Photo by Philip Ackermann via Pexels

eurac research
*Institute for Earth Observation /*
*Center for Climate Change and Transformation*

# Lessons Learned from Dataset FAIR-ification

*…and the Long Hard Road towards Open Science*

15.03.2023

Piero Campalani
0000-0002-1032-9825

# 0 The FAIR guiding principles

*A concise review of what we all should know already at this point.*

# But first: a bit of **History**

jan
2014

"Jointly designing a data FAIRPORT"
Lorentz Center (Leiden, NL) [link]
*The FAIR term is launched.*
FORCE11

mar
2016

**"The FAIR Guiding Principles for scientific data management and stewardship"**
Wilkinson, M., Dumontier, M., Aalbersberg, I. *et al.*
Sci. Data 3:160018
doi:10.1038/sdata.2016.18

jan
2019

"The FAIRsharing Registry and Recommendations"
*are formally adopted by RDA.*
FAIRsharing.org
standards, databases, policies

may
2020

FAIR 4 Research Software WG
RDA, FORCE11, and Research Software Alliance (ReSA) Taskforce
https://www.rd-alliance.org/groups/fair-research-software-fair4rs-wg

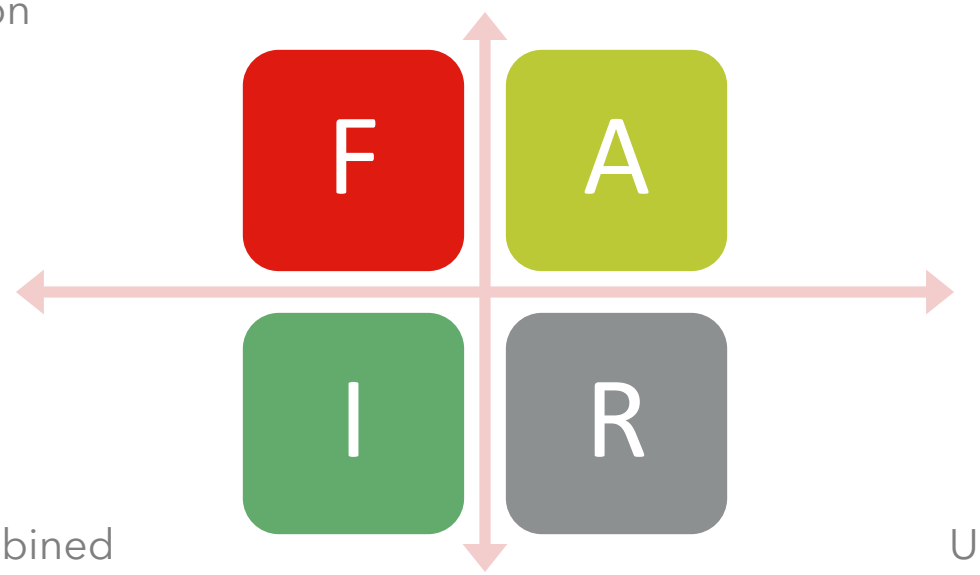
RDA RESEARCH DATA ALLIANCE
<ReSA> Research Software Alliance

## FINDABLE

The first thing to be in place to make data reusable is the possibility to find them. It should be easy to find the data and the metadata for both humans and computers. Automatic and reliable discovery of datasets and services depends on machine-readable **persistent Identifiers** (PIDs) and metadata.

## ACCESSIBLE

The (meta)data should be retrievable by their identifier using a standardized and open **communications protocol**, possibly including **authentication** and authorisation. Also, metadata should be available even when the data are no longer available.




## INTEROPERABLE

The data should be able to be combined with and used with other data or tools. The **format** of the data should therefore be open and interpretable for various tools, including other data records. The concept of interoperability applies both at the data and metadata level.

## RE-USABLE

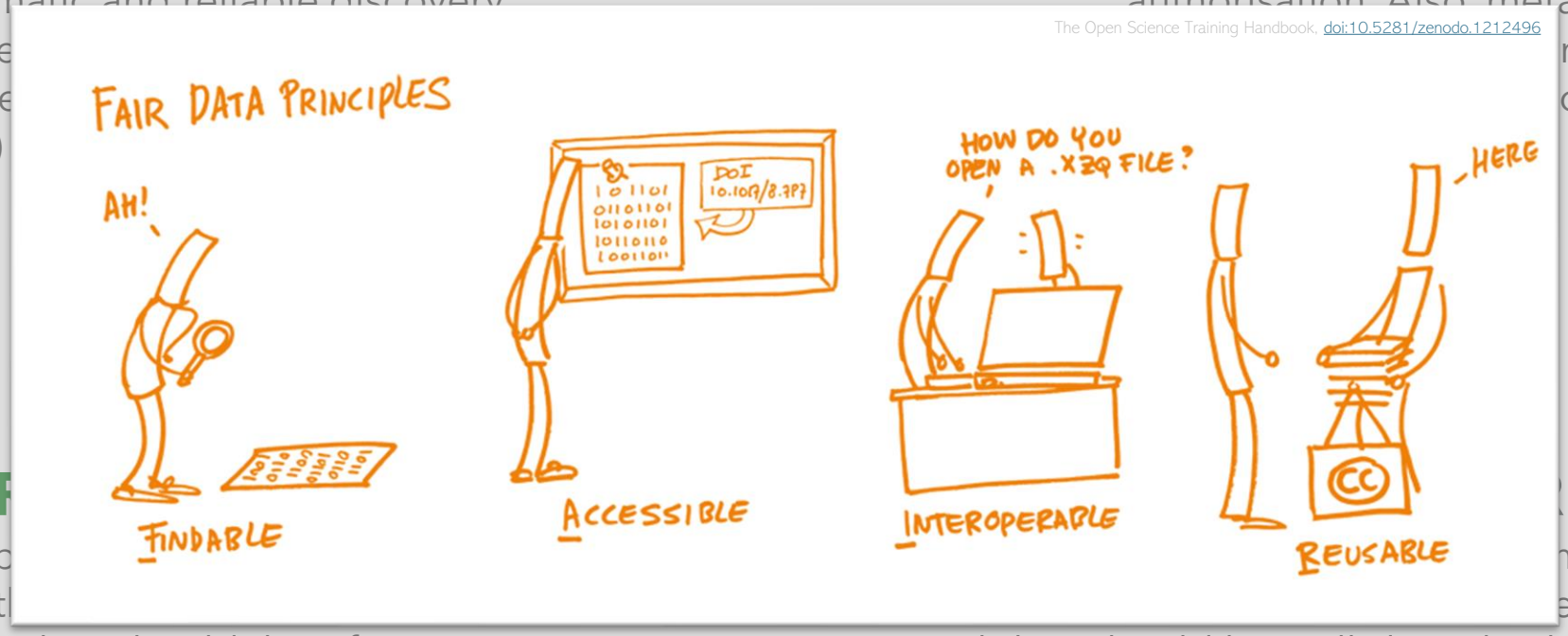
Ultimately, FAIR aims at optimizing the reuse of data. To achieve this, **metadata** and data should be well-described so that they can be replicated and/or combined in different settings. Also, the reuse of the (meta)data should be stated with (a) clear and accessible **license(s)**.

## FINDABLE

The first thing to be in place to make data reusable is the possibility to find them. It should be easy to find the data and the metadata for both humans and computers. Automatic and reliable discovery of datasets and se… machine-readable… **Identifiers** (PIDs)…

## ACCESSIBLE

The (meta)data should be retrievable by their identifier using a standardized and open **communications protocol**, possibly including **authentication** and authorisation. Also, metadata should be … when the data …onger available.




## INTEROPER…

The data should b… with and used wit… The **format** of the data should therefore be open and interpretable for various tools, including other data records. The concept of interoperability applies both at the data and metadata level.

## …E-USABLE

…ms at optimizing …e this, **metadata** and data should be well-described so that they can be replicated and/or combined in different settings. Also, the reuse of the (meta)data should be stated with (a) clear and accessible **license(s)**.

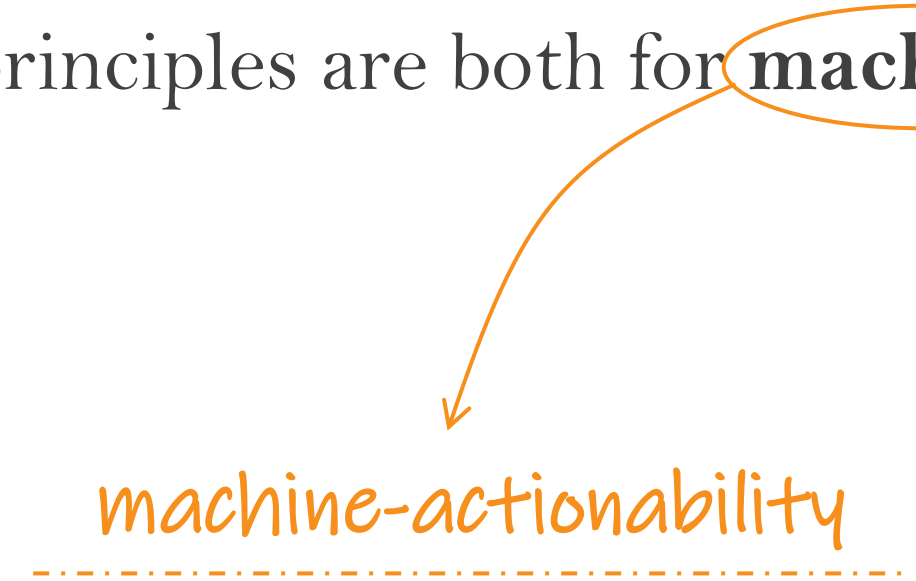
# … a few remarks

# Remark #1

The FAIR principles are both for **machines** and for **people**.

# Remark #1

The FAIR principles are both for **machines** and for **people**.

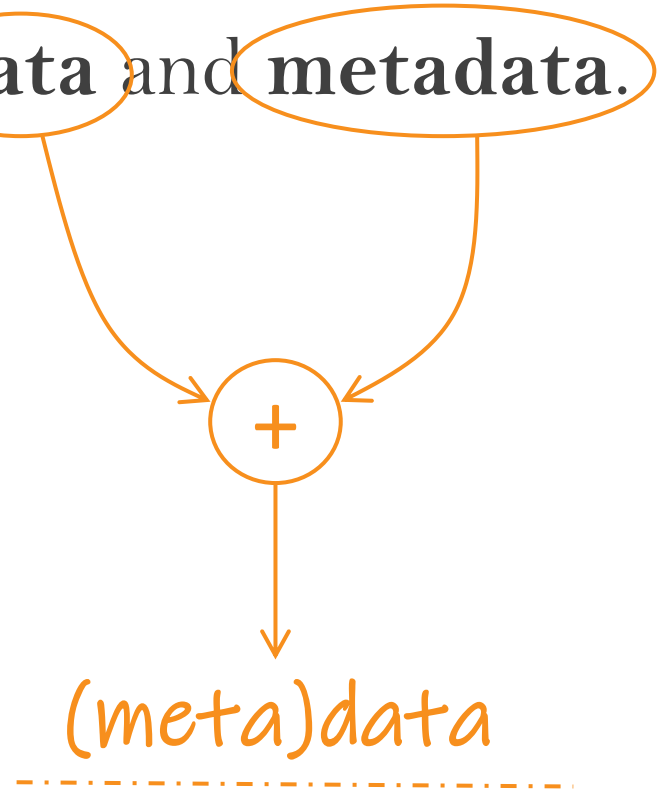


# Remark #2

The FAIR principles often apply to both **data** and **metadata**.

# Remark #2

The FAIR principles often apply to both **data** and **metadata**.

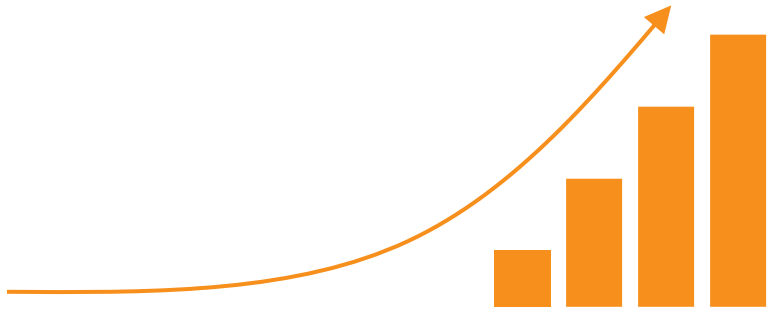


# Remark #3

The FAIR principles are not on/off switches but can be implemented **incrementally**.

# Remark #3

The FAIR principles are not on/off switches but can be implemented **incrementally**.



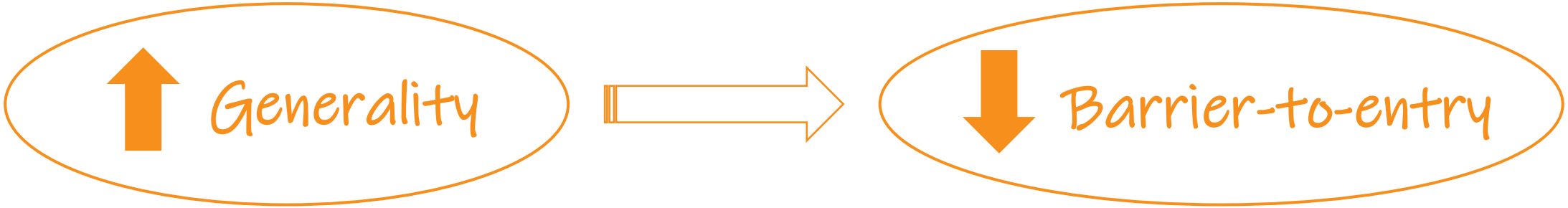
Degrees of `FAIRness'

# Remark #4

The FAIR principles are **domain-independent** and inalienable: they do not suggest any specific technology, standard, or implementation-solution.

# Remark #4

The FAIR principles are **domain-independent** and inalienable: they do not suggest any specific technology, standard, or implementation-solution.



# Remark #5

FAIR ≠ publicly available data.

# Remark #5

FAIR ≠ publicly available data.

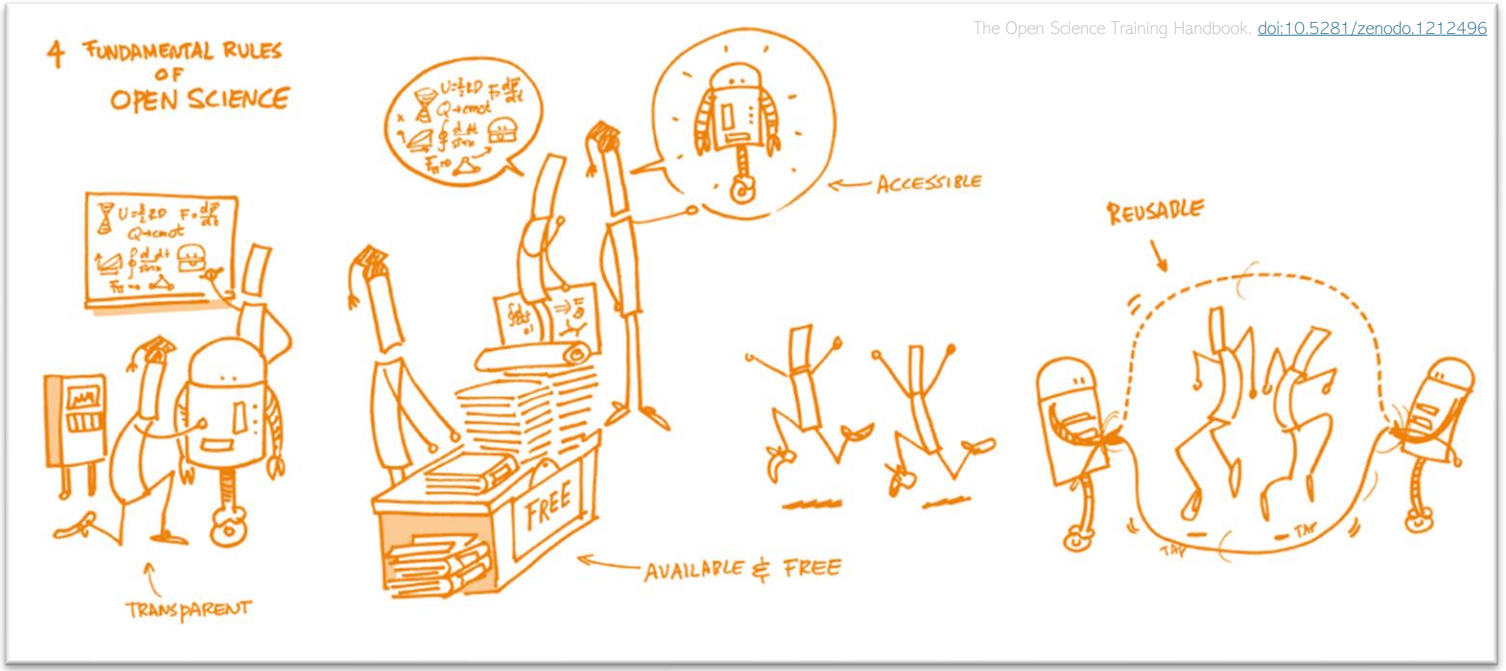
**but …**

# Remark #6

The FAIR principles are essential to **Open Science**.

# Remark #6

The FAIR principles are essential to **Open Science**.



# Remark #7

No FAIRness = No Data Management Plans (DMPs).

# Remark #7

No FAIRness = No Data Management Plans (DMPs).

??

"Data Management Plan workshop for natural sciences and engineering" @ Eurac Research

# …Last remark

The FAIR principles are not only about the (meta)data, but also:

# …Last remark

The FAIR principles are not only about the (meta)data, but also:

- FAIR research software

# …Last remark

The FAIR principles are not only about the (meta)data, but also:

- FAIR research software
- FAIR workflows

# …Last remark

The FAIR principles are not only about the (meta)data, but also:

- FAIR research software
- FAIR workflows
- FAIR web services

# …Last remark

The FAIR principles are not only about the (meta)data, but also:

- FAIR research software
- FAIR workflows
- FAIR web services
- …

# Dig deeper: helpful **FAIR initiatives**

https://www.go-fair.org/

*Bottom-up, stakeholder-driven and self-governed initiative that aims to implement the FAIR data principles through Implementation Networks (INs).*

https://www.fairsfair.eu/

*Practical solutions for the use of FAIR principles throughout the data life cycle, fostering a FAIR data culture and the uptake of good practices.*

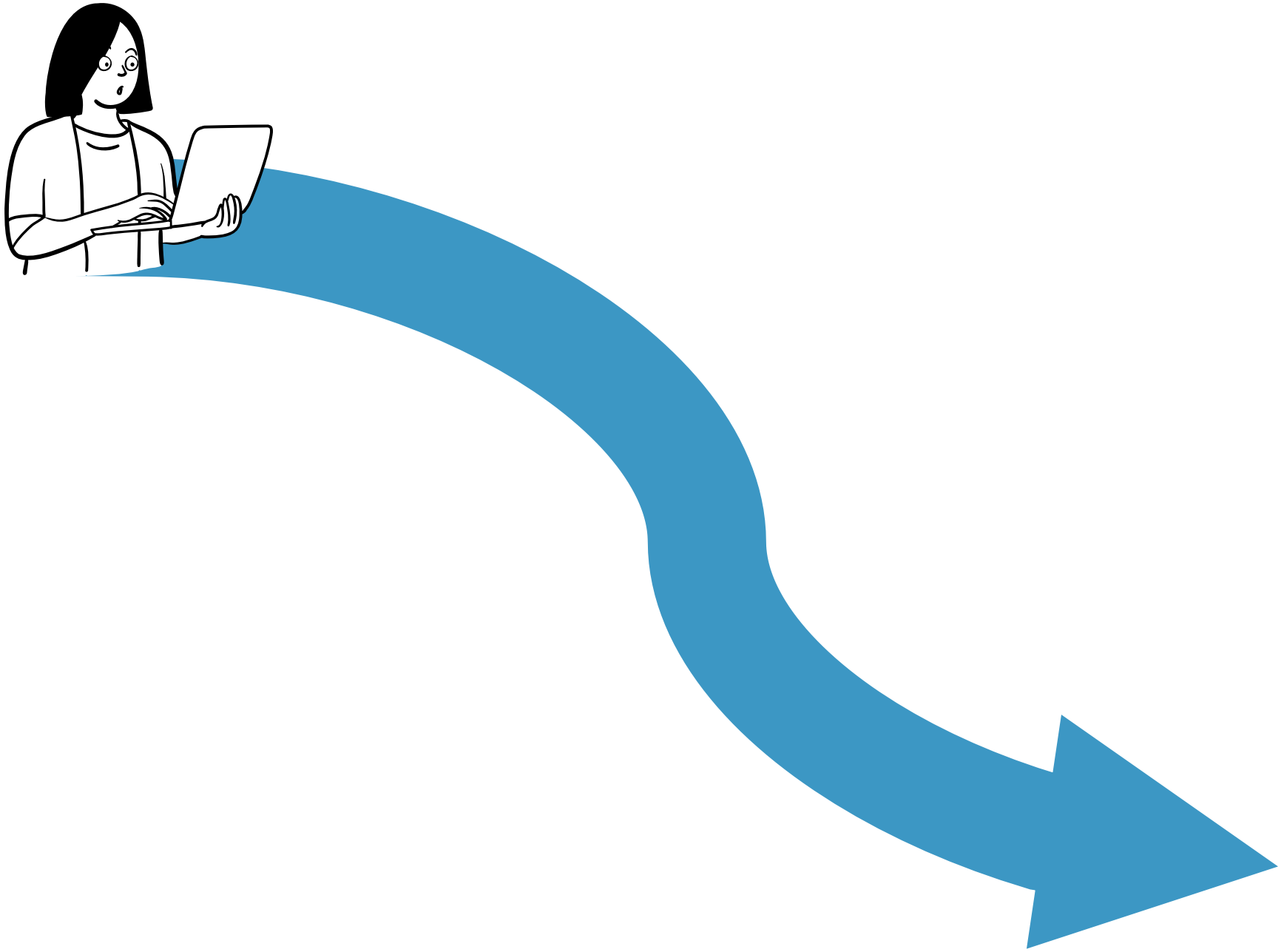
https://www.fairpoints.org/

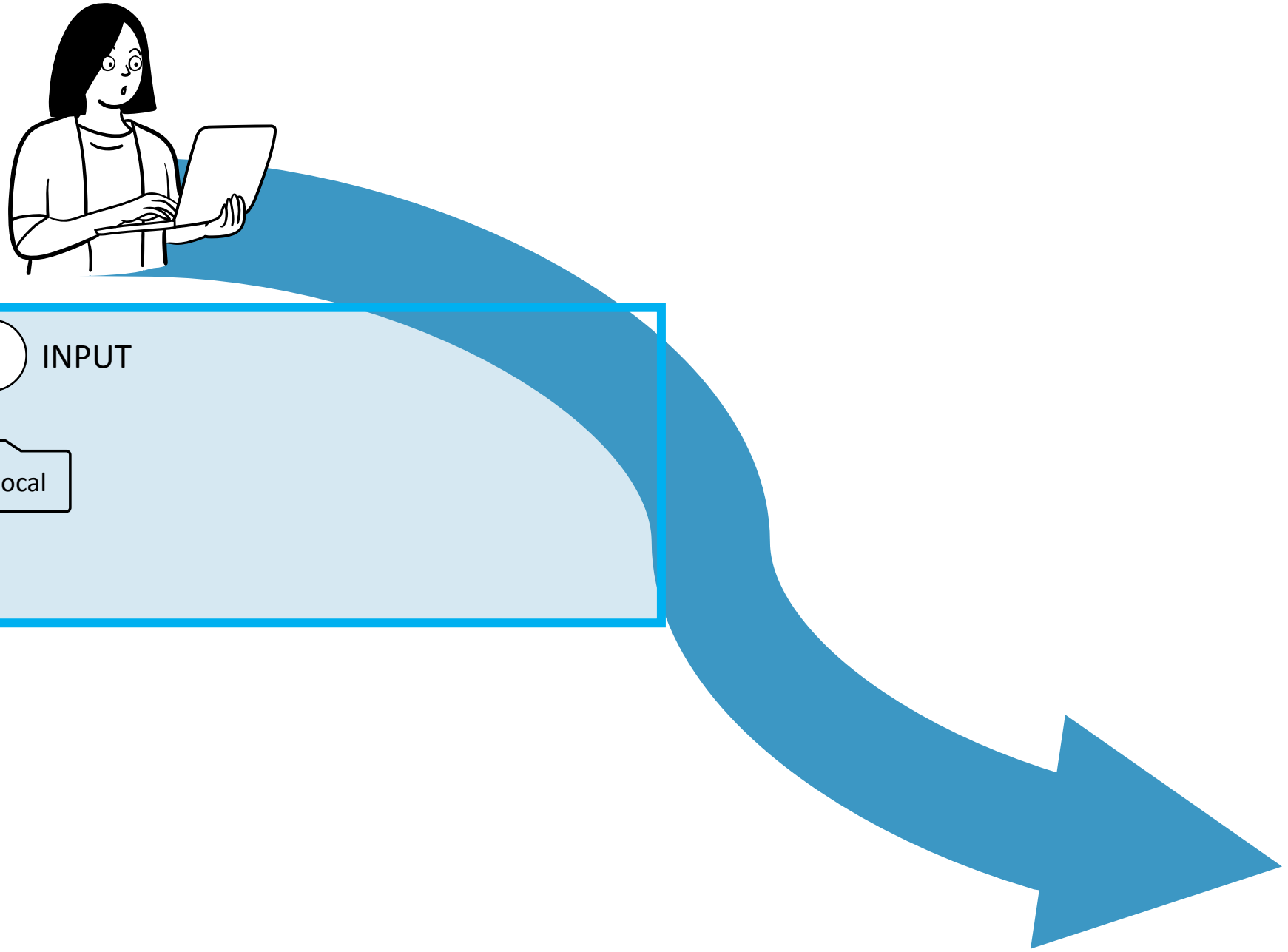
*Event series aims to discuss, highlight, and share pragmatic solutions to making FAIR a reality from viewpoints that transverse geographic and domain areas.*

