

GEOSS / NextGEOSS / NextGEOSS WP 3

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NextGEOSS WP 3, Oslo, 02-05 Oct 2017



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730329

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Overview of GEO/GEOSS

- **Global Earth Observing System of Systems (GEOSS):** Initiative of the *ad hoc intergovernmental [Group on Earth Observations](#)* (ad hoc GEO) to collaborate in the field of earth observation. GEOSS was initiated in Brussels in 2005 by 40 countries. Today (2017) more than 100 countries participate.
- GEOSS aims at supporting humanity and the environment.
- GEOSS aims at linking different earth observation systems (satellites, forecast models, in situ observations) together to „draw a full picture of earth’s condition“
- GEOSS concentrates on well defined thematic areas, the so called „Social Benefit Areas“ (SBA)

GEOSS Overview: Social Benefit Areas

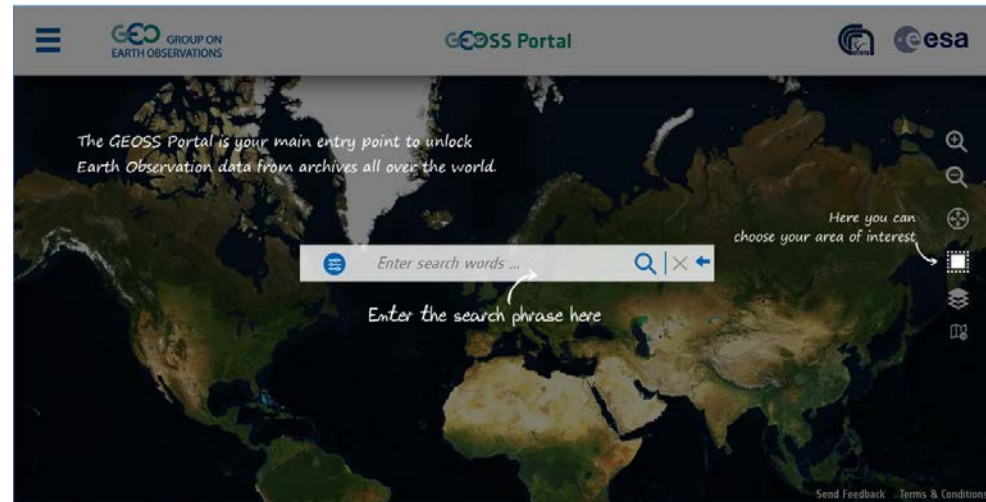


Societal Benefit Areas



Implementation of GEOSS (GEO Common Infrastructure, CGI):

- <http://geoportal.org>:



- GEODAB (GEO Discovery and Access Broker):



- GEO DAB scope is to simplify cross and multi-disciplinary discovery and access of disparate data and information.
- GEO DAB is a brokering framework that interconnects hundreds of heterogeneous and autonomous supply systems (the enterprise systems constituting the GEO System of Systems) by providing mediation, harmonization, and transformation capabilities.



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NextGEOSS Overview

Build up a
de-centralized federated metadata and data
access infrastructure

NextGEOSS Overview

Kick-Off: 16-18 JAN 2017
Project duration: 42 months
27 Partners
10M€

Volume 1: Sections 1-



Create An ECAS #



HORIZON 2020

The EU Framework Programme for Research and Innovation

NextGEOSS Objectives

First General Objective

Deliver the next generation data hub and Earth Observation exploitation for innovation and business

Specific Objective 1.1

Implement a **single access point, federated data hub and exploitation system for EO data**, using state-of-the-art data mining and discoverability techniques

Specific Objective 1.3

Access to the most relevant data sources for Europe, across all major Earth Observation domains

Second General Objective

Engage communities, promoting innovative GEOSS powered applications from Europe

Specific Objective 2.1

Engage the GEO and European communities towards understanding their needs, working together with GEO and **Open Data policies**

