



 **Agenda Webinar #1: Copernicus and Training for Trainers in Africa**

- General introduction and webinar objectives | 5 min. (Dr. Ali Nadir Arslan, Senior Scientist, Finnish Meteorological Institute)
- Copernicus programme overview | 20 min. (Dr. Ali Nadir Arslan, Senior Scientist, Finnish Meteorological Institute)
- Copernicus networks | 5min. (Theodora Antoniou, Information and Communication Officer at European Commission)
- Copernicus in Africa, GMES Africa | 10 min. (Meshack Kinyua, Space Applications Trainer Officer, GMES Africa)
- Questions & Answers | 10 min.
- The FPCUP Training of Trainers project | 10 min. (Dr. Carlos Gonzales-Inca, Researcher, University of Turku, Finland)
- How to participate. Project planning and next activities | 5 min. (Dr. Ali Nadir Arslan, Senior Scientist, Finnish Meteorological Institute)
- Questions & Answers | 10 min.



WORKING
GROUP
AFRICA

General Introduction and Objectives

Dr. Ali Nadir Arslan

Arctic Space Center, Finnish Meteorological Institute

May 17, 2023



WORKING
GROUP
AFRICA



GENERAL INTRODUCTION

- The FPCUP project is one specific part in the European Commissions' User Uptake Strategy setting up a Framework Partnership Agreement (FPA) for User Uptake with European Union's member states.
- The FPCUP consortium consists of 48 partners from 23 European countries.
- The objectives of FPCUP are implemented in annual work programmes with 3 Tiers:
 - Tier 1 - National user uptake
 - **Tier 2 - Global actions, including European cross border user uptake and international user uptake**
 - Tier 3 - Business solutions and innovative products and applications
- The Working Group Africa was implemented in the last working program of the FPCUP project under **Tier 2** with a joint effort of 11 national institutions of 8 European Countries,
- The Working Group Africa will be running during October 2023 – September 2024



OBJECTIVES

- The main objective of the Working Group Africa is to enhance capacities in Africa in the sector of Earth Observation (EO) from Space, in complement to other institutional efforts such as GMES & Africa.
- User engagement is a central element of user uptake. We aim at building Copernicus related capacities among interested African expert communities and networks including both private and public sectors through
 - A training of trainer's Programme
 - Webinars
- A series of interactive webinars will be organized for promoting European Union Copernicus programme capabilities in Africa.



Thank you!

COPERNICUS PROGRAMME OVERVIEW

Dr. Ali Nadir Arslan

Arctic Space Center, Finnish Meteorological Institute

May 17, 2023



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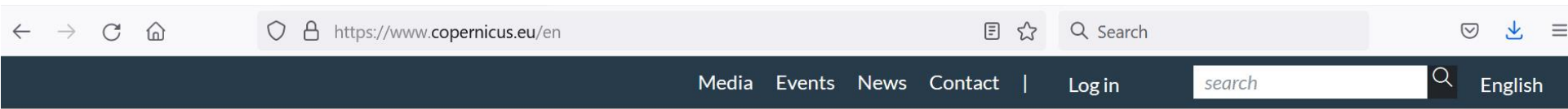


Outline

- Satellite Earth Observation and the Copernicus Program
- Program governance and components
- Data access
- Copernicus for Socio-economical development
- Copernicus and the SDGs



www.copernicus.eu



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Europe's eyes on Earth

Looking at our planet and its environment for the benefit of Europe's citizens

OBSERVER: How does Copernicus help discover, monitor and protect archaeological and cultural sites?

[View image information & credits](#)





Copernicus – the European EO programme



European Earth Observation System, led by the EU

European response to global needs:

- to manage the environment
- to mitigate the effects of climate change
- to ensure civil security



FULL, FREE AND OPEN
ACCESS TO DATA

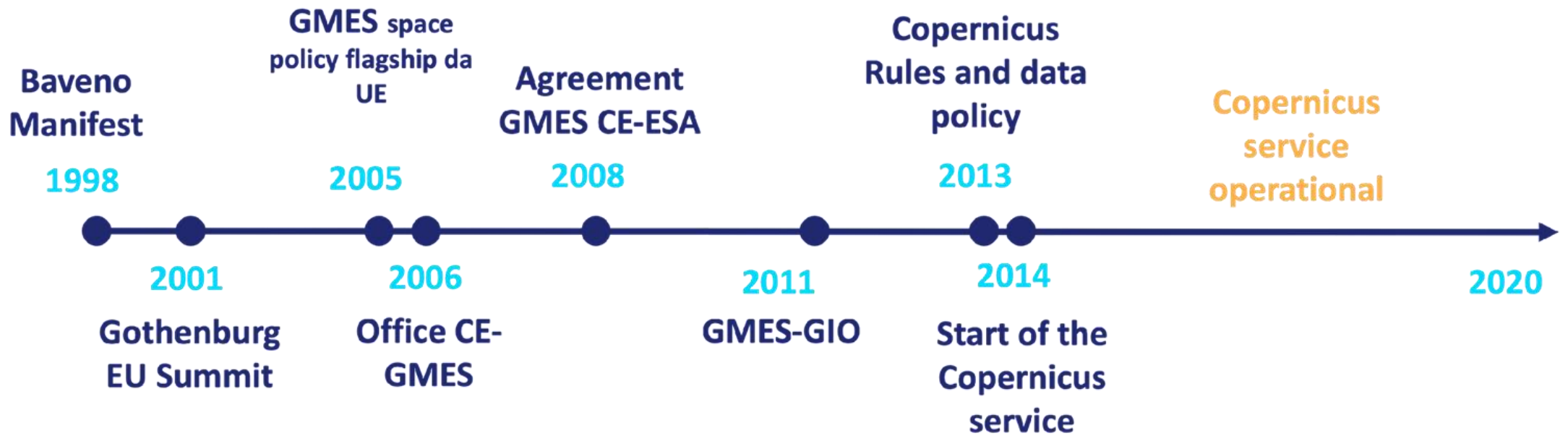


- ATMOSPHERE MONITORING
- MARINE ENVIRONMENT MONITORING
- LAND MONITORING
- CLIMATE CHANGE
- EMERGENCY MANAGEMENT
- SECURITY