# 1 The practice of  FAIR-ness

*Data-sharing chronicles from the Institute for Earth Observation.*

# Alice's journey





2 CODE

local

1 INPUT

local

2 CODE

local

1 INPUT

local

3 RESULTS

local

2 CODE

local

1 INPUT

local

4 PUBLICATION

Classical Journal

3 RESULTS

local

2 CODE

local

1 INPUT

local

4 PUBLICATION

Classical Journal

3 RESULTS

local

5 IMPACT

2 CODE

local

1 INPUT

local

Accessible

4 PUBLICATION

Classical Journal

3 RESULTS

local

5 IMPACT

2 CODE

local

github

Docu-
mentation

Environ-
ment

Examples

FAIR
Workflow

1 INPUT

local

Accessible

4 PUBLICATION

Classical
Journal

3 RESULTS

local

5 IMPACT

2 CODE

local

github

Docu-
mentation

Environ-
ment

Examples

FAIR
Workflow

1 INPUT

local

Accessible

4 PUBLICATION

Classical
Journal

3 RESULTS

local

Findable
*Catalog, DOI*

Accessible
*Open*

Interoperable
*Standard Formats*

Reusable
*License*

FAIR
Data

5 IMPACT

## 1 INPUT

local

Accessible

## 2 CODE

local

github

Docu-
mentation

Environ-
ment

Examples

FAIR
Workflow

## 3 RESULTS

local

Findable
*Catalog, DOI*

Accessible
*Open*

Interoperable
*Standard Formats*

Reusable
*License*

FAIR
Data

## 4 PUBLICATION

Classical
Journal

Open
Access

Pre-
Print

With Data
and Code

## 5 IMPACT

## 1 INPUT

local

Accessible

## 2 CODE

local

github

Docu-
mentation

Environ-
ment

Examples

FAIR
Workflow

## 3 RESULTS

local

Findable
*Catalog, DOI*

Accessible
*Open*

Interoperable
*Standard Formats*

Reusable
*License*

FAIR
Data

## 4 PUBLICATION

Classical
Journal

Open
Access

Pre-
Print

With Data
and Code

## 5 IMPACT

2 CODE

local

github

Docu-
mentation

Environ-
ment

Examples

FAIR
Workflow

1 INPUT

local

Accessible

4 PUBLICATION

Classical
Journal

Open
Access

Pre-
Print

With Data
and Code

3 RESULTS

local

Findable
*Catalog, DOI*

Accessible
*Open*

Interoperable
*Standard Formats*

Reusable
*License*

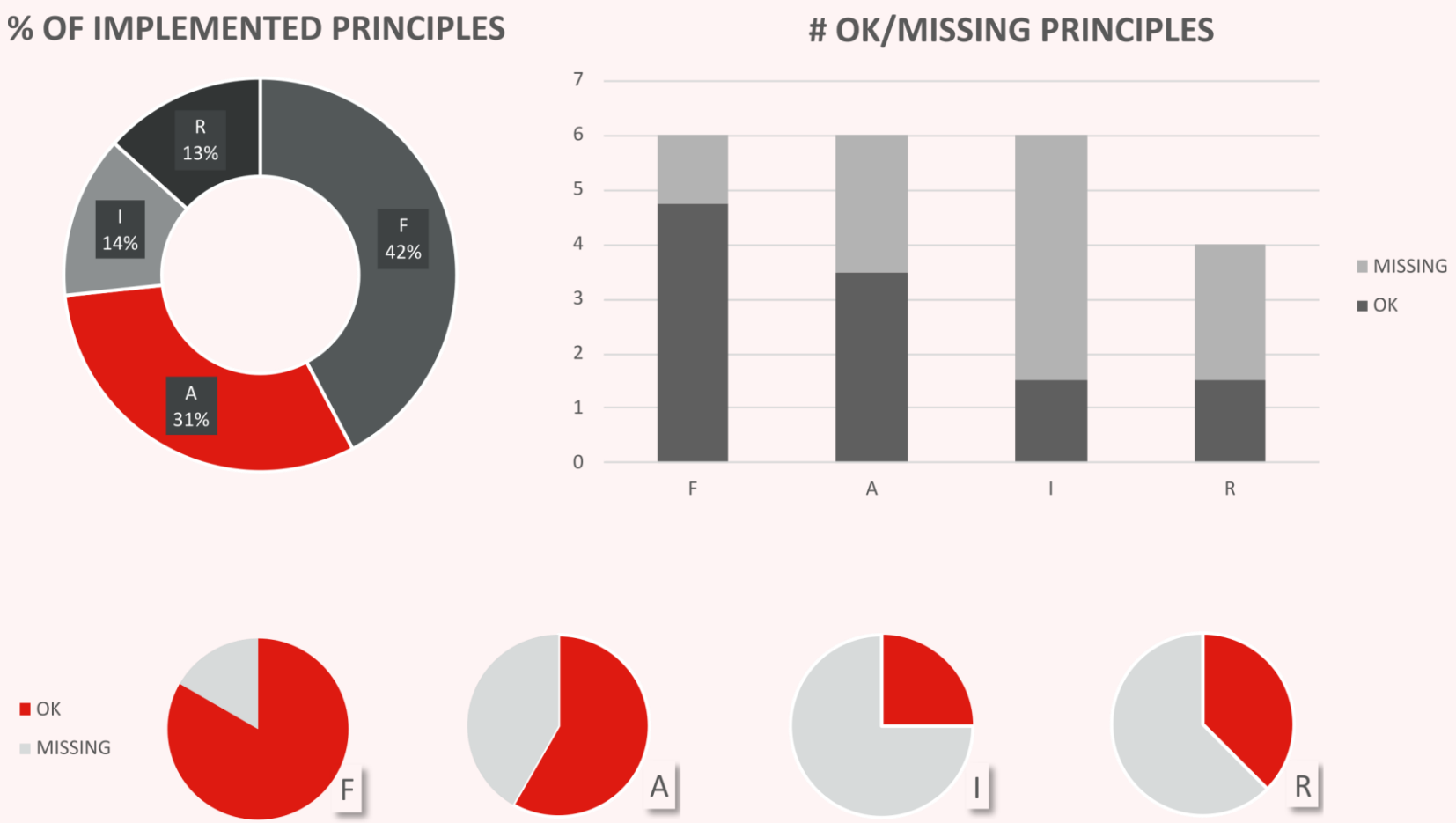
FAIR
Data

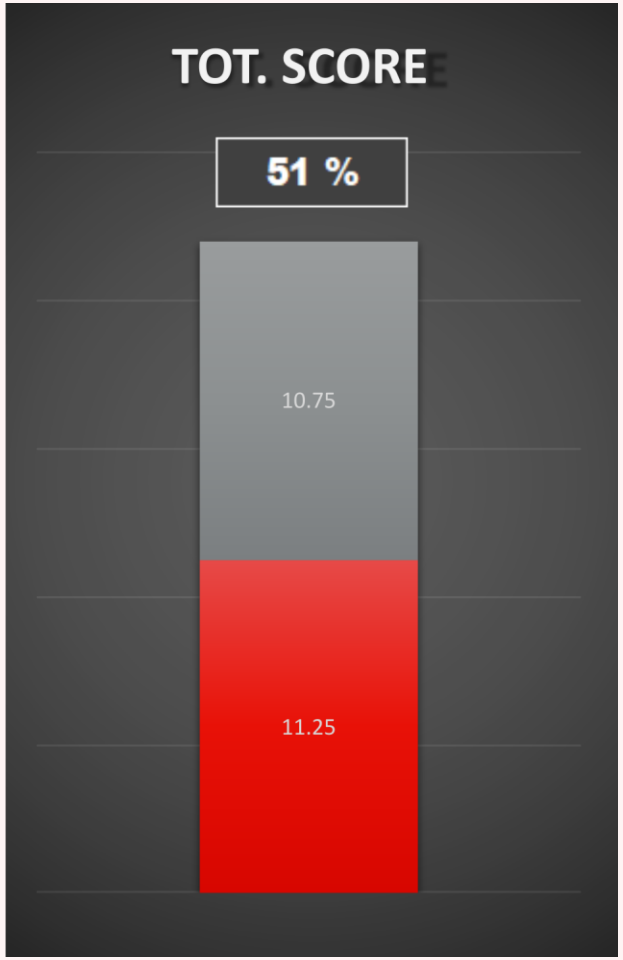
5 IMPACT

# How FAIR are we now, anyway?

# The FAIRness assessment

How FAIR are we? @ Eurac Research / EO



# Choosing a  metric

Manual assessment with arbitrary criteria

# Choosing a  metric

Manual assessment with arbitrary criteria

Manual assessment with FAIR metrics/rubrics

# Choosing a  metric

Manual assessment with arbitrary criteria

Manual assessment with FAIR metrics/rubrics

Open tools for automatic FAIR assessment

FAIRshake

https://fairshake.cloud/

FIP Wizard

https://fip-wizard.ds-wizard.org/

F-UJI Automated FAIR Data Assessment Tool

https://www.f-uji.net/

# Choosing a metric

Manual assessment with arbitrary criteria

our choice
(based on the FIP Questionnarie)

Manual assessment with FAIR metrics/rubrics

Open tools for automatic FAIR assessment

FAIRshake
https://fairshake.cloud/

FIP Wizard
https://fip-wizard.ds-wizard.org/

F-UJI Automated FAIR Data Assessment Tool
https://www.f-uji.net/

# FAIR-enabling resources

# What are they?

Any digital object that provides a **function** needed to achieve some aspect of FAIRness and is explicitly linked to one (or more) FAIR Principles.

Schultes, E., Magagna, B., Hettne, K.M., Pergl, R., Suchánek, M., Kuhn, T. (2020). Reusable FAIR Implementation Profiles as Accelerators of FAIR Convergence. In: Grossmann, G., Ram, S. (eds) Advances in Conceptual Modeling. ER 2020. Lecture Notes in Computer Science(), vol 12584. Springer, Cham. https://doi.org/10.1007/978-3-030-65847-2_13

# What are they?

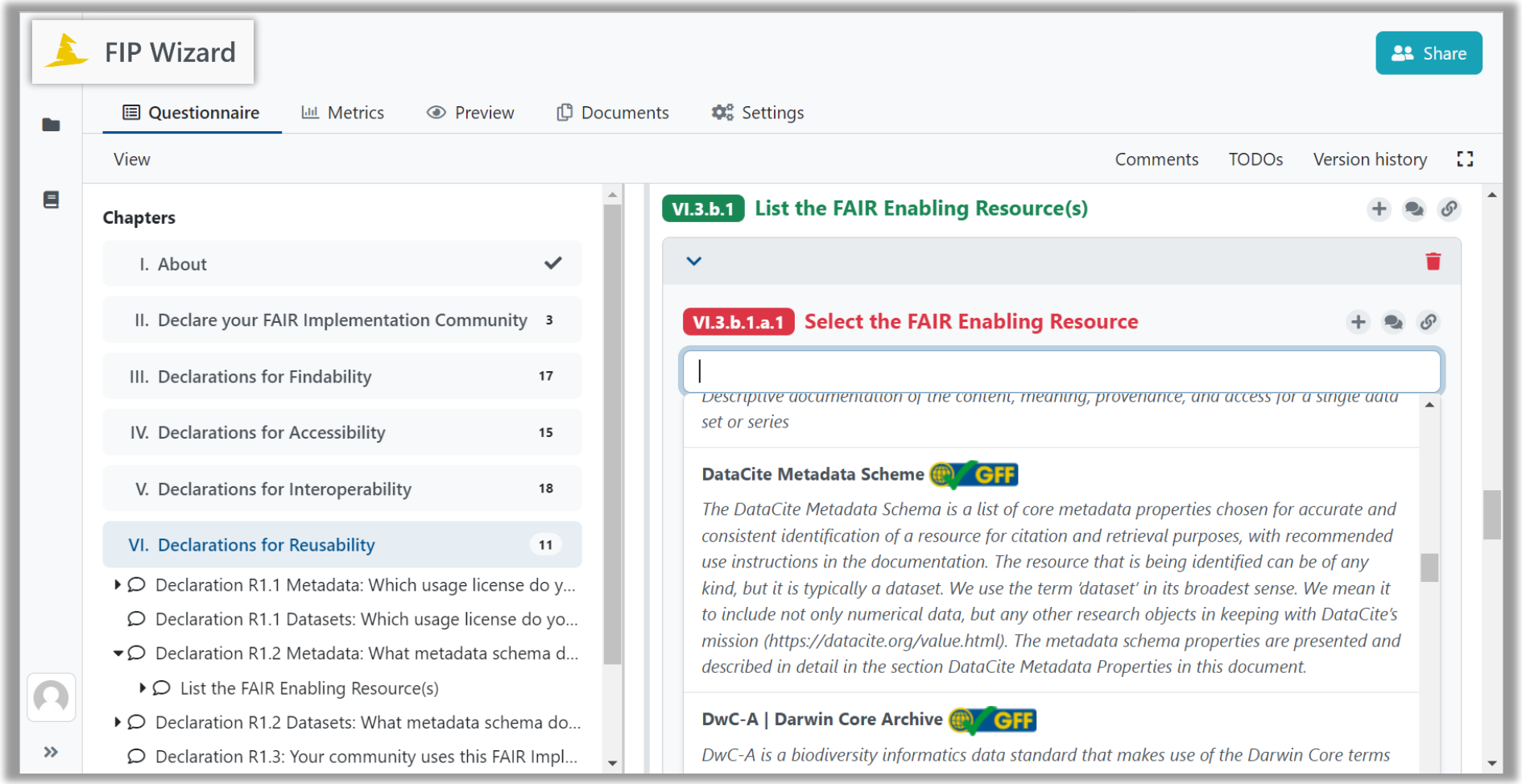
Any digital object that provides a **function** needed to achieve some aspect of FAIRness and is explicitly linked to one (or more) FAIR Principles.

*Examples:*
Identifiers, metadata schemas, communication protocols, vocabularies, web services, etc.

Schultes, E., Magagna, B., Hettne, K.M., Pergl, R., Suchánek, M., Kuhn, T. (2020). Reusable FAIR Implementation Profiles as Accelerators of FAIR Convergence. In: Grossmann, G., Ram, S. (eds) Advances in Conceptual Modeling. ER 2020. Lecture Notes in Computer Science(), vol 12584. Springer, Cham. https://doi.org/10.1007/978-3-030-65847-2_13

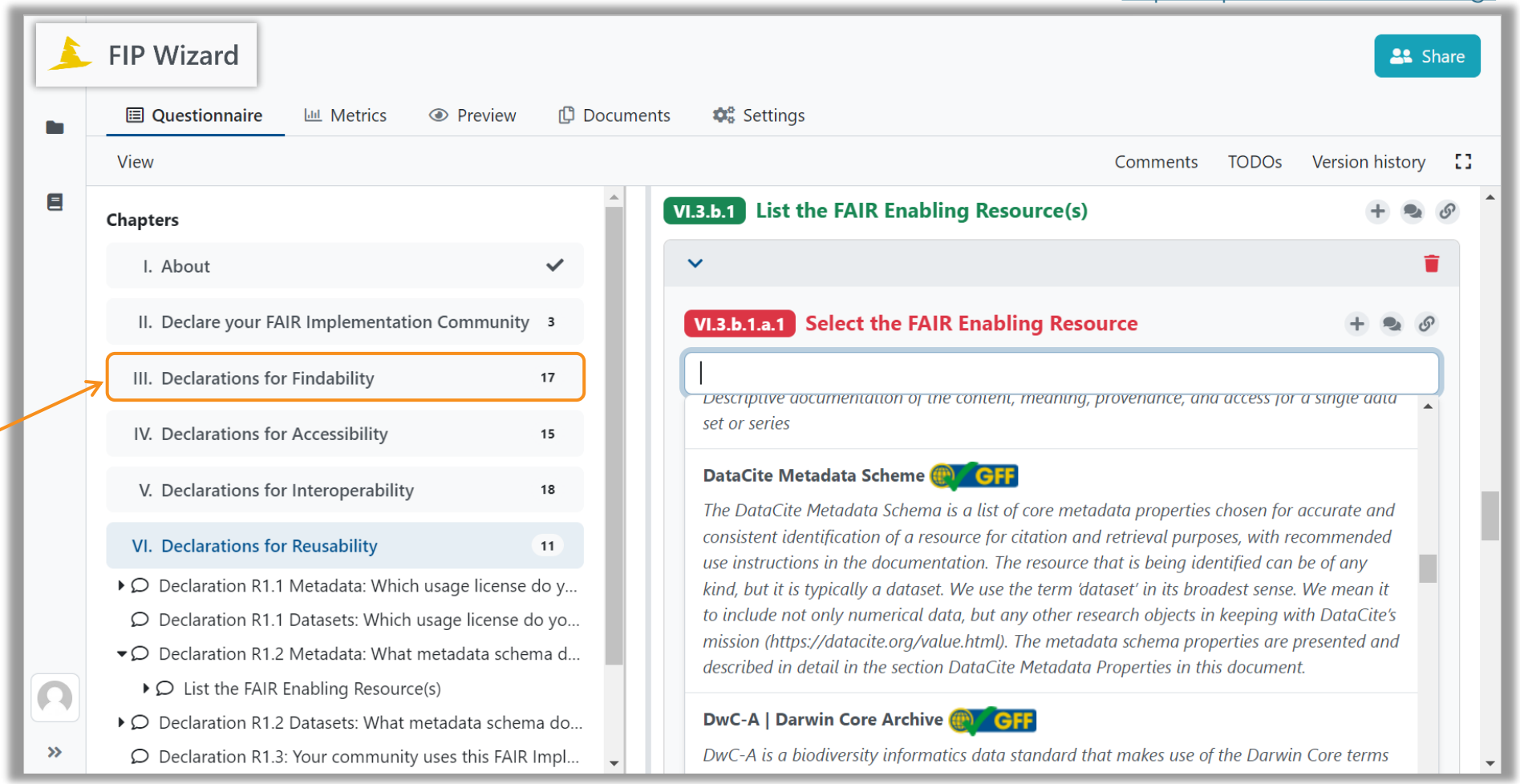
# Discovering the resources:

https://fip-wizard.ds-wizard.org/



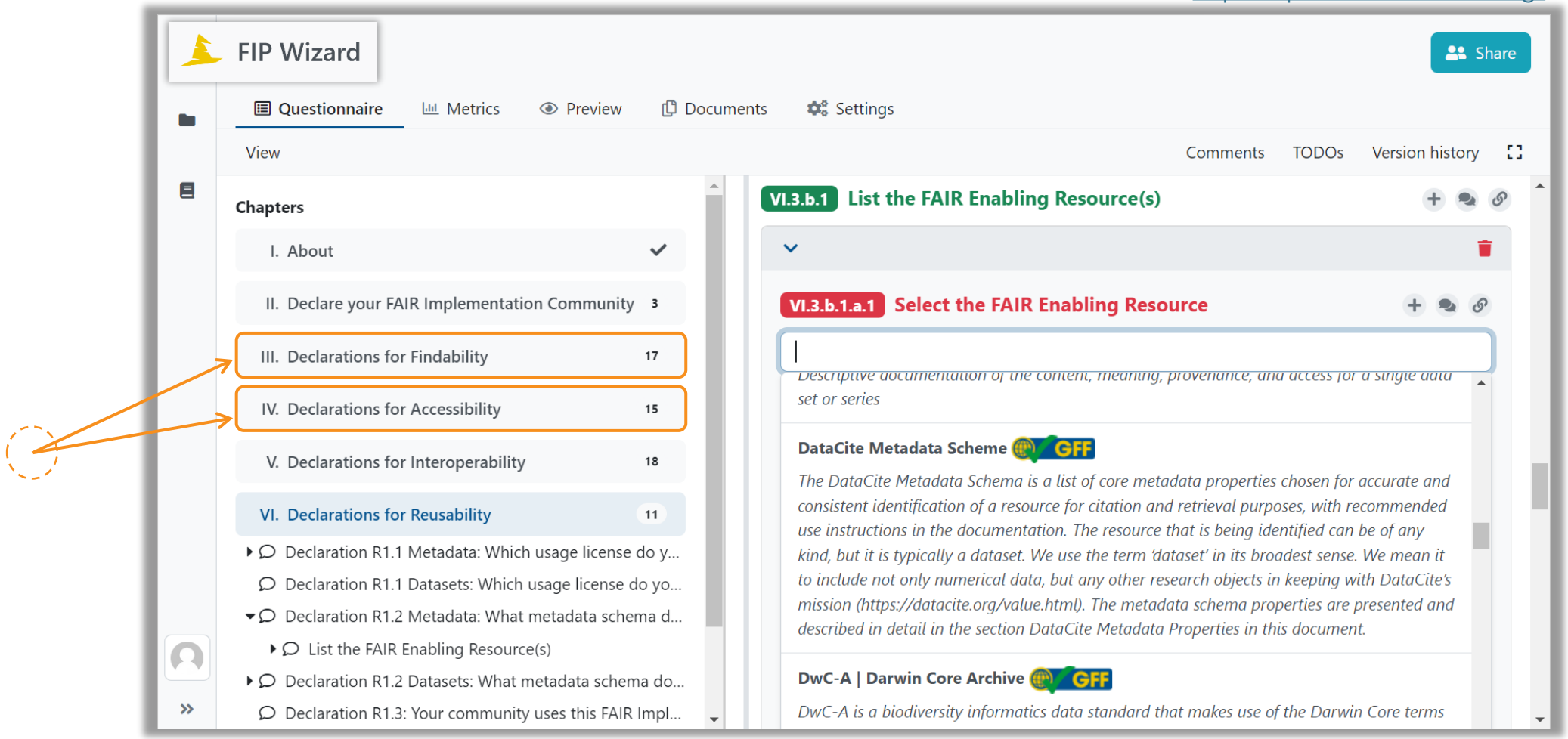
# Discovering the resources:

https://fip-wizard.ds-wizard.org/



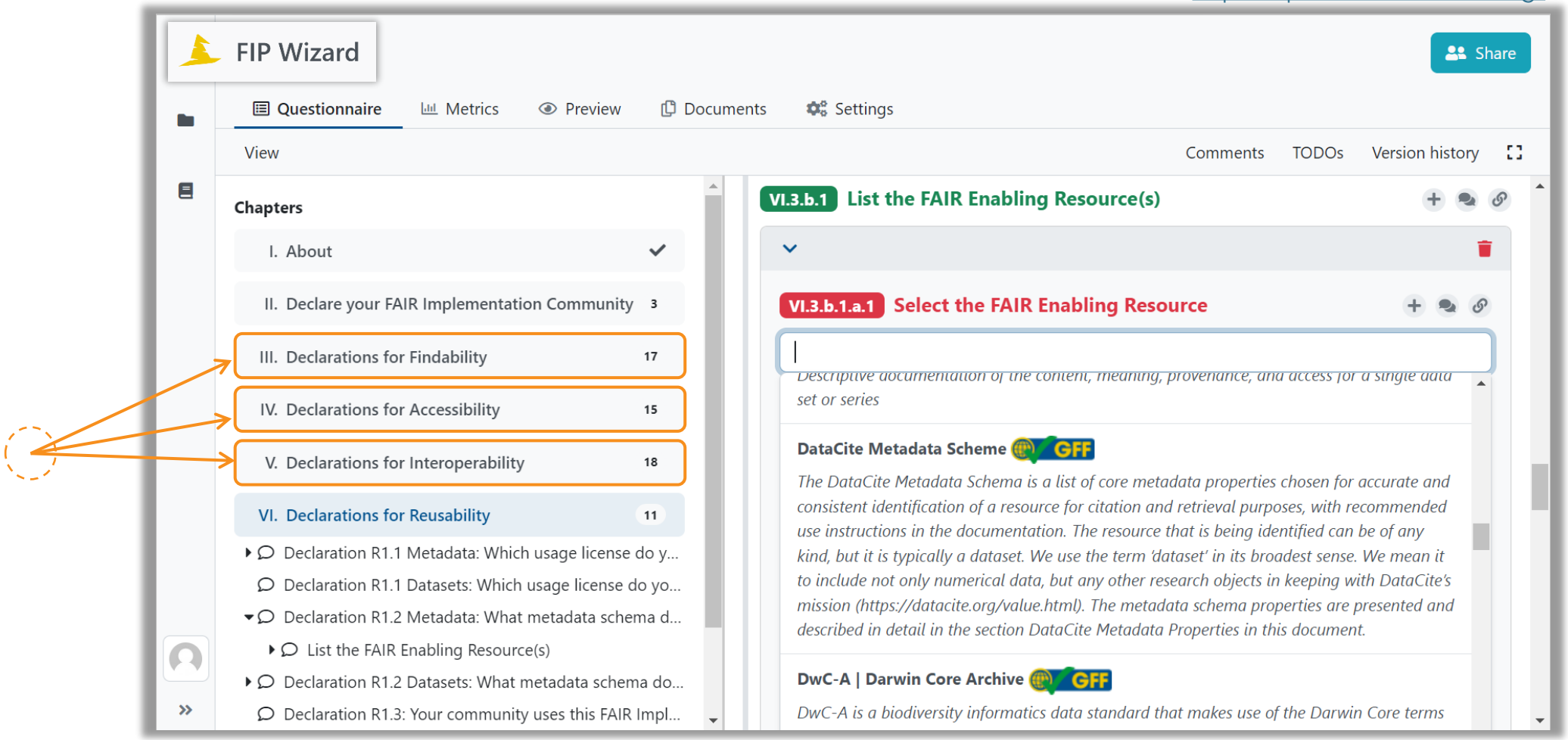
# Discovering the resources:

https://fip-wizard.ds-wizard.org/



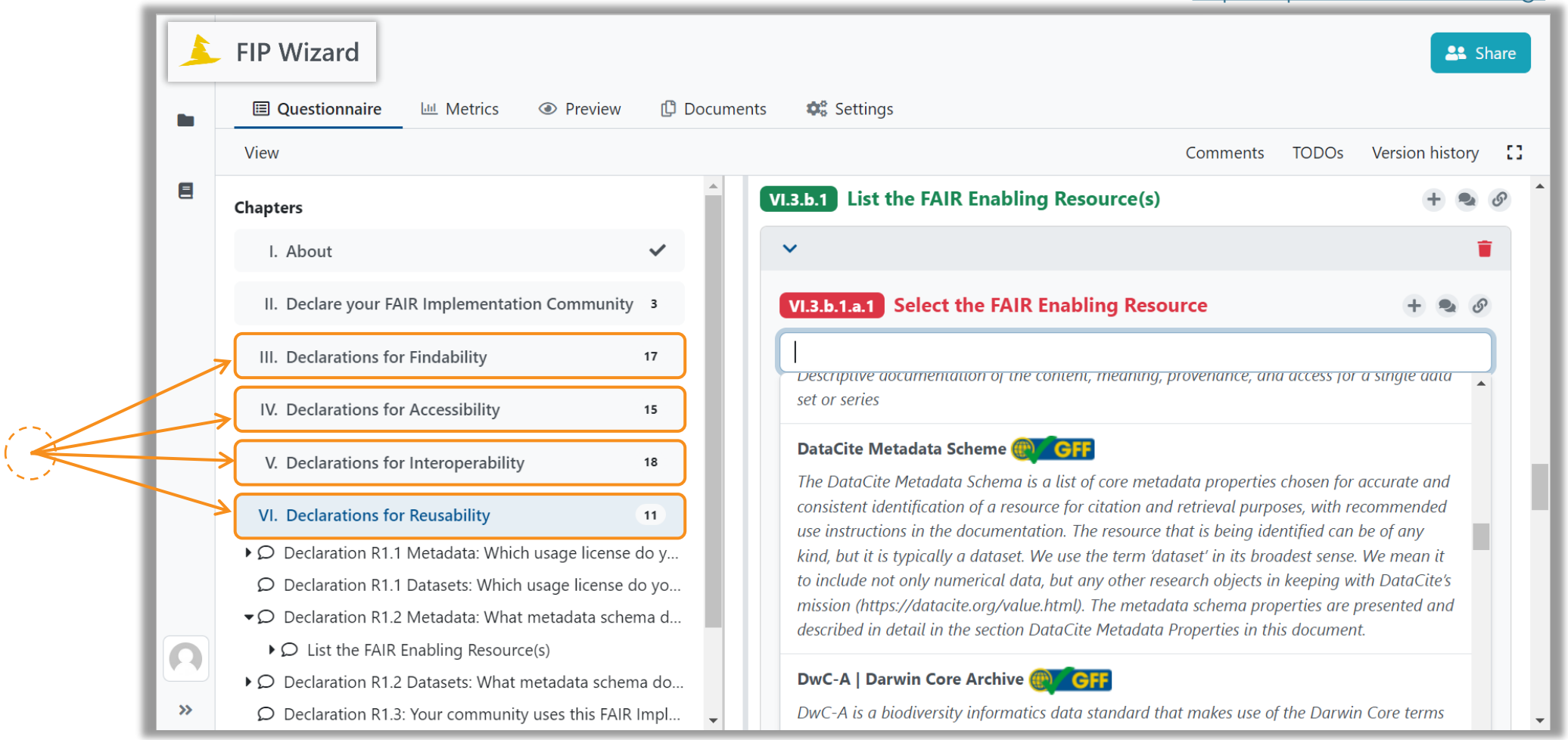
# Discovering the resources:

