resources

Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

The screenshot shows a knowledge package page on the GEO Knowledge Hub. At the top, there's a header with the GEO logo and 'Knowledge Hub'. Below it, the title 'Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube' is displayed, along with a 'Published July 20, 2022 | Version v1' timestamp. A 'DE-AFRICA' button, a 'Knowledge Package' link, and an 'Open' button are also present. The main content area includes sections for 'Citation' (with a style dropdown set to APA), 'Description' (with a detailed text block about the application's purpose and data sources), and 'Elements of the Knowledge Package' (listing Dataset, Publication, Software, Other, and a '...' category). A large orange cardboard box icon is positioned at the bottom right of the content area.

This screenshot shows the 'Monitoring Mangrove Extent Data' application interface. It features a sidebar with navigation links like 'DE-AFRICA', 'Data Cube', and 'Mangroves'. The main panel displays a detailed description of the application, including its citation information (Digital Earth Africa (2022). Monitoring Mangrove Extent Data [Data set]. GEO Knowledge Hub. <https://doi.org/10.5072/zenodo.60809>) and a 'Description' section with technical details about the analysis process, data requirements, and specific datasets used (Sentinel-2 and Global Mangrove Watch). The interface is clean and modern, using a dark blue header and light blue sidebar.

Knowledge Resources

Resources content

This screenshot shows a Jupyter Notebook titled 'Monitoring Mangrove Extents'. The interface includes a toolbar at the top with various icons. The main code cell contains Python code related to mangrove monitoring. Below the code, there's a detailed 'Background' section with explanatory text and a flowchart illustrating the data processing pipeline. The overall layout is typical of a scientific Jupyter Notebook.

Executable Notebook

Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

The screenshot shows a knowledge package page on the GEO Knowledge Hub. At the top, it says "Published July 20, 2022 | Version v1" and has tabs for "DE-AFRICA", "Knowledge Package", and "Open". The main title is "Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube". Below the title, there's a "Citation" section with a "Style" dropdown set to APA, and a "Description" section. The "Description" section contains detailed text about the application's purpose, data sources (Sentinel-2 and Global Mangrove Watch), and analysis parameters. At the bottom, there's a "Elements of the Knowledge Package" section with categories: Dataset (1 resource), Publication (0 resources), Software (2 resources), Other (2 resources), and a "..." button. A large orange cardboard box icon is positioned at the bottom right of the page.

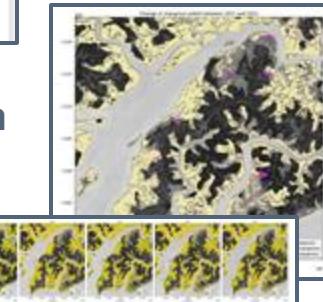
The screenshot shows the Digital Earth Africa Data Cube interface. The left panel displays the "Monitoring Mangrove Extent Data" application with its citation information. The right panel shows a detailed view of the application's code or configuration, including sections for "Background", "Description", and a flowchart illustrating the data processing pipeline. The middle panel shows a preview of the application's output, which is a map of mangrove extent.

Knowledge Resources

Resources content

The screenshot shows an executable notebook titled "Monitoring Mangrove Extents". It includes a "Background" section with a brief description of the notebook's purpose, a "Description" section with a flowchart of the process, and a "Code" section containing Jupyter Notebook code. The code includes imports like "import geopandas as gpd" and "import rasterio as rio", and defines functions such as "def get_mangrove_extent(df, date)" and "def get_mangrove_change(df, date)".

Executable Notebook



Auxiliary data and files



Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

The screenshot shows a knowledge package page on the GEO Knowledge Hub. At the top, there's a header with the GEO logo and 'Knowledge Hub'. Below it, the title 'Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube' is displayed, along with a 'Published July 20, 2022 | Version v1' timestamp. A 'DE-AFRICA' button, a 'Knowledge Package' link, and an 'Open' button are also present. The main content area includes sections for 'Citation' (with a style dropdown set to APA), 'Description' (with a 'What it is about' section), 'Elements of the Knowledge Package' (listing Dataset, Publication, Software, and Other resources), and a large image of an open cardboard box.

This screenshot shows the 'Monitoring Mangrove Extent Data' application interface from Digital Earth Africa. It features a sidebar with tabs for 'AFRICA', 'Data Cube', and 'Mangroves'. The main panel displays a detailed description of the data products used, including Sentinel-2 and Global Mangrove Watch datasets, and their analysis parameters. It also includes a 'Background' section with a flowchart illustrating the methodology.

Knowledge Resources

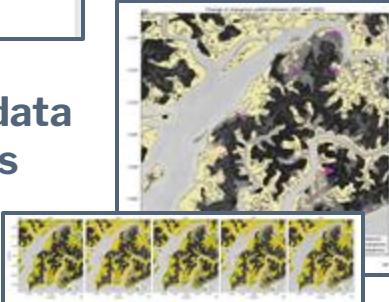
Resources content

This screenshot shows a Jupyter Notebook titled 'Monitoring Mangrove Extents'. It includes a 'Background' section with a diagram of the workflow, a 'Description' section, and a code cell containing Python code.