COPERNICUS – brief history



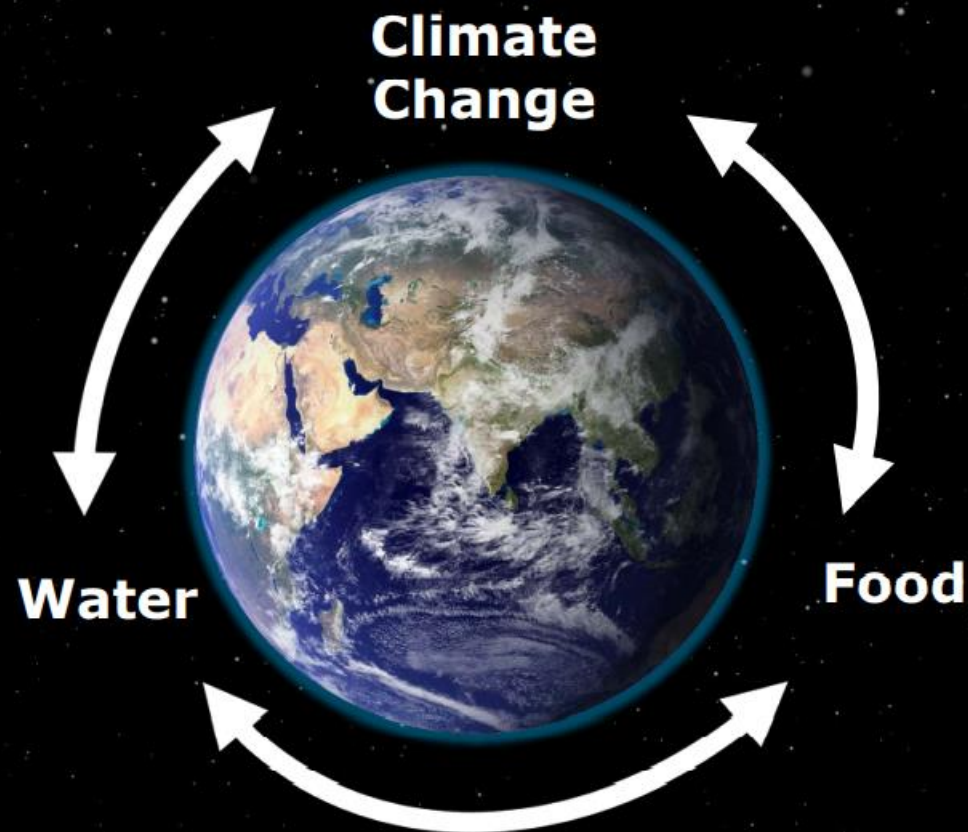
GMES > Copernicus



The 21st Century Societal Challenges



Copernicus helps
humankind to
address the
nexus of 21st
century
challenges

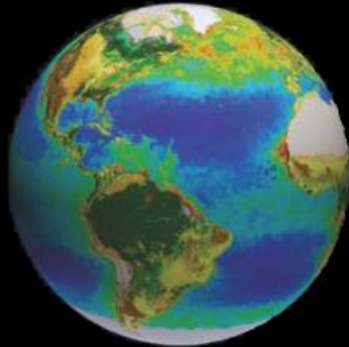




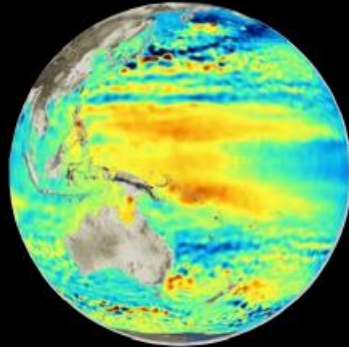
Global & System View by Copernicus



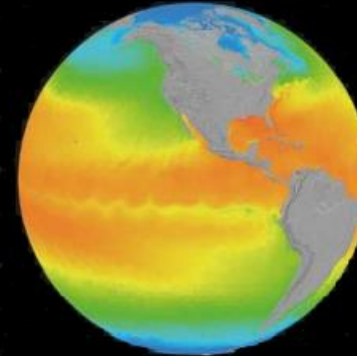
Chlorophyll



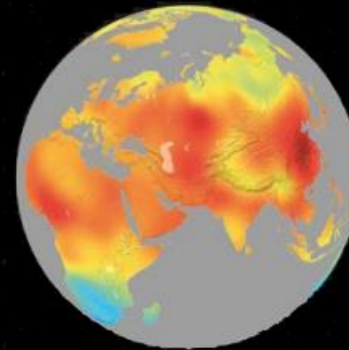
Sea Level Height



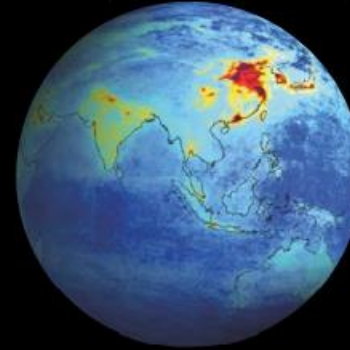
Sea Surface Temperature



Soil Moisture



Carbon Dioxide



Nitrous Oxide



Program Components

Space Component

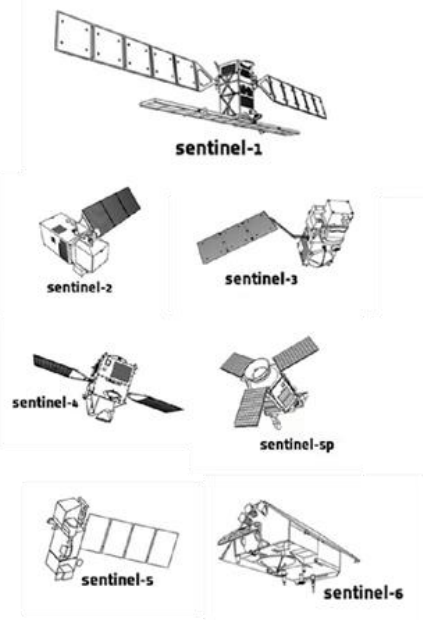


Information and operational Services



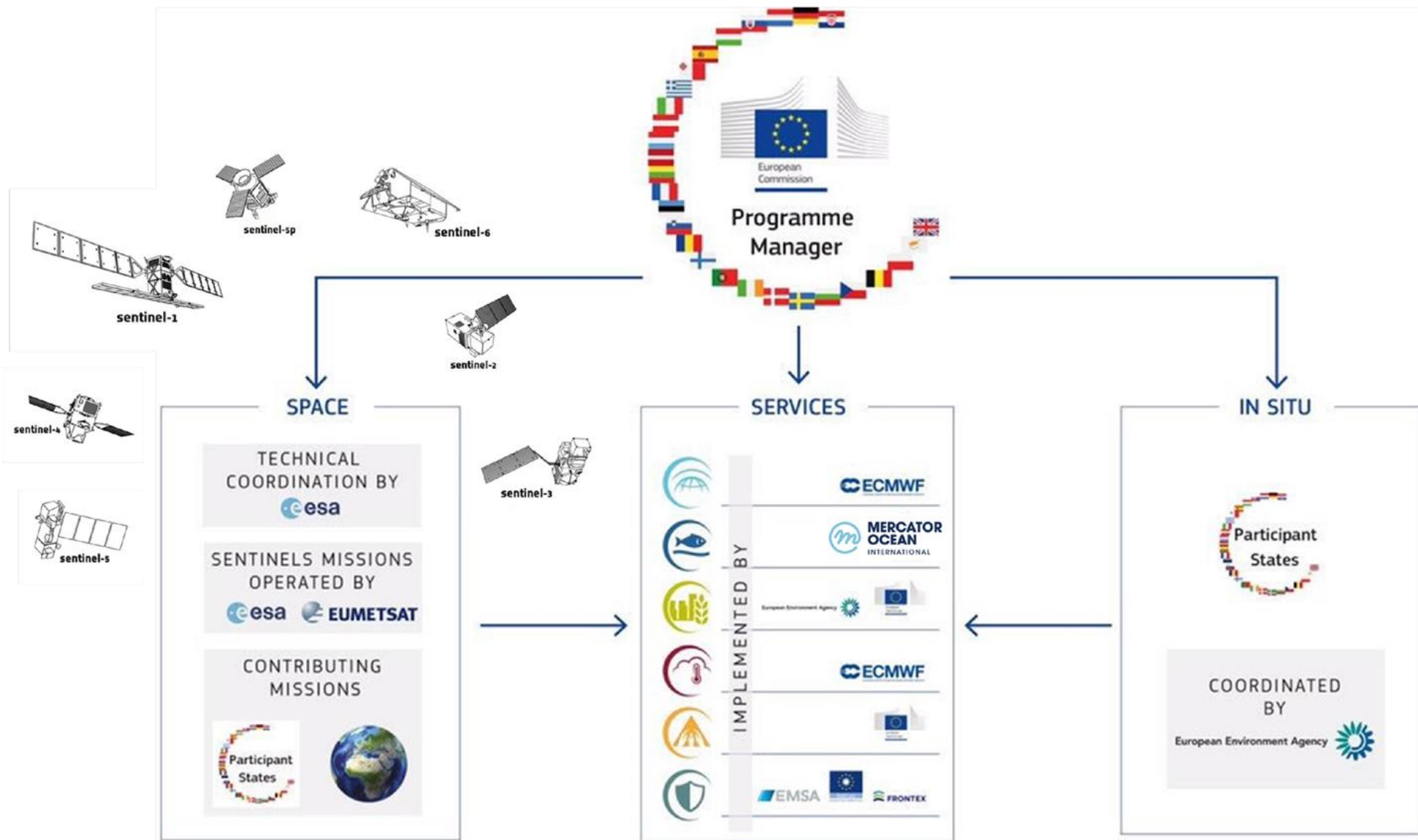
In situ component

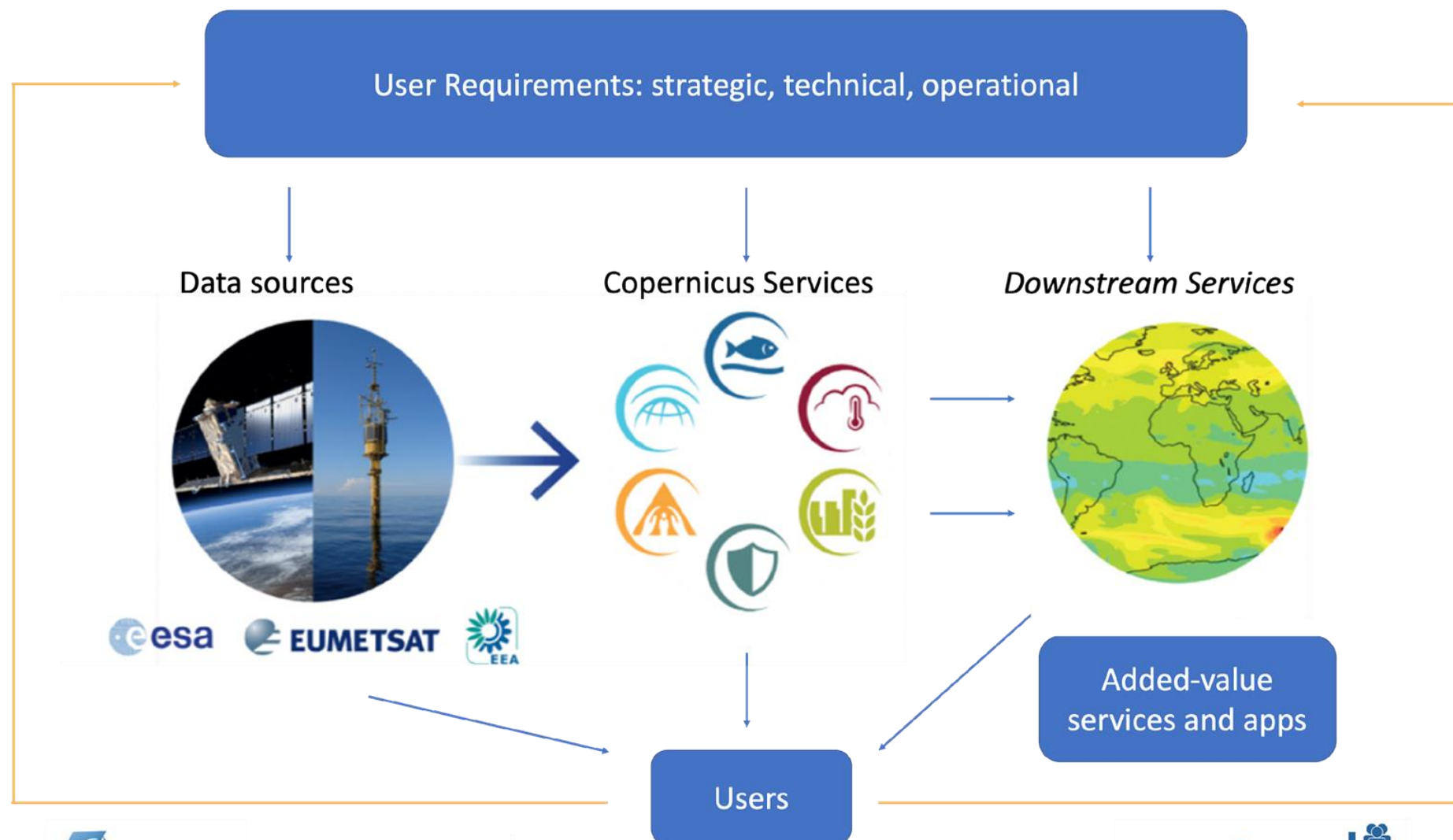
Sentinels + Contributing missions



30+ missions (public institutions or commercial)
 e.g.
 Pleiades
 Deimos-2
 TerraSAR-X
 Met-OP
 CryoSat






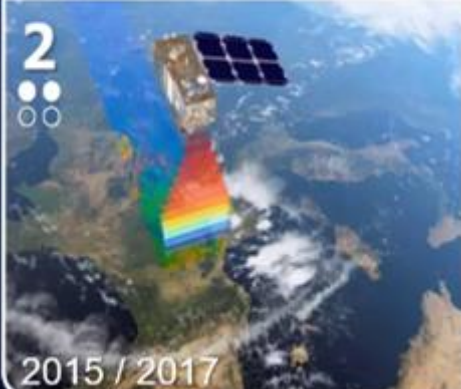





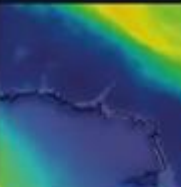
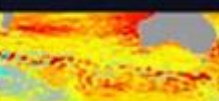








The Sentinels

 <p>1 ○○</p> <p>2014 / 2016</p>	 <p>3 ○○</p> <p>2016 / 2018</p>	 <p>5P ●</p> <p>2017</p>	 <p>5 ○○</p> <p>2025</p>	 <p>sentinel-1 → RADAR VISION</p>
 <p>2 ○○</p> <p>2015 / 2017</p>	 <p>4 ○○</p> <p>2024</p>	 <p>6 ○○</p> <p>2020</p>		 <p>sentinel-2 → COLOUR VISION</p>
				 <p>sentinel-3 → A BIGGER PICTURE</p>
				 <p>sentinel-4 → EUROPEAN AIR MONITORING</p>
				 <p>sentinel-5p sentinel-5 → GLOBAL AIR MONITORING</p>
				 <p>sentinel-6 → SURFING THE SEAS</p>



← ↻ 🔒 https://sentinels.copernicus.eu/web/sentinel/user-guides/sentinel-1-sar

Sentinel Online

Search... 🔍

🐦 📘 🌐 🗺️

Missions ▾ User Guides ▾ Technical Guides ▾ Thematic Areas ▾ Data Access ▾ Toolboxes ▾

Home / User Guides / Sentinel-1 SAR

Sentinel-1 SAR User Guide

The Sentinel-1 User Guide provides a high level description of the available instrument modes and products. It also covers an introduction to relevant application areas, information on data distribution, product formatting and software tools available from ESA.

The categories are:

- **Overview**
Gives a brief description of the mission, the data it acquires and its primary uses.
- **Applications**
Describes the support of the SENTINEL-1 mission to three GMES application areas of maritime monitoring, land monitoring and emergency management, and provides a mapping from SENTINEL-1 product to application.
- **Acquisition Modes**
Describes the SENTINEL-1 acquisition modes of [Stripmap](#), [Interferometric Wide Swath](#), [Extra Wide Swath](#), and [Wave](#)
- **Product Types and Processing Levels**
Describes the processing levels in which SENTINEL-1 products are provided - [Level-0](#), [Level-1](#), and [Level-2](#)
- **Resolutions**

USER GUIDES

- Sentinel-1 SAR
 - Overview
 - Applications
 - Acquisition Modes
 - Product Types and Processing Levels
 - Resolutions
 - Revisit and Coverage
 - Naming Conventions
 - Data Formats
 - Products and Algorithms
 - Cal/Val
 - Definitions
 - S1-SAR Document Library
- Sentinel-2 MSI
- Sentinel-3 OLCI
- Sentinel-3 SLSTR
- Sentinel-3 Synergy
- Sentinel-3 Altimetry
- Sentinel-5P TROPOMI
- Document Library



Copernicus

THE SENTINELS



SENTINEL-1:
4-40m resolution, 3 day revisit at equator



SENTINEL-2:
10-60m resolution, 5 days revisit time



SENTINEL-3:
300-1200m resolution, <2 days revisit



SENTINEL-4:
8km resolution, 60 min revisit time



SENTINEL-5p:
7-68km resolution, 1 day revisit



SENTINEL-5:
7.5-50km resolution, 1 day revisit



SENTINEL-6:
10 day revisit time

Key Features

Polar-orbiting, all-weather, day-and-night radar imaging

Polar-orbiting, multispectral optical, high-resolution imaging

Optical and altimeter mission monitoring sea and land parameters

Payload for atmosphere chemistry monitoring on MTG-S

Mission to reduce data gaps between Envisat, and Sentinel 5

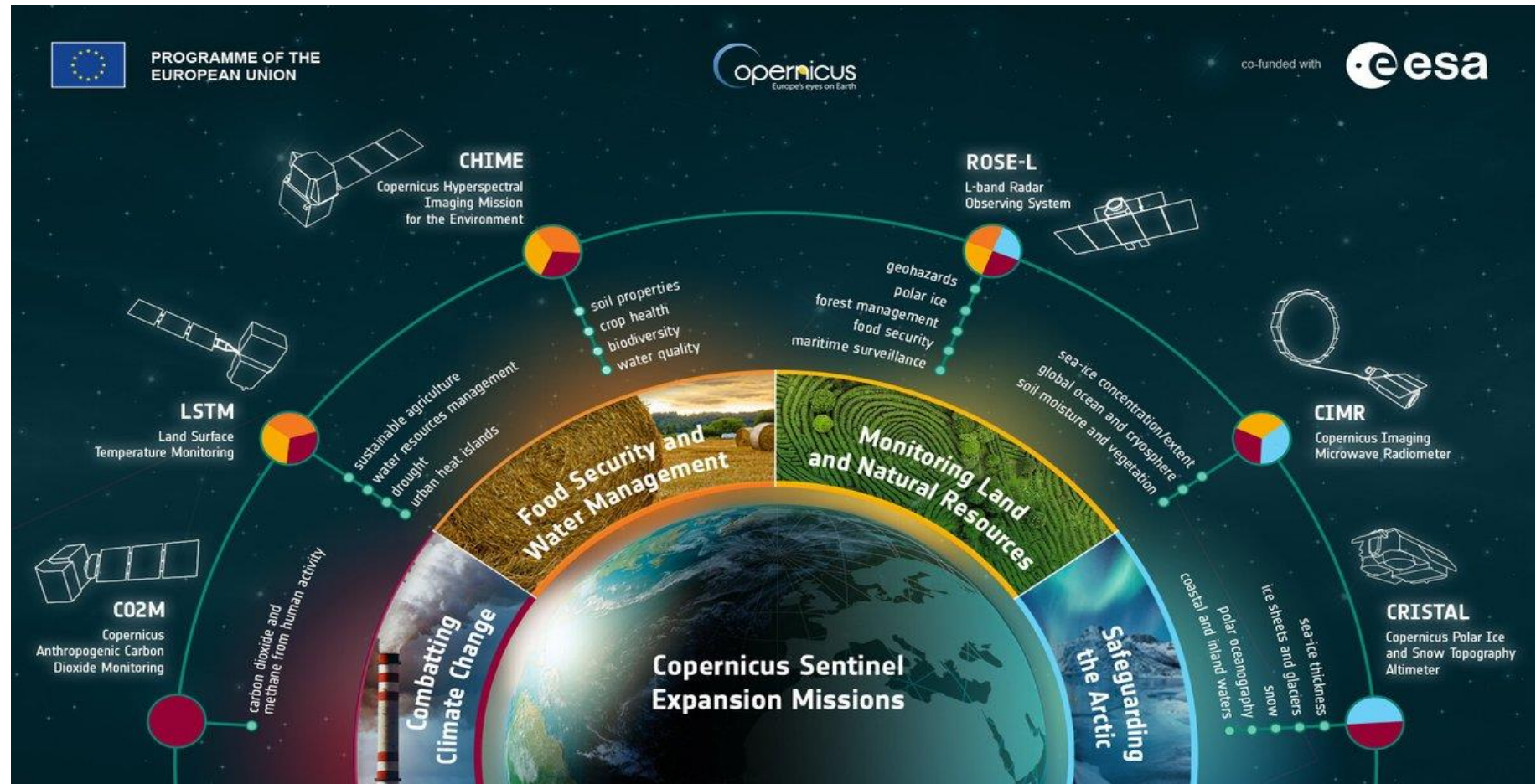
Payload for atmosphere chemistry monitoring on MetOp 2ndGen

Radar altimeter to measure sea-surface height globally



Expansion Missions

Looking to the future, six Sentinel Expansion missions are being studied to address EU policy and gaps in Copernicus user needs, and to expand the current capabilities of the Copernicus Space Component.



https://www.esa.int/Applications/Observing_the_Earth/Copernicus/Copernicus_Sentinel_Expansion_missions



Copernicus Contributing Missions





Present and Future of Copernicus

Sentinel First Generation

1. Sentinel-1: Synthetic Aperture Radar (SAR) satellite for land and ocean monitoring.

2. Sentinel-2: Multi-spectral imager for land monitoring.

3. Sentinel-3: Ocean and land monitoring satellite.

4. Sentinel-4: Atmospheric composition monitoring satellite.

5. Sentinel-5P: Atmospheric composition monitoring satellite.

6. Sentinel-6: Ocean surface topography satellite.

Copernicus Expansion Missions and Sentinel Next Generation

Includes missions like LSTM (Land Surface Temperature Monitoring), CO2M (Copernicus Carbon Dioxide Monitoring), and Sentinel-6 PR (Precision Radar Altimeter).