Specific Objective 2.3

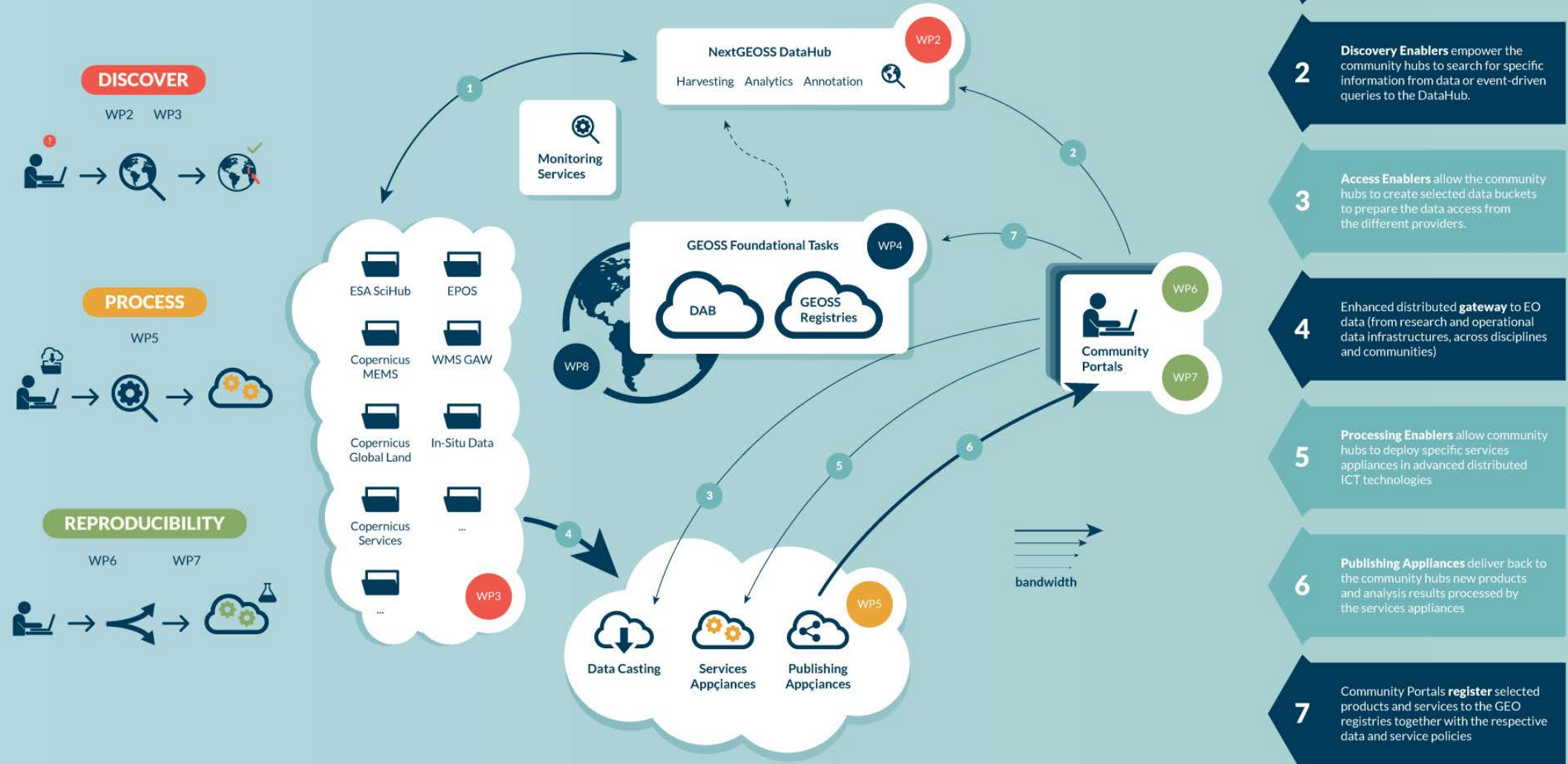
Collect feedback, expectations and requirements from the public and private communities

Third General Objective

Advocate (fördern) GEOSS as a sustainable European approach for Earth Observation data distribution and exploitation

NextGEOSS Architecture

NextGEOSS



1 **Data Hub** harvest and registers data from the each data infrastructure providing a links to the original original datasets at the source.

2 **Discovery Enablers** empower the community hubs to search for specific information from data or event-driven queries to the DataHub.

3 **Access Enablers** allow the community hubs to create selected data buckets to prepare the data access from the different providers.