https://fip-wizard.ds-wizard.org/



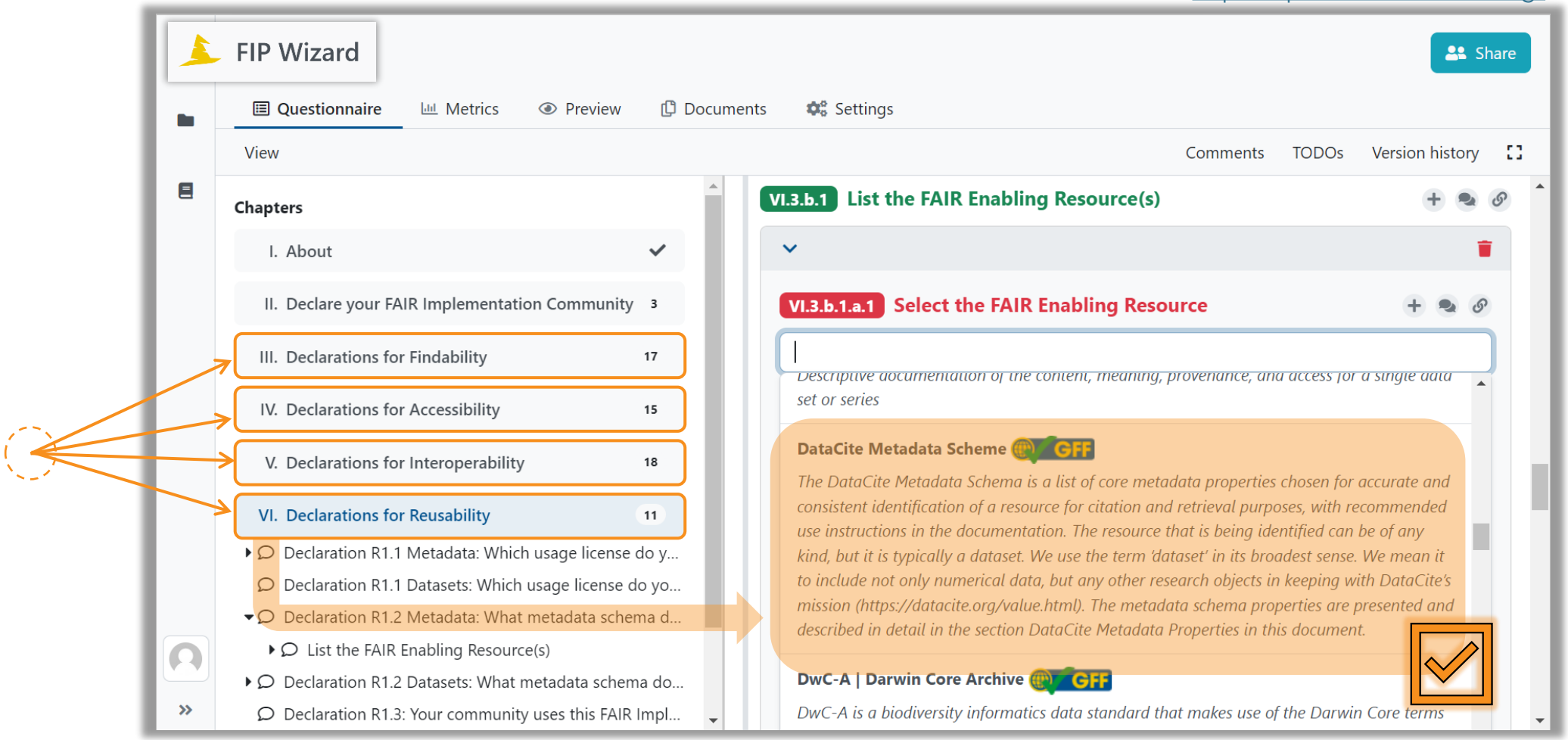
# Discovering the resources:

https://fip-wizard.ds-wizard.org/



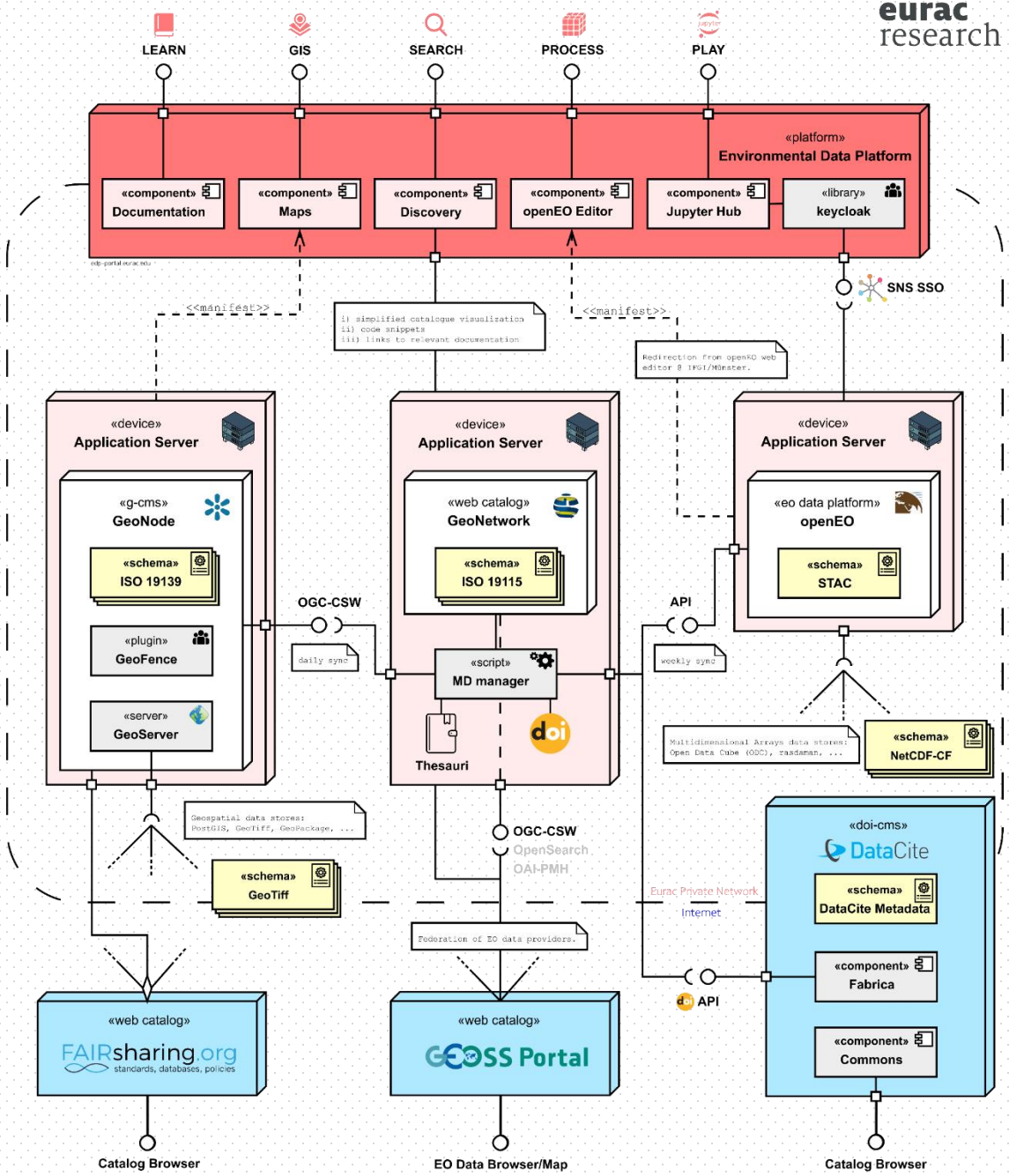
# Discovering the resources:

https://fip-wizard.ds-wizard.org/



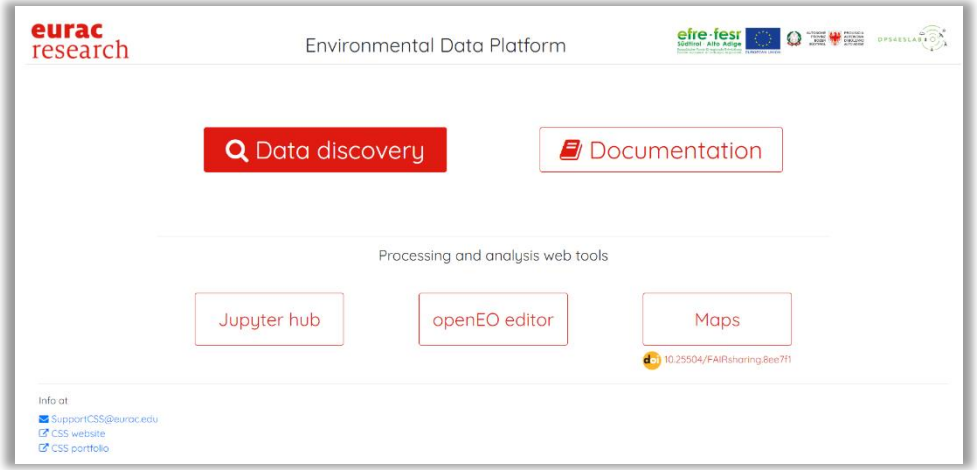
*… talking about FAIR-enabling resources:*