Commercial Earth Observation as Copernicus Contributing Missions

Includes missions like Sentinel-1A, Sentinel-1B, Sentinel-2A, Sentinel-2B, Sentinel-2C, Sentinel-2D, Sentinel-3A, Sentinel-3B, Sentinel-3C, Sentinel-3D, Sentinel-3E, Sentinel-3F, Sentinel-3G, Sentinel-3H, Sentinel-3I, Sentinel-3J, Sentinel-3K, Sentinel-3L, Sentinel-3M, Sentinel-3N, Sentinel-3O, Sentinel-3P, Sentinel-3Q, Sentinel-3R, Sentinel-3S, Sentinel-3T, Sentinel-3U, Sentinel-3V, Sentinel-3W, Sentinel-3X, Sentinel-3Y, Sentinel-3Z.

New Space Constellations Complementing the System of Systems

Includes Constellation of Medium Satellites (CCM), Earth Explorers, Scouts, HAPS, IoT, Drones, Constellations, FSSCat, and Sentinel-1.

System of Systems

Includes Sentinel-1, Sentinel-2, Sentinel-3, Sentinel-4, Sentinel-5P, Sentinel-6, CCM and TPM, Earth Explorers, Scouts, HAPS, IoT, Drones, Constellations, FSSCat, and Sentinel-1.



Copernicus

COPERNICUS SERVICES

Monitoring the State of the Earth System Environment ...

Land Monitoring

Marine Environment Monitoring

Climate Change

Atmosphere Monitoring

Emergency Management

Security

... Six cross-cutting Thematic Services



Land
Monitoring



Benefit areas and products examples

Ecosystems

Biodiversity

Agriculture

Forestry

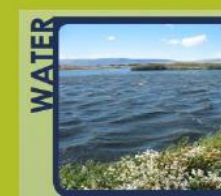
Energy

Natural Resources

Water

Urban planning

Global



Pan-European



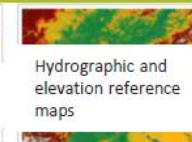
Image Mosaics



CORINE Land Cover



High Resolution Layers



Reference Data



Related Pan-European products

Local



Urban Atlas



Riparian Zones



Natura 2000 (N2K)



Marine
Monitoring

Benefit areas and products examples

Marine safety

Marine resources

Coastal and marine environment

Climate and meteorological forecasting

Other: Transport, Tourism, Environment, Pollution, Energy, etc.



Sea Level

Ocean Salinity

Ocean Temperature

Sea Ice

Wind

Ocean Currents

Ocean Colour / Biogeochemistry
(e.g. optics, chlorophyll, biology, chemistry)

11





Atmosphere
Monitoring

Benefit areas and products examples

Health

Air Quality and Atmospheric Composition



Environment

Climate forcing



Pollution

Ozone layer & UV



Climate

Solar radiation



Renewable Energy

Emissions and surface fluxes





Climate Change



Benefit areas and products examples

Climate change

Mitigation and adaptation

Weather forecast

Pollution

Environment

Health

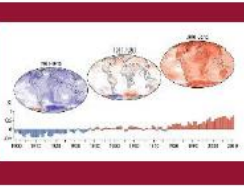
Consistent Estimates of the Essential Climate Variables (ECVs)



Support to Mitigation and Adaptation Strategies



Global and Regional Reanalyses



Seasonal Forecasts And Climate Projections





Benefit areas and products examples

**Disaster
Emergency
Situations**

**Humanitarian
Crises**



Risk & Recovery Mapping:

- Reference Maps
- Pre-disaster Situation Maps
- Post-disaster Situation Maps

Rapid Mapping:

- Reference Maps
- Delineation Maps
- Grading Maps

Early Warning:

- Floods: EFAS
- Forest Fires: EFFIS

EFAS = European Flood Awareness System;
EFFIS=European Forest Fire Information System



Security

Benefit areas and products examples

Border Surveillance

- Coastal monitoring
- Pre-frontier monitoring
- Reference mapping



Maritime Surveillance

- Maritime surveillance of an area of interest
- Vessel detection
- Vessel tracking and reporting
- Vessel anomaly detection



Support to EU External Action

- Road network status assessment
- Conflict damage assessment
- Critical infrastructure analysis
- Reference map
- Support to evacuation plans
- Crisis situation map
- Border map
- Camp analysis





- ❑ Copernicus Services - <https://www.copernicus.eu/en/copernicus-services>
- ❑ Access to Data - <https://www.copernicus.eu/en/access-data>
- ❑ Library - <https://www.copernicus.eu/en/library/library>
- ❑ Use Cases - <https://www.copernicus.eu/en/use-cases>

Agriculture

Blue Economy

Climate Change

Dev. & Cooperation

Energy & Natural Res.

Forestry

Health

Insurance & Disaster Mgt

Security & Defence

Urban Planning

Advanced search by country >



The NEW COPERNICUS DATA SPACE ECOSYSTEM

https://dataspace.copernicus.eu



News Events About



EXPLORE DATA

ANALYSE DATA

ECOSYSTEM

SUPPORT

LOGIN

Jupyter Notebooks

The Jupyter Notebooks service is a web-based environment that allows you to immediately start working with the Copernicus Data Space Ecosystem data and APIs.

Jupyter Notebooks will be available as from July 2023.

Easy data discovery, visualization and download

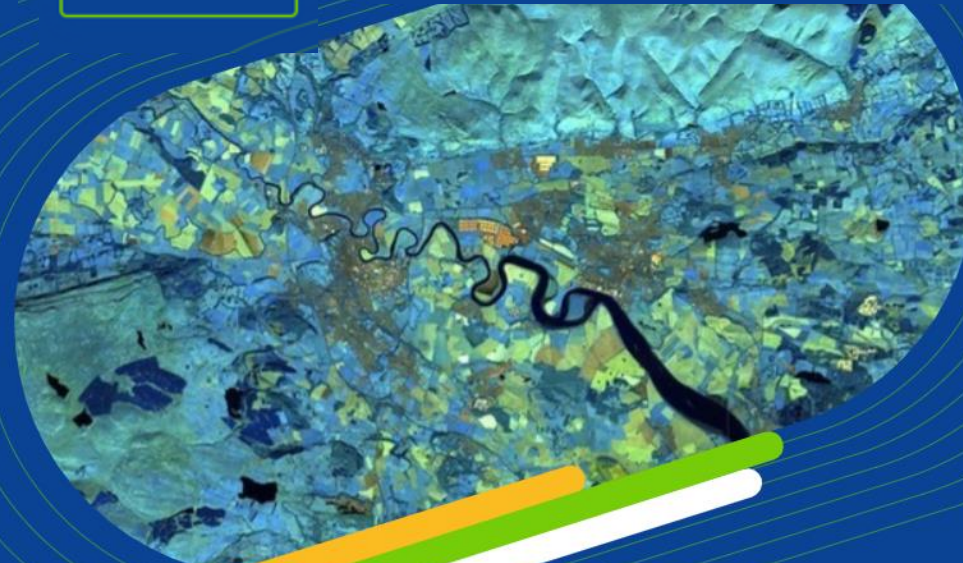
Explore and engage with satellite imagery, using our user-friendly and intuitive browser. The browser is open to all and easy to navigate. You can easily search, visualize and download satellite data, and much more.

DISCOVER THE BROWSER

- APIs
- Data
- Workspace
- Traceability
- Jupyter Hub
- openEO editor

Ecosystem

The Copernicus Data Space Ecosystem is the next step in the evolution of Earth observation data access. The Ecosystem aims to gather tools and resources to unlock the full potential of this data. This allows to build a thriving, open and expanding Ecosystem to increase the impact of Earth Observation data for a sustainable society.



<https://dataspace.copernicus.eu/>

Browser

VISUALIZE | SEARCH

SENTINEL-1 Filters →

SENTINEL-2 Filters →

MSI

- L1C
- L2A
- L2AP

100%

S2A ✕ S2B ✕

SENTINEL-3 Filters →

SENTINEL-5P Filters →

TIME RANGE:

From: 2023-04-16 hh 00 : mm 00

Until: 2023-05-16 hh 23 : mm 59

Filter by months

Search

SENTINEL-2

SATELLITE PLATFORM *i*

S2A S2B

RELATIVE ORBIT NUMBER *i*

1-143

RESET FILTERS

EXPLORE DATA

Copernicus Browser

Data collections



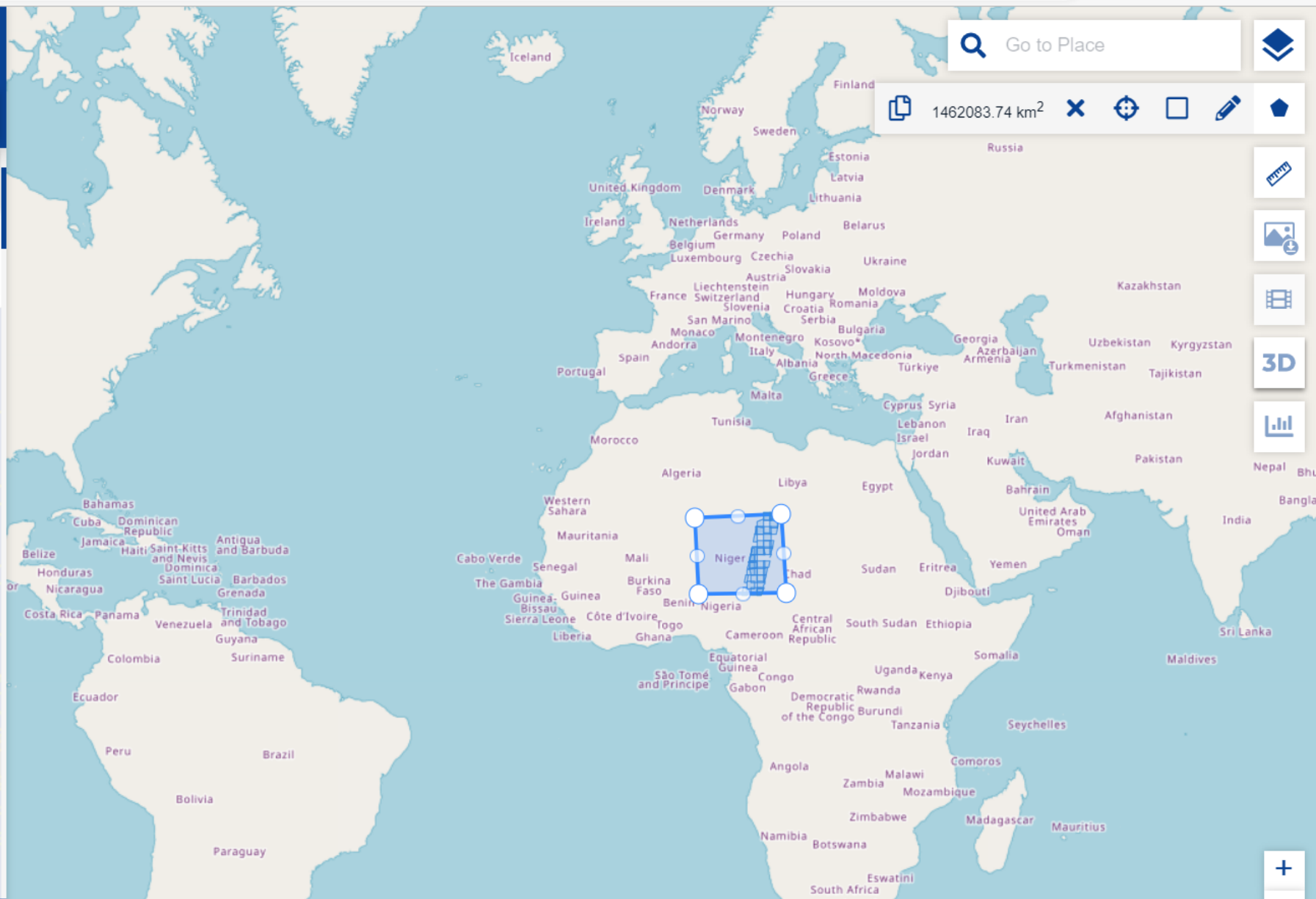
Browser

[Login](#)

VISUALIZE SEARCH

[Go to search](#) Showing 50 results of 3664

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Sensing time: 2023-05-16T09:25:59.024Z
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[Visualize](#) [SENTINEL-2](#) [MSI](#) [S2MSI2A](#) [i](#) [+](#) [↓](#)
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Socio-economic benefits

- ✓ **Significant socio-economic impact**
- ✓ **Booster of research and innovation**, also promoting qualified employment and numerous **business opportunities**.
- ✓ Support for major societal challenges such as **climate change, natural disasters or border control**.
- ✓ Between **2017 and 2035**, Copernicus is expected to generate EUR 67 to 131 billion of benefits for European society, which is **ten to twenty times the cost of the programme**.
- ✓ **More than 80% of the benefits are expected to be generated outside the space sector**, through the exploitation of Copernicus data in other parts of the economy (agriculture, fisheries, insurance, air quality...).





Copernicus and the sustainable development goals

SGD15 – Life on Land: 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial resources and terrestrial freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands [...]

SGD14 – Life below water: 14.4 By 2020, effectively regulate catch and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans [...]

SGD13 – Climate action: 13.3 improve education, awareness raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

SGD11 – Sustainable cities and communities: 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage.

SGD2 – Zero hunger: 2.4 By 2030, ensure sustainable food production systems and implement agricultural practices [...]