Executable Notebook



Auxiliary data and files

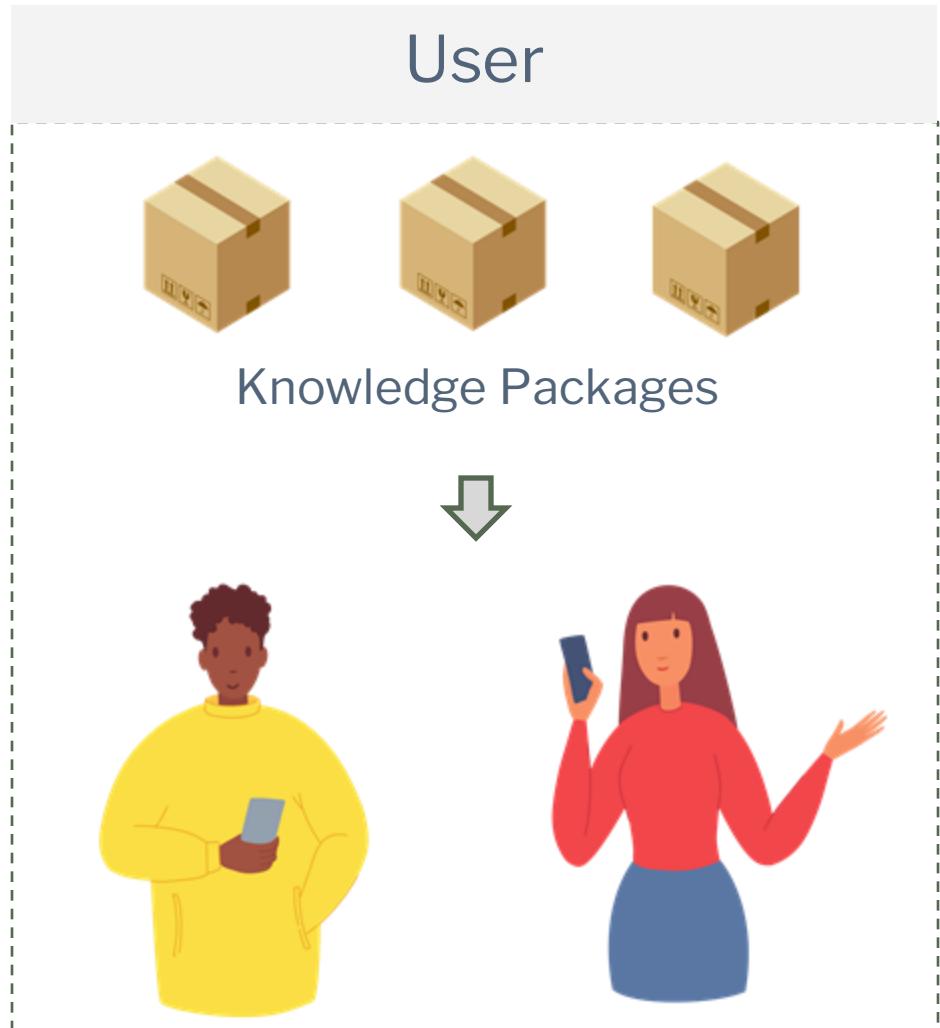


Description documents

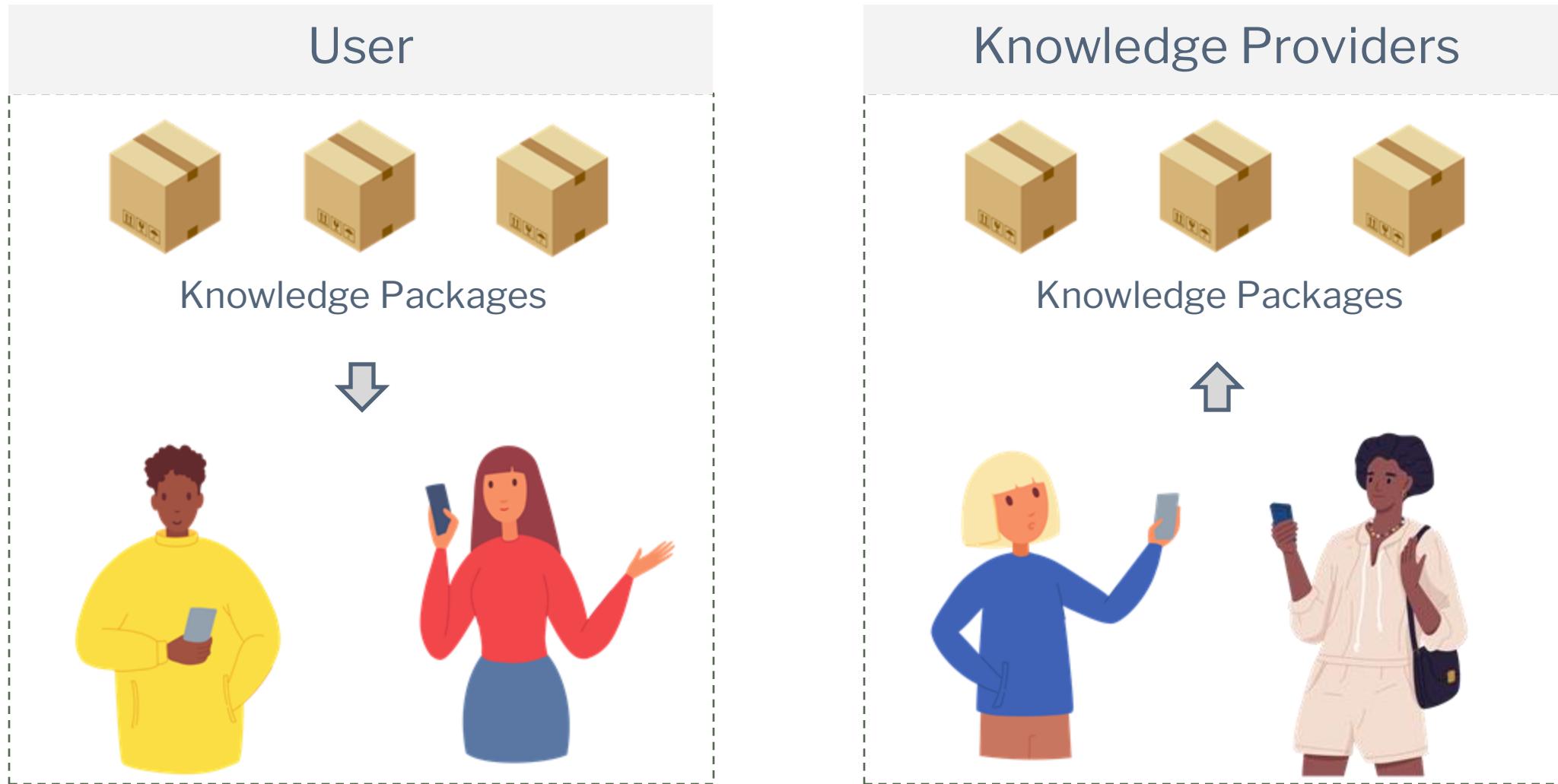
Users



Users



Users



We build **together** with the community





Communities

Engage with open, reproducible sharing communities curated by Earth Observation experts



Spatial and Thematic search

Search for applications using spatial locations and Global framework like SDGs, Sendai Framework and Paris Agreement as criteria



Application management

Manage content and users of EO Applications using Knowledge Packages and high-level dashboards



Real-time exchange

Share Knowledge with the GEO Community in real-time using interactive chat and feedback forms



Interoperability

Access the published materials using well-known standards such as OAI-PMH



Rest API

Access and ingest data using a rich Rest API



Preservation friendly

Persistent identifiers (DOI) by default and execution of continuous data consistency validation



Based on GEO Principles

Created based on GEO Data Management and Sharing principles

Thematic Search



Thematic Search



Engagement priorities



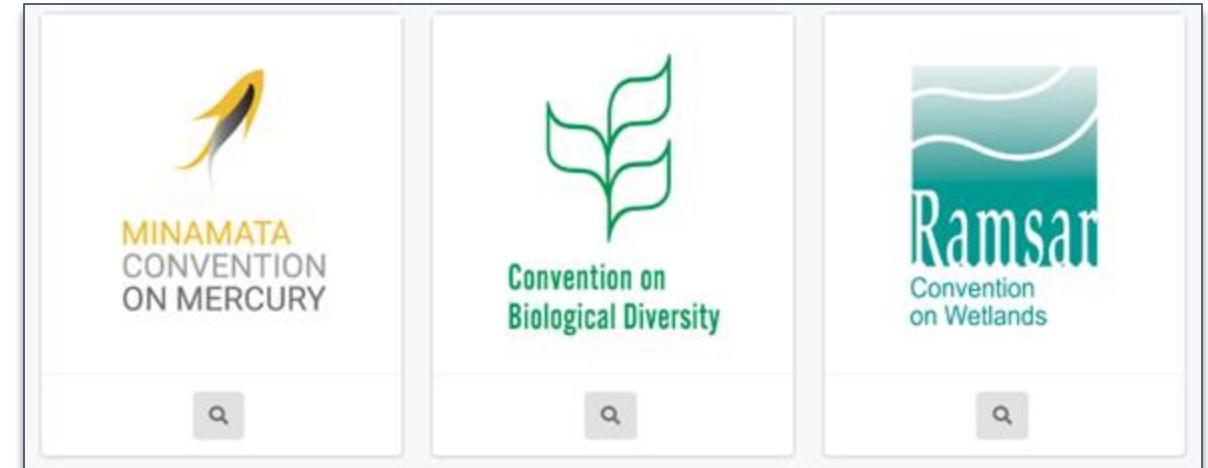
Thematic Search



Engagement priorities



Conventions



Spatial Search



Spatial Search



Search filter

Basic properties Spatial extent

Geometry

Leaflet | Tiles © Esri — Source: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand). TomTom, 2012.

Geometry

Leaflet | Tiles © Esri — Source: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand). TomTom, 2012.