# Spatial Data Infrustructure (SDI)

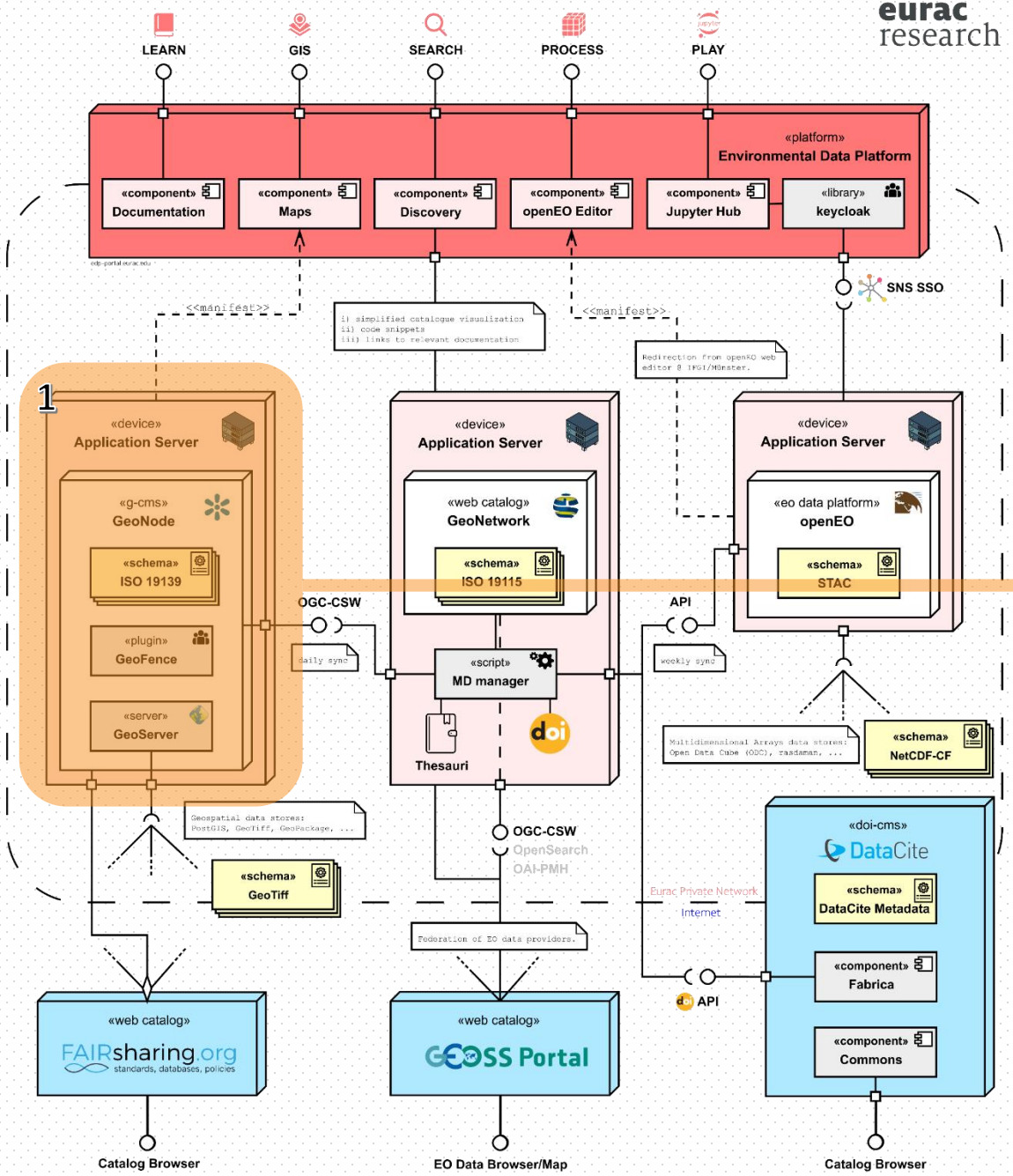



*Center for Sensing Solutions (CSS)*

# The Environmental Data Platform (EDP)

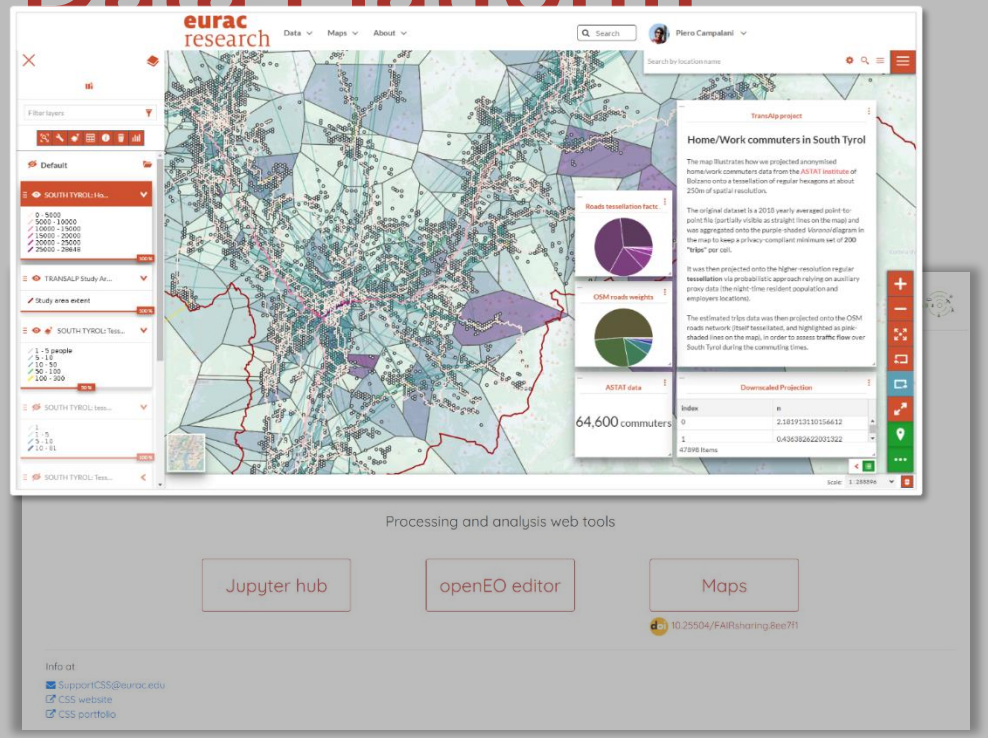



https://edp-portal.eurac.edu/

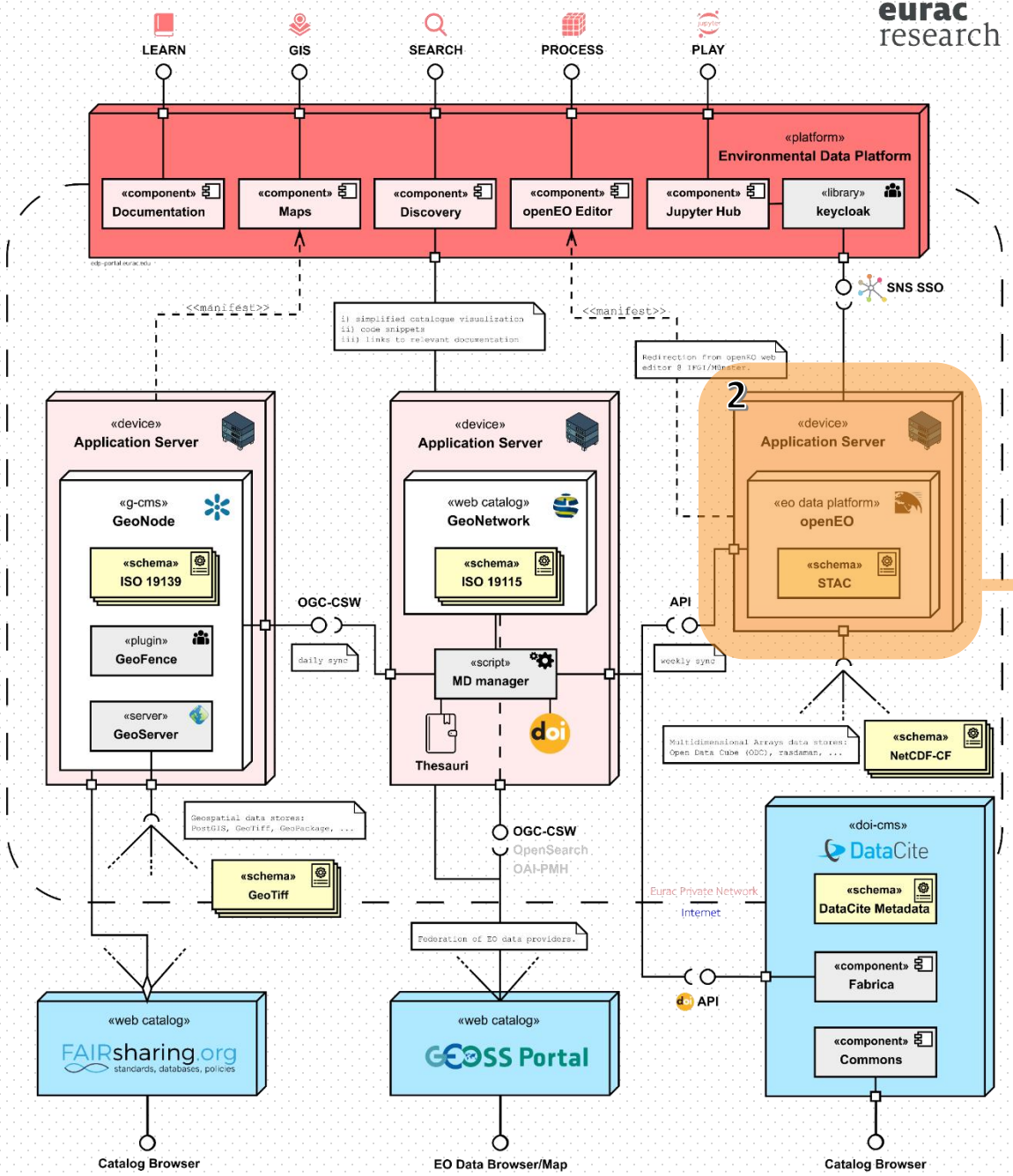



*Center for Sensing Solutions (CSS)*

# The Environmental Data Platform

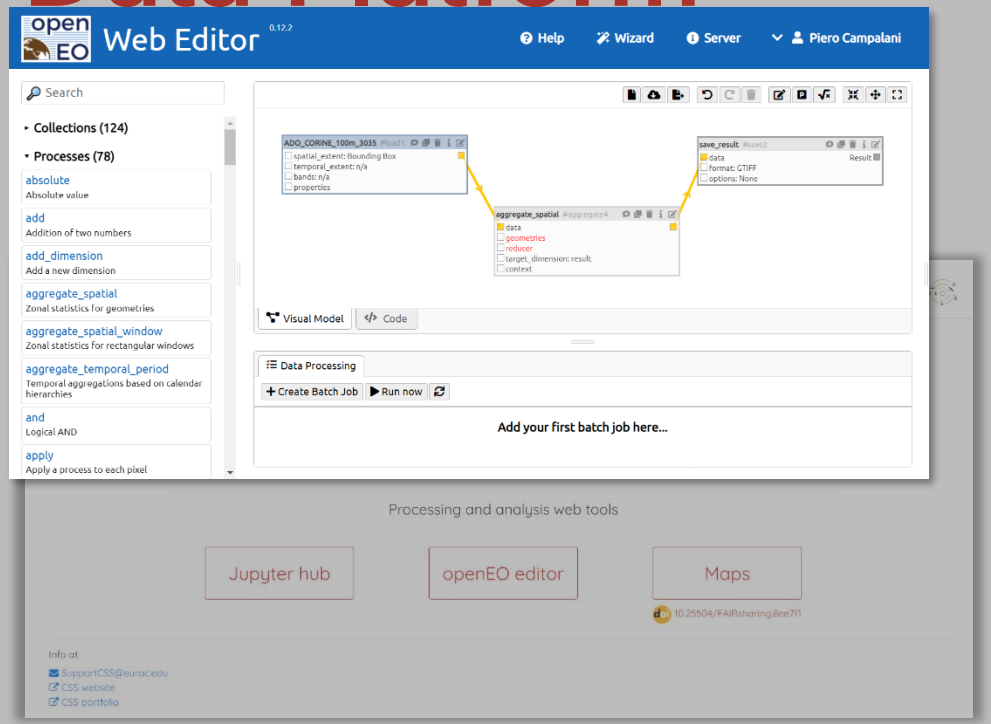



https://edp-portal.eurac.edu/




*Center for Sensing Solutions (CSS)*

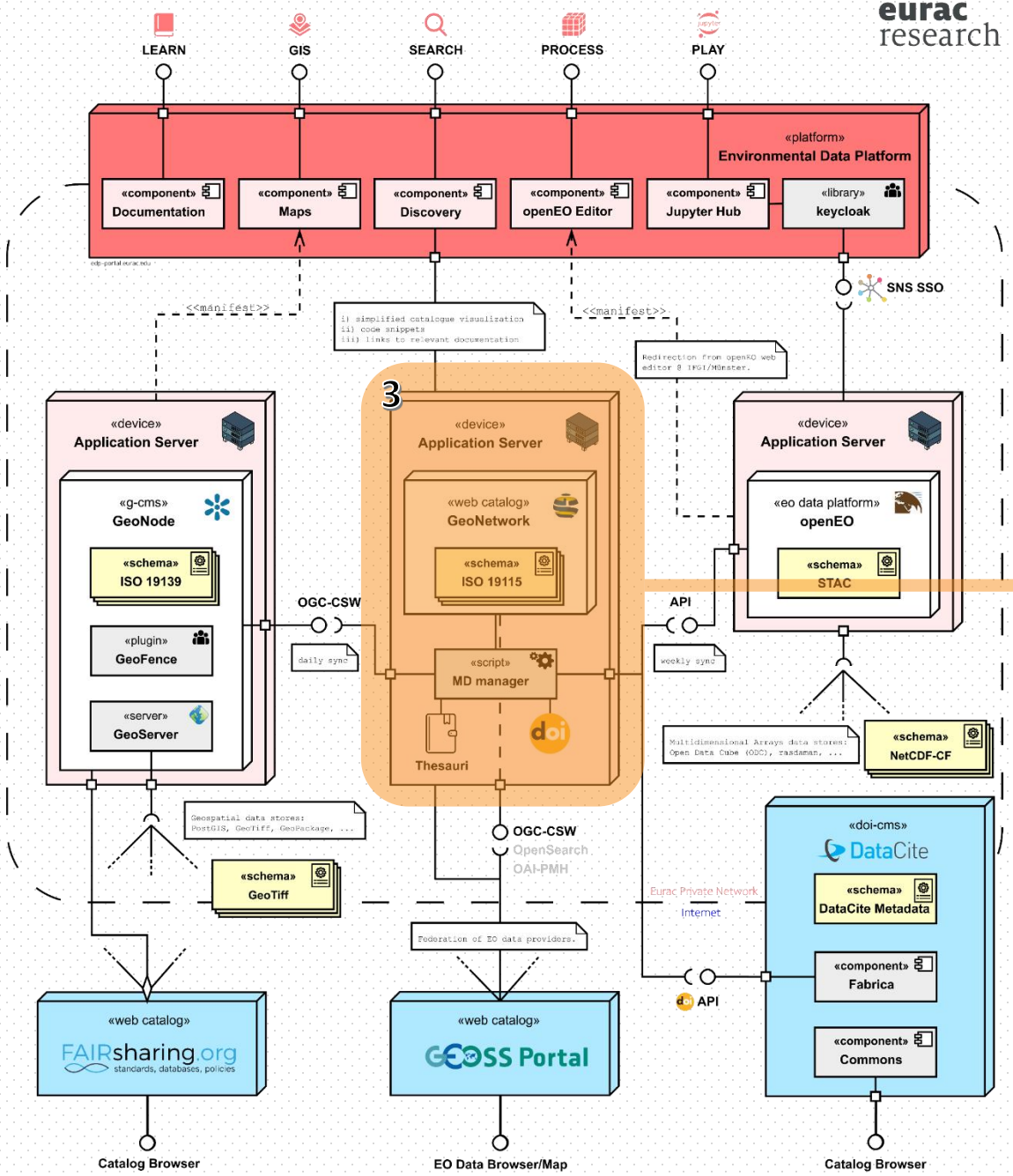
# The Environmental Data Platform

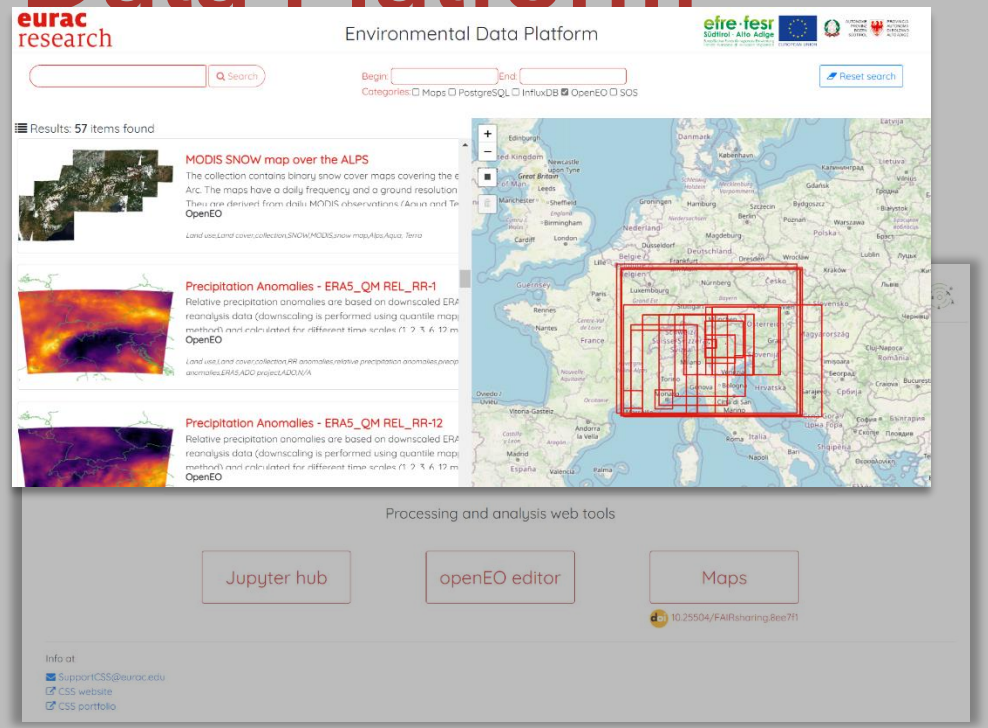



https://edp-portal.eurac.edu/

*Center for Sensing Solutions (CSS)*

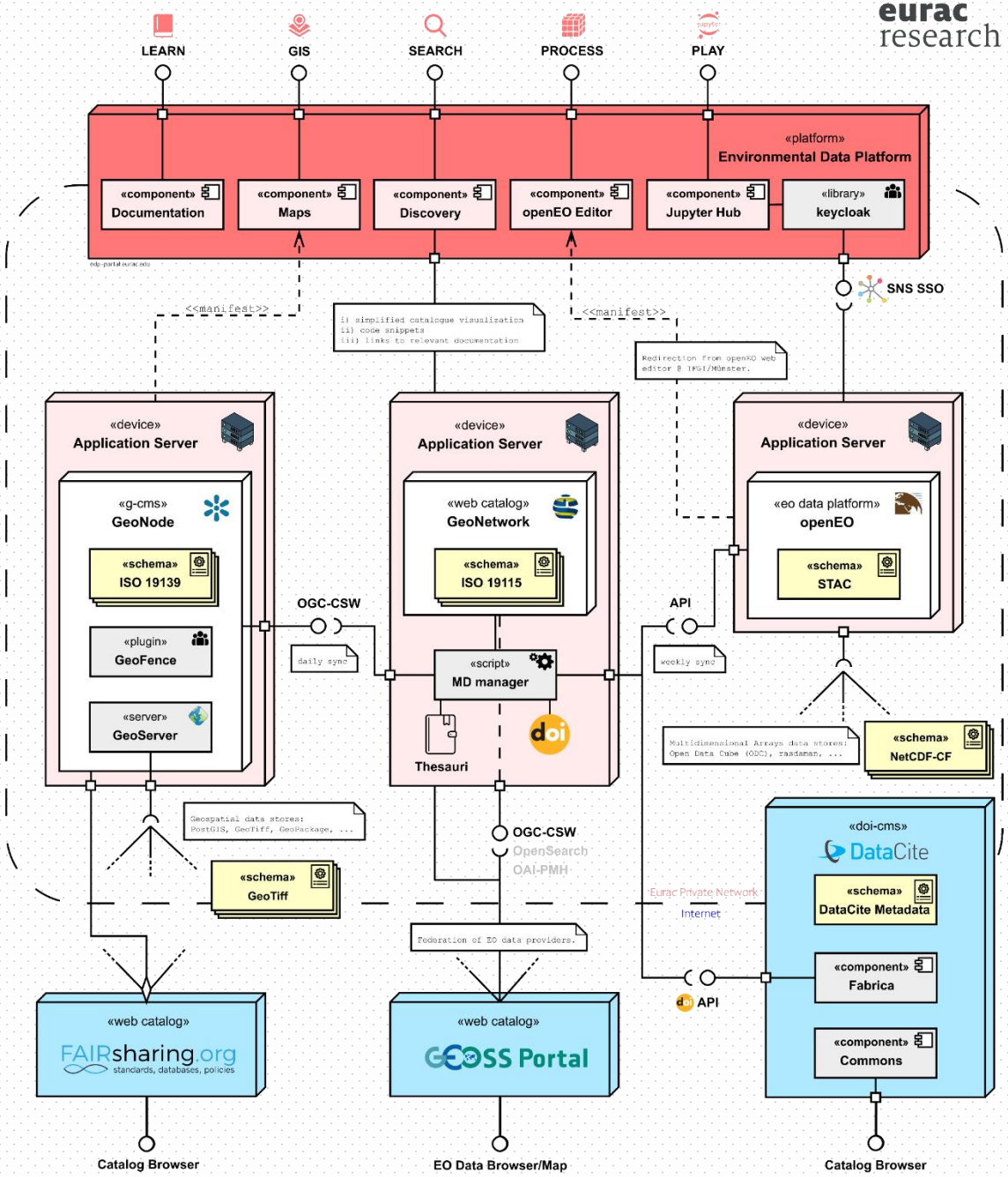
# The Environmental Data Platform

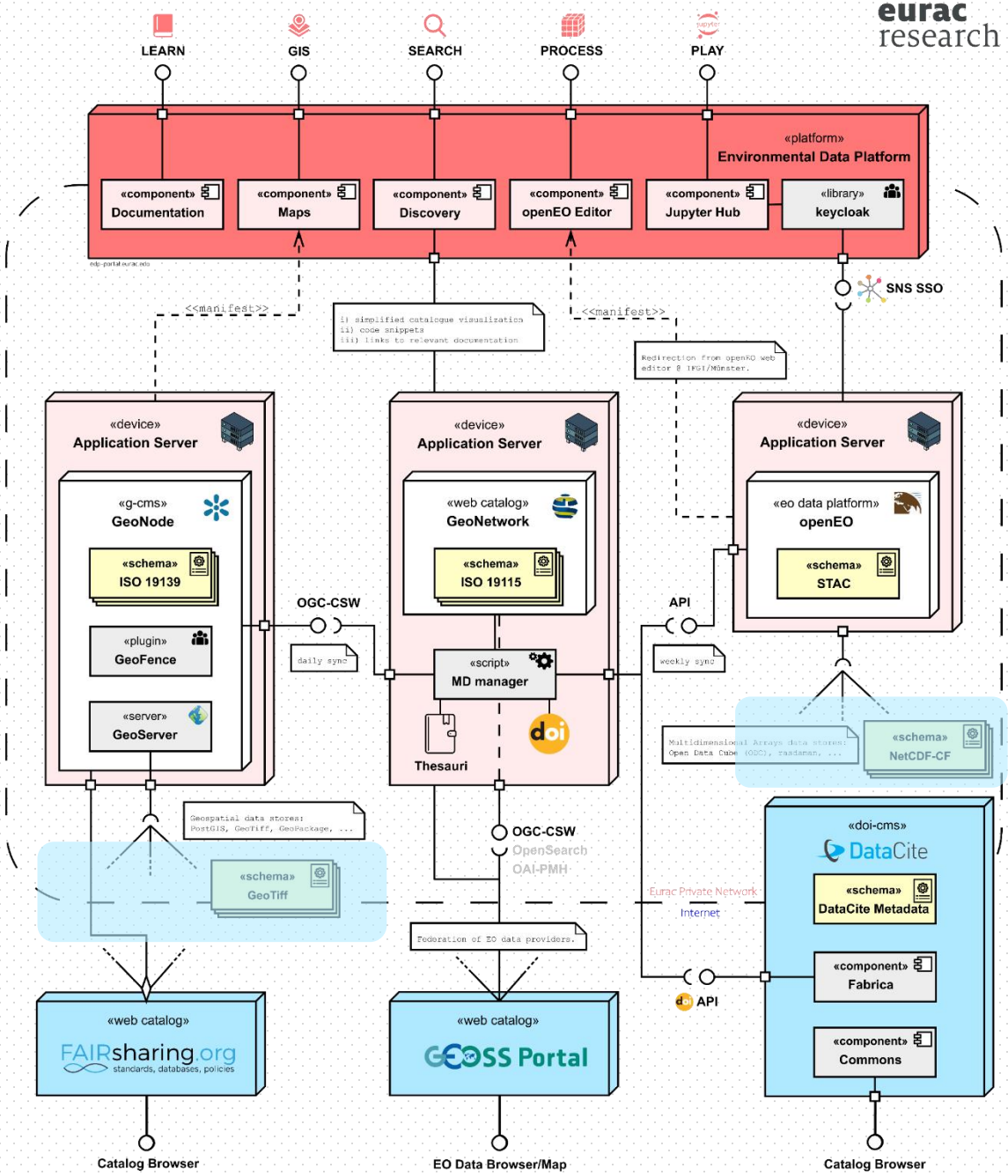



https://edp-portal.eurac.edu/

# The Dataset FAIR-ification

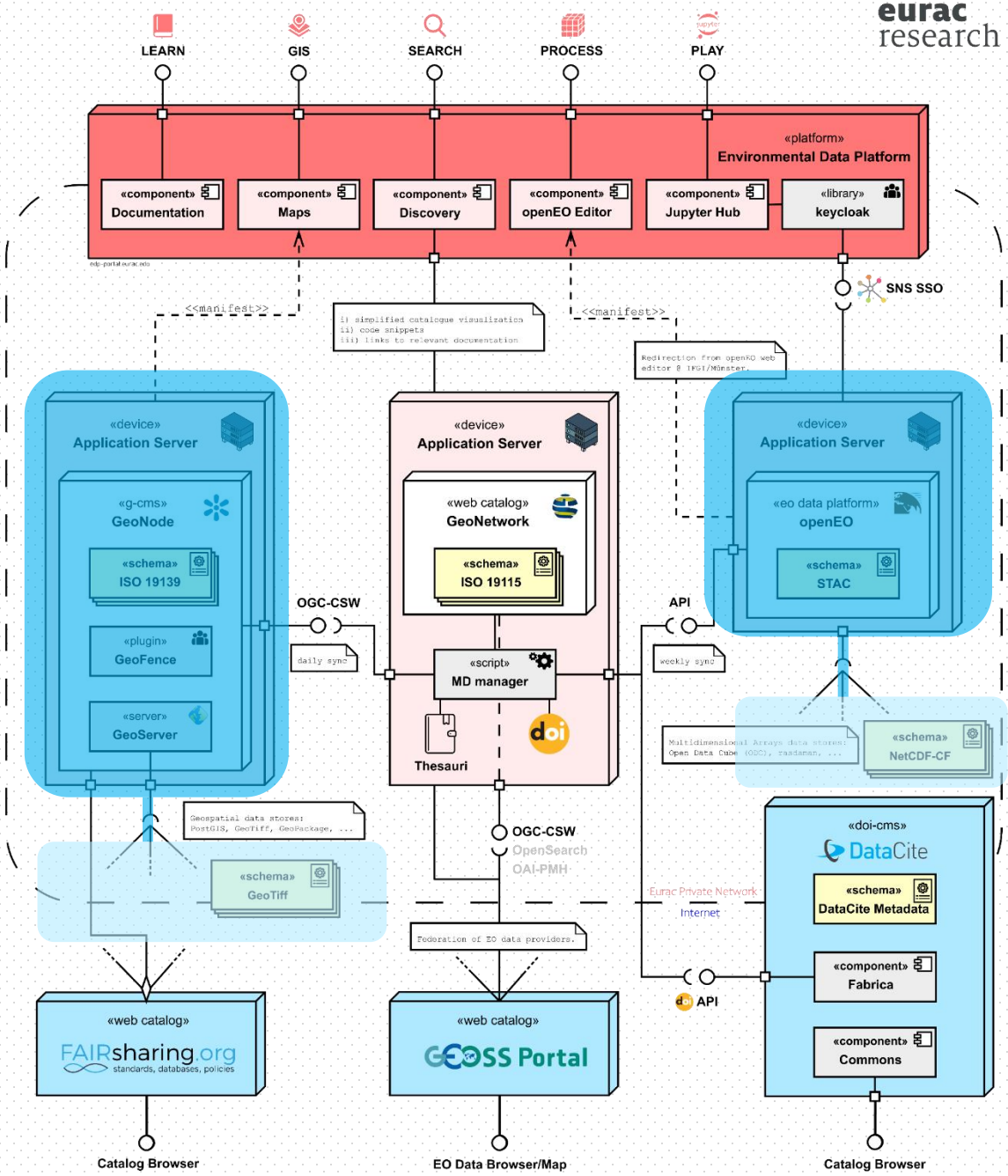





# The Dataset FAIR-ification

**Generate**

Produce the (meta)data files and store them in a long-term archive.



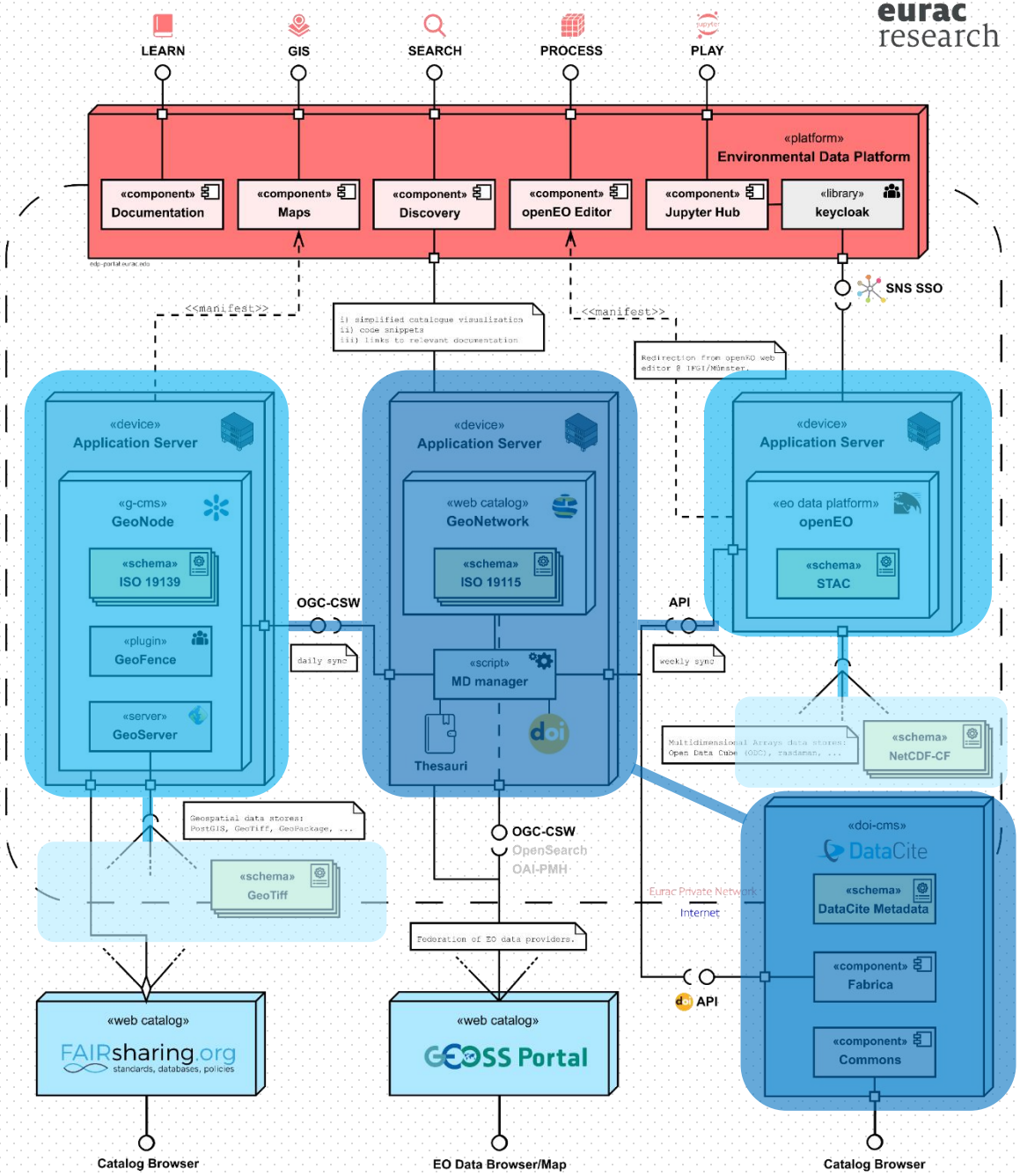

# The Dataset FAIR-ification

## Generate

Produce the (meta)data files and store them in a long-term archive.

## Publish

Register the dataset onto a FAIR-enabling server/platform.




# The Dataset FAIR-ification

## Generate

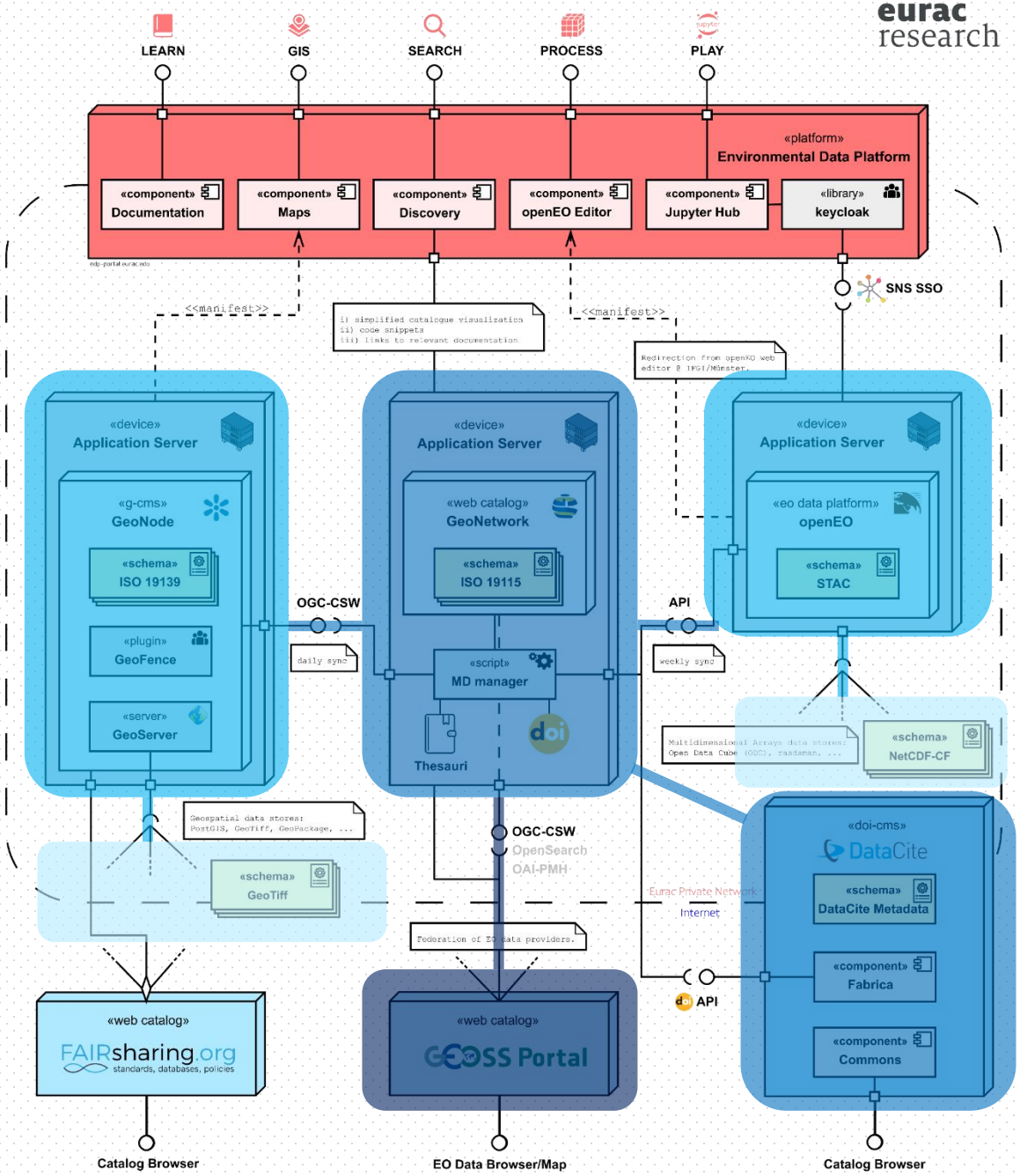
Produce the (meta)data files and store them in a long-term archive.

## Publish

Register the dataset onto a FAIR-enabling server/platform.

## Synchronize

Align the centralized metadata catalog with the new dataset.




# The Dataset FAIR-ification

## Generate

Produce the (meta)data files and store them in a long-term archive.

## Publish

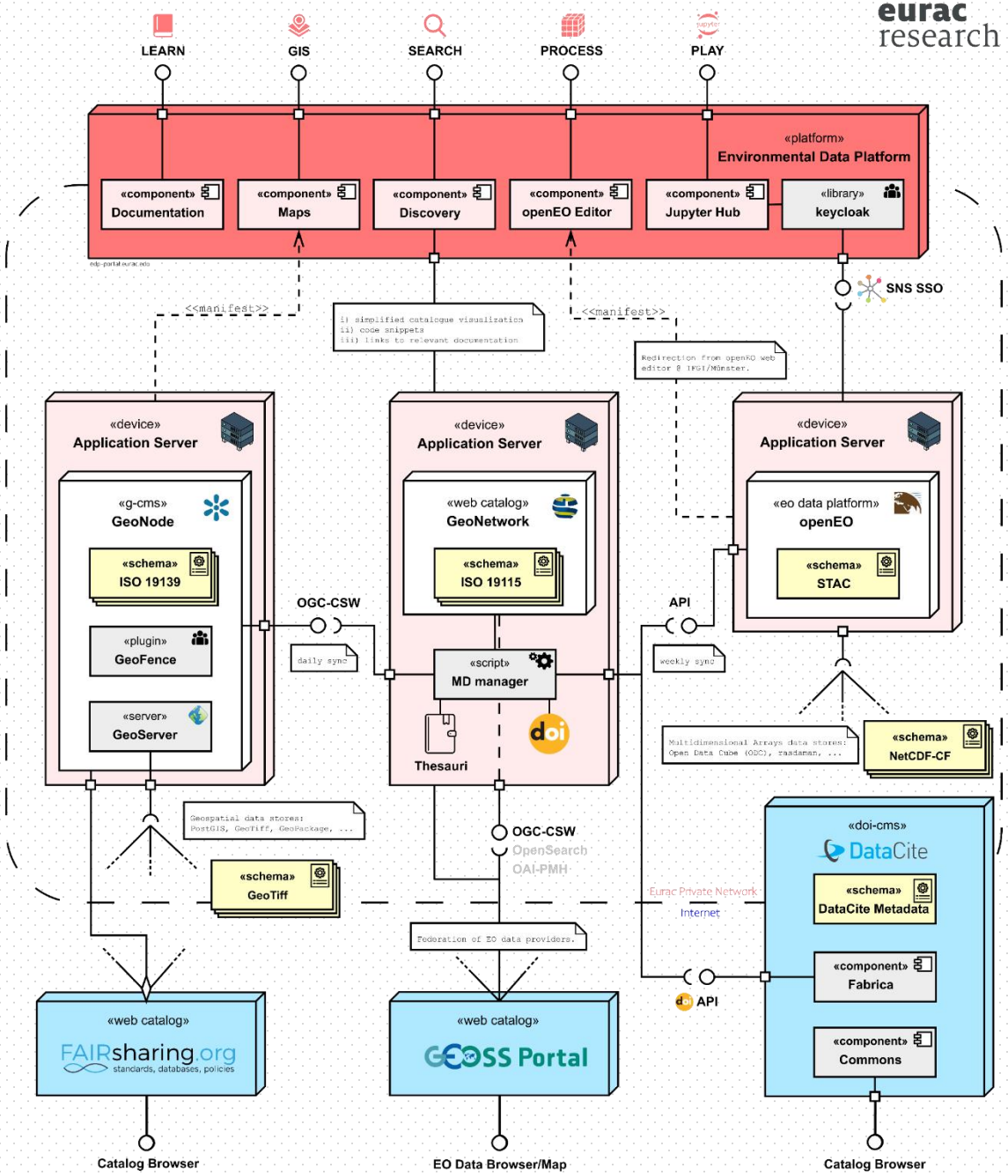
Register the dataset onto a FAIR-enabling server/platform.

## Synchronize

Align the centralized metadata catalog with the new dataset.

## Propagate

Expose the new catalog item to external linked catalogues.