SGD3 – Good health and well-being: 3.d Strengthen the capacity of all countries, particularly developing countries, for early warning, risk reduction and management of national and global health risks.

SGD6 – Clean water and sanitation: 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

SGD7 – Affordable and clean energy: 7.3 Double the overall rate of improvement in energy efficiency by 2030





THANK YOU!

Contact: ali.nadir.arслан@fmi.fi



PROGRAMME OF THE
EUROPEAN UNION

Copernicus
Europe's eye on Earth



European
Commission

The Copernicus Academy & Relays Networks

The goal of the Networks is to spread awareness about Copernicus and bridge existing knowledge gaps

Launched in 2017, the Copernicus Networks work to **spread awareness and knowledge about Copernicus**, the Earth observation component of the EU Space Programme, across and outside the EU

The Networks act as a **bridge between Copernicus and its users**, contributing to the **wider adoption and effective utilisation of Copernicus data** to unlock **socio-economic benefits**

The Copernicus Networks have **two main components**, working together to boost Copernicus adoption



The Academy gathers educational institutions focused on bridging the gap between research and business

Overview



A network of educational and research institutions aiming to **develop and enhance the knowledge and skills** of students, researchers and professional **in the Earth Observation domain**



Education and training: educational programs, courses and training opportunities to support a skilled workforce capable of leveraging Copernicus data



Research and innovation: research collaborations and provides opportunities for researchers to engage in Earth observation-related studies

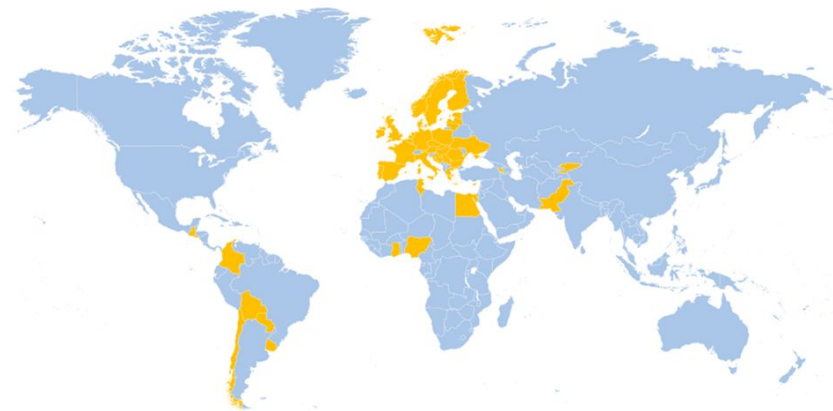


Capacity building: capacity building initiatives, enabling individuals and organisations to effectively access and utilise Copernicus data and services

The Academy in numbers



Geographic coverage



The Relays gather public and private organisations to foster new applications based on Copernicus data

Overview



A network of regional and national organisations aiming to **foster the development innovative applications and business models based on Copernicus data** and disseminate information about Copernicus and its services



Awareness and outreach: events to promote Copernicus benefits and applications among businesses, public authorities and research institutions



User support and guidance: support and guidance, helping users navigate through the available data and services, and offering technical assistance as needed

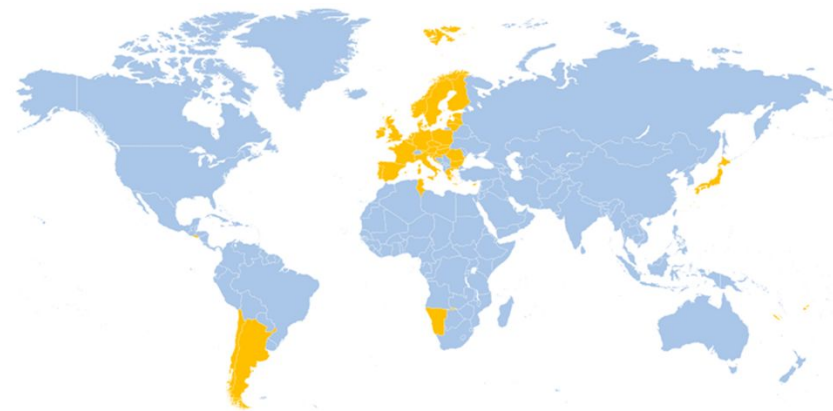


Collaboration and networking: activities to connect users with relevant partners and foster knowledge exchange at national and international level

The Relays in numbers



Geographic coverage



Being part of the Copernicus Networks provides access to extensive benefits and dedicated support

In their role of bridge between Copernicus and its end users, **members of the networks receive extensive support and have access to a wide range of benefits**, including access to knowledge, events and visibility

The Academy and Relays also offer a **direct link to a wide network of EO experts**, facilitating **new collaborations** and partnerships, **knowledge sharing** and the development of **synergies**



The Copernicus Academy fostered the partnerships that resulted in the birth of the EO4GEO alliance



The **EO4GEO Alliance** brings together geo-spatial organizations and universities across Europe, to **bridge the skills gap between the supply and demand of education and training in the space/geospatial sectors**

The Alliance is a follow-up to the EO4GEO project, which was spearheaded by many members of the Copernicus Academy

Its most recent success involves the launch of **SPACE4GEO**, a new **Large Scale Partnership under the Pact for Skills initiative** that aims to supply the skills needed to achieve the goals of the EU space strategy for security and defense



Members of the Copernicus Networks are making a difference for the Spanish olive sector

innolivar
COMPRAS PÚBLICAS PRECOMERCIALES
INNOVACIÓN Y TECNIFICACIÓN DEL OLIVAR



Together with several Spanish companies, the Photogrammetric and Topometric Research Group – University of Jaén (Spain) developed the **Innolivar** project, which **helps the olive grove sector with the detection of soil erosion**

Coming **from the direct request of the Spanish olive sector**, Innolivar is developed through **public-private collaboration** to obtain innovative products and services within the fields of mechanisation, environment and biotechnology, industry and traceability

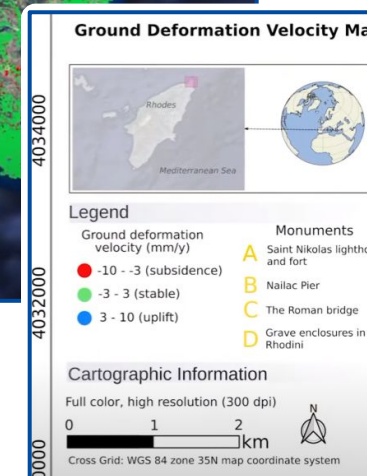
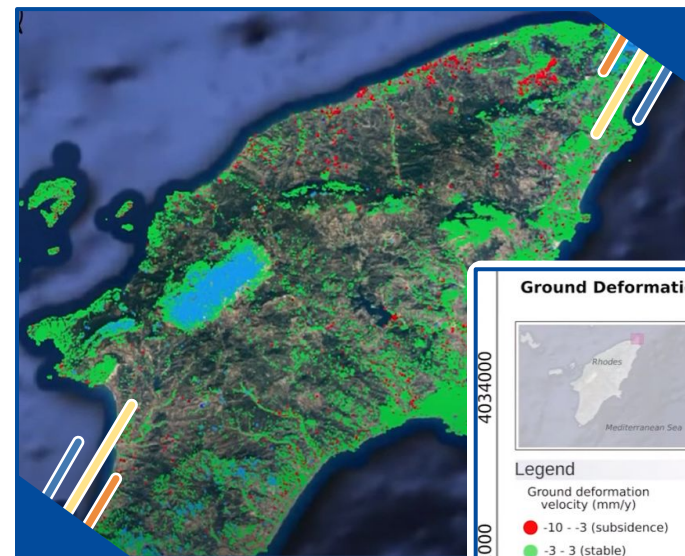
The Copernicus Networks are helping to monitor soil deformation in Rhodes to preserve cultural heritage



The **UNESCO Earth Futures Festival** selected **Eurisy's video on Copernicus data to safeguard Rhodes' cultural heritage** as one of the finalists of the competition

The video detailed how the high-resolution satellite imagery and precise geospatial data provided by Copernicus allow scientists and conservationists to **detect and measure small changes in the terrain surrounding Rhodes' archaeological sites**

This early detection system serves as an invaluable tool for **pre-emptive measures**, ensuring the longevity of these iconic landmarks. By leveraging this technology, the conservation efforts in Rhodes have not only improved monument preservation but also shed light on the potential of Copernicus data in cultural heritage management.



Join the networks!



COPERNICUS & TRAINING FOR TRAINERS IN AFRICA

FPCUP- Working Group Africa
Webinar



**GMES
AND AFRICA**



GMES and Africa is a Joint Support Programme of the African Union Commission and the European Commission

Space and Agenda 2063

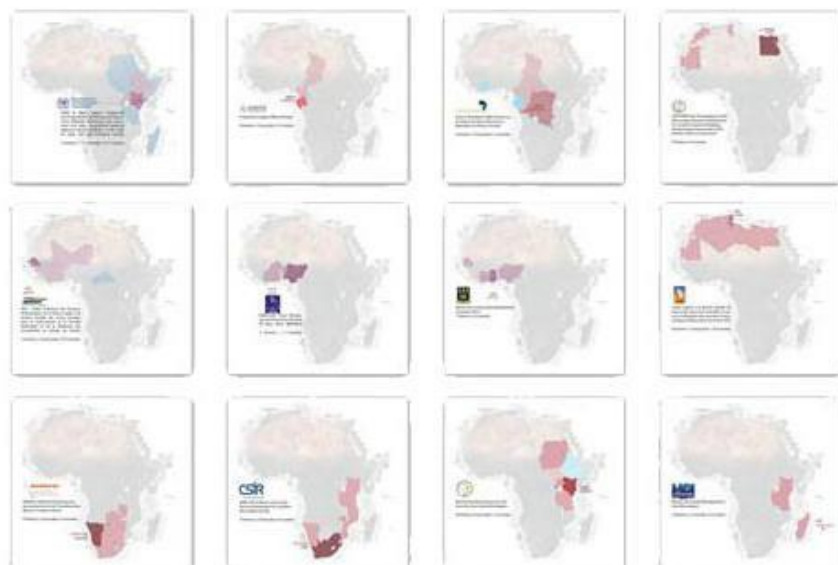
THE
7 Agenda
2063
ASPIRATIONS

African Union



NEPAD
TRANSFORMING AFRICA
AFRICAN UNION DEVELOPMENT AGENDA 2063





WESTERN AFRICA

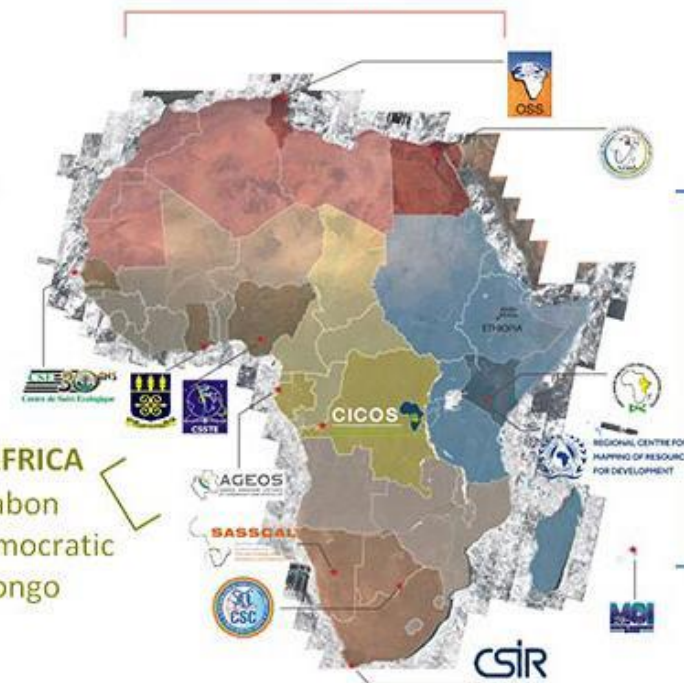
- CSE-Senegal
- UoG-Ghana
- CSSTE-Nigeria

CENTRAL AFRICA

- AGEOS-Gabon
- CICOS-Democratic Rep. Of Congo

NORTHERN AFRICA

- OSS-Tunisia
- NARSS-Egypt



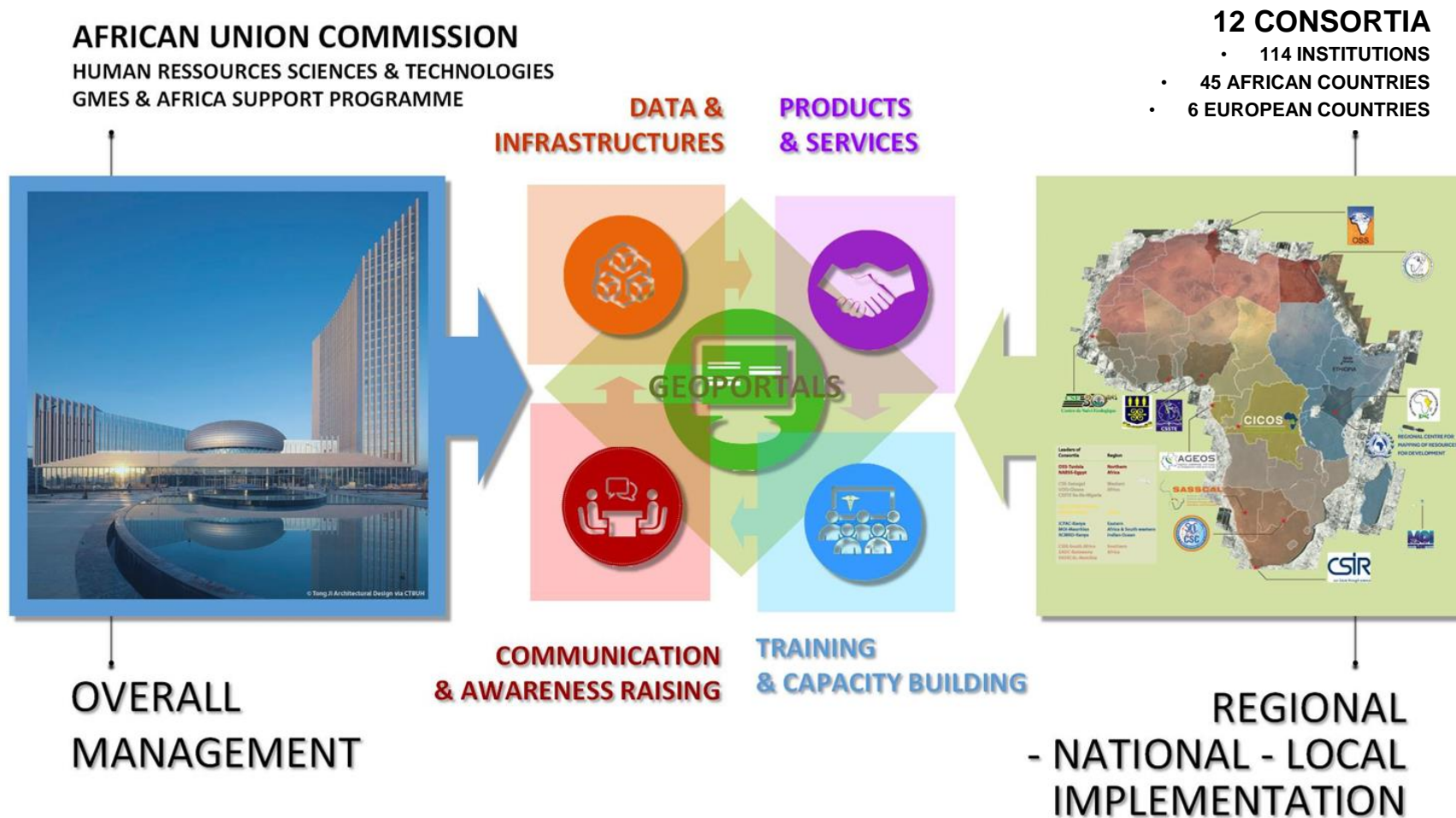
**EASTERN AFRICA
& SOUTH WEST OF
INDIAN OCEAN**