Communities

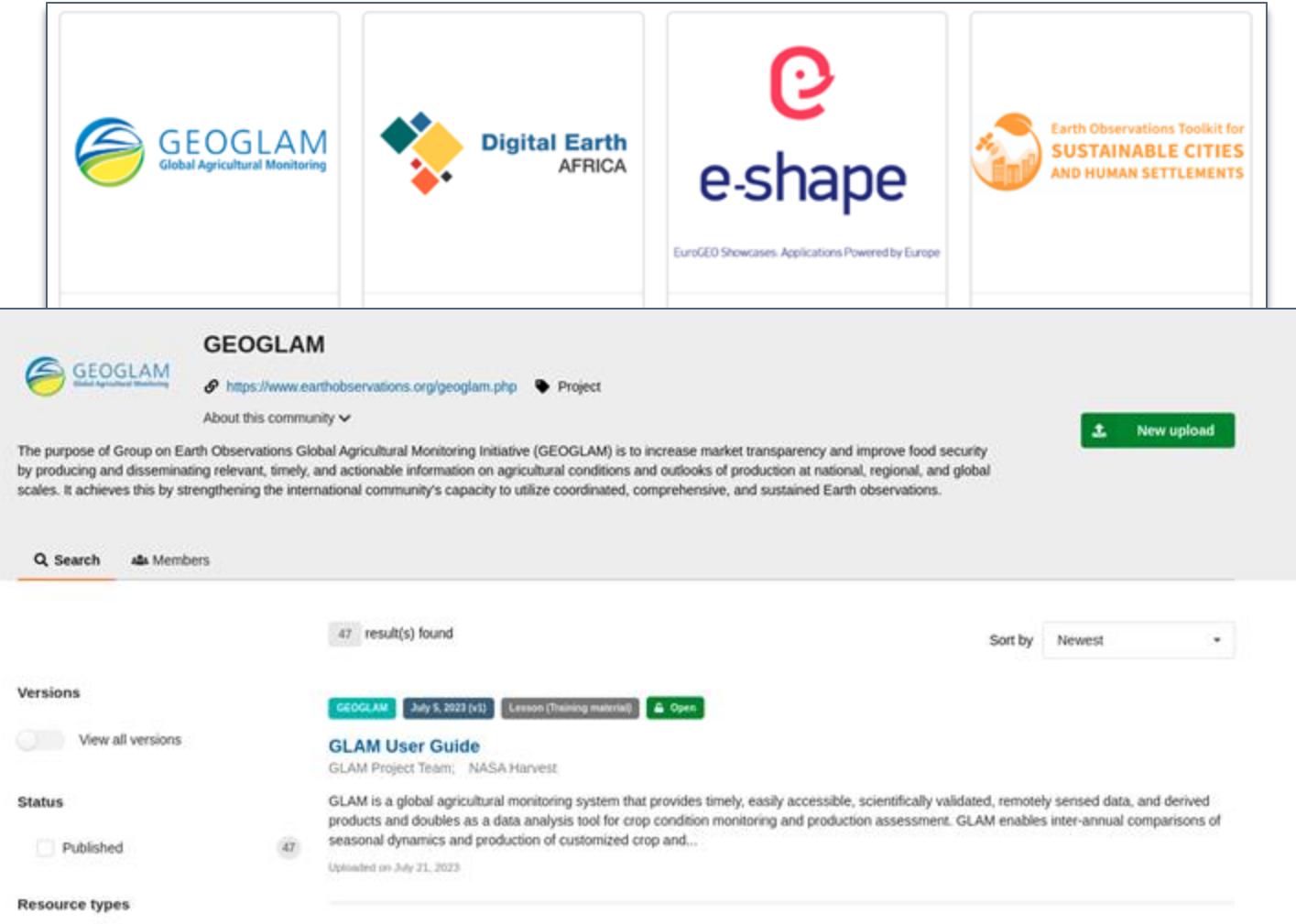


Communities



 GEOGLAM Global Agricultural Monitoring	 Digital Earth AFRICA	 e-shape EuroGEO Showcases: Applications Powered by Europe	 Earth Observations Toolkit for SUSTAINABLE CITIES AND HUMAN SETTLEMENTS
GEOGLAM The purpose of Group on Earth Observations Global Agricultur...	Digital Earth Africa Digital Earth Africa exists to improve the lives of people...	e-shape e-shape is a unique initiative that brings together decades o...	Earth Observations Toolkit ... Enables the use of Earth observations to advance...

Communities

The screenshot shows the GEO Knowledge Hub interface. At the top, there is a horizontal banner featuring logos for four projects: GEOGLAM (Global Agricultural Monitoring), Digital Earth AFRICA, e-shape, and Earth Observations Toolkit for SUSTAINABLE CITIES AND HUMAN SETTLEMENTS.

The main content area displays the GEOGLAM community page. It includes a header with the GEOGLAM logo, a link to the website (<https://www.earthobservations.org/geoglam.php>), and a "Project" button. Below the header, there is a brief description of the purpose of the initiative, mentioning its goal to increase market transparency and improve food security through coordinated Earth observations.

Below the description, there are search and member navigation links. The search bar is currently empty. The member count is listed as 47 result(s) found, with a "Sort by" dropdown set to "Newest".

On the left side, there are filters for "Versions" (View all versions), "Status" (Published), and "Resource types". On the right side, there is a detailed view of a resource entry titled "GLAM User Guide". The entry includes the author ("GLAM Project Team; NASA Harvest"), a description ("GLAM is a global agricultural monitoring system that provides timely, easily accessible, scientifically validated, remotely sensed data, and derived products and doubles as a data analysis tool for crop condition monitoring and production assessment. GLAM enables inter-annual comparisons of seasonal dynamics and production of customized crop and..."), and a download link ("Downloaded on July 21, 2023").

Knowledge Package page

Knowledge Package page

The screenshot shows a Knowledge Package page for a dataset titled "Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube".

Header: Digital Earth Africa logo and text "Published July 20, 2022 | Version v1". Navigation buttons include "DE-AFRICA", "Knowledge Package", and a green "Open" button.

Title: Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

Citation: Digital Earth Africa (2022). Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube. GEO Knowledge Hub. <https://doi.org/10.60566/1f0cq-zc482>

Description:

What it is about:

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

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

Right sidebar:

- Need training?** (button)
- Versions:** Version v1 (Jul 20, 2022)
- Any question ?** (button) Ask the provider
- Feedback space:** Learn the community experience with this package
- Engagement Priorities:** (empty)

Knowledge Package page

The screenshot shows a Knowledge Package page for "Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube".

Header: Digital Earth Africa logo, "Digital Earth Africa", "Published July 20, 2022 | Version v1", "DE-AFRICA", "Knowledge Package", "Open". A teal button on the right says "Need training?".

Title: Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube

Citation: Digital Earth Africa. (2022). Monitoring Mangrove Extent in Africa using Digital Earth Africa Data Cube. GEO Knowledge Hub. <https://doi.org/10.60566/1f0cq-zc482>

Description: What it is about: Digital Earth Africa's (DEA) Monitoring Mangrove Extent application Notebooks, to produce a time-series-analysis that identifies a characteristic feature of mangroves. The notebooks have been set using a central pair of coordinates along the coast of Africa, allowing for easy replication of analysis across Africa, through a Jupyter Notebook. This knowledge package includes the necessary data, computation and visualization tools used in Digital Earth Africa's 'Monitoring Mangrove Extent' Jupyter

Elements of the Knowledge Package:

- Dataset (1 resources)
- Publication (1 resources)
- Software (2 resources)
- Other (1 resources)

Search: Search for a record

Content Cards:

- Monitoring Mangrove Extent Notebook (Digital Earth Africa; Jul 20, 2022, DE-AFRICA, Jupyter Notebook, Open)
- Digital Earth Africa Cloud Computing Environment (Digital Earth Africa; Jul 8, 2022, DE-AFRICA, Computational Environment, Metadata-only)