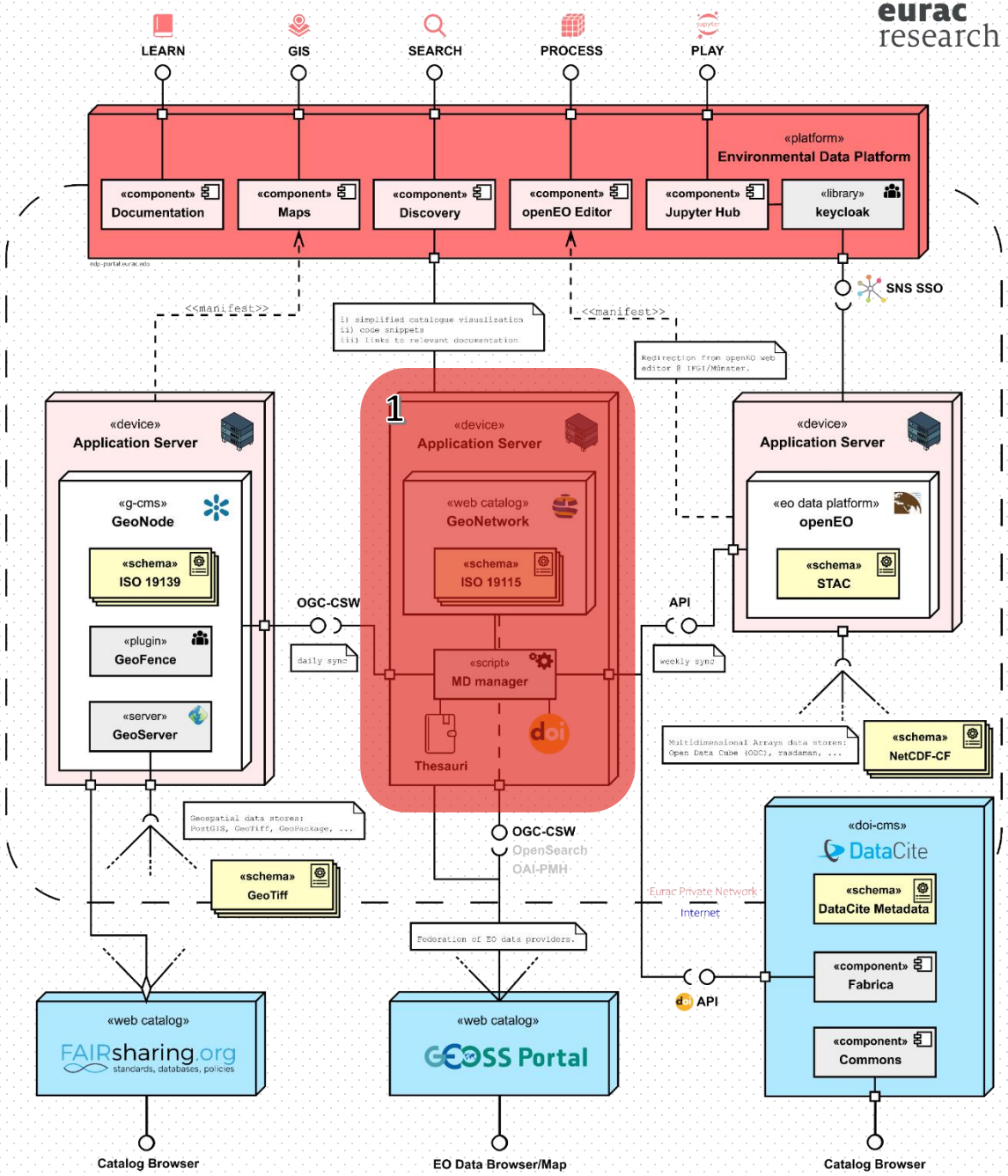

F

A

I

R

# Findability



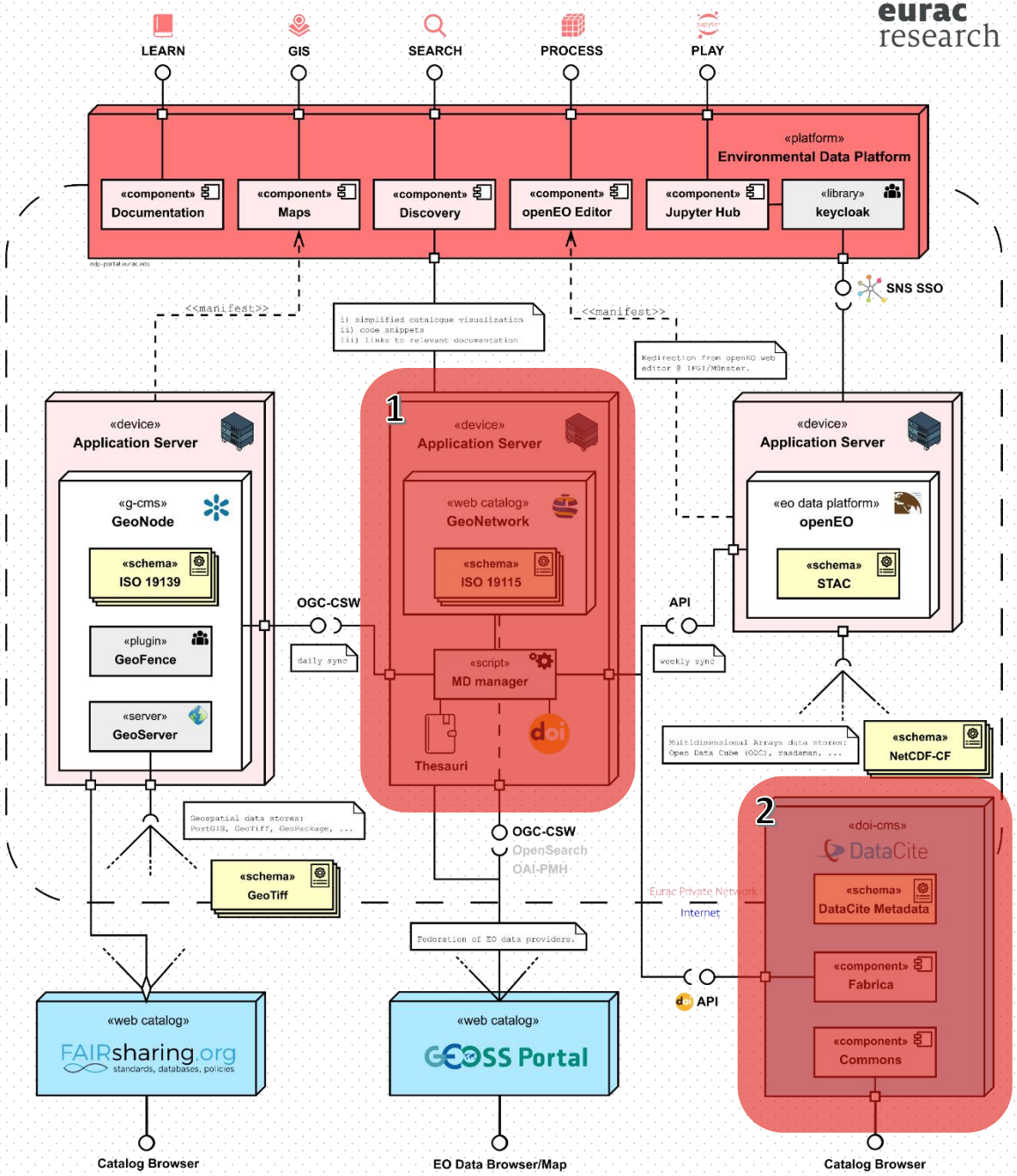

F

A

I

R

# Findability



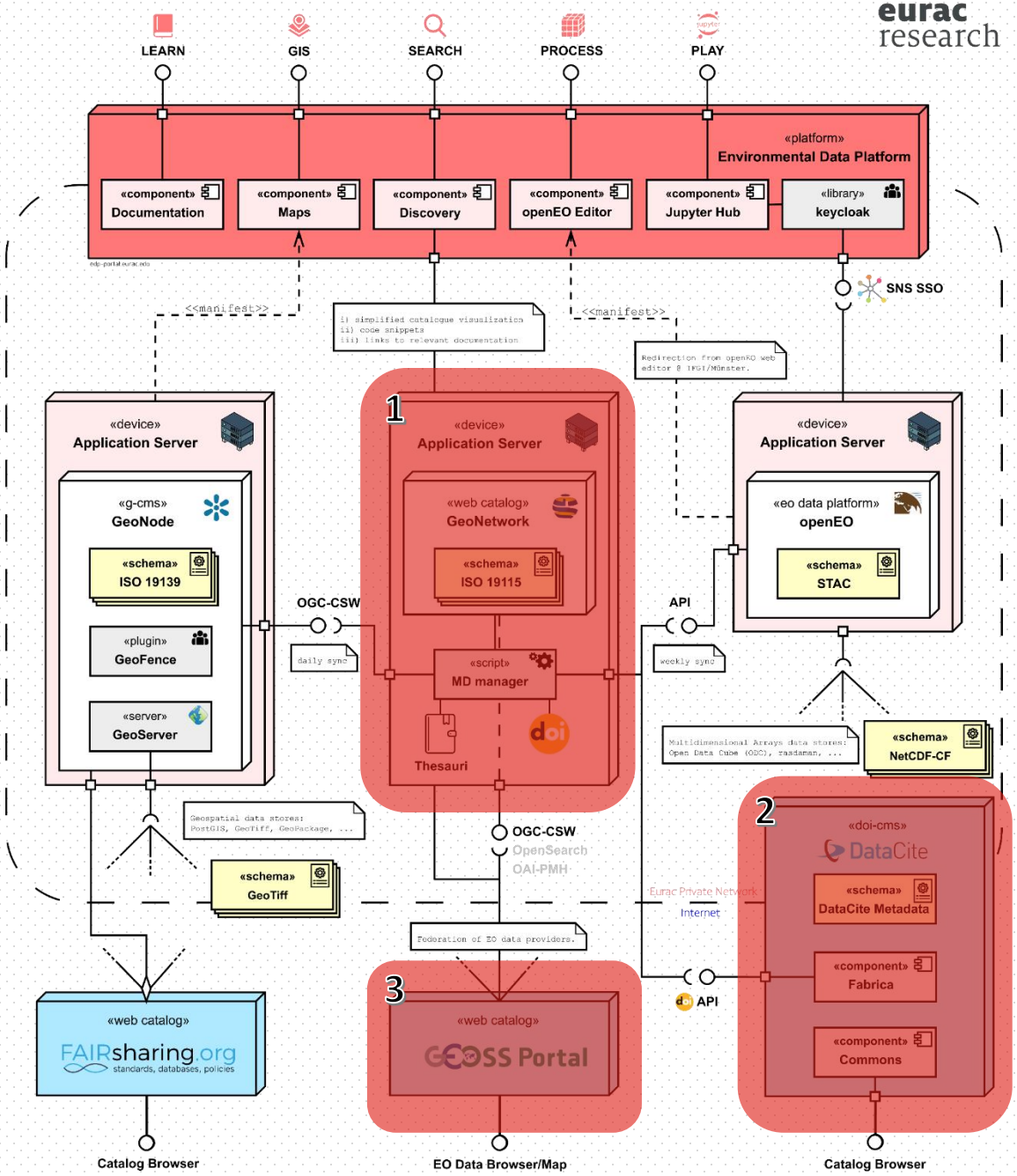

F

A

I

R

# Findability



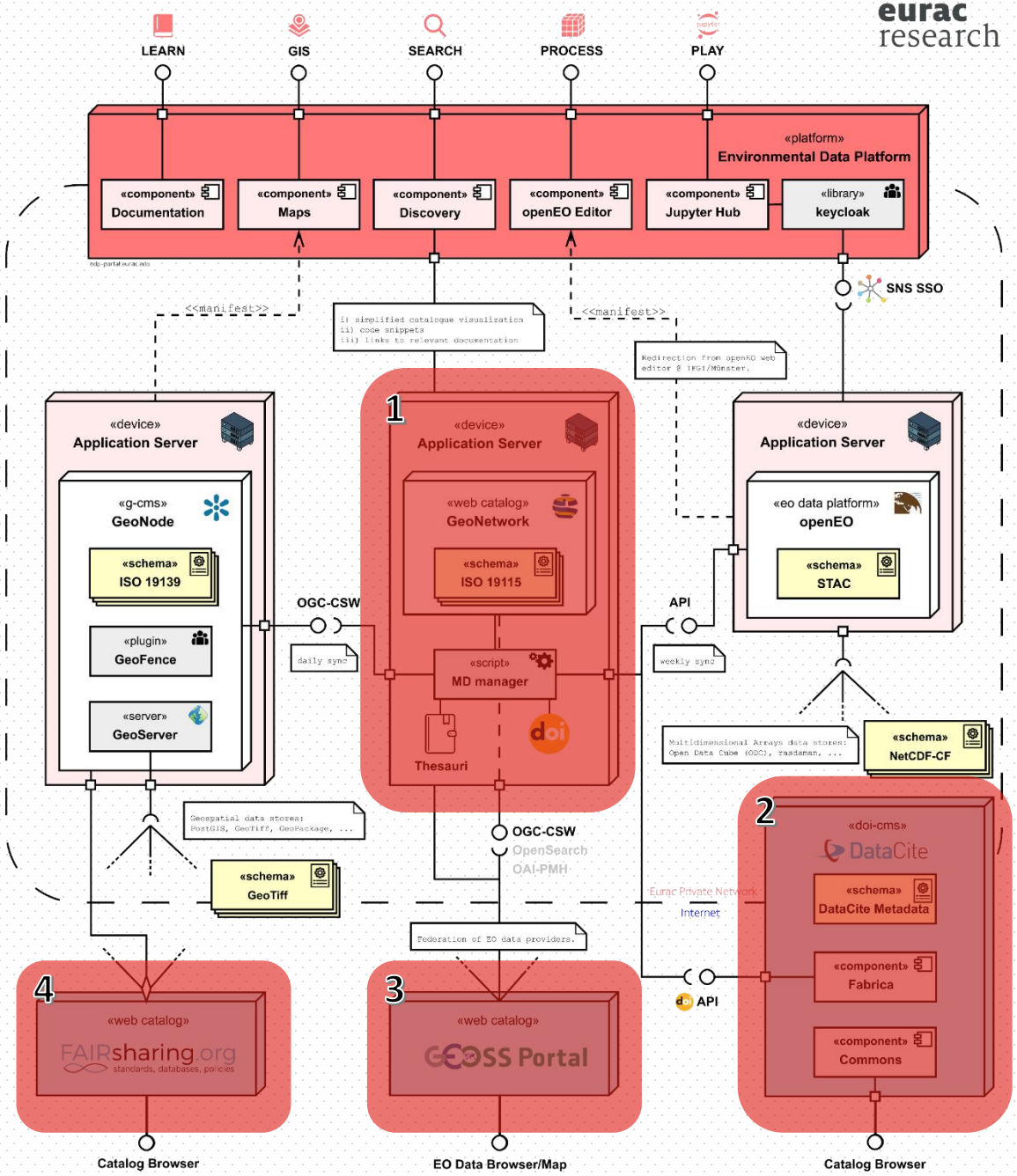

# Findability

F

A

I

R



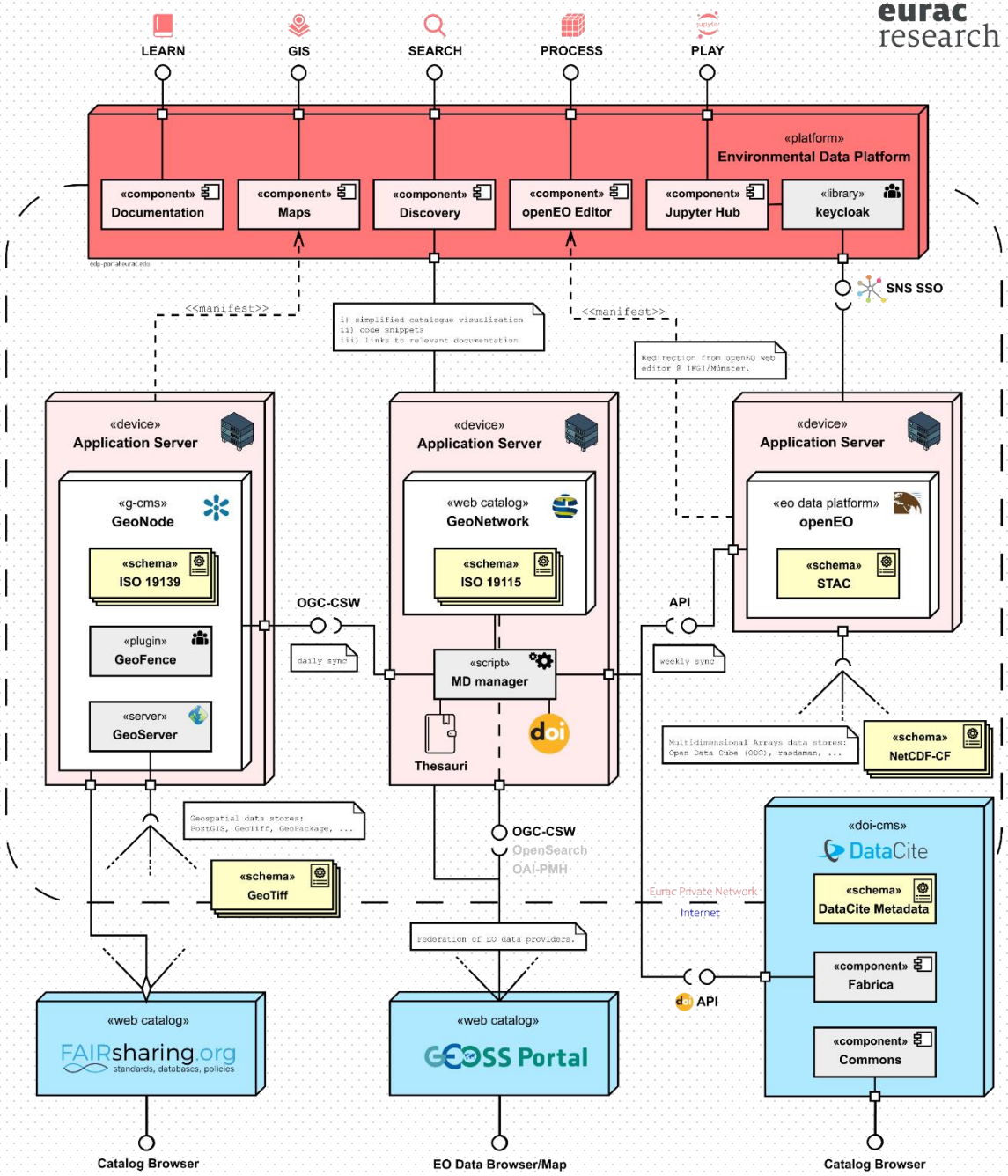

F

A

I

R

# Findability



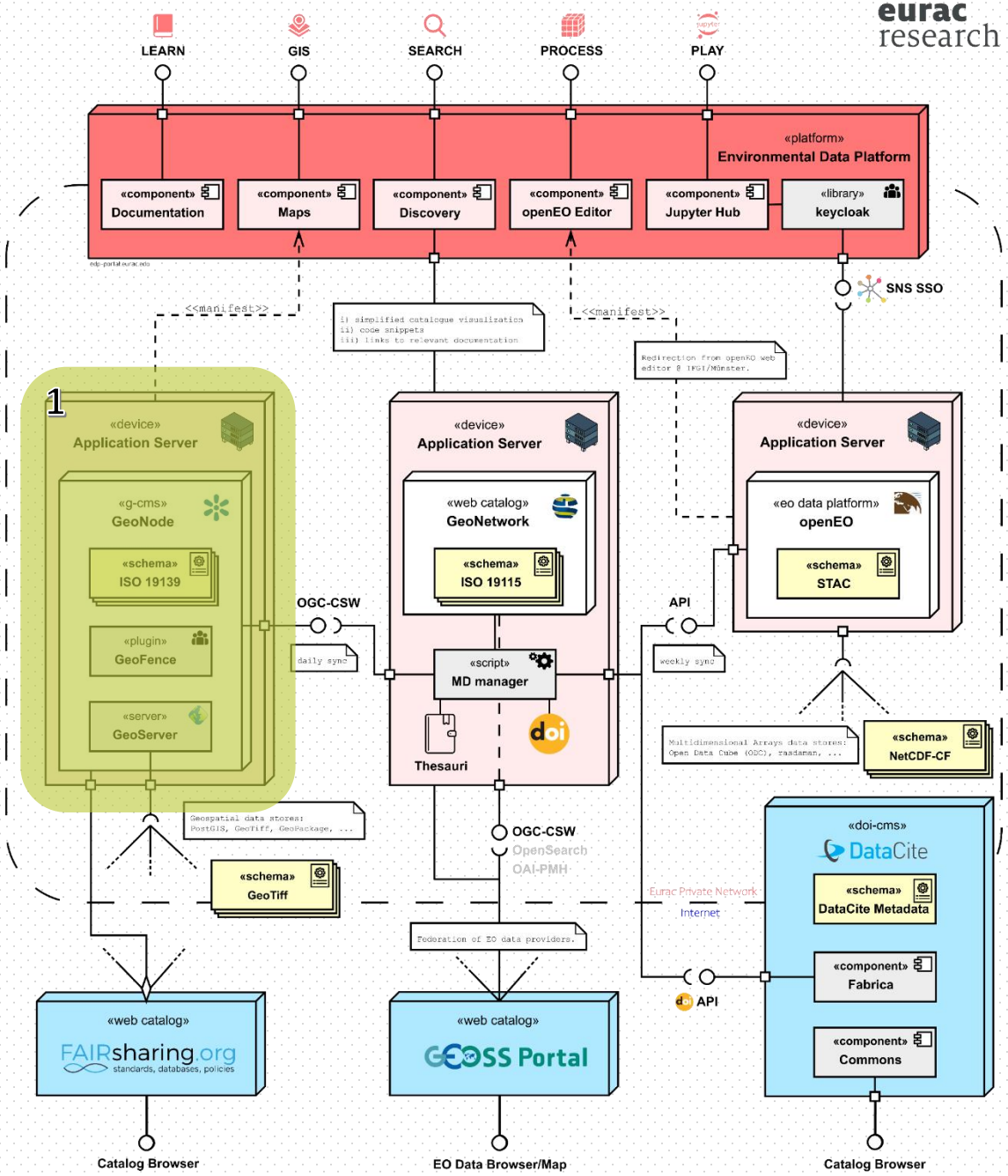

F

A

**Accessibility**

I

R



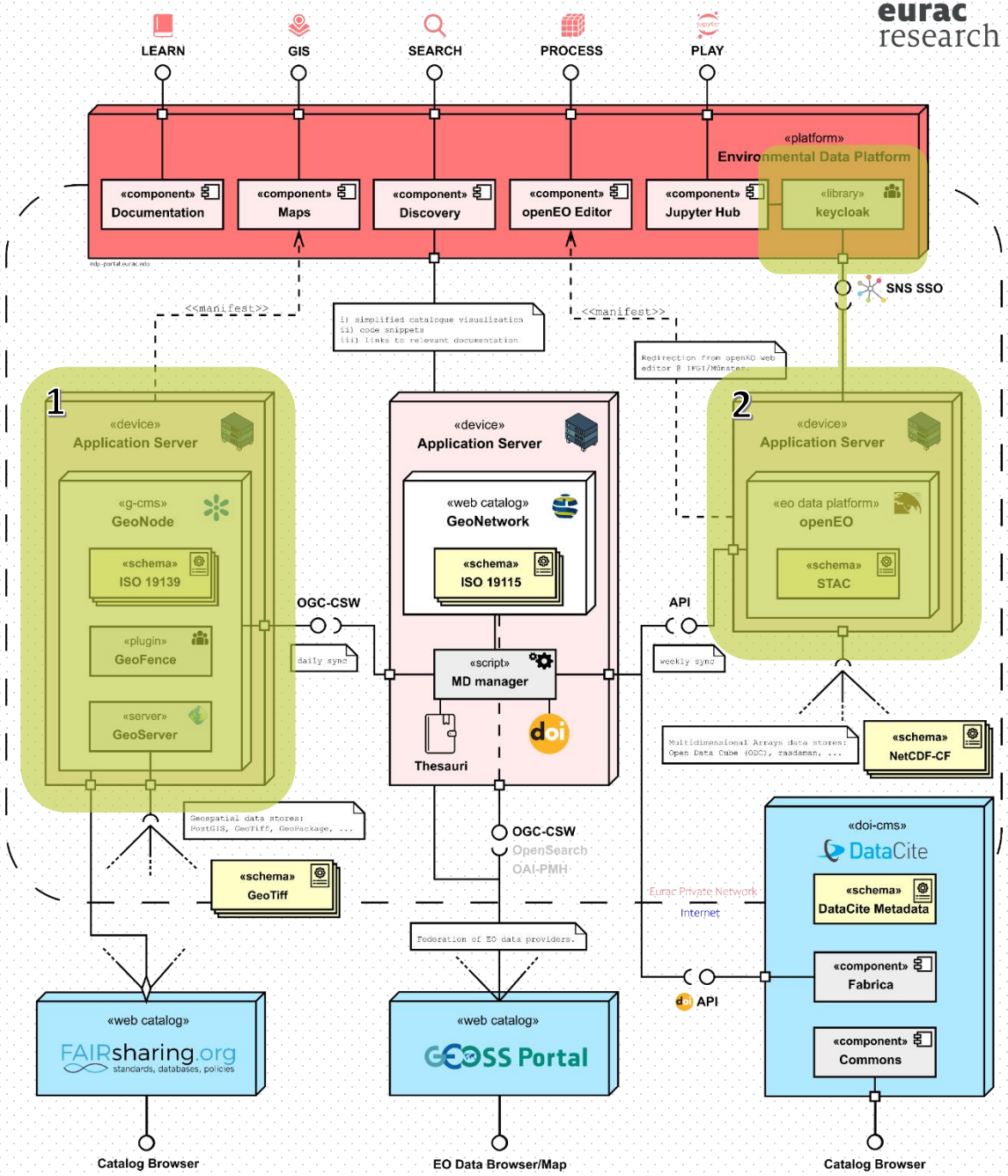

F

A

**Accessibility**

I

R



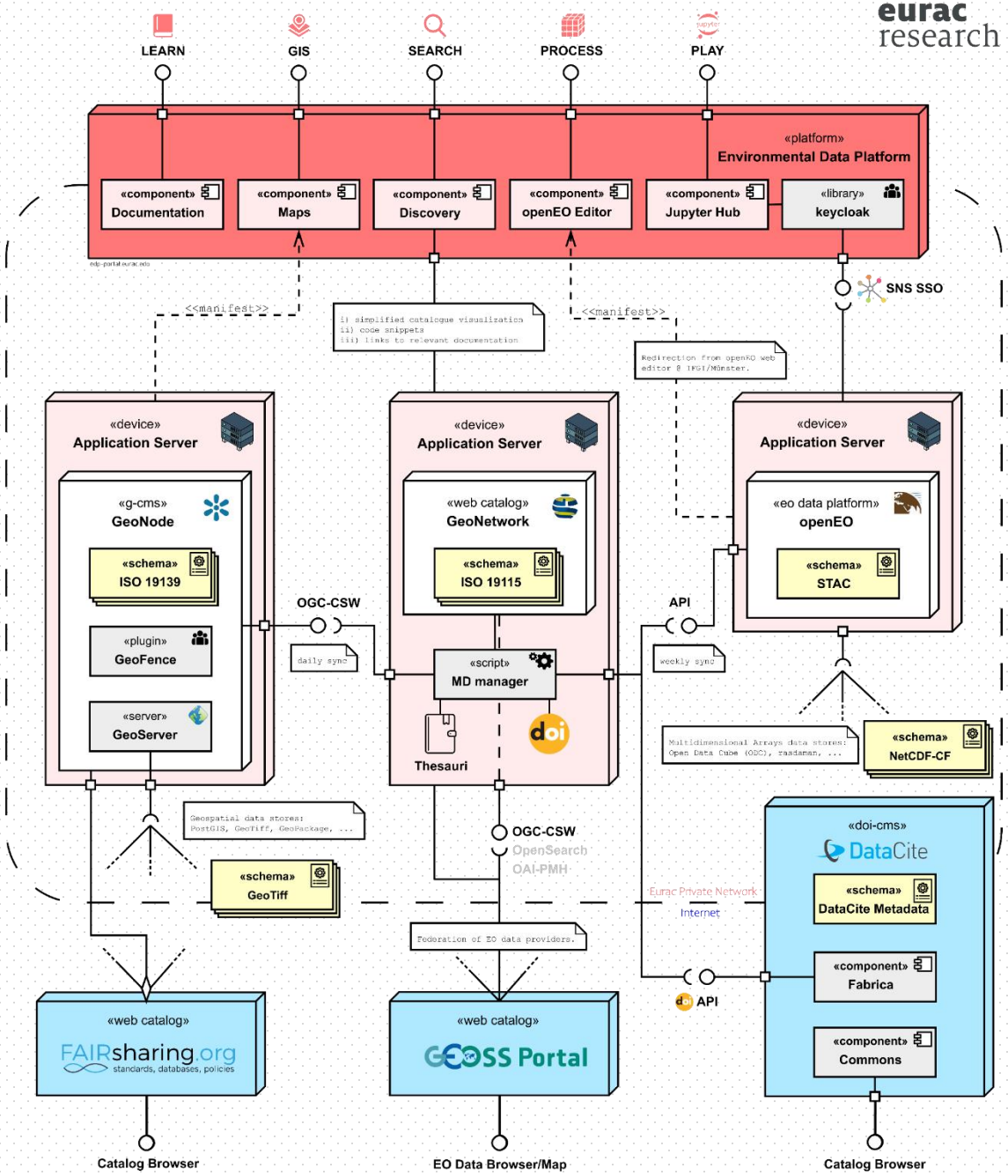

F

A

**Accessibility**

I

R




F

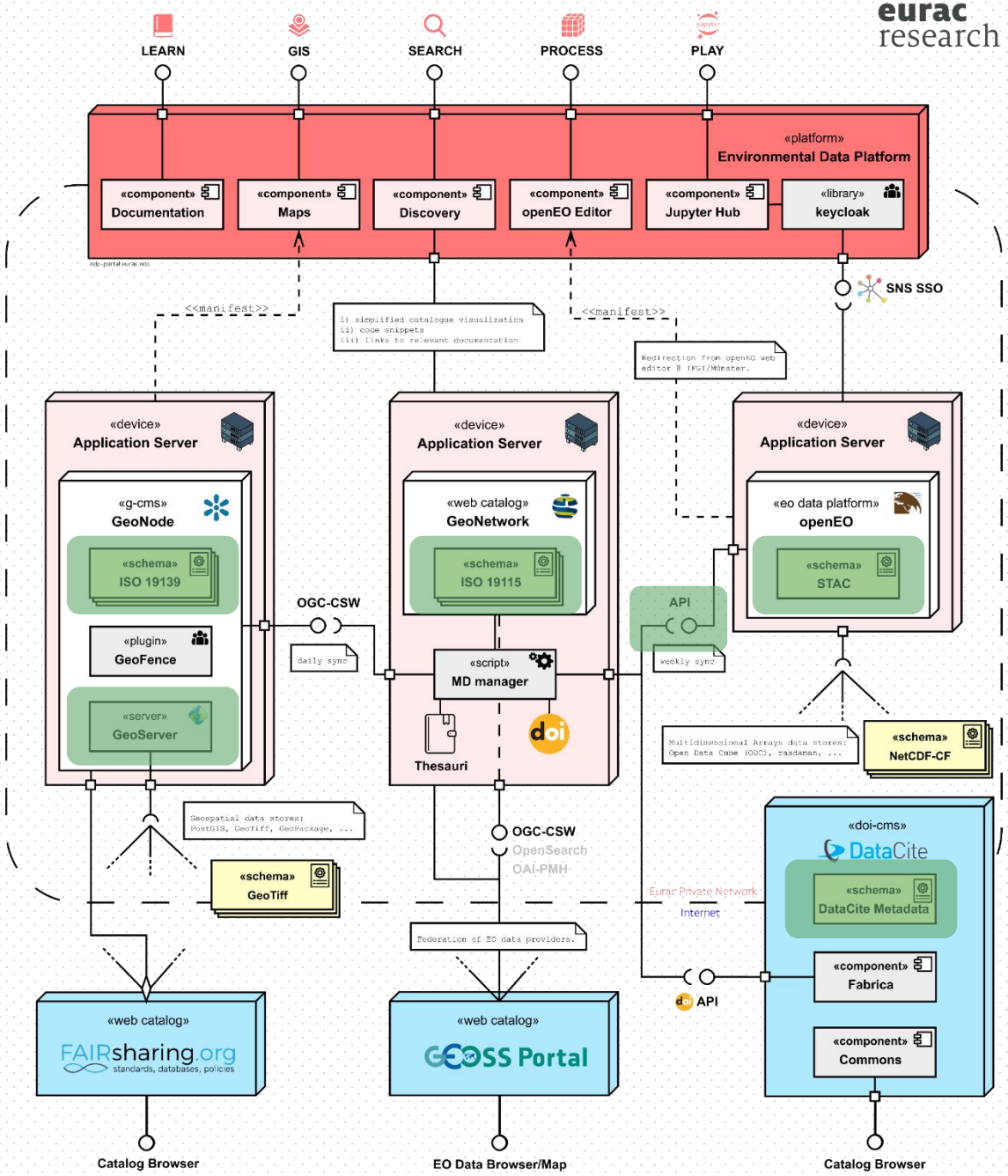
A

I

R

## Interoperability

1




F

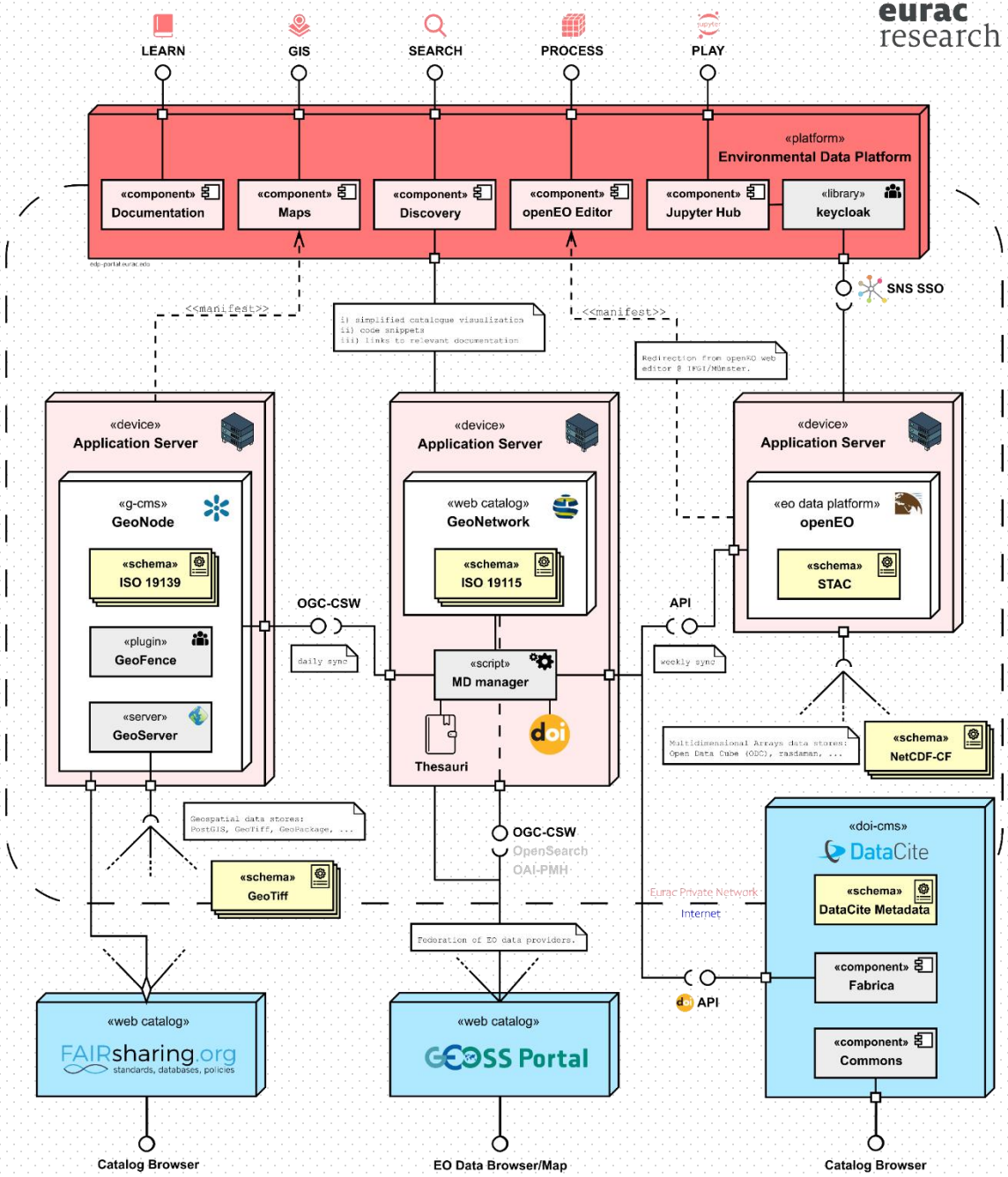
A

I

R

## Interoperability

1



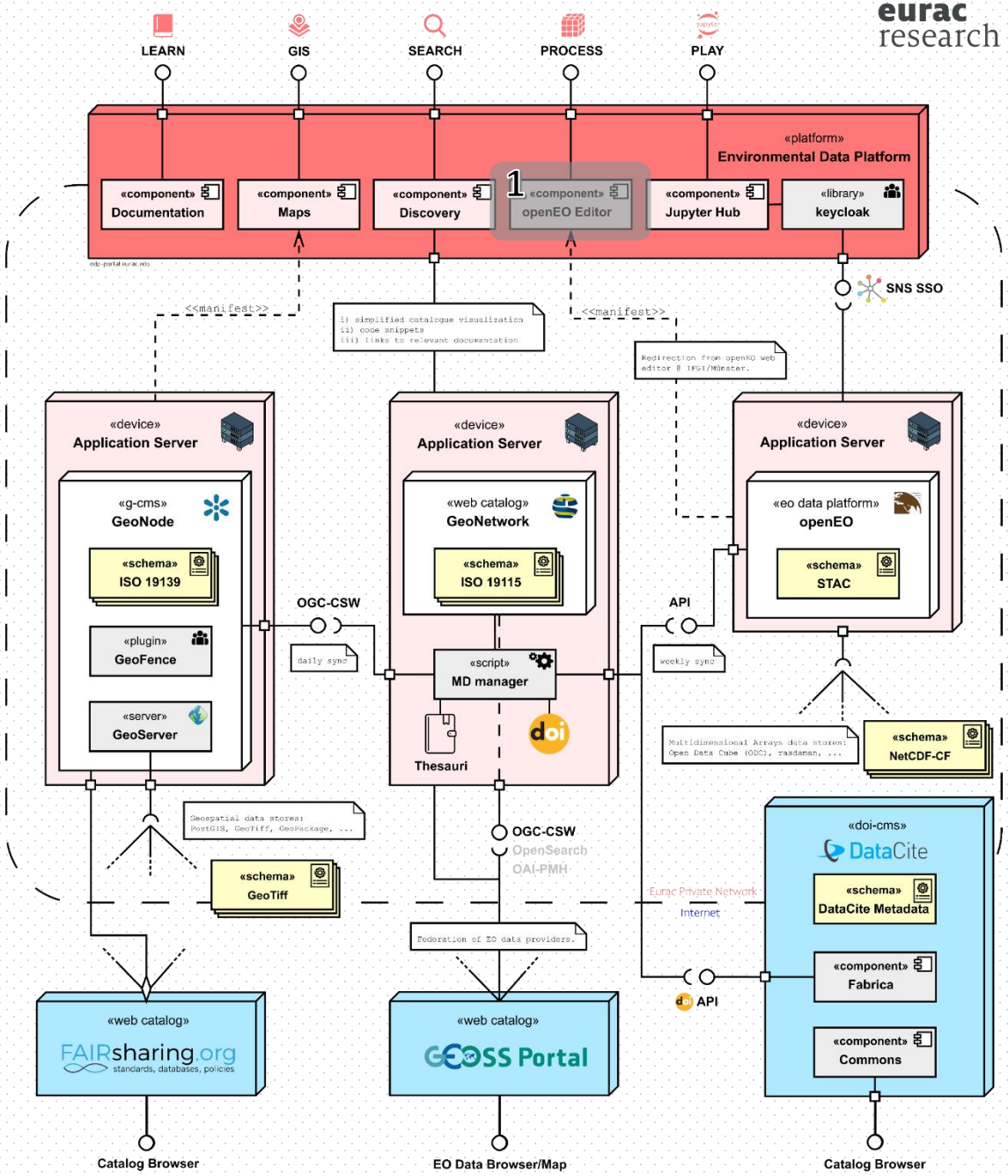

F

A

I

R

**Re-usability**



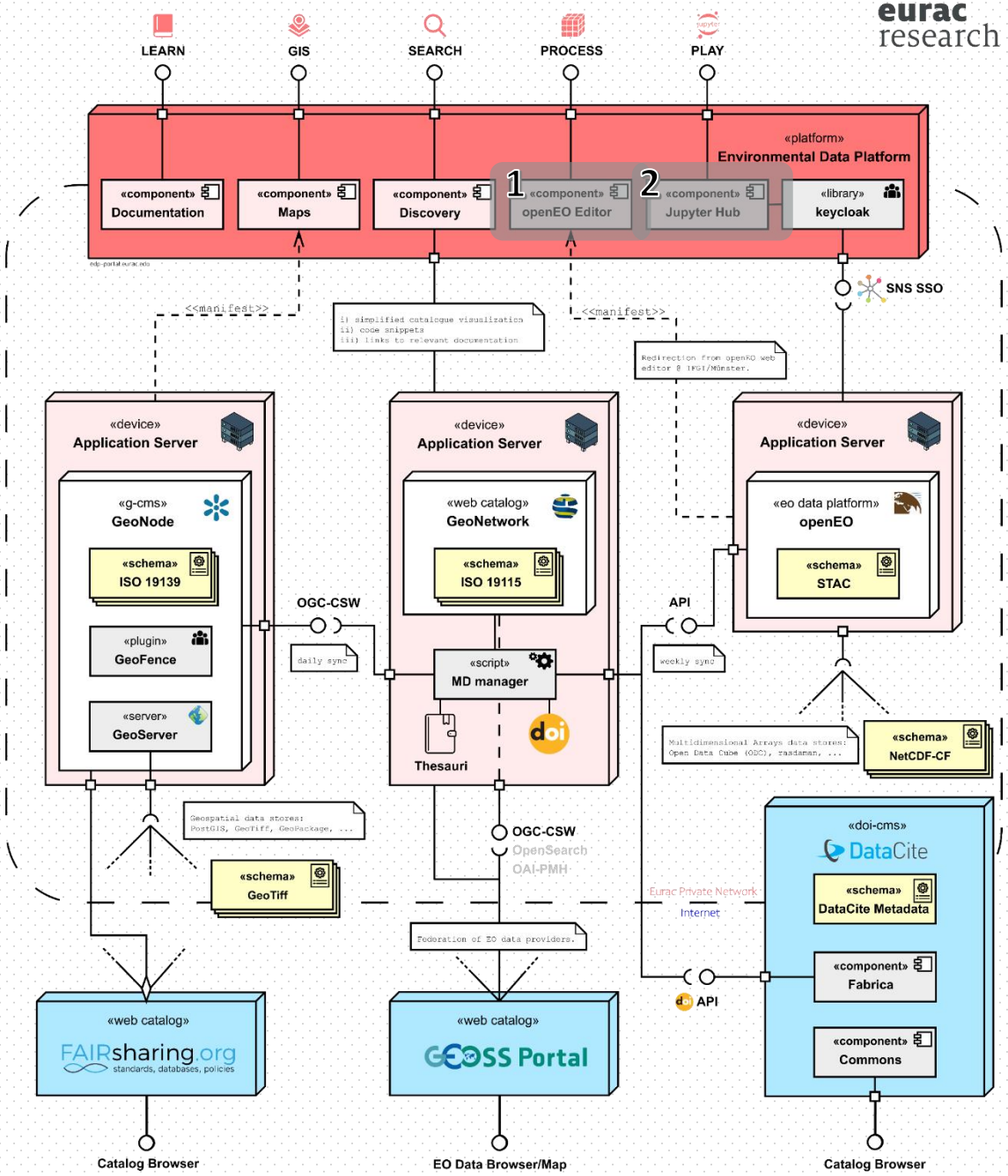

F

A

I

R

**Re-usability**



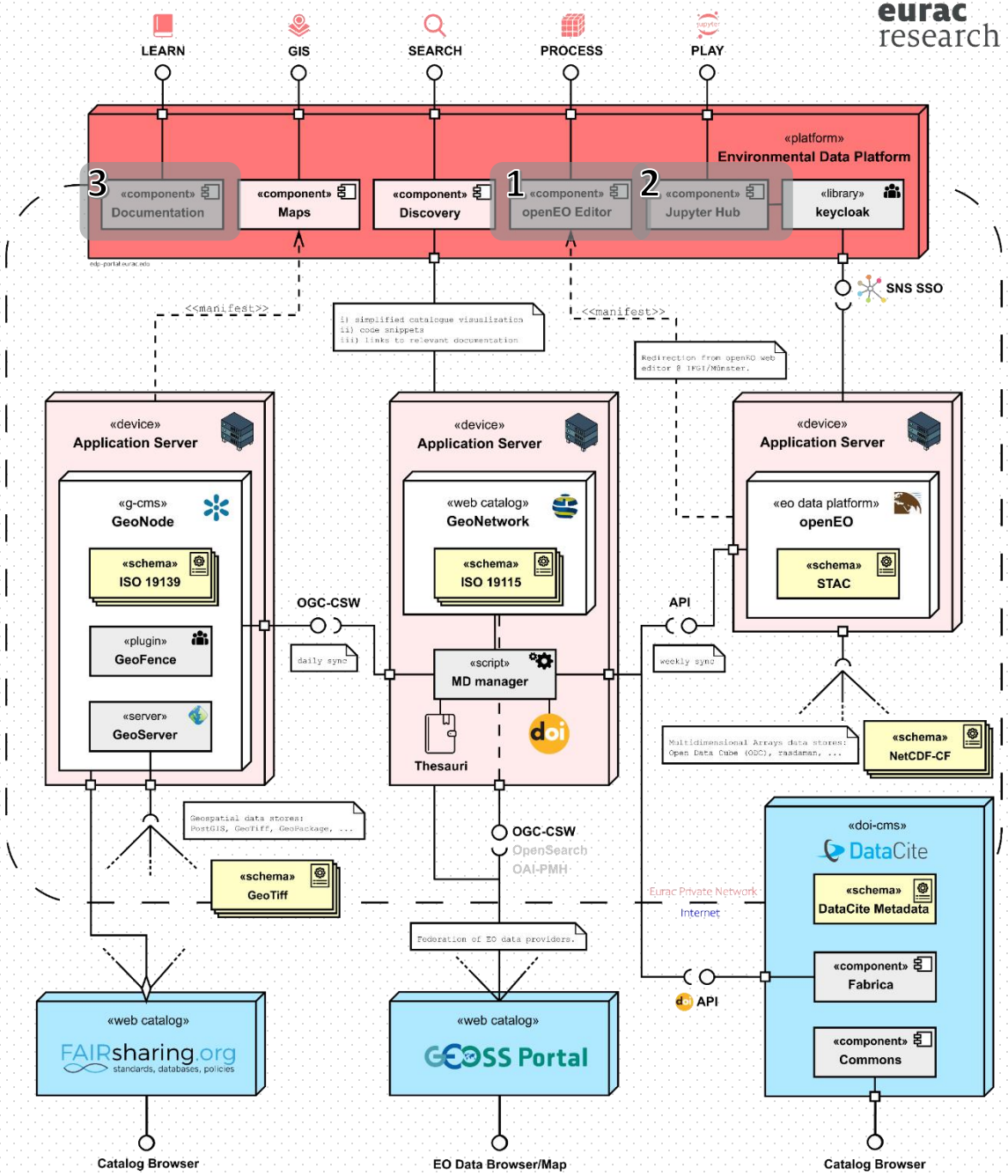

F

A

I

R

**Re-usability**




F

A

I

R

**Re-usability**

# The Bright Side of things

# Ready-to-use FAIRness

# Ready-to-use FAIRness

- Free and Open Source Software (FOSS)