- ICPAC-Kenya
- MOI-Mauritius
- RCMRD-Kenya

SOUTHERN AFRICA

- CSIR-South Africa
- SASSCAL Namibia





8 Marine and Coastal Applications



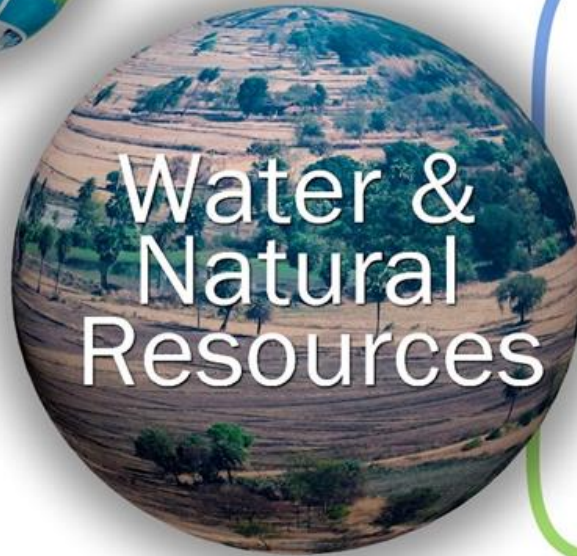
**GMES
AND AFRICA**

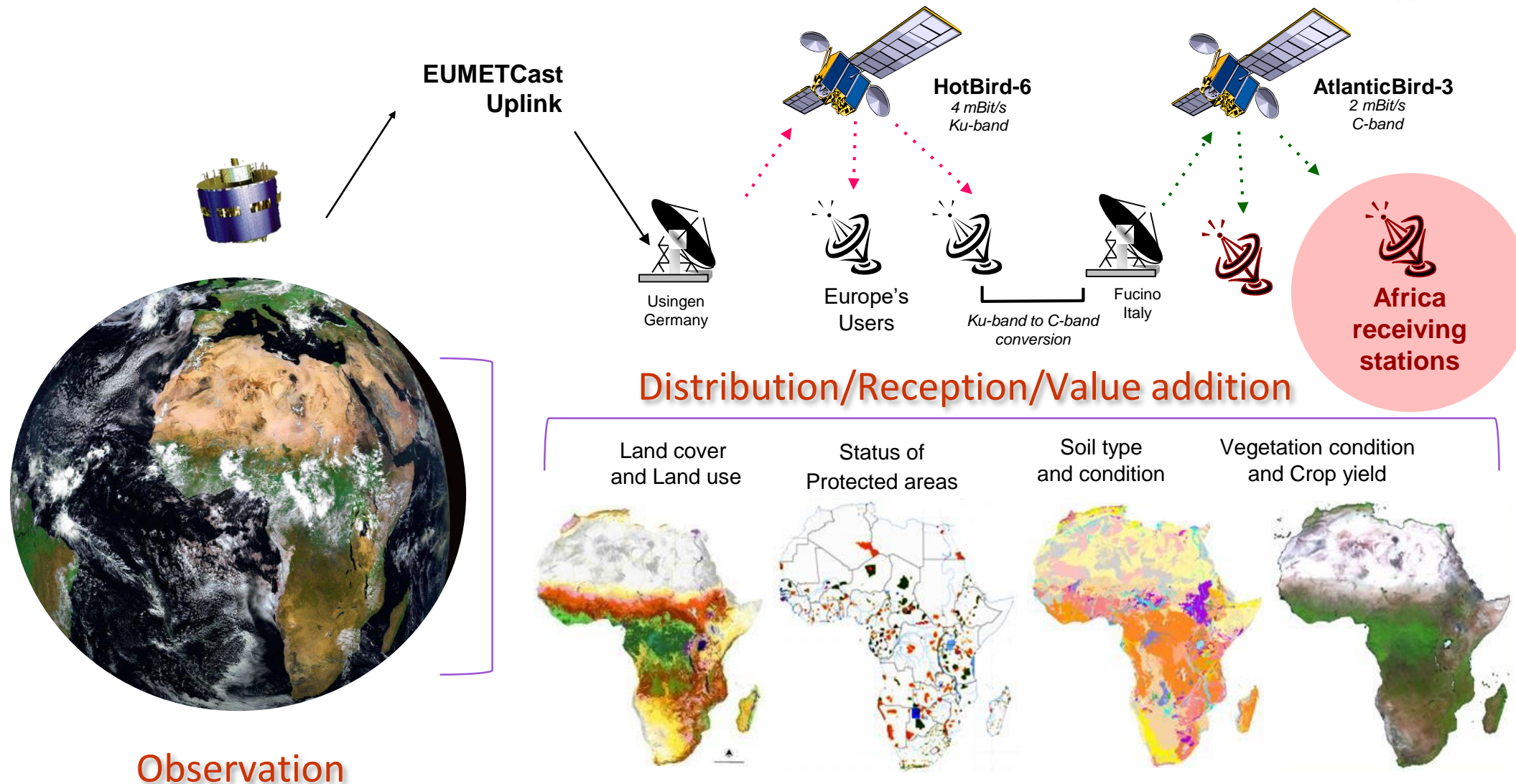


15 Land and Water Applications



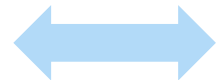
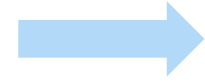
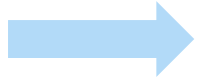
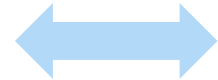
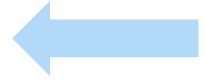
**GEMS
AND AFRICA**