4 Enhanced distributed **gateway** to EO data (from research and operational data infrastructures, across disciplines and communities)

5 **Processing Enablers** allow community hubs to deploy specific services appliances in advanced distributed ICT technologies

6 **Publishing Appliances** deliver back to the community hubs new products and analysis results processed by the services appliances

7 Community Portals **register** selected products and services to the GEO registries together with the respective data and service policies

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NextGEOSS / WP3: Data Federation and Uptake

Build up a
de-centralized federated metadata and data
access infrastructure

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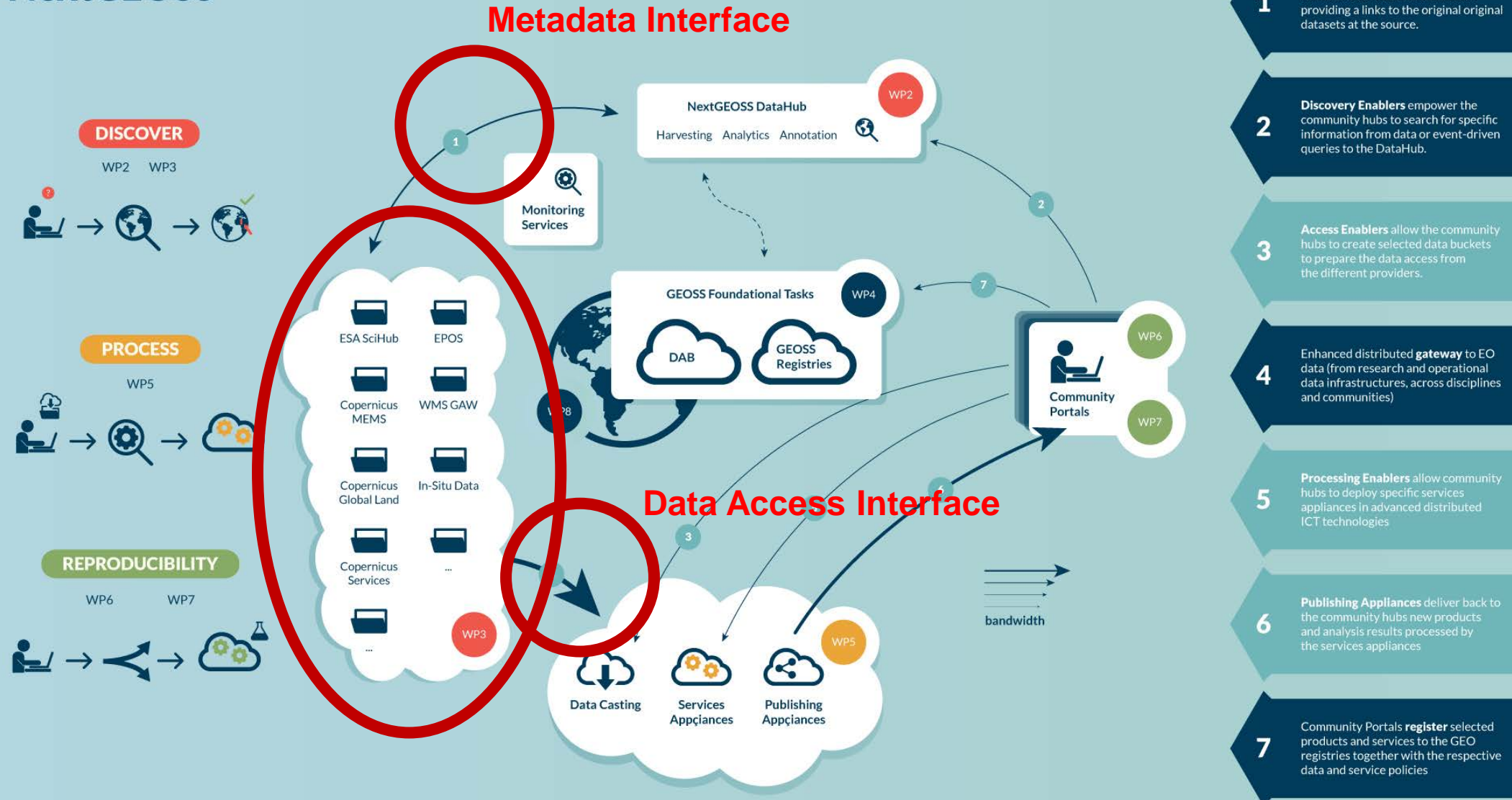
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Global Picture