# Ready-to-use FAIRness

- Free and Open Source Software (FOSS)
- Standard: protocols, APIs, services, metadata schemas

# Ready-to-use FAIRness

- Free and Open Source Software (FOSS)
- Standard: protocols, APIs, services, metadata schemas
- Authentication/Authorization

# Ready-to-use FAIRness

- Free and Open Source Software (FOSS)
- Standard: protocols, APIs, services, metadata schemas
- Authentication/Authorization
- Persistent identifier (DOI) registration option

# Ready-to-use FAIRness

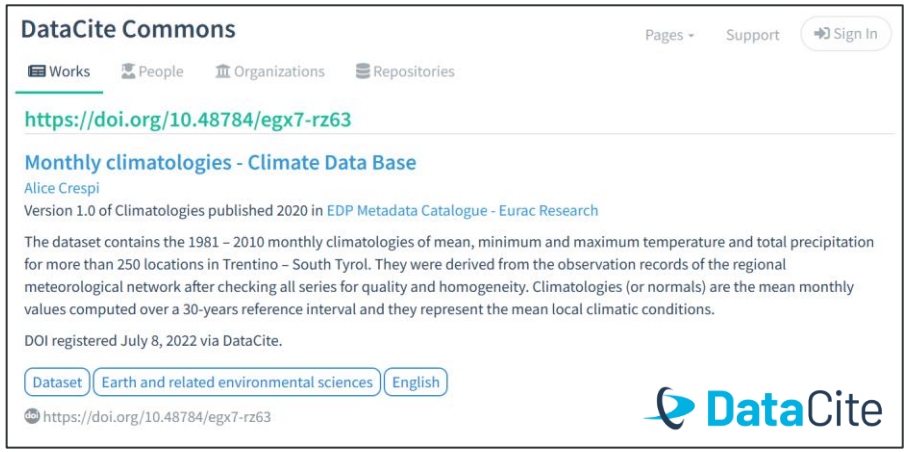
- Free and Open Source Software (FOSS)
- Standard: protocols, APIs, services, metadata schemas
- Authentication/Authorization
- Persistent identifier (DOI) registration option
- Metadata compilation wizards

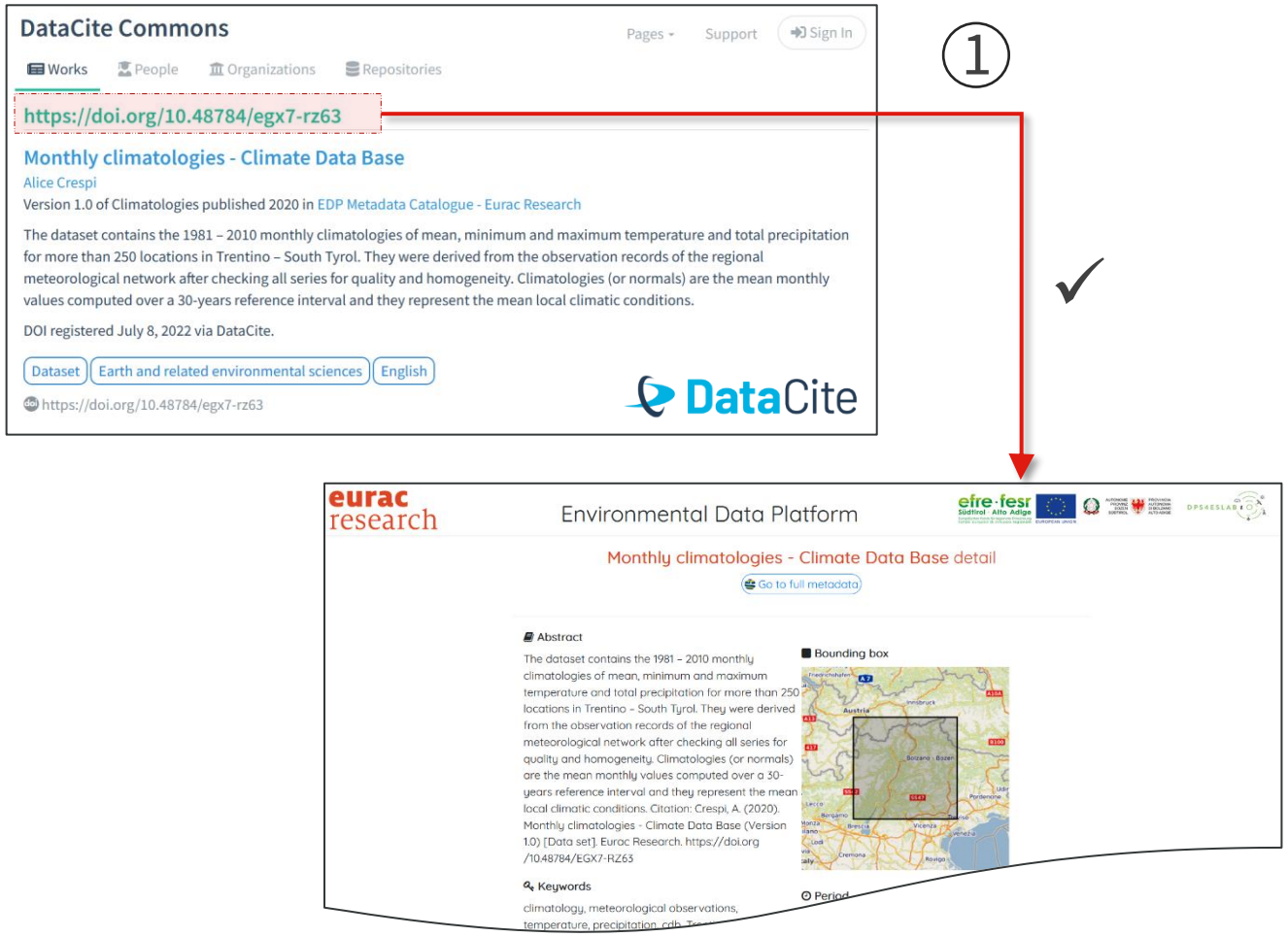
# Ready-to-use FAIRness

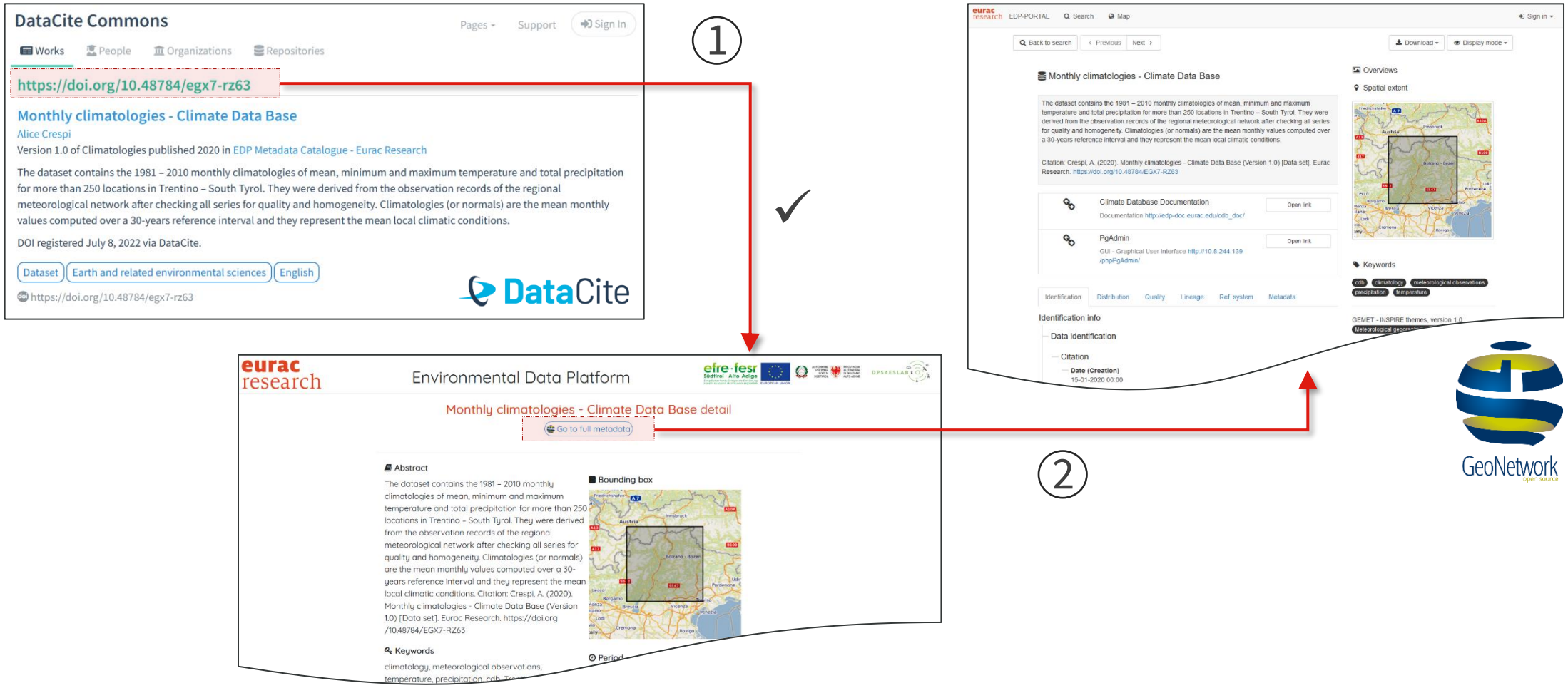
- Free and Open Source Software (FOSS)
- Standard: protocols, APIs, services, metadata schemas
- Authentication/Authorization
- Persistent identifier (DOI) registration option
- Metadata compilation wizards
- R/Python code snippets