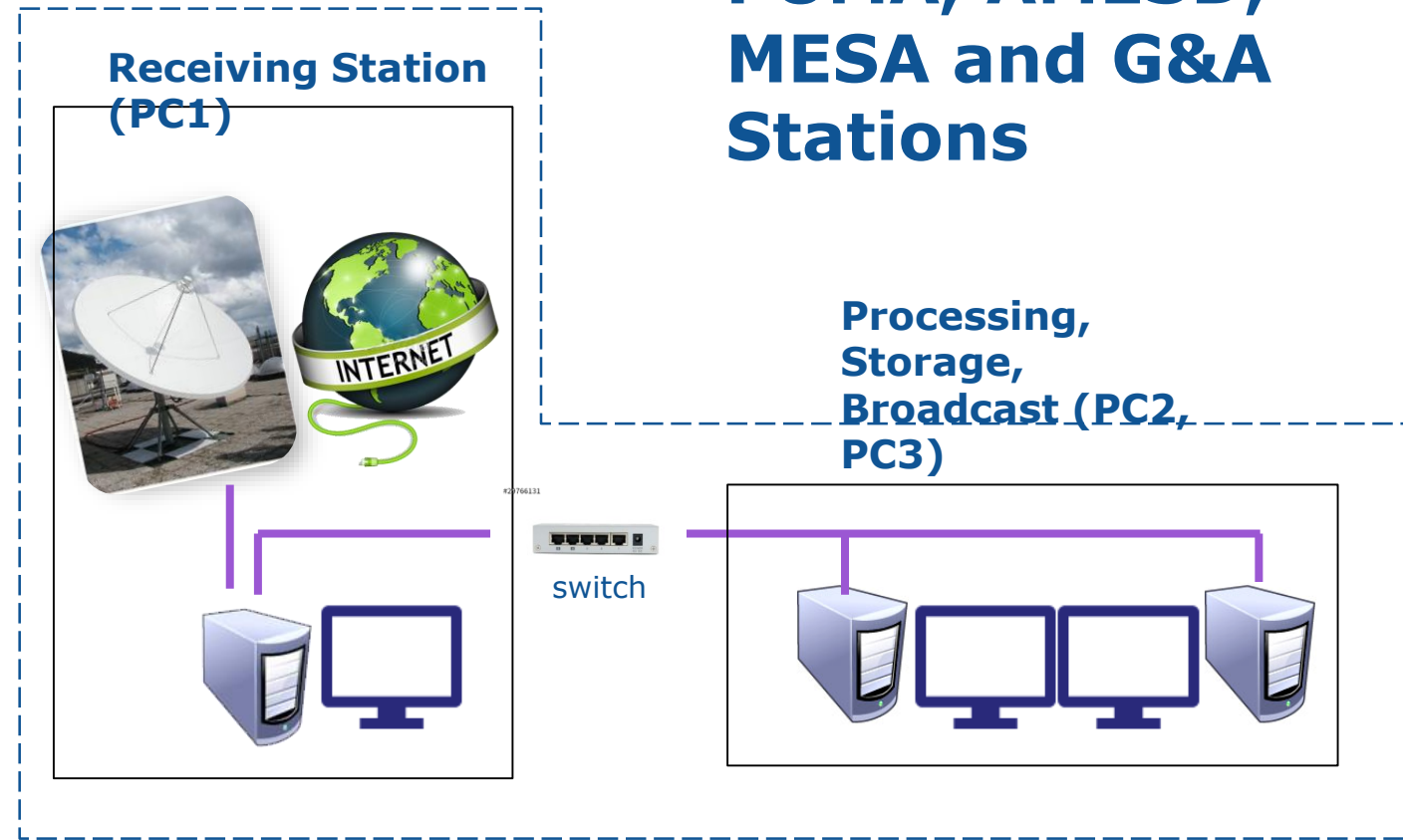




THE G&A RECEIVING STATION

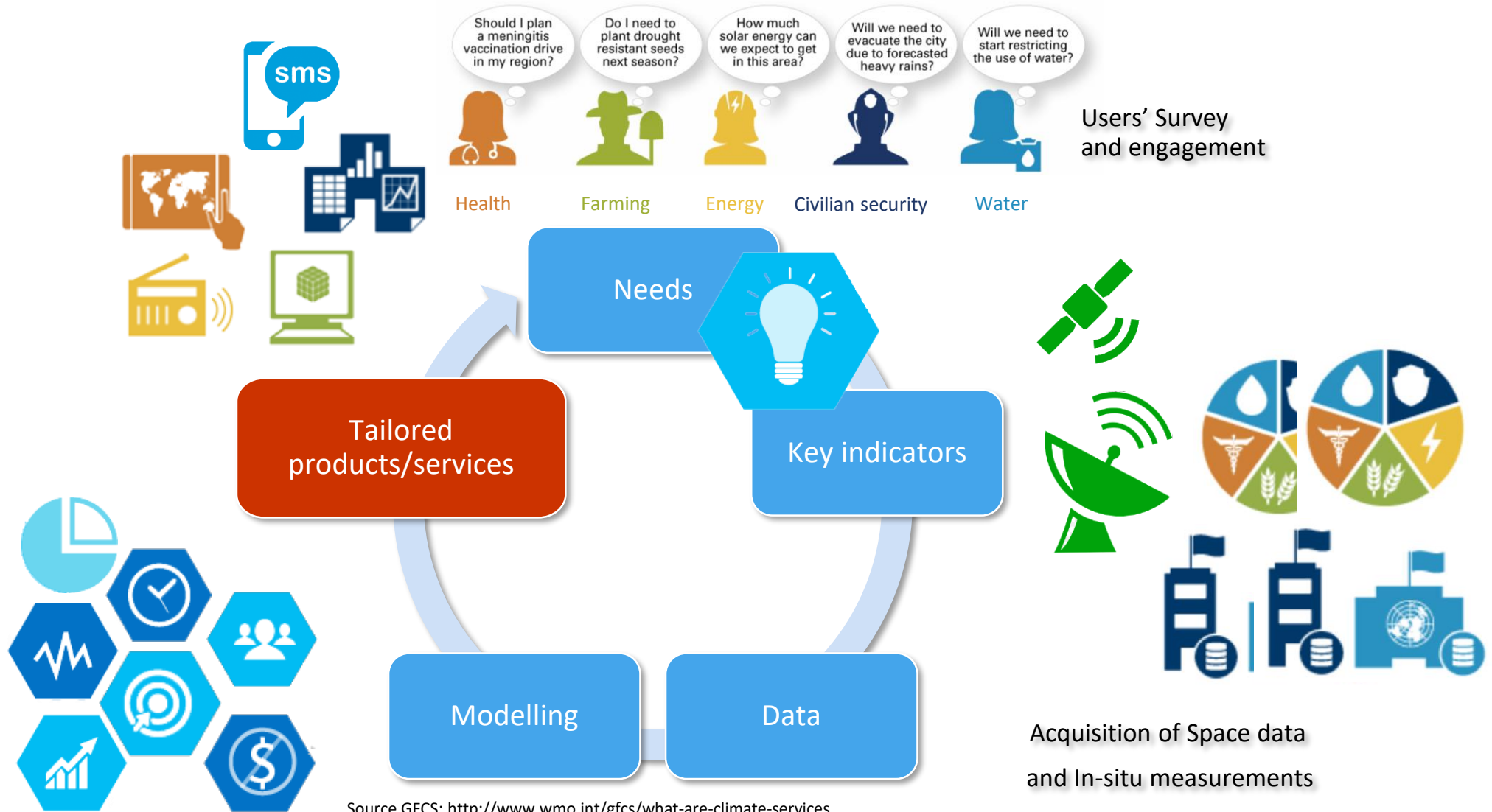
GMES & Africa landscape

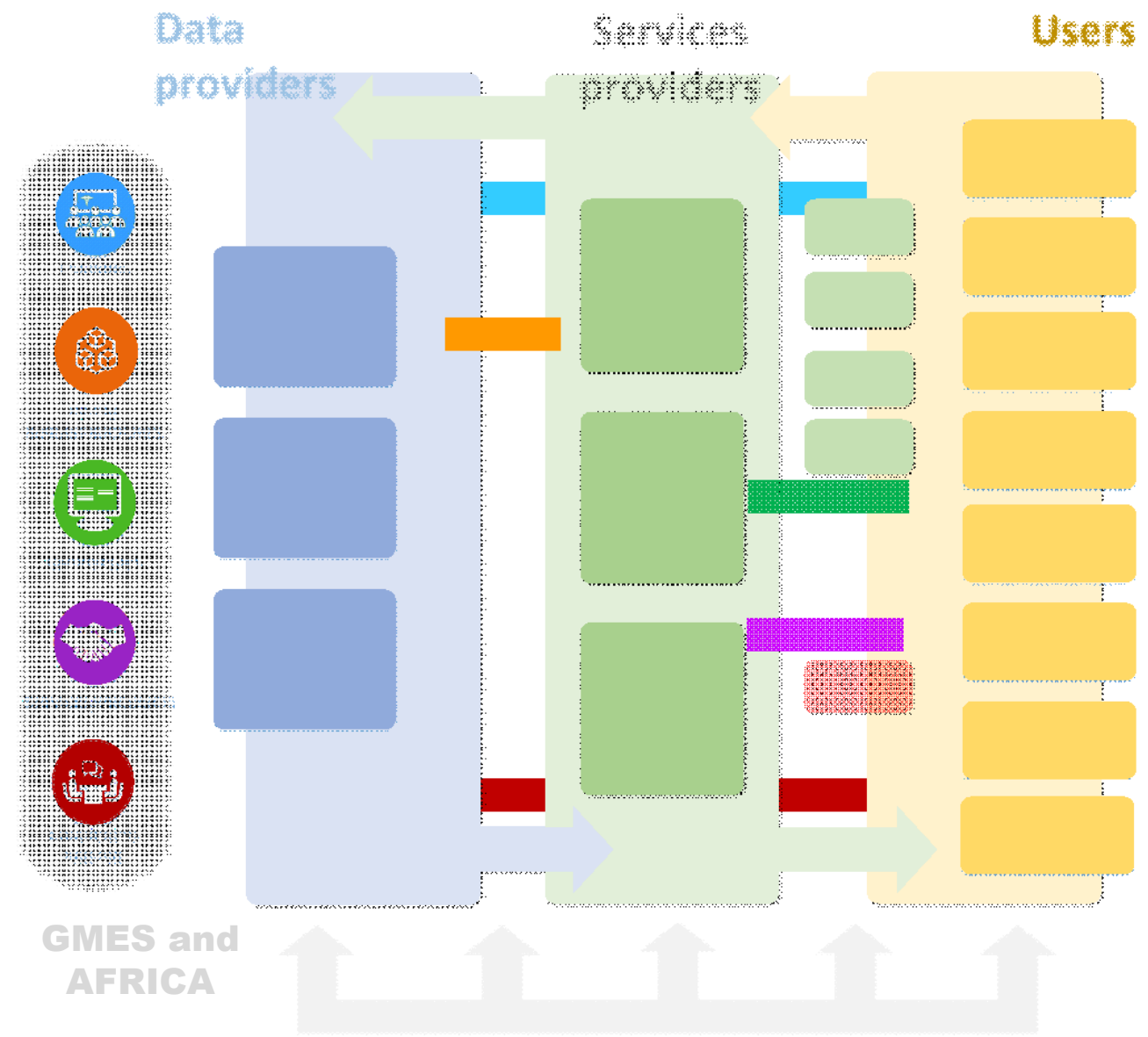
- EUMETCast 
- DATA HUB 
- IN SITU DATA 
- CLOUDS 
- GEOPORTALS 



PUMA, AMESD, MESA and G&A Stations

Processing, Storage, Broadcast (PC2, PC3)







THE EXISTING ECOSYSTEM*

GMES & Africa landscape



GMES AND AFRICA



188
RECEIVING
STATIONS



1000
TRAINED
EXPERTS

* From precursors: AMESD and MESA

African Union



Co-funded by the European Union



GMES AND AFRICA IS AN APPLICATION OF COPERNICUS TO AFRICA

Maputo, 7th EUMETSAT User Forum

- Maputo Declaration, requesting the extension of the GMES initiative to Africa

Oct. 2006

Lisbon, EU-Africa Summit

- Government entities and European and African organizations agreed on a working together to submit the "Action Plan for the GMES & Africa Partnership"

Dec. 2007

Lisbon, Space Troika

- The GMES and Africa thematic will address the Marine and Coastal Areas, Water Resources Management, Natural Resources Management

Jan. 2012

Brussels, EU Africa Summit

- Arrangement for the development of a long-term cooperation in the area of Earth Observation

Apr. 2014

Brazzaville

- Signatures of the AU and the EU for the implementation of the Programme

Dec. 2016

Addis Ababa, African Union Commission

- Kickoff of the G&A Support Programme

Feb. 2017



GMES
AND AFRICA

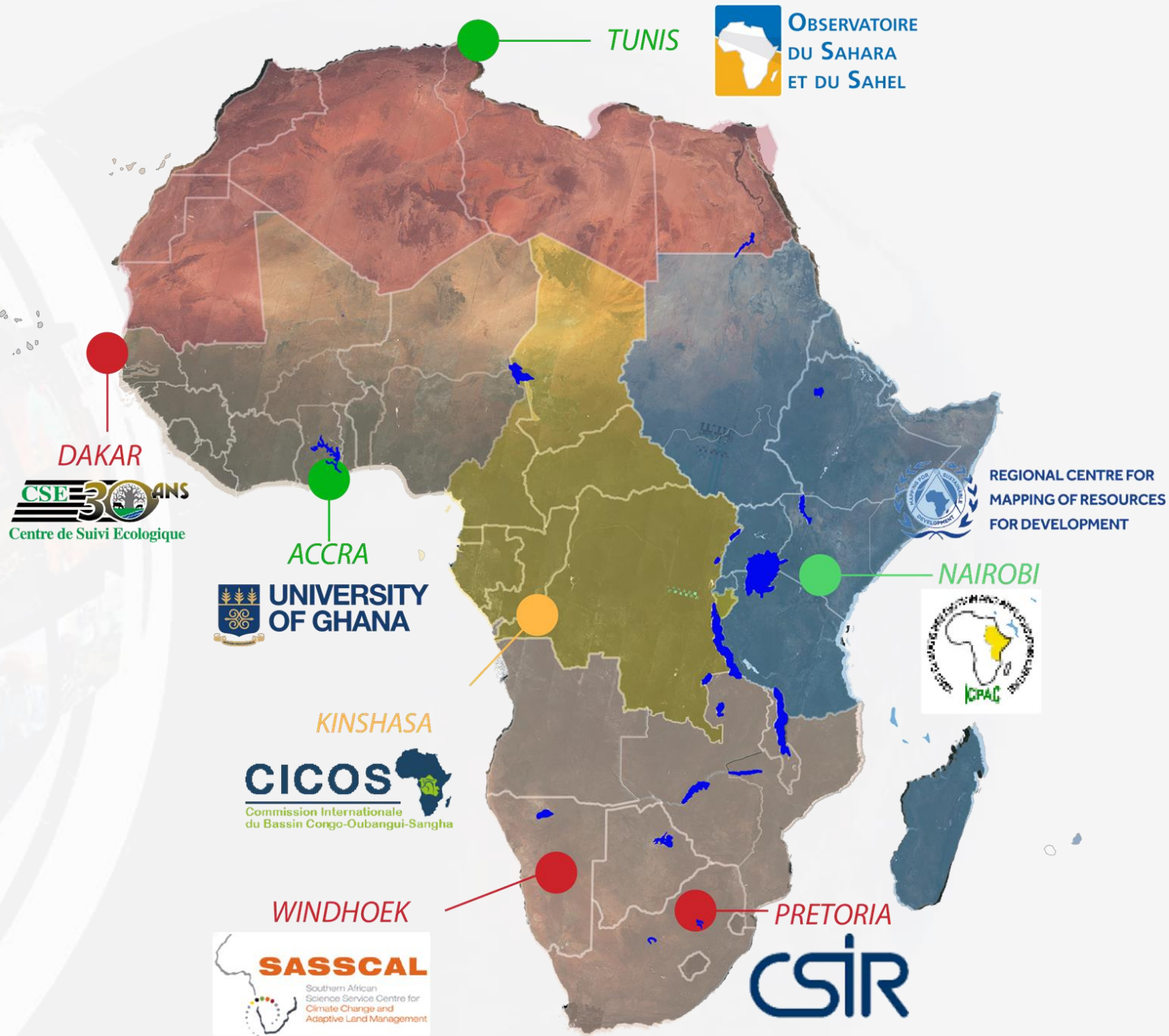




JUNE 2018, COPERNICUS SERVICES ARE MADE AVAILABLE FREE OF CHARGE TO AFRICAN USERS



Some of the current G&A financed consortia have applied to become Copernicus data hubs



Copernicus services are “Africanized” through the G&A financed consortia, and disseminated through 8 geoportals

CSE (Dakar)

1 Geoportal

<http://gdzhao.gmes.cse.sn/>

(Water & Natural Resources)

(Western Africa)

OSS (Tunis)

2 Geo Portals

<http://misland.oss-online.org>

<http://misbar.oss-online.org>

(Water & Natural Resources)

(Northern Africa)

RCMRD (Nairobi)

1 Geoportal

<https://gmesgeoportal.rcmrd.org>

(Water & Natural Resources)

(Western & Northern Africa)

1 Geoportal

<http://geoportal.gmes.ug.edu.gh/>

(Marine & Coastal)

(Western and Northern Africa)

1 Geoportal

<http://gmes.icpac.net/data-center>

(Water & Natural Resources)

(Eastern Africa)

SASSCAL (Windhoek)

1 Geoportal

<http://gmes-geoportal.sasscal.org>

(Water & Natural Resources)

(Southern Africa)

CSIR (Pretoria)

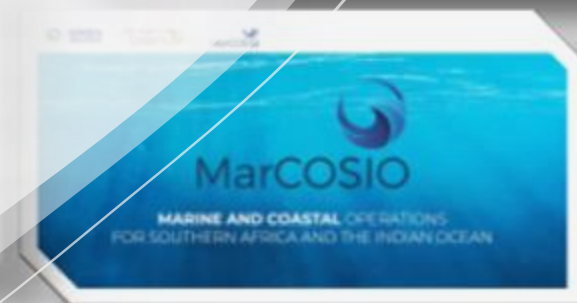
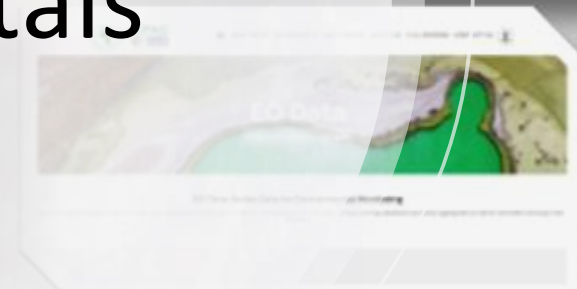
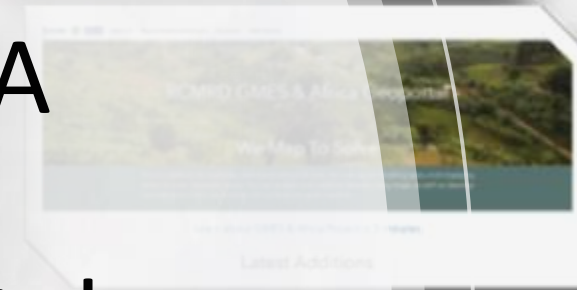
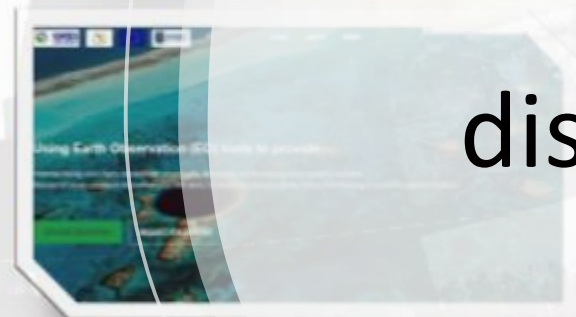
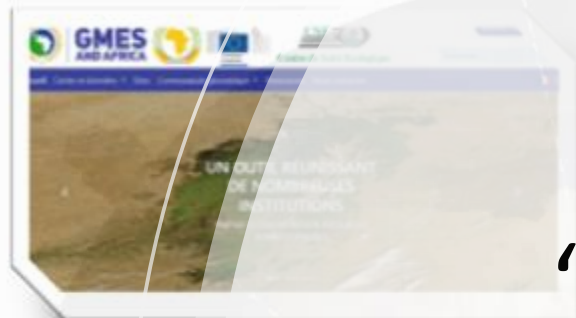
1 Geoportal