Page size: 3

Real-time exchange



Real-time exchange



 Ask the provider

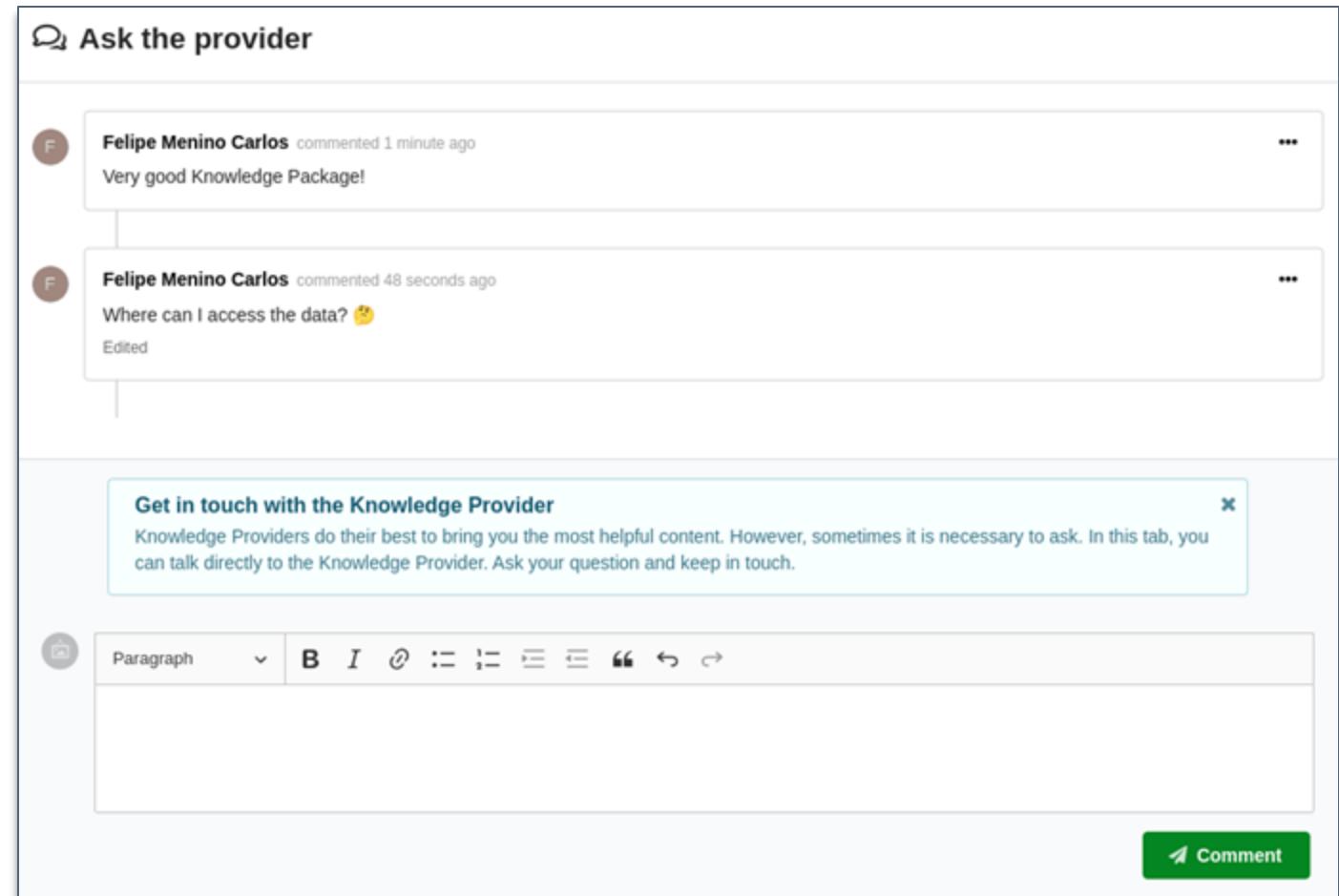
F Felipe Menino Carlos commented 1 minute ago
Very good Knowledge Package!

F Felipe Menino Carlos commented 48 seconds ago
Where can I access the data? 😊
Edited

Get in touch with the Knowledge Provider
Knowledge Providers do their best to bring you the most helpful content. However, sometimes it is necessary to ask. In this tab, you can talk directly to the Knowledge Provider. Ask your question and keep in touch.

Paragraph 

 Comment



Real-time exchange



Ask the provider

F Felipe Menino Carlos commented 1 minute ago
Very good Knowledge Package!

F Felipe Menino Carlos commented 48 seconds ago
Where can I access the data? 😊
Edited

Feedback space

Community feedback for **Land use and land cover classification in the Brazilian Cerrado biome using Brazil Data Cube**

5/5
GENERAL RATING ▾

[Share your feedback](#)

F Felipe Menino Carlos commented 0 seconds ago
The content of the Knowledge Package is very well organized.
All the elements needed to understand and reuse the application are available.

As a future recommendation, try to add other examples of how the application can be used.

CLARITY	USEFULNESS	REUSABILITY
5/5	5/5	5/5

gkhub.earthobservations.org



Practical demonstration

Questions ?

Knowledge Package creation page



Knowledge Package creation page

GEOGLAM

Files >

Basic information

Title * ASAP - Anomaly Hotspots of Agricultural Production

Add titles

Publication date * 2023-07-05

In case your upload was already published elsewhere, please use the date of the first publication. Format: YYYY-MM-DD, YYYY-MM, or YYYY. For intervals use DATE/DATE, e.g. 1939/1945.

Digital Object Identifier * Do you already have a DOI for this upload? Yes No
10.60566/v5xjs-bcm58

Published

Save draft Preview Publish

Visibility *

Full record

Public Restricted

Files only

Public Restricted

Public
The record and files are publicly accessible.

Knowledge Package creation page

The screenshot shows the GEOGLAM Knowledge Package creation interface. On the left, a sidebar contains fields for 'Basic information': Title (ASAP - Anomaly Hotspots of Agricultural Production), Publication date (2023-07-05), and Digital Object Identifier (10.60566/v5xjs-bcm58). The main area is divided into sections: 'Resources' (Dataset, Publication, Software, Others), 'Management' (Permissions, View), and 'Operations' (Import resources, Use). The 'Resources' section displays two items: 'Operation Applications, Open Data and Open Knowledge Workshop, 2023' (uploaded on July 4, 2023) and 'Crop Calendars' (uploaded on February 16, 2023).

Basic information

Title * ASAP - Anomaly Hotspots of Agricultural Production

+ Add titles

Publication date * 2023-07-05

In case your upload was already published elsewhere, please use the date of the first publication. Intervals use DATE/DATE, e.g. 1939/1945.

Digital Object Identifier * Do you already have a DOI for this upload? Yes No
10.60566/v5xjs-bcm58

Resources

Back to package

Search for resources inside the package

13 result(s) found

Sort by Newest

Dataset

Publication

Software

Others

Management

Permissions

Operations

Import resources

Operation Applications, Open Data and Open Knowledge Workshop, 2023

Group on Earth Observations

This Knowledge Resource corresponds to the session "Operation Applications" during Open Knowledge Workshop 2023, Geneva, Switzerland. In this interactive session, attendees learnt about the practical ways to reuse applications that GEO activities have produced. Through examples and demonstrations, attendees understood the potential of open data ...

Uploaded on July 4, 2023

Crop Calendars

Joint Research Centre

The national and sub-national crop calendars are based on FAO data and include only crops for which the original calendars match with the ASAP remote sensing based phenology. The file includes the start and end dekad (over the 36 dekads in a year) of the planting period (sos_s and sos_e), the start and end dekad of the growth period (sos_e and e...)

Uploaded on February 16, 2023

Digital Object Identifier (DOI) creation



Digital Object Identifier (DOI) creation



Knowledge Package

Published June 1, 2023 | Version 2023

DATA-WG Knowledge Package Metadata-only

GEO Dialogue Series (2023)

GEO Data Working Group [@GEO](#)

Citation

Style

APA

GEO Data Working Group. (2023). GEO Dialogue Series (2023) (Version 2023). GEO Knowledge Hub. <https://doi.org/10.60566/2n6ja-2g648>

Description

GEO Dialogue Series 2023 is the second season of webinars organized by the [Group on Earth Observations \(GEO\)](#).

The GEO Dialogue Series 2023 focuses on the GEO Open Knowledge statement.

In the dialogue series, we discuss each component of Open Knowledge and how we can progress from open data sharing, supported by the GEO data management principles, to the FAIR, CARE, and TRUST principles, ultimately achieving open knowledge. Open

Versions

Version 2023
(Jun 1, 2023)

Any question ?