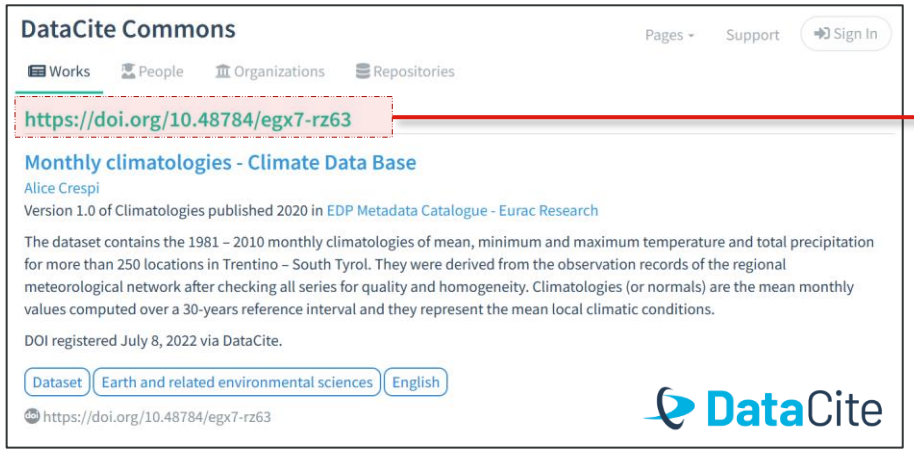
# Ready-to-use FAIRness

- Free and Open Source Software (FOSS)
- Standard: protocols, APIs, services, metadata schemas
- Authentication/Authorization
- Persistent identifier (DOI) registration option
- Metadata compilation wizards
- R/Python code snippets
- Long-term

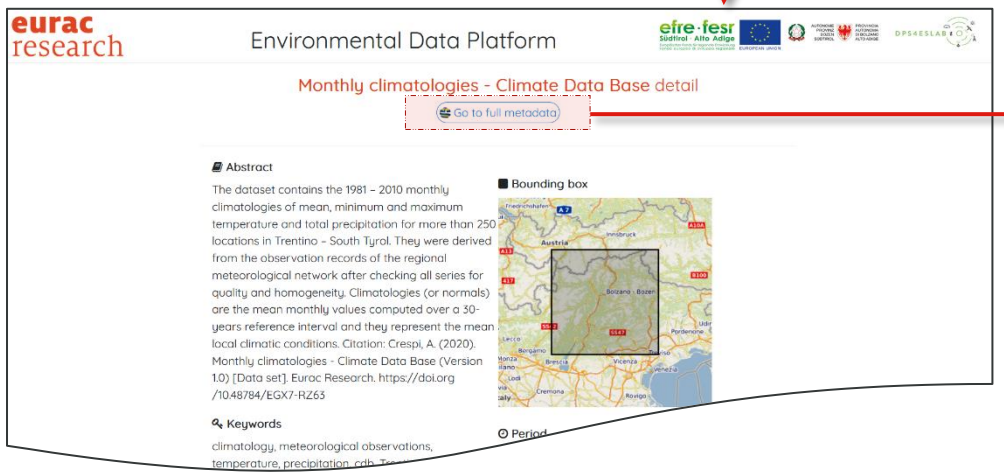

DataCite Commons
Pages
Support
Sign In
Works
People
Organizations
Repositories
https://doi.org/10.48784/egx7-rz63
Monthly climatologies - Climate Data Base
Alice Crespi
Version 1.0 of Climatologies published 2020 in EDP Metadata Catalogue - Eurac Research
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
DOI registered July 8, 2022 via DataCite.
Dataset
Earth and related environmental sciences
English
https://doi.org/10.48784/egx7-rz63
DataCite

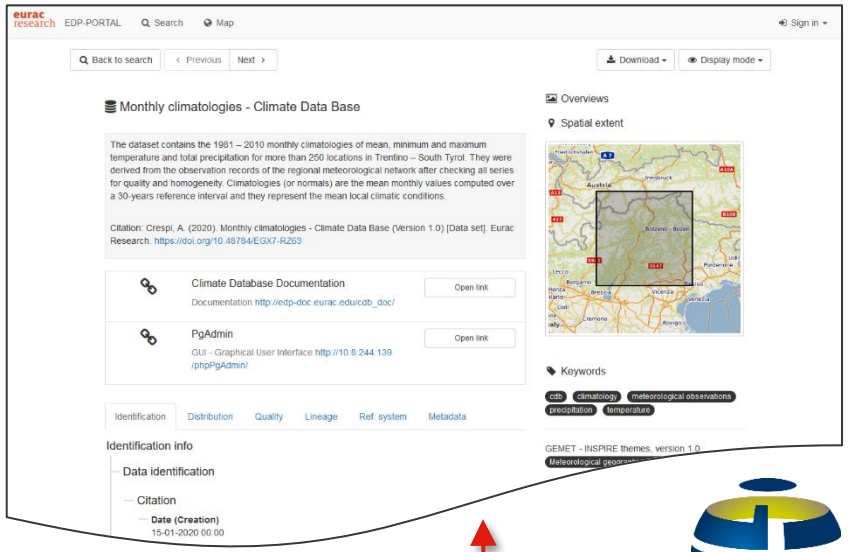

DataCite Commons
Pages
Support
Sign In
Works
People
Organizations
Repositories
https://doi.org/10.48784/egx7-rz63
Monthly climatologies - Climate Data Base
Alice Crespi
Version 1.0 of Climatologies published 2020 in EDP Metadata Catalogue - Eurac Research
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
DOI registered July 8, 2022 via DataCite.
Dataset
Earth and related environmental sciences
English
https://doi.org/10.48784/egx7-rz63
DataCite
1
eurac research
Environmental Data Platform
Monthly climatologies - Climate Data Base detail
Go to full metadata
Abstract
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions. Citation: Crespi, A. (2020). Monthly climatologies - Climate Data Base (Version 1.0) [Data set]. Eurac Research. https://doi.org/10.48784/EGX7-RZ63
Bounding box
Keywords
climatology, meteorological observations,
Period


DataCite Commons
Pages
Support
Sign In
Works
People
Organizations
Repositories
https://doi.org/10.48784/egx7-rz63
Monthly climatologies - Climate Data Base
Alice Crespi
Version 1.0 of Climatologies published 2020 in EDP Metadata Catalogue - Eurac Research
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
DOI registered July 8, 2022 via DataCite.
Dataset
Earth and related environmental sciences
English
https://doi.org/10.48784/egx7-rz63
DataCite
1
eurac research
Environmental Data Platform
Monthly climatologies - Climate Data Base detail
Go to full metadata
Abstract
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions. Citation: Crespi, A. (2020). Monthly climatologies - Climate Data Base (Version 1.0) [Data set]. Eurac Research. https://doi.org/10.48784/EGX7-RZ63
Bounding box
Keywords
climatology, meteorological observations,
Period
2
eurac research
EDP-PORTAL
Search
Map
Sign in
Back to search
Previous
Next
Download
Display mode
Monthly climatologies - Climate Data Base
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
Citation: Crespi, A. (2020). Monthly climatologies - Climate Data Base (Version 1.0) [Data set]. Eurac Research. https://doi.org/10.48784/EGX7-RZ63
Climate Database Documentation
Documentation http://edp-doc.eurac.edu/cdb_doc/
Open link
PgAdmin
GUI - Graphical User Interface http://10.8.244.139/phpPgAdmin/
Open link
Identification
Distribution
Quality
Lineage
Ref. system
Metadata
Identification info
Data identification
Citation
Date (Creation)
15-01-2020 00:00
Overviews
Spatial extent
Keywords
cdb
climatology
meteorological observations
precipitation
temperature
GEMET - INSPIRE themes, version 1.0
Meteorological geo
GeoNetwork
open source




1

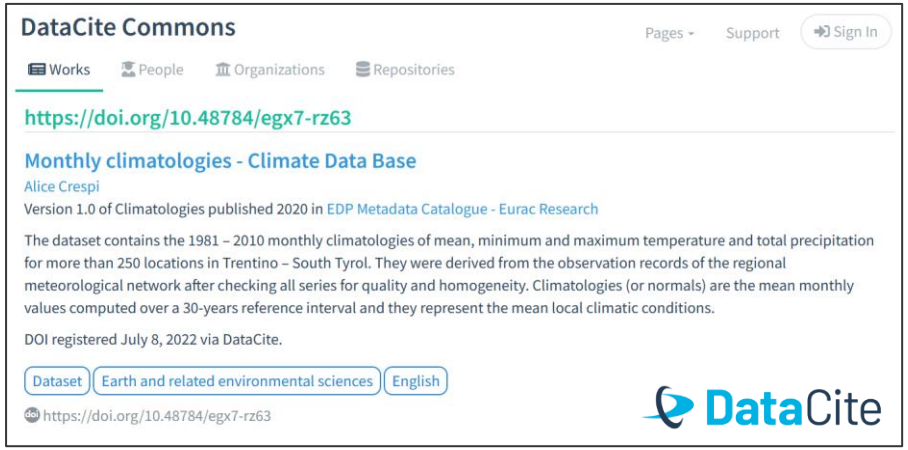


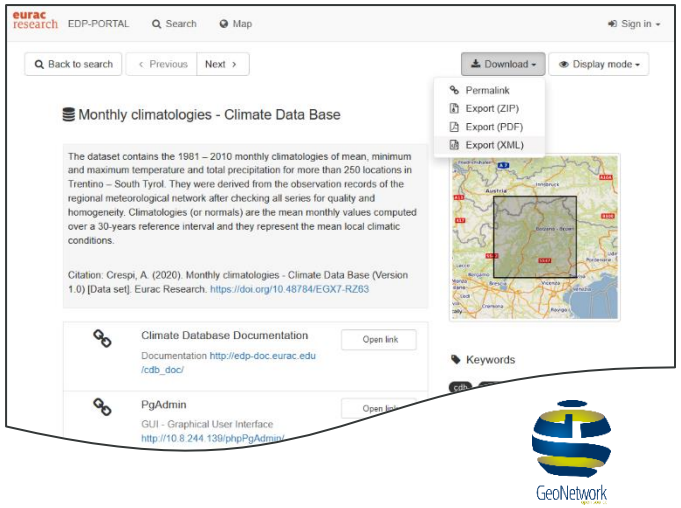



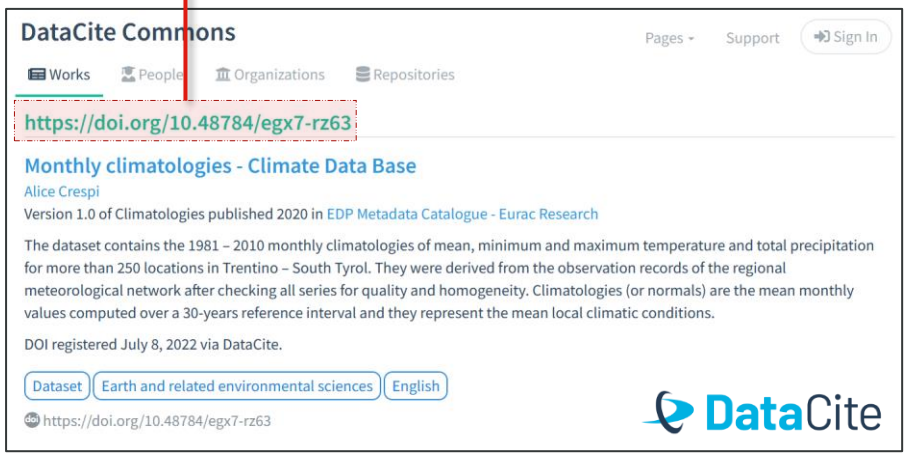

2

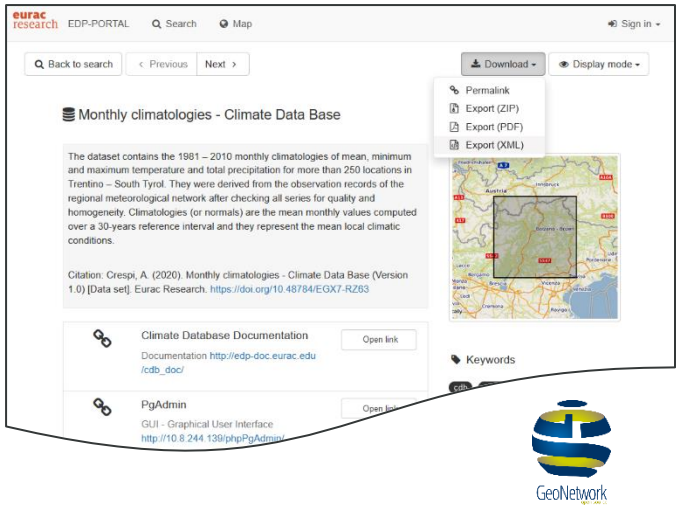
GeoNetwork
open source

- ✓ Globally unique
- ✓ Persistent
- ✓ Machine resolvable

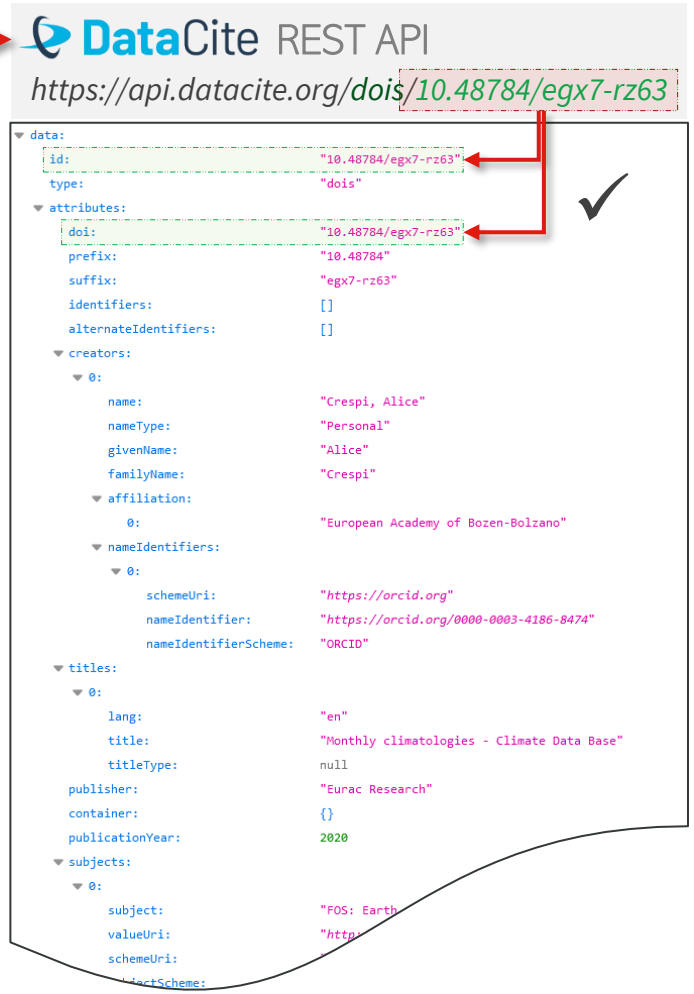

DataCite Commons
Pages
Support
Sign In
Works
People
Organizations
Repositories
https://doi.org/10.48784/egx7-rz63
Monthly climatologies - Climate Data Base
Alice Crespi
Version 1.0 of Climatologies published 2020 in EDP Metadata Catalogue - Eurac Research
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
DOI registered July 8, 2022 via DataCite.
Dataset
Earth and related environmental sciences
English
https://doi.org/10.48784/egx7-rz63
DataCite

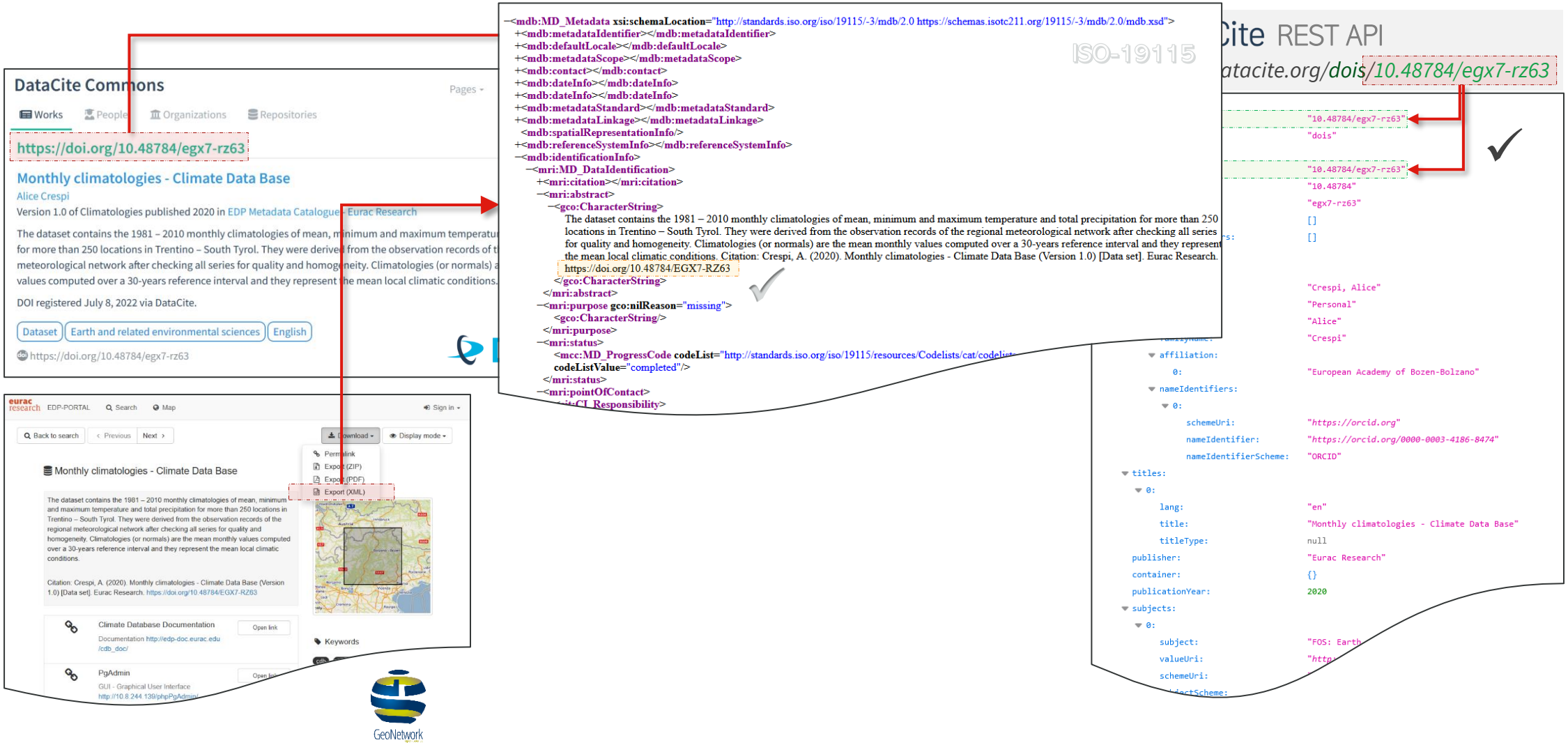

eurac research
EDP-PORTAL
Search
Map
Sign in
Back to search
Previous
Next
Download
Display mode
Permalink
Export (ZIP)
Export (PDF)
Export (XML)
Monthly climatologies - Climate Data Base
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
Citation: Crespi, A. (2020). Monthly climatologies - Climate Data Base (Version 1.0) [Data set]. Eurac Research. https://doi.org/10.48784/EGX7-RZ63
Climate Database Documentation
Documentation http://edp-doc.eurac.edu/cdb_doc/
Open link
PgAdmin
GUI - Graphical User Interface
http://10.8.244.139/phpPgAdmin/
Keywords
GeoNetwork

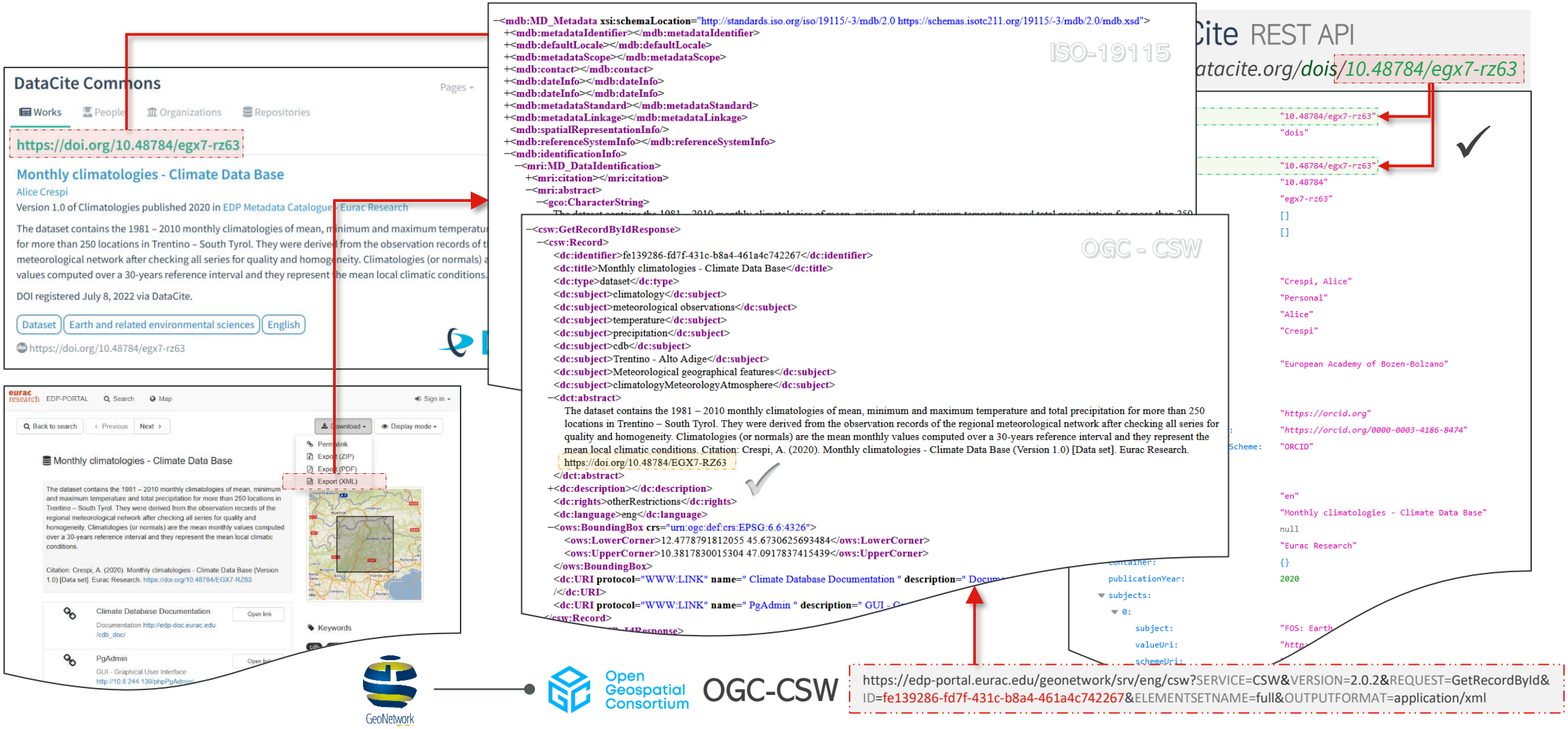

DataCite Commons
Pages
Support
Sign In
Works
People
Organizations
Repositories
https://doi.org/10.48784/egx7-rz63
Monthly climatologies - Climate Data Base
Alice Crespi
Version 1.0 of Climatologies published 2020 in EDP Metadata Catalogue - Eurac Research
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
DOI registered July 8, 2022 via DataCite.
Dataset
Earth and related environmental sciences
English
https://doi.org/10.48784/egx7-rz63
DataCite


eurac research
EDP-PORTAL
Search
Map
Sign in
Back to search
Previous
Next
Download
Display mode
Permalink
Export (ZIP)
Export (PDF)
Export (XML)
Monthly climatologies - Climate Data Base
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
Citation: Crespi, A. (2020). Monthly climatologies - Climate Data Base (Version 1.0) [Data set]. Eurac Research. https://doi.org/10.48784/EGX7-RZ63
Climate Database Documentation
Open link
Documentation http://edp-doc.eurac.edu/cdb_doc/
PgAdmin
GUI - Graphical User Interface
Keywords