<https://marcosio.org/>

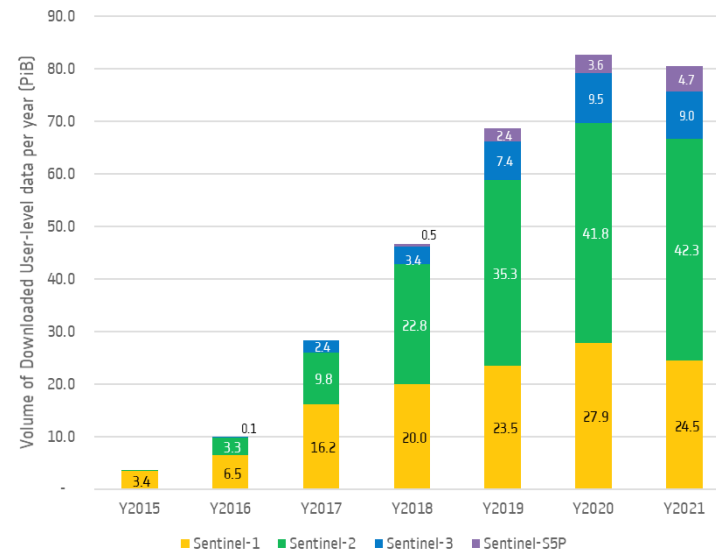
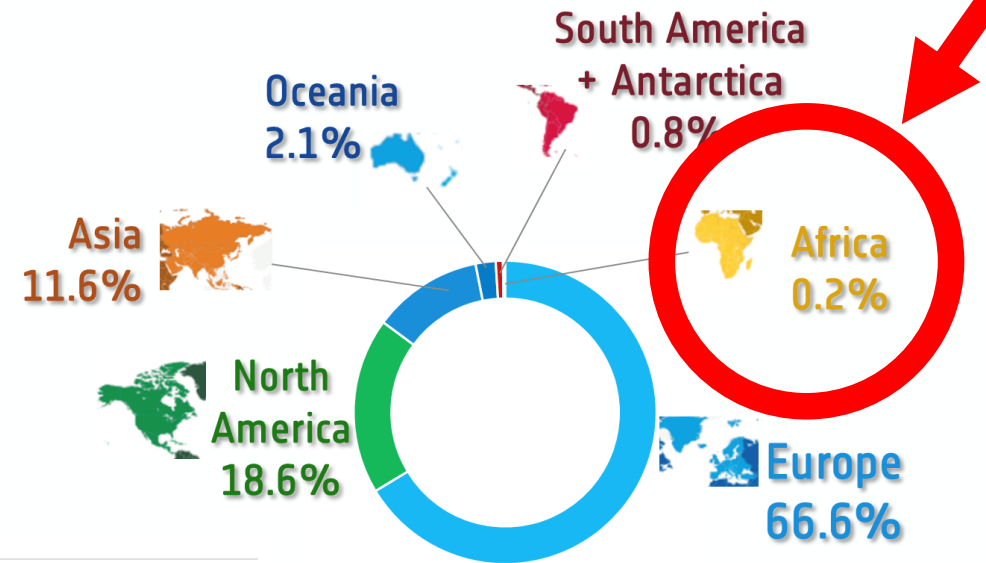
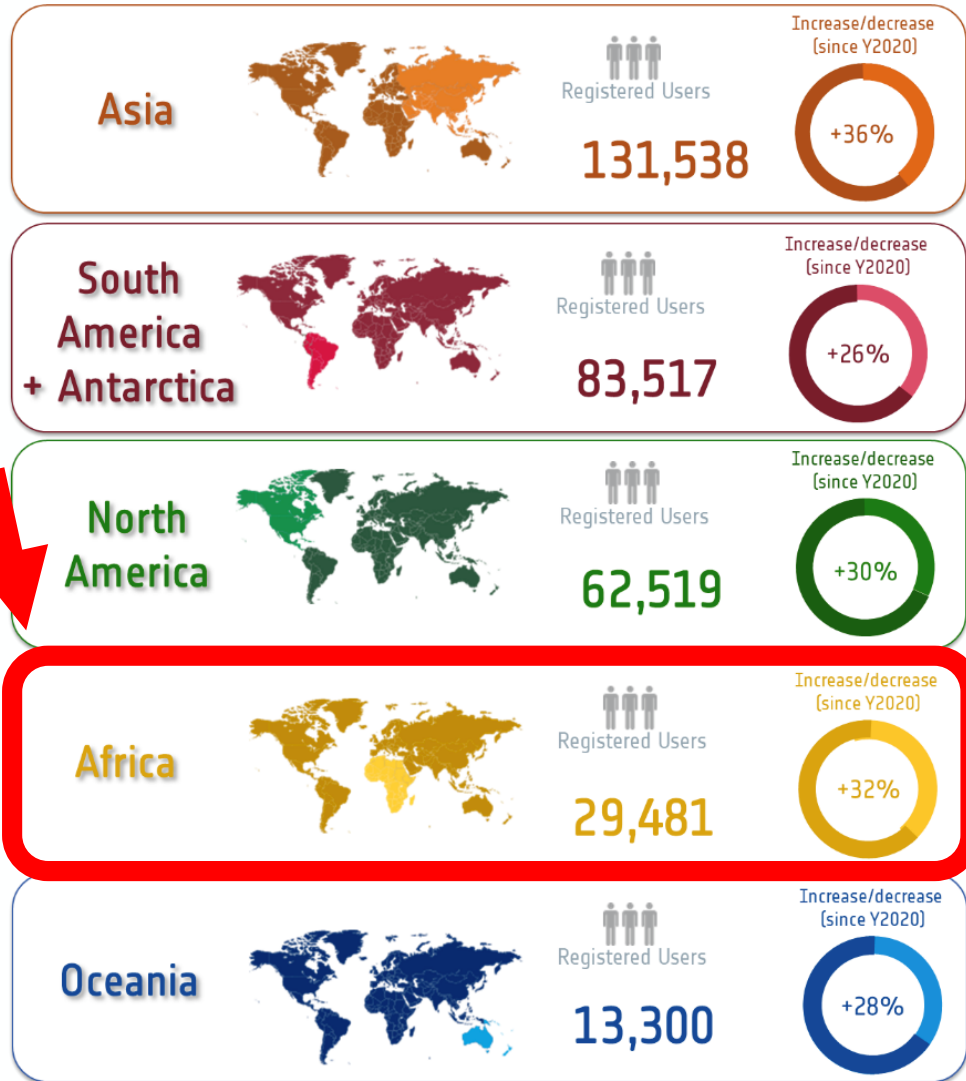
(Marine & Coastal)

(Southern & South-West Indian

Ocean Africa)



Copernicus Data Access Statistics 2021





G&A COMMUNITY IS
CURRENTLY MADE OF
MORE THAN 160
AFRICAN INSTITUTIONS

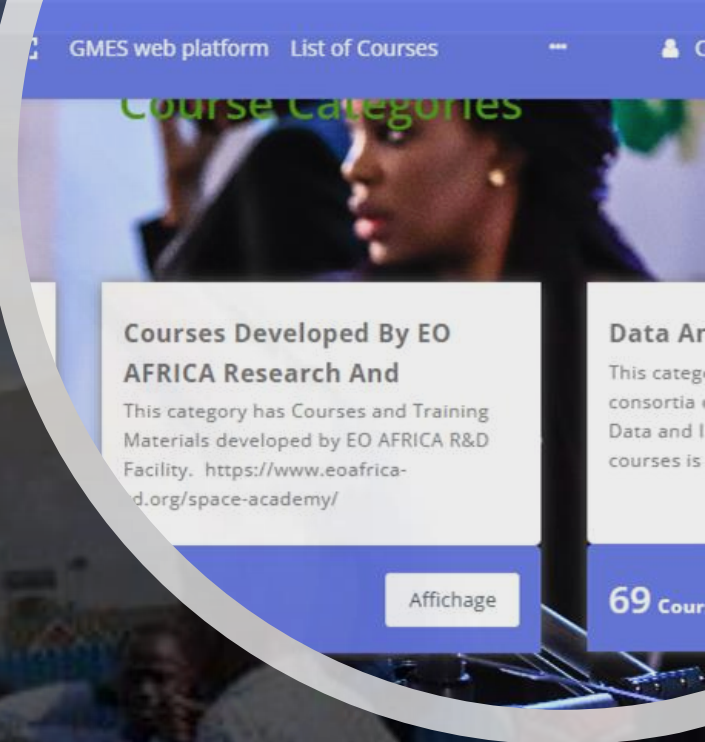
THE EO SECTOR IN
AFRICA REPRESENTS
ALREADY THOUSANDS OF
USERS

- We need a pool of certified African Trainers
 - To cope with numbers
 - Regionalize training
 - Deliver in various languages (EN, FR, and possibly local languages)
 - Address communities' specificities and needs



GMES
AND AFRICA





Classroom, Online, DLP, On the Job, G&A workshops and event

G&A Modalities for Training Delivery



G&A Phase 1 benchmarked what would be the Potential of Copernicus Training in Africa