Ask the provider

Feedback space

Learn the community experience with this package

Details

DOI

DOI: [10.60566/2n6ja-2g648](https://doi.org/10.60566/2n6ja-2g648)

[10.60566/2n6ja-2g648](https://doi.org/10.60566/2n6ja-2g648)

Digital Object Identifier (DOI) creation



Knowledge Package

Published June 1, 2023 | Version 2023

DATA-WG Knowledge Package Metadata-only

GEO Dialogue Series (2023)

GEO Data Working Group

Citation

Style

APA

GEO Data Working Group. (2023). GEO Dialogue Series (2023) (Version 2023). GEO Knowledge Hub. <https://doi.org/10.60566/2n6ja-2g648>

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[10.60566/2n6ja-2g648](https://doi.org/10.60566/2n6ja-2g648)

Versions
Version 2023 (Jun 1, 2023)
Any question ? Ask the provider
Feedback space Learn the community experience with this package
Details
DOI [10.60566/2n6ja-2g648](https://doi.org/10.60566/2n6ja-2g648)

Resources

Published June 5, 2023 | Version 2023
DATA-WG Lesson (Training material) Open
Versions
Version 2023 (Jun 5, 2023)
Any question ? Ask the provider
Feedback space Learn the community experience with this package
Details
DOI [10.60566/zrnza-gh061](https://doi.org/10.60566/zrnza-gh061)

[10.60566/zrnza-gh061](https://doi.org/10.60566/zrnza-gh061)

GEO Knowledge Hub Feed

GEO Knowledge Hub Feed

Welcome to the Feed

A place to keep updated about the GEO Knowledge Hub content

News

Highlights from #ODOK 2023

Post with highlights from the ODOK 2023

News

Introducing the GEO Knowledge Hub Feed

This post introduces the new tool available on the
GEO Knowledge Hub ecosystem.

Previous 1 Next

gkhub.earthobservations.org/feed

GEO Knowledge Hub Feed

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Previous 1 Next

gkhub.earthobservations.org/feed

Introducing the GEO Knowledge Hub Feed

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GEO Knowledge Hub Team
Group on Earth Observations

Hello, dear GEO Knowledge Hub Community.

For some time now, we, the GEO Knowledge Hub team, have received several requests to assist the community in promoting new Knowledge Packages published on GEO Knowledge Hub. To support the community, we've added a new tool to the GEO Knowledge Hub ecosystem: The Feed.

User Dashboard

User Dashboard

The screenshot shows the User Dashboard of the GEO Knowledge Hub. The top navigation bar includes a globe icon, a 'Dashboard' button, and a user profile icon labeled 'felipecarlos' with a green notification badge. The left sidebar contains links for 'Existing Users', 'Stories', 'Actions', and 'Logout'. The main content area features a large, bold 'Welcome to the User dashboard' heading. Below it is a descriptive paragraph about the dashboard's purpose: 'The GEO Knowledge Hub User dashboard is where you can centralize information about the users of your applications. Doing this allows you to manage this data efficiently and never lose contact points again!'. A blue 'Learn more' button is located at the bottom of this section.

User Dashboard

Welcome to the User dashboard

The GEO Knowledge Hub User dashboard is where you can centralize information about the users of your applications. Doing this allows you to manage this data efficiently and never lose contact points again!

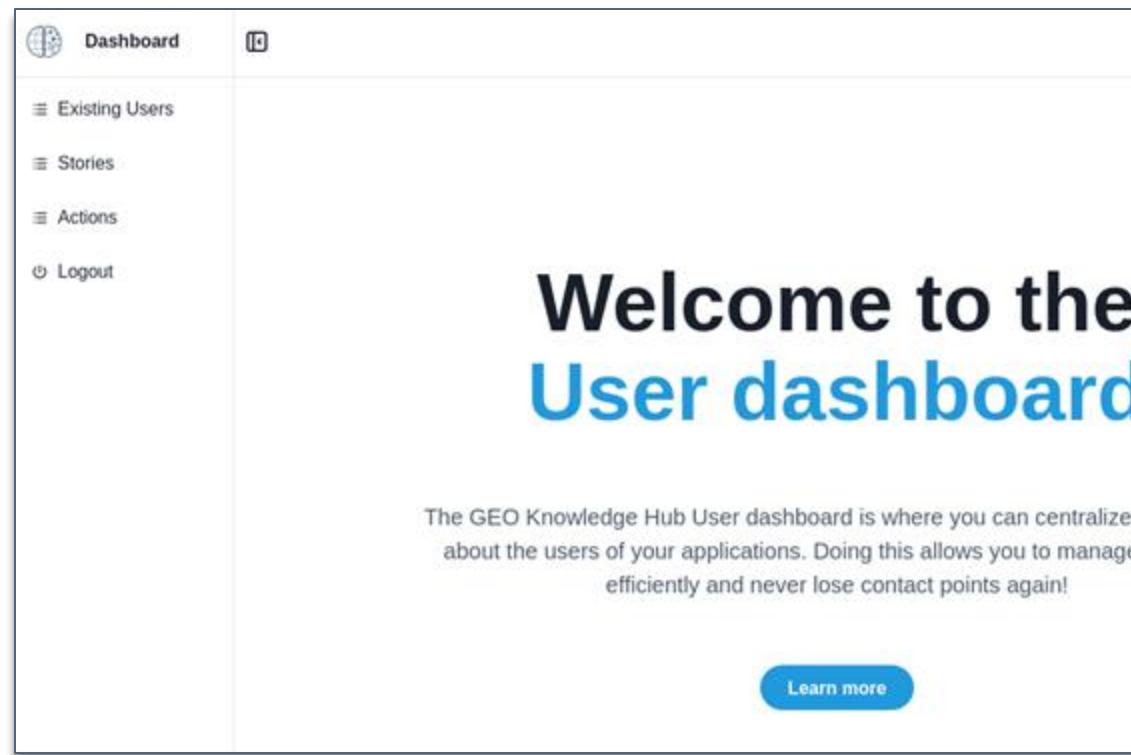
Learn more

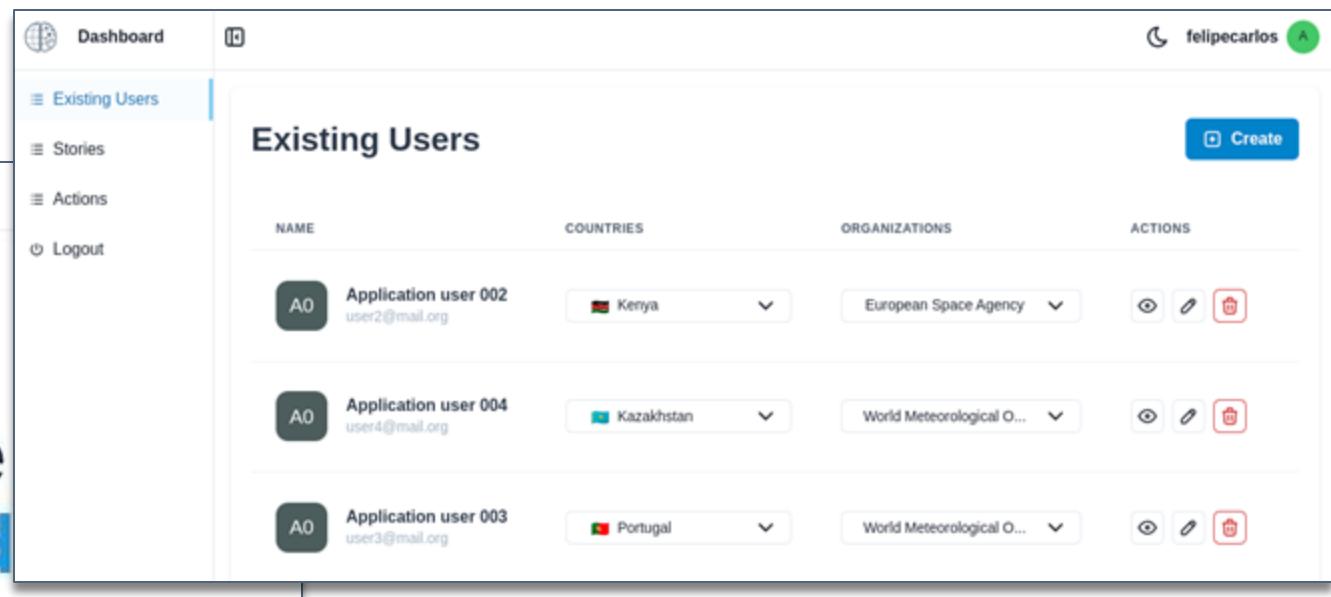
- Dashboard
- Existing Users
- Stories
- Actions
- Logout