GeoNetwork

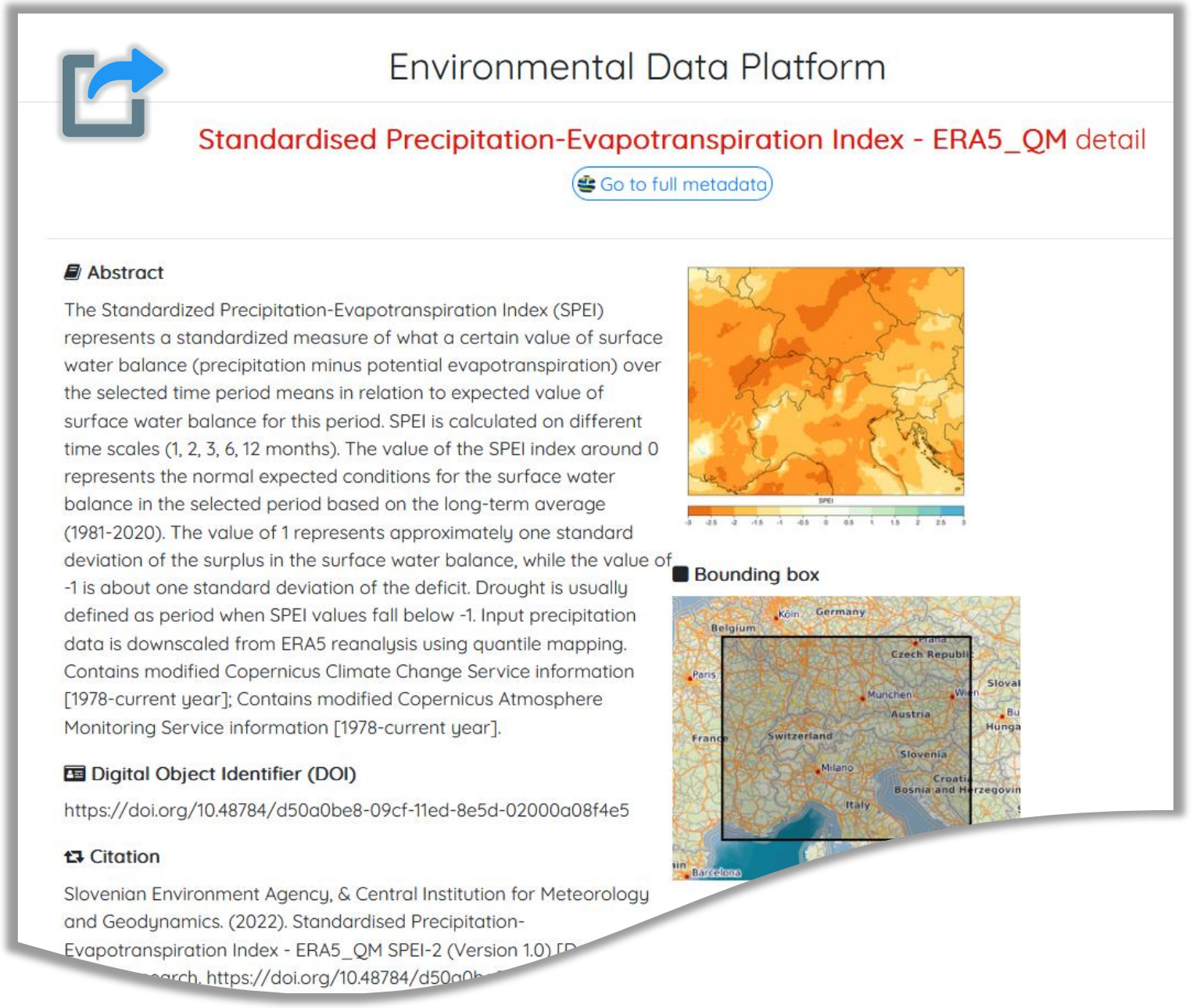

DataCite REST API
https://api.datacite.org/dois/10.48784/egx7-rz63
data:
id: "10.48784/egx7-rz63"
type: "dois"
attributes:
doi: "10.48784/egx7-rz63"
prefix: "10.48784"
suffix: "egx7-rz63"
identifiers: []
alternateIdentifiers: []
creators:
0:
name: "Crespi, Alice"
nameType: "Personal"
givenName: "Alice"
familyName: "Crespi"
affiliation:
0: "European Academy of Bozen-Bolzano"
nameIdentifiers:
0:
schemeUri: "https://orcid.org"
nameIdentifier: "https://orcid.org/0000-0003-4186-8474"
nameIdentifierScheme: "ORCID"
titles:
0:
lang: "en"
title: "Monthly climatologies - Climate Data Base"
titleType: null
publisher: "Eurac Research"
container: {}
publicationYear: 2020
subjects:
0:
subject: "FOS: Earth
valueUri:
schemeUri:


DataCite Commons
Works
People
Organizations
Repositories
https://doi.org/10.48784/egx7-rz63
Monthly climatologies - Climate Data Base
Alice Crespi
Version 1.0 of Climatologies published 2020 in EDP Metadata Catalogue - Eurac Research
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperatu
for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of t
meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) a
values computed over a 30-years reference interval and they represent the mean local climatic conditions.
DOI registered July 8, 2022 via DataCite.
Dataset
Earth and related environmental sciences
English
https://doi.org/10.48784/egx7-rz63
ISO-19115
<mdb:MD_Metadata xsi:schemaLocation="http://standards.iso.org/iso/19115/-3/mdb/2.0 https://schemas.isotc211.org/19115/-3/mdb/2.0/mdb.xsd">
<mdb:metadataIdentifier></mdb:metadataIdentifier>
<mdb:defaultLocale></mdb:defaultLocale>
<mdb:metadataScope></mdb:metadataScope>
<mdb:contact></mdb:contact>
<mdb:dateInfo></mdb:dateInfo>
<mdb:dateInfo></mdb:dateInfo>
<mdb:metadataStandard></mdb:metadataStandard>
<mdb:metadataLinkage></mdb:metadataLinkage>
<mdb:spatialRepresentationInfo/>
<mdb:referenceSystemInfo></mdb:referenceSystemInfo>
<mdb:identificationInfo>
<mri:MD_DataIdentification>
<mri:citation></mri:citation>
<mri:abstract>
<gco:CharacterString>
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions. Citation: Crespi, A. (2020). Monthly climatologies - Climate Data Base (Version 1.0) [Data set]. Eurac Research. https://doi.org/10.48784/EGX7-RZ63
</gco:CharacterString>
</mri:abstract>
<mri:purpose gco:nilReason="missing">
<gco:CharacterString/>
</mri:purpose>
<mri:status>
<mcc:MD_ProgressCode codeList="http://standards.iso.org/iso/19115/resources/Codelists/cat/codelist
codeListValue="completed"/>
</mri:status>
<mri:pointOfContact>
Cite REST API
atacite.org/dois/10.48784/egx7-rz63
"10.48784/egx7-rz63"
"dois"
"10.48784/egx7-rz63"
"10.48784"
"egx7-rz63"
[]
[]
"Crespi, Alice"
"Personal"
"Alice"
"Crespi"
affiliation:
0: "European Academy of Bozen-Bolzano"
nameIdentifiers:
0:
schemeUri: "https://orcid.org"
nameIdentifier: "https://orcid.org/0000-0003-4186-8474"
nameIdentifierScheme: "ORCID"
titles:
0:
lang: "en"
title: "Monthly climatologies - Climate Data Base"
titleType: null
publisher: "Eurac Research"
container: {}
publicationYear: 2020
subjects:
0:
subject: "FOS: Earth
valueUri:
schemeUri:
eurac research
EDP-PORTAL
Search
Map
Sign in
Back to search
Previous
Next
Download
Display mode
Permalink
Export (ZIP)
Export (PDF)
Export (XML)
Monthly climatologies - Climate Data Base
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
Citation: Crespi, A. (2020). Monthly climatologies - Climate Data Base (Version 1.0) [Data set]. Eurac Research. https://doi.org/10.48784/EGX7-RZ63
Climate Database Documentation
Documentation http://edp-doc.eurac.edu/cdb_doc/
Open link
PgAdmin
GUI - Graphical User Interface
http://10.8.244.139/phpPgAdmin/
Keywords
GeoNetwork


DataCite Commons
Works
People
Organizations
Repositories
https://doi.org/10.48784/egx7-rz63
Monthly climatologies - Climate Data Base
Alice Crespi
Version 1.0 of Climatologies published 2020 in EDP Metadata Catalogue - Eurac Research
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperatu
for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of t
meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) a
values computed over a 30-years reference interval and they represent the mean local climatic conditions.
DOI registered July 8, 2022 via DataCite.
Dataset
Earth and related environmental sciences
English
https://doi.org/10.48784/egx7-rz63
ISO-19115
<mdb:MD_Metadata xsi:schemaLocation="http://standards.iso.org/iso/19115/-3/mdb/2.0 https://schemas.isotc211.org/19115/-3/mdb/2.0/mdb.xsd">
<mdb:metadataIdentifier></mdb:metadataIdentifier>
<mdb:defaultLocale></mdb:defaultLocale>
<mdb:metadataScope></mdb:metadataScope>
<mdb:contact></mdb:contact>
<mdb:dateInfo></mdb:dateInfo>
<mdb:dateInfo></mdb:dateInfo>
<mdb:metadataStandard></mdb:metadataStandard>
<mdb:metadataLinkage></mdb:metadataLinkage>
<mdb:spatialRepresentationInfo/>
<mdb:referenceSystemInfo></mdb:referenceSystemInfo>
<mdb:identificationInfo>
<mri:MD_DataIdentification>
<mri:citation></mri:citation>
<mri:abstract>
<gco:CharacterString>
OGC - CSW
<csw:GetRecordByIdResponse>
<csw:Record>
<dc:identifier>fe139286-fd7f-431c-b8a4-461a4c742267</dc:identifier>
<dc:title>Monthly climatologies - Climate Data Base</dc:title>
<dc:type>dataset</dc:type>
<dc:subject>climatology</dc:subject>
<dc:subject>meteorological observations</dc:subject>
<dc:subject>temperature</dc:subject>
<dc:subject>precipitation</dc:subject>
<dc:subject>cdb</dc:subject>
<dc:subject>Trentino - Alto Adige</dc:subject>
<dc:subject>Meteorological geographical features</dc:subject>
<dc:subject>climatologyMeteorologyAtmosphere</dc:subject>
<dct:abstract>
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions. Citation: Crespi, A. (2020). Monthly climatologies - Climate Data Base (Version 1.0) [Data set]. Eurac Research.
https://doi.org/10.48784/EGX7-RZ63
</dct:abstract>
<dc:description></dc:description>
<dc:rights>otherRestrictions</dc:rights>
<dc:language>eng</dc:language>
<ows:BoundingBox crs="urn:ogc:def:crs:EPSG:6.6:4326">
<ows:LowerCorner>12.4778791812055 45.6730625693484</ows:LowerCorner>
<ows:UpperCorner>10.3817830015304 47.0917837415439</ows:UpperCorner>
</ows:BoundingBox>
<dc:URI protocol="WWW:LINK" name=" Climate Database Documentation " description="
</dc:URI>
<dc:URI protocol="WWW:LINK" name=" PgAdmin " description=" GUI -
</csw:Record>
Cite REST API
atacite.org/dois/10.48784/egx7-rz63
"10.48784/egx7-rz63"
"dois"
"10.48784/egx7-rz63"
"10.48784"
"egx7-rz63"
[]
[]
"Crespi, Alice"
"Personal"
"Alice"
"Crespi"
"European Academy of Bozen-Bolzano"
"https://orcid.org"
"https://orcid.org/0000-0003-4186-8474"
Scheme: "ORCID"
"en"
"Monthly climatologies - Climate Data Base"
null
"Eurac Research"
{}
publicationYear: 2020
subjects:
0:
subject: "FOS: Earth
valueUri:
schemeUri:
eurac research EDP-PORTAL Search Map Sign in
Back to search Previous Next
Download Display mode
Permalink
Export (ZIP)
Export (PDF)
Export (XML)
Monthly climatologies - Climate Data Base
The dataset contains the 1981 – 2010 monthly climatologies of mean, minimum and maximum temperature and total precipitation for more than 250 locations in Trentino – South Tyrol. They were derived from the observation records of the regional meteorological network after checking all series for quality and homogeneity. Climatologies (or normals) are the mean monthly values computed over a 30-years reference interval and they represent the mean local climatic conditions.
Citation: Crespi, A. (2020). Monthly climatologies - Climate Data Base (Version 1.0) [Data set]. Eurac Research. https://doi.org/10.48784/EGX7-RZ63
Climate Database Documentation
Documentation http://edp-doc.eurac.edu/cdb_doc/
Open link
PgAdmin
GUI - Graphical User Interface
http://10.8.244.139/phpPgAdmin/
Keywords
GeoNetwork
Open Geospatial Consortium
OGC-CSW
https://edp-portal.eurac.edu/geonetwork/srv/eng/csw?SERVICE=CSW&VERSION=2.0.2&REQUEST=GetRecordById&ID=fe139286-fd7f-431c-b8a4-461a4c742267&ELEMENTSETNAME=full&OUTPUTFORMAT=application/xml

# A fairly good example:

- ✓ Readable title
- ✓ Descriptive abstract
- ✓ License
- ✓ DOI
- ✓ Citation
- ✓ Keywords
- ✓ Time validity
- ✓ Contact information
- ✓ Thumbnail
- ✓ …



Environmental Data Platform

Standardised Precipitation-Evapotranspiration Index - ERA5_QM detail

Go to full metadata

**Abstract**

The Standardized Precipitation-Evapotranspiration Index (SPEI) represents a standardized measure of what a certain value of surface water balance (precipitation minus potential evapotranspiration) over the selected time period means in relation to expected value of surface water balance for this period. SPEI is calculated on different time scales (1, 2, 3, 6, 12 months). The value of the SPEI index around 0 represents the normal expected conditions for the surface water balance in the selected period based on the long-term average (1981-2020). The value of 1 represents approximately one standard deviation of the surplus in the surface water balance, while the value of -1 is about one standard deviation of the deficit. Drought is usually defined as period when SPEI values fall below -1. Input precipitation data is downscaled from ERA5 reanalysis using quantile mapping. Contains modified Copernicus Climate Change Service information [1978-current year]; Contains modified Copernicus Atmosphere Monitoring Service information [1978-current year].

**Digital Object Identifier (DOI)**

https://doi.org/10.48784/d50a0be8-09cf-11ed-8e5d-02000a08f4e5

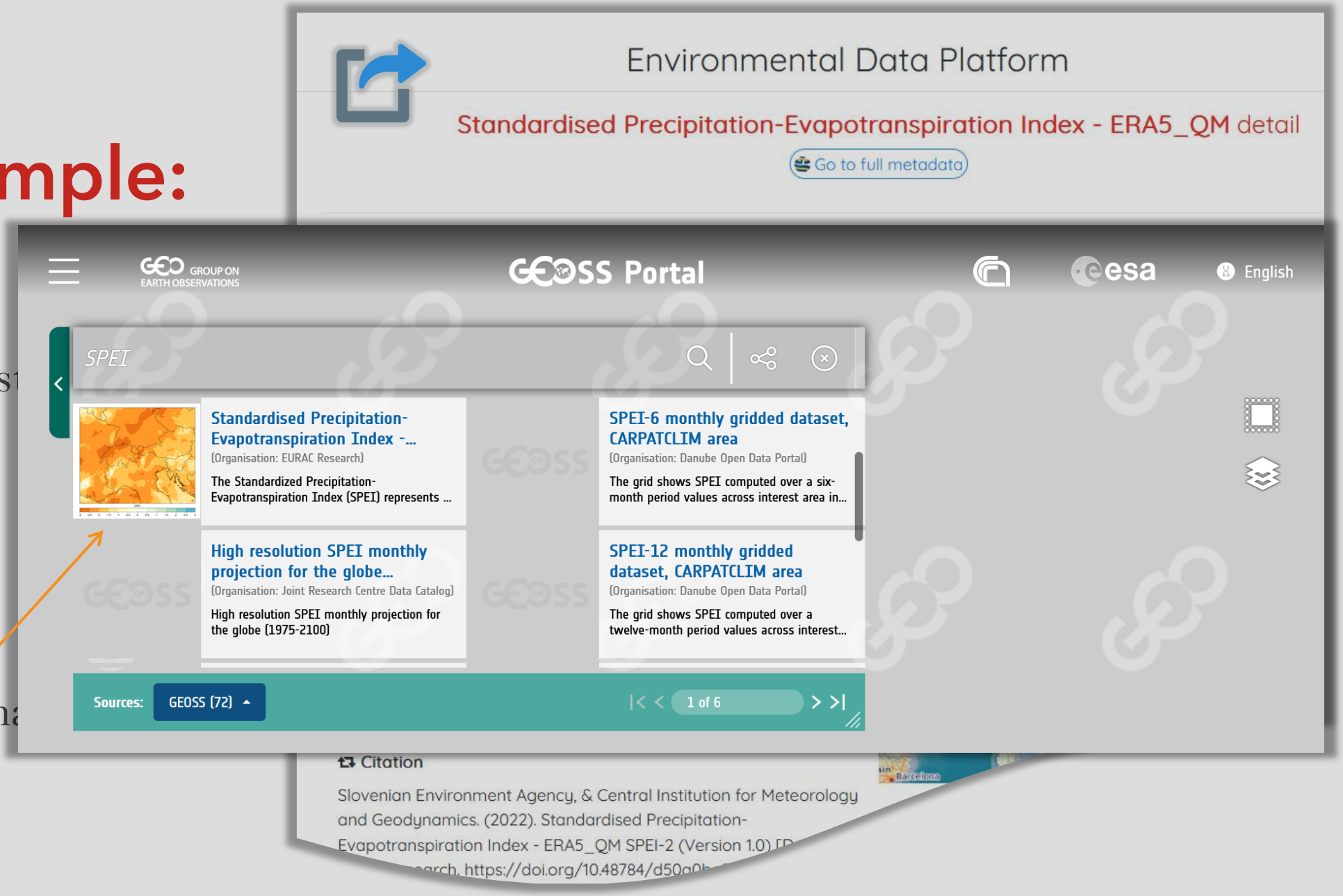
**Citation**

Slovenian Environment Agency, & Central Institution for Meteorology and Geodynamics. (2022). Standardised Precipitation-Evapotranspiration Index - ERA5_QM SPEI-2 (Version 1.0) [D… earch. https://doi.org/10.48784/d50a0b…

**Bounding box**

# A fairly good example:

- ✓ Readable title
- ✓ Descriptive abst
- ✓ License
- ✓ DOI
- ✓ Citation
- ✓ Keywords
- ✓ Time validity
- ✓ Contact informa
- ✓ Thumbnail
- ✓ …



# The Dark Side

# System maintenance

Multiple catalogues/sub-systems/schemas/…
They all make up a complex architecture to be managed and synchronized.

# System maintenance

Multiple catalogues/sub-systems/schemas/…
They all make up a complex architecture to be managed and synchronized.

→ Tangle of metadata mappings

→ How to edit/update a field smoothly?

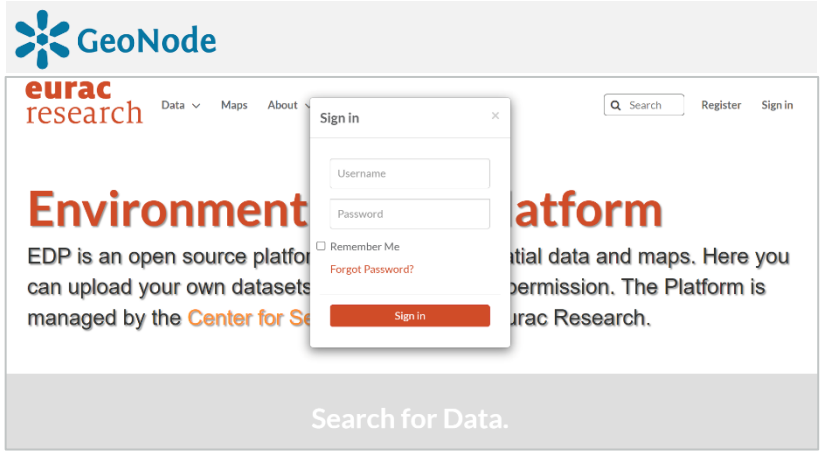
→ Software updates

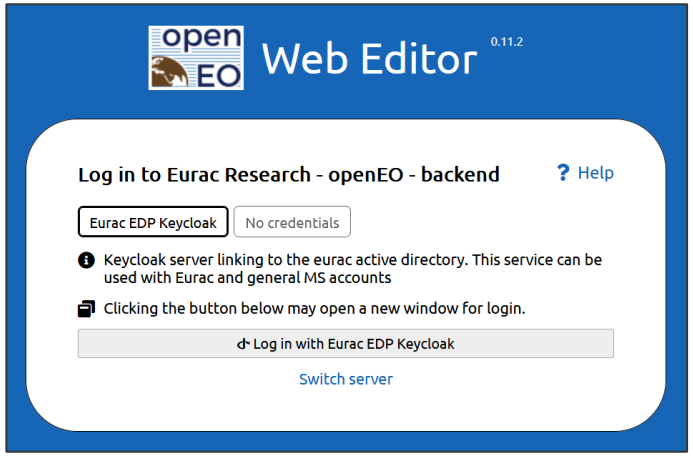
# Unharmonized realms

Non-expert users can feel pulled back by the heterogeneity of the system.

# Unharmonized realms

Non-expert users can feel pulled back by the heterogeneity of the system.



# The human factor

Poor, incorrect, or missing metadata fields are a major problem to FAIRness.

# 2 The road ahead 

*Towards a more rugged and complete adherence to the principles.*

# Truly complete metadata records

Incrementally add compliance to a plurality of relevant data attributes for full re-usability.

# Truly complete metadata records

Incrementally add compliance to a plurality of relevant data attributes for full re-usability.

→ Data provenance

→ Relations and qualified references among datasets

→ Formal knowledge representation / ontologies

→ Data access levels

# Data versioning

Implement the metadata support and the proper processes for a viable versioning of datasets.

# Data versioning

Implement the metadata support and the proper processes for a viable versioning of datasets.

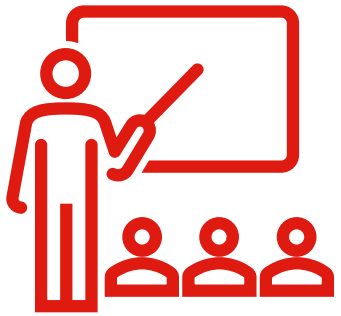
→ DOI replacement

→ Tombstone page

→ Legacy data (un)availability?

# The data steward bottleneck

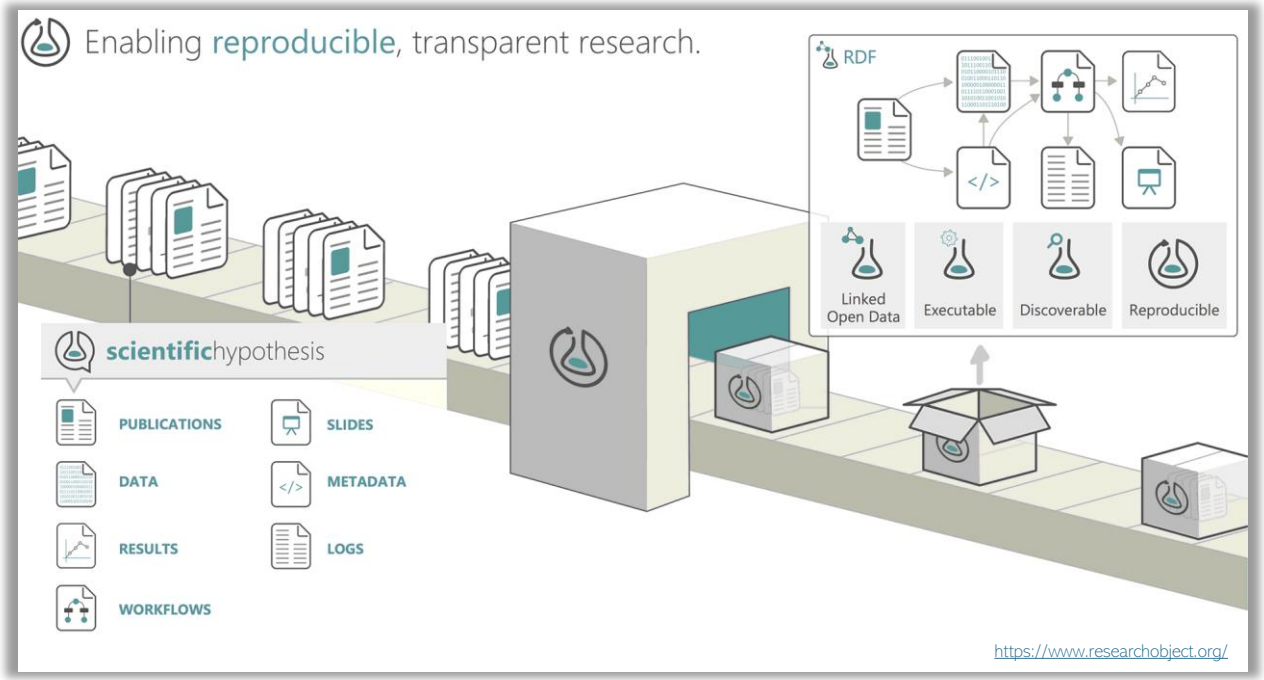
Raise awareness among all co-researchers about the importance of rich metadata, distributing the workload away from the data steward.



# Research Objects

doi:10.1038/NPRE.2010.4626.1

Manage datasets as just a component of a reproducible research experiment.



# Further links:

- The FAIR guiding principles
  *https://force11.org/info/the-fair-data-principles/*
- FAIRdata Forum
  *https://fairdataforum.org/*
- Open Science Handbook
  *https://open-science-training-handbook.gitbook.io/book/*

eurac research

https://ror.org/01xt1w755

Link to this presentation:
doi:10.5281/zenodo.7743977