NextGEOSS

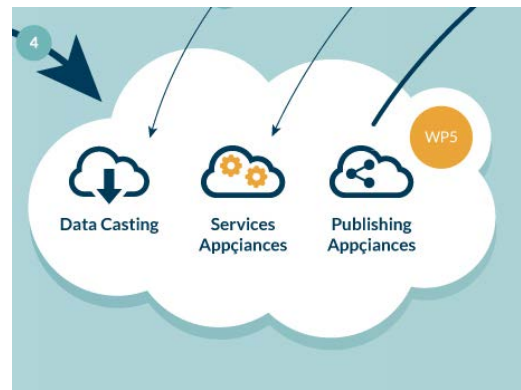


NextGEOSS Applications:

Support WP 6+7 (Pilots)

WP3 aims at supporting pilot applications.

- Innovative Research Pilots:
Agriculture / Biodiversity / Space and Security /
Air Quality in Megacities / Cold Regions
- Business Pilots
High Resolution Mapping for Territorial Planning / Crop Monitoring /
Supporting Food Security / Smart Cities / Energy



- Land
- Marine
- Atmosphere

- Access to Copernicus Sentinel data
- Land
- Marine
- Atmosphere

- Citizen Observatories
- Commercial Providers

Main tasks NextGEOSS / WP3

- Access to Copernicus Sentinel data



- Land



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

- Marine



- Atmosphere



- Citizen Observatories



**Deutsches Zentrum
für Luft- und Raumfahrt**
German Aerospace Center

- Commercial Providers



Norsk institutt for luftforskning
Norwegian Institute for Air Research



- Access to Copernicus Sentinel data (Task 3.1)
- Land (Task 3.2)
- Marine (Task 3.3)
- Atmosphere (Task 3.4)

- Citizen Observatories (Task 3.5)
- Commercial Providers (Task 3.6)

- Access to Copernicus Sentinel data (Task 3.1)
- Land (Task 3.2)
- Marine (Task 3.3)
- Atmosphere (Task 3.4)
- Citizen Observatories (Task 3.5)
- Commercial Providers (Task 3.6)
- DLR + NOA
- VITO
- CLS
- MeteoSwiss + WMO + NILU + ARMINES + DLR
- OGC + BLB
- DLR + DMI

- Access to Copernicus Sentinel data (Task 3.1)
- Land (Task 3.2)
- Marine (Task 3.3)
- Atmosphere (Task 3.4)
- Citizen Observatories (Task 3.5)
- Commercial Providers (Task 3.6)
- Andreas Müller + Haris Koentes
- Erwin Goor
- Marion Sutton
- Jörg Klausen + Geir Braathen + Markus Fiebig + Lionel Menard + Julian Meyer-Arneke
- Bart De Lathouwer + Bente L. Bye
- Gunter Schreier + José Garcia

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Main expected achievements

Main expected achievements

- Build up distributed infrastructures
- Community:
All relevant information on data must be maintained and displayed to the user: PI, measurement device and all other relevant information such as lineage
- Technical:
NextGEOSS must re-use existing techniques and extend their functionality (especially GEODAB → semantic search).

Data and metadata publication has been targeted by numerous activities in the past.

High degree of standardization has been achieved so far.

Main expected achievements



- Develop common metadata profile, common metadata access scheme and common data access scheme.
- Collaborate with WP2

Current status of NextGEOSS partners

Access to metadata via

- Web-interface
- OGC/CSW
- OAI-PMH
- ESGF (Earth System Grid Federation)

Applied metadata standards/profiles

- ISO 19115
- ISO 19115 subsets:
e.g. ISO 19115 WMO profile, WIS
approved
- OGC EO profile

Main expected achievements

- Develop common metadata and data access scheme in collaboration with WP2


Access to data via

- Web user interface
- OGC/WMS + TWMS (Geoserver / Mapserver)
- OGC/WFS (Geoserver / Mapserver)
- OGC/WCS (Geoserver / Mapserver)
- OGC/SOS (Mapserver)
- OPENDAP (THREDDS)
- RESTful interfaces ← Not standardized



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How does WMO/GAW
fit into NextGEOSS?



Thank you!
Looking forward to
collaborating with you.

Questions?