Existing Users

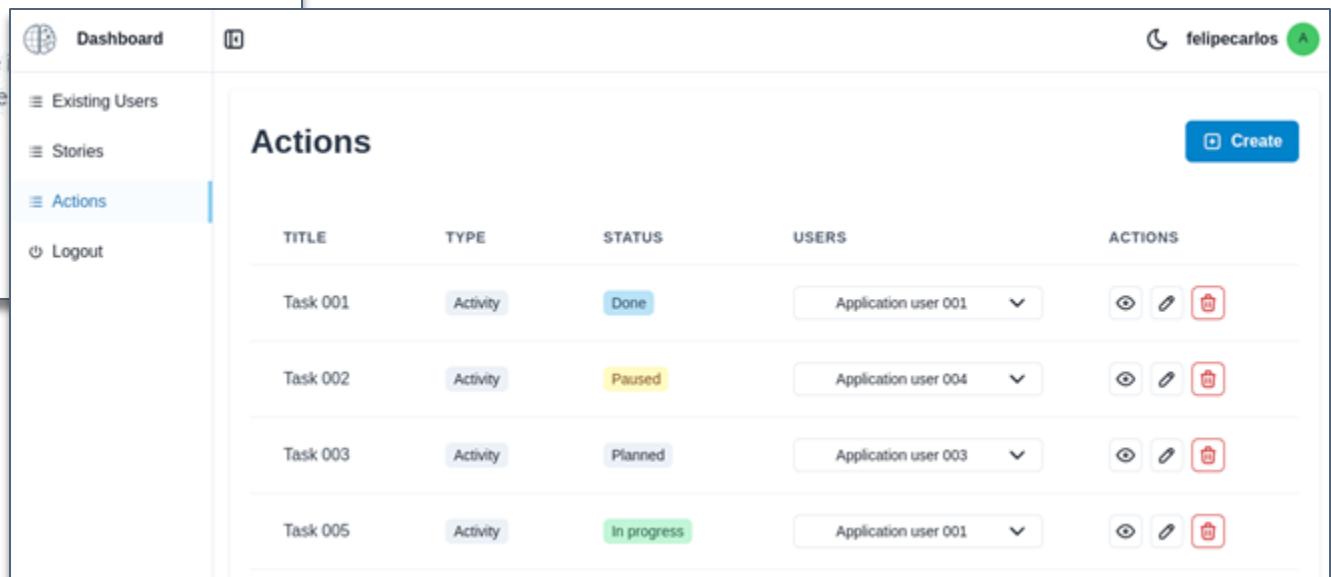
NAME	COUNTRIES	ORGANIZATIONS	ACTIONS
Application user 002 user2@mail.org	Kenya	European Space Agency	
Application user 004 user4@mail.org	Kazakhstan	World Meteorological O...	
Application user 003 user3@mail.org	Portugal	World Meteorological O...	

User Dashboard

The screenshot shows the main dashboard page. On the left, there's a sidebar with icons for Existing Users, Stories, Actions, and Logout. The main area features a large "Welcome to the User dashboard" heading in blue and black. Below it is a text block: "The GEO Knowledge Hub User dashboard is where you can centralize about the users of your applications. Doing this allows you to manage efficiently and never lose contact points again!" At the bottom right of this section is a "Learn more" button.

This screenshot shows the "Existing Users" section of the dashboard. It includes a header with "Existing Users" and a "Create" button. The main content is a table with columns: NAME, COUNTRIES, ORGANIZATIONS, and ACTIONS. Three user entries are listed:

NAME	COUNTRIES	ORGANIZATIONS	ACTIONS
A0 Application user 002 user2@mail.org	Kenya	European Space Agency	 
A0 Application user 004 user4@mail.org	Kazakhstan	World Meteorological O...	 
A0 Application user 003 user3@mail.org	Portugal	World Meteorological O...	 

This screenshot shows the "Actions" section of the dashboard. It includes a header with "Actions" and a "Create" button. The main content is a table with columns: TITLE, TYPE, STATUS, USERS, and ACTIONS. Four task entries are listed:

TITLE	TYPE	STATUS	USERS	ACTIONS
Task 001	Activity	Done	Application user 001	 
Task 002	Activity	Paused	Application user 004	 
Task 003	Activity	Planned	Application user 003	 
Task 005	Activity	In progress	Application user 001	 

gkhub.earthobservations.org



Practical demonstration

Questions ?

Rest API

Rest API



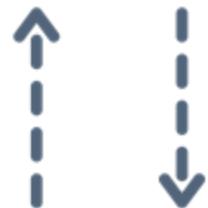
External systems

Rest API



External systems

Rest API



External systems

Bulk Package Loader

OGC/CSW Package Loader
(Harvester)

Using the Rest API

Meet the e-shape legacy through the GEO Knowledge Hub

As a European flagship project contributing to EuroGEO, the e-shape project has linked with the [Knowledge Hub \(GKH\)](#) to support the promotion and the results dissemination of the 37 pilot showcases, which have been developed during the project life time.

The approach relies on the use of the webservice-energy GEO community catalogue to initiate the creation of one metadata record per pilot (<https://tinyurl.com/5dk34cks>). Metadata records, 19139 and/or INSPIRE Network Service profiles, have been created having the concept of the granule in mind. It means, beside the access to the given application, to provide a bucket of enriched metadata including, scientific communications, DOI, videos support presentations, Jupyter Notebooks, repositories, OGC Web Services GetCapabilities and output result datasets samples. A prime enriched metadata record is available here: <https://tinyurl.com/3bjd7ymu>

tinyurl.com/e-shape-gkh

The screenshot shows the e-shape community page on the GKH platform. At the top, there's a header with the community name 'e-shape', its URL 'https://e-shape.eu/index.php/', and project details 'Project' and 'EuroGEO, Group on Earth Observations'. There are also 'About this community' and 'New upload' buttons. Below the header, there are search and member navigation links. The main content area displays a list of 171 results found, sorted by 'Newest'. The results are categorized under 'Versions' and 'Resource types'. Each result item includes a thumbnail, title, author(s), date, and a brief description. For example, the first result is a video titled 'e-shape co-design presentation and pilot's testimonials - Video' by Barbier, Raphaëlle; Menard, Lionel, uploaded on June 1, 2023. The second result is a thesis titled 'Collective action for bridging digital and sustainability transitions: modelling and experimenting a new form of co-design between Earth-observation data providers and unknown users. (Doctoral thesis). Mines Paris, PSL University.' by Barbier, Raphaëlle, uploaded on June 1, 2023.

Using the Rest API

The GEoss logo, consisting of the word "GEoss" in a bold, sans-serif font. The letters are colored in a gradient: teal for G, blue for E, green for O, and red for ss. The letter "O" contains a small globe icon.