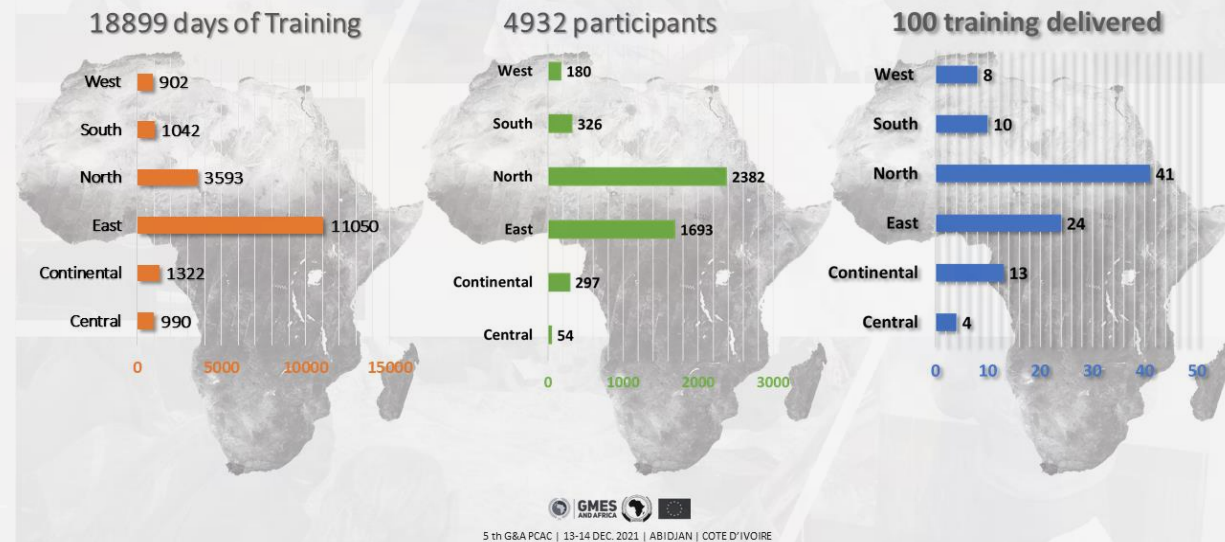


GMES
AND AFRICA



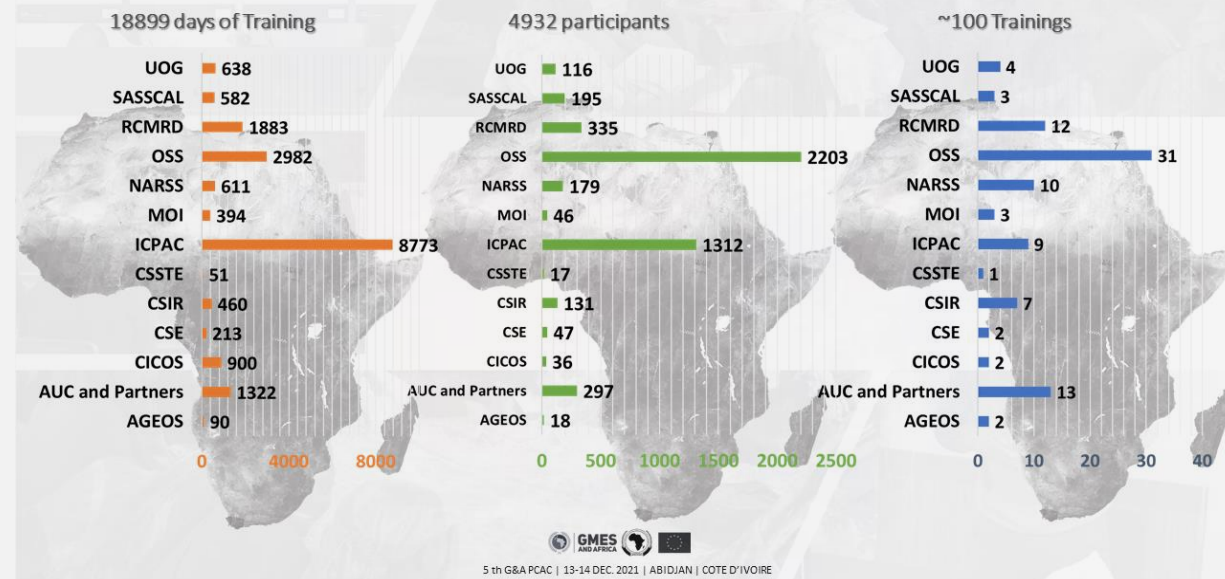
Trainings, numbers x regions

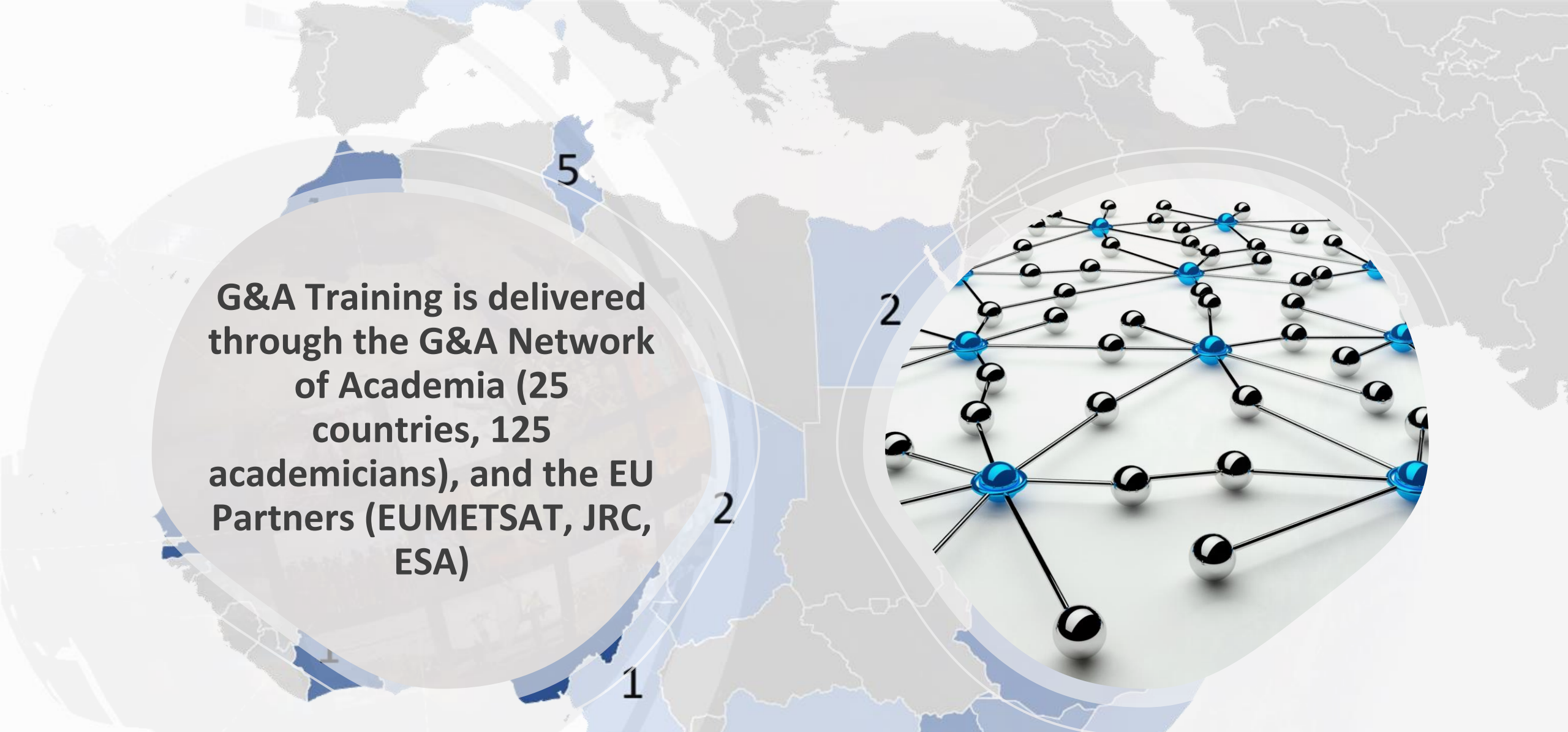
Provisional i.e., before integration of Consortia final reports



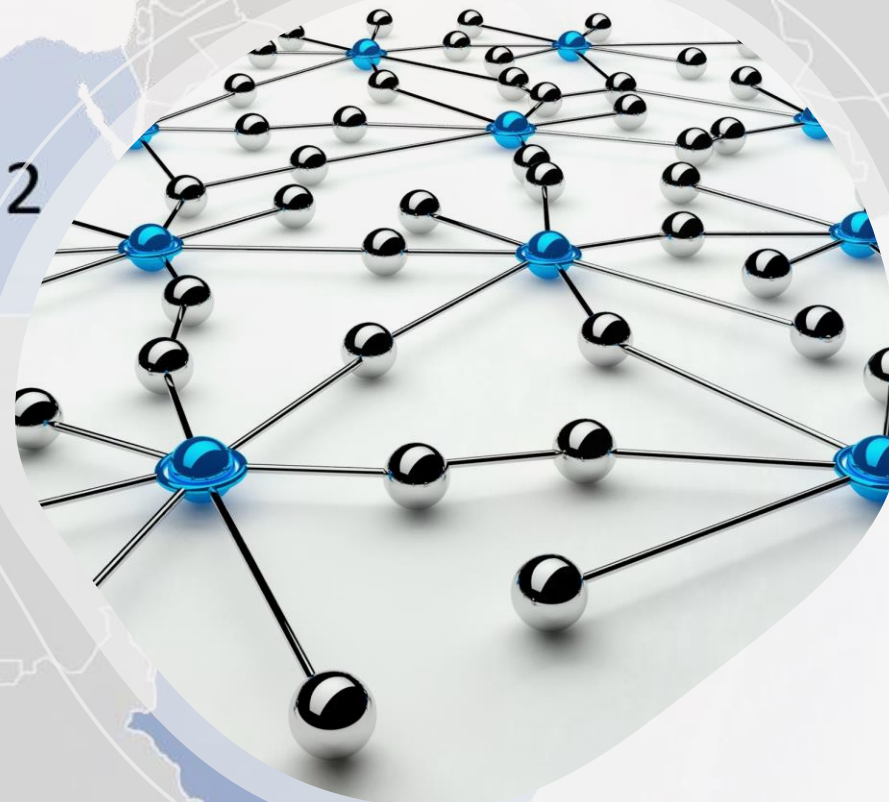
Trainings, numbers x consortia

Provisional i.e., before integration of Consortia final reports





G&A Training is delivered through the G&A Network of Academia (25 countries, 125 academicians), and the EU Partners (EUMETSAT, JRC, ESA)



Please get in touch to be added to the database of the Network of Academia

GMES & Africa DLP: A platform for Distance Education



Course Categories

Applications Closed! Course Announcement Portal

Submit your application to participate in the upcoming courses

6 Courses

View

Courses Developed By EO AFRICA Research And Development Facility

This category has Courses and Training Materials developed by EO AFRICA R&D Facility. <https://www.eoafrika-rd.org/space-academy/>

9 Courses

View

Data And Infrastructure

This category contains continental and consortia courses addressing the pillar of Data and Infrastructure. The objective of courses is to reinforce kn...

69 Courses

View

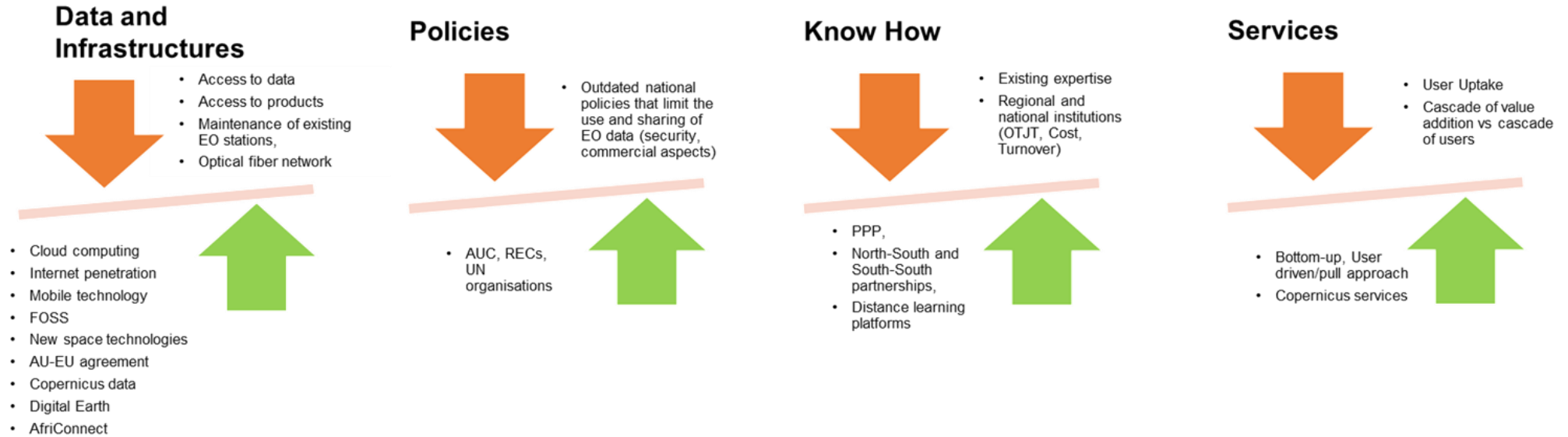
Consortia Training Courses

Data and Infrastructure

24 Courses

View

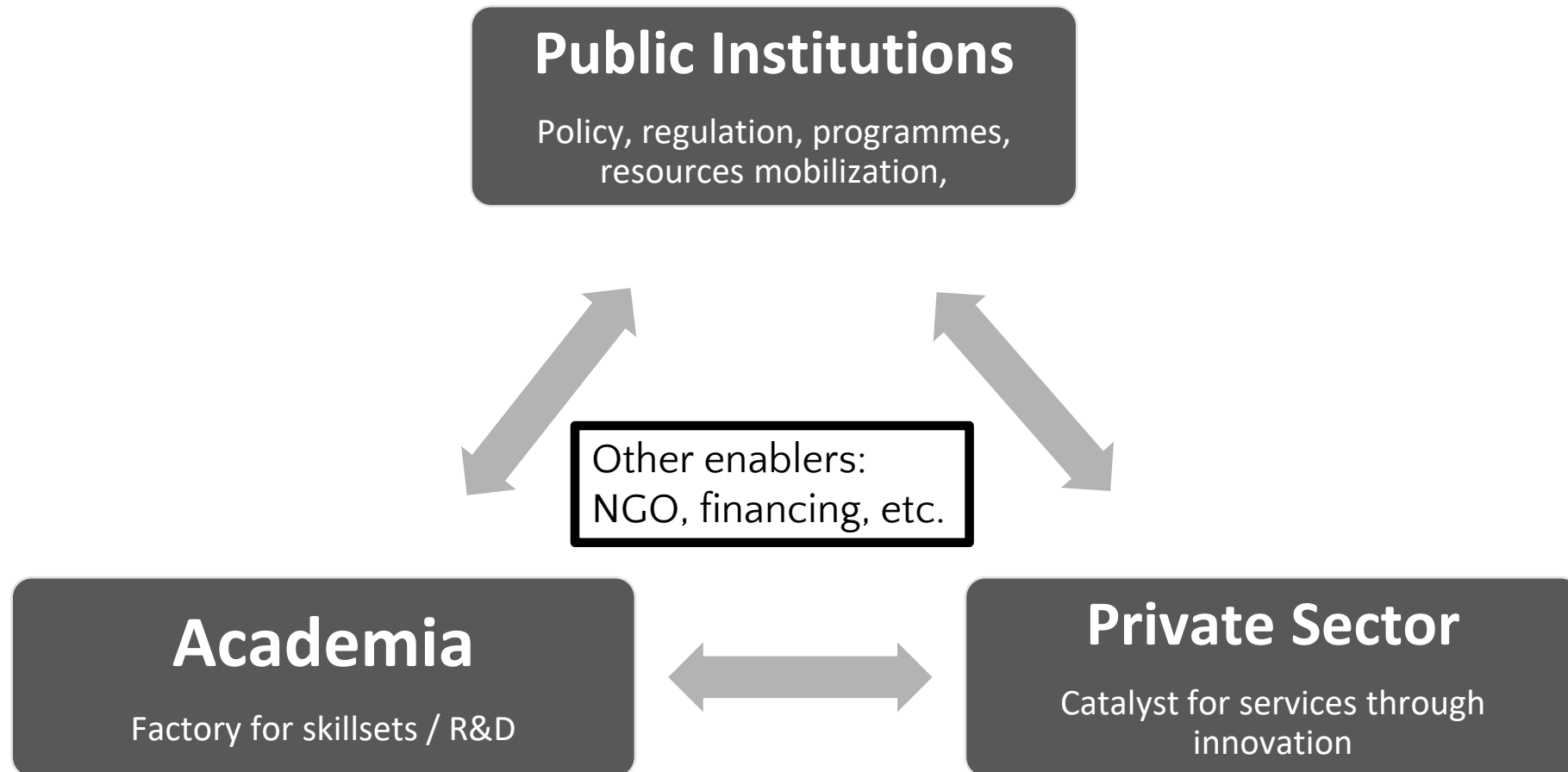
Self-register on: <http://gmestraining.africa-union.org/>



CHALLENGES / OPPORTUNITIES

- Harnessing existing capacities and promotion of new capacities
- Engagement of Private sector and Academia
- Coordination and synergies between EO programs and initiatives

Winning Triangular PUBLIC-PRIVATE PARTNERSHIP





WAY FORWARD

- Working collaboratively with the FPCUP- Working Group Africa
- Sharing the training contents on the GMES & Africa DLP
- Curricula and training catalogues targeting the labor market needs
- Joint Trainings with FPCUP- Working Group Africa



The GMES and Africa Support Programme



AFRICAN UNION COMMISSION

Department of Education, Science,
Technology and Innovation
Po Box 3243
Roosevelt Avenue (Old Airport Area
WK21K19
Addis Ababa, Ethiopia
Tel: (+251) 115517700
Fax: (+251) 115517844

Web <https://gmes.au.int>

Blog <https://gmes4africa.blogspot.com>

Training <http://gmestraining.africa-union.org>



Copernicus Working Group Africa

Webinar #1

17 May 2023

Carolina Sa (PT Space), Ali Arslan Nadir (FMI)

Carlos Gonzales-Inca (University of Turku)



WORKING
GROUP
AFRICA



WG Africa partners

Consortium Partners & Affiliated Entities



With the collaboration of





WG Africa Action Concept & Objectives

- To **Build Capacity in Africa** for the development of applications based on **Copernicus** data through a **Training of Trainers Program** in **three languages** (Portuguese, English, French)
- To work in close cooperation with 20 **African Trainers** with skills in geomatics and IT
- To integrate **Copernicus dedicated modules** into **training curricula**
- Training Program in **two phases** :
 - **Core Training** (10 weeks) for 20 African Trainers
 - **Co-development of training modules** with African Trainers
 - **local training sessions** (~25 trainees) focused on **specific thematics** (local needs)
- Develop the **Copernicus Relays and Academies network** in Africa