Using the Rest API

Detecting deforestation using data cubes and deep learning

Using the Rest API

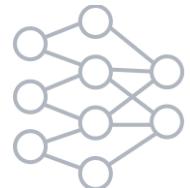
Detecting deforestation using data cubes and deep learning



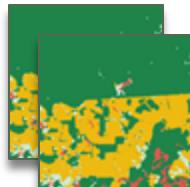
Processing scripts



Data Cube and samples



Machine Learning Model



Land use Land Cover map



Processing environment



Complementary files



Usage workflow

Using the Rest API

Detecting deforestation using data cubes and deep learning



Usage workflow

Using the Rest API

Detecting deforestation using data cubes and deep learning

Using the **GEO Knowledge Hub Rest API**, in the **workflow** are available routines to **configure** and **execute** the **processing scripts automatically**



Usage workflow

Documentation

Documentation

The screenshot shows the homepage of the GEO Knowledge Hub. At the top, there is a navigation bar with links for "GEO Knowledge Hub", "Feed", "User guides", "Development", and "Releases". On the right side of the navigation bar are "GitHub" and a search bar. The main title "GEO Knowledge Hub" is prominently displayed in large white letters. Below the title, a subtitle reads "The open-source digital library for open, authoritative and reproducible knowledge". There are two buttons at the bottom: "Explore now" and "Learn more". The background of the main content area is dark blue.

GEO Knowledge Hub

The open-source digital library for open, authoritative and reproducible knowledge

Explore now Learn more

EO Digital Library

The GEO Knowledge Hub (GKH) is a central cloud-based digital library providing access to Earth Observation (EO) Applications developed by the GEO Work Programme Activities.

A small illustration in the bottom right corner shows a person from behind, looking at a computer monitor. The monitor displays a globe, representing Earth Observation data.

gkhub.earthobservations.org/doc

Documentation

The screenshot shows the GEO Knowledge Hub website. The top navigation bar includes links for 'GEO Knowledge Hub', 'Feed', 'User guides', 'Development', 'Releases', 'GitHub' (with a search bar), and a magnifying glass icon for search. The main content area has a dark blue header with the text 'GEO Knowledge Hub' and 'The open-source digital library for open, authoritative and reproducible knowledge'. Below this are two buttons: 'Explore now' and 'Learn more'. To the right, a large white box contains the title 'Creating a new Knowledge Package'. It features an 'INFO' icon and a note about creating a Knowledge Package. Below this is a section titled 'Getting ready' with a checklist of actions: 1. Organize the material you want to share; 2. Describe all the materials you have in a document (e.g., Title, Authors, Licenses, Files and so on); 3. Go to the GEO Knowledge Hub and follow the step-by-step guide to create a Knowledge Package. At the bottom of this box is a 'Step-by-step' section with a note to follow instructions on following pages. The URL 'gkhub.earthobservations.org/doc' is visible at the bottom left.

GEO Knowledge Hub

The open-source digital library for open, authoritative and reproducible knowledge

Explore now Learn more

EO Digital Library

The GEO Knowledge Hub (GKH) is a central cloud-based digital library providing access to Earth Observation (EO) Applications developed by the GEO Work Programme Activities.

Creating a new Knowledge Package

INFO

To create a Knowledge Package, your [GEO Knowledge Hub user](#) must have the [Knowledge Provider role](#). If you do not have this permission, [create an account](#) and [request the required role](#) for the [GEO Knowledge Hub team](#).

Sharing Earth Observation Applications in the [GEO Knowledge Hub](#) is done through Knowledge Package creation. This section presents how Knowledge Providers can use the features of the digital library to create these packages.

Getting ready

The most important work, once as [Knowledge Provider](#) you decided to share your application in the [GEO Knowledge Hub](#) is to organize and document your application with the relative resources.

A [checklist of actions](#) is suggested:

1. Organize the material you want to share;
2. Describe all the materials you have in a document (e.g., [Title](#), [Authors](#), [Licenses](#), [Files](#) and so on);
3. Go to the [GEO Knowledge Hub](#) and follow the step-by-step guide to create a [Knowledge Package](#).

Step-by-step

To create your [Knowledge Package](#), follow the step-by-step instructions on the following pages.

gkhub.earthobservations.org/doc

Open-source platform

Open-source platform

The screenshot shows the GitHub profile for the 'GEO Knowledge Hub'. The profile header features a brain icon and the text 'GEO Knowledge Hub: An open-source digital library for Earth Observations applications'. A 'Unfollow' button is visible in the top right corner. The 'Pinned' section displays five repositories: 'geo-knowledge-hub' (JavaScript), 'geo-components-react' (JavaScript), 'geo-user-dashboard' (TypeScript), 'geo-rdm-records' (Python), and 'invenio-geographic-components-react' (JavaScript). Below the pinned section is a 'Customize pins' dropdown and a 'View as: Public' toggle. The 'Discussions' section includes a 'Turn on discussions' link. The 'People' section shows a grid of user icons. At the bottom, there's a search bar with 'Find a repository...', filters for 'Type', 'Language', 'Sort', and a green 'New' button.



github.com/geo-knowledge-hub

Open-source platform

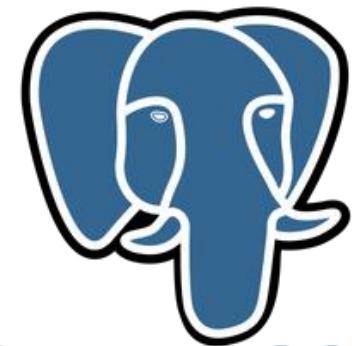
The screenshot shows the GitHub interface for the **GEO Knowledge Hub**. On the left, there's a sidebar with pinned repositories: **geo-knowledge-hub**, **geo-components-react**, **geo-user-dashboard**, and a search bar. The main area displays a pull request titled "services: adding mutable configurations for the records service". The pull request has 137 commits, 6 changed files, and 37 additions/deletions. It was committed by **M3nin0** on Feb 23. The code diff shows changes in the `links.py` file of the `geo_rdm_records` module. The changes include expanding identity objects and updating context links.

```
diff --git a/.../records/modules/search/services/links.py b/.../geo_rdm_records/base/services/links.py
--- a/.../records/modules/search/services/links.py
+++ b/.../geo_rdm_records/base/services/links.py
@@ -54,14 +54,14 @@ def __init__(self, links, types_registry, context=None):
    self.types_registry = types_registry
-    def expand(self, obj):
+    def expand(self, identity, obj):
        """Expand all the link templates."""
        # defining the object type
        obj_type = self.types_registry.guess_type(obj, error=True)
        # updating the context with the type
        ctx = deepcopy(self.context)
-        ctx.update(dict(entity=obj_type))
+        ctx.update(dict(entity=obj_type, identity=identity))
        # expanding links
        links = {}
```



github.com/geo-knowledge-hub

Tech stack



Postgre~~S~~SQL



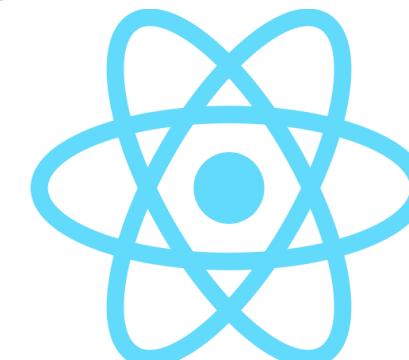
Docusaurus



Flask



Python



React



Semantic UI

Infrastructure



Amazon Web Services



GitHub Actions



- EC2** Amazon Elastic Compute Cloud
- S3** Amazon Simple Storage Service
- RDS** Amazon Relational Database Service
- Backup** Amazon Backup

GEO Knowledge Hub content

108

Knowledge Packages

531

Knowledge Resources

GEO Knowledge Hub content



Digital Earth
AFRICA



GLOBAL OBSERVATION SYSTEM FOR MERCURY

EO4SENDAI
Monitoring

GWIS

GEO ECO



EO4SDG



GLOBAL WATER SUSTAINABILITY



GEO
Human Planet Initiative



GEOMIN

GEO Value

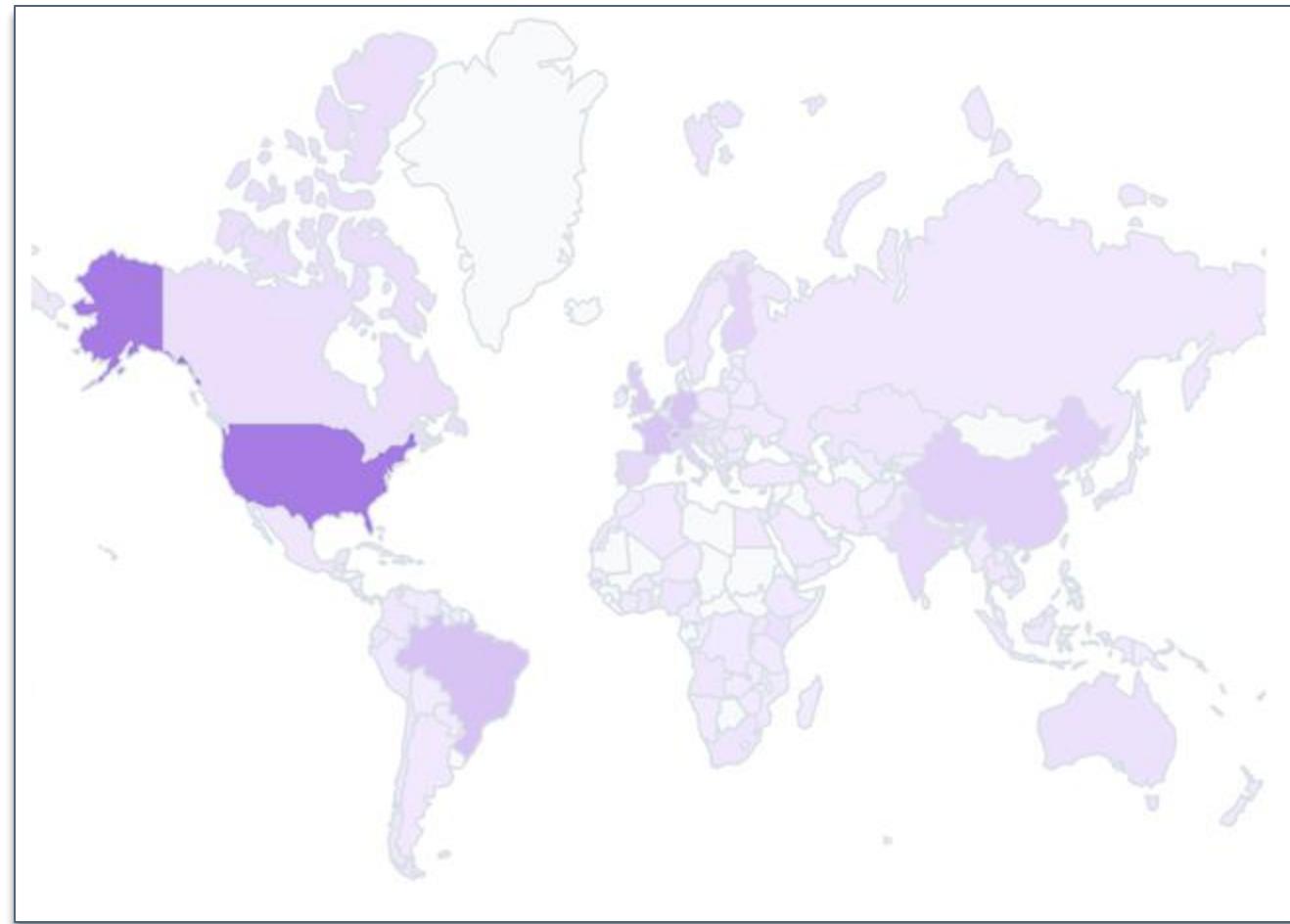


Data Working
Group



GEO Community access

~21.000 views
(in the last 10 months)



Visitors by country
(Stronger color means more visitors)

Note: Metrics are collected with Plausible, a privacy-friendly tool
(GDPR, CCPA, PECR compliant tool)

Future steps

Future steps

Engage with GEO Work Programme activities not yet in the GEO Knowledge Hub

Future steps

Engage with GEO Work Programme activities not yet in the GEO Knowledge Hub

Increase the EO applications available in the digital library

Future steps

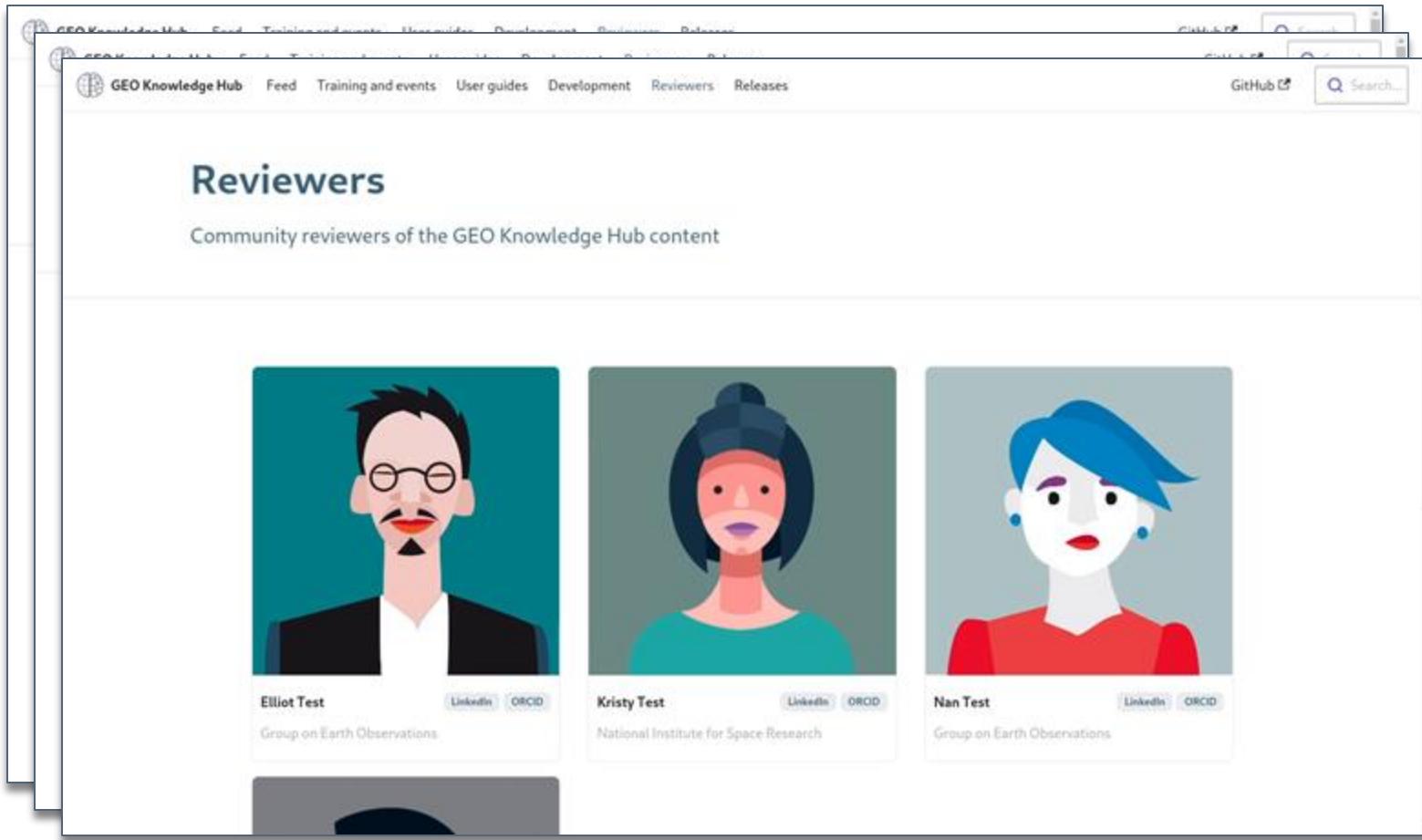
Engage with GEO Work Programme activities not yet in the GEO Knowledge Hub

Increase the EO applications available in the digital library

Webinars on available Knowledge Packages

Future steps

Make new features available



Thank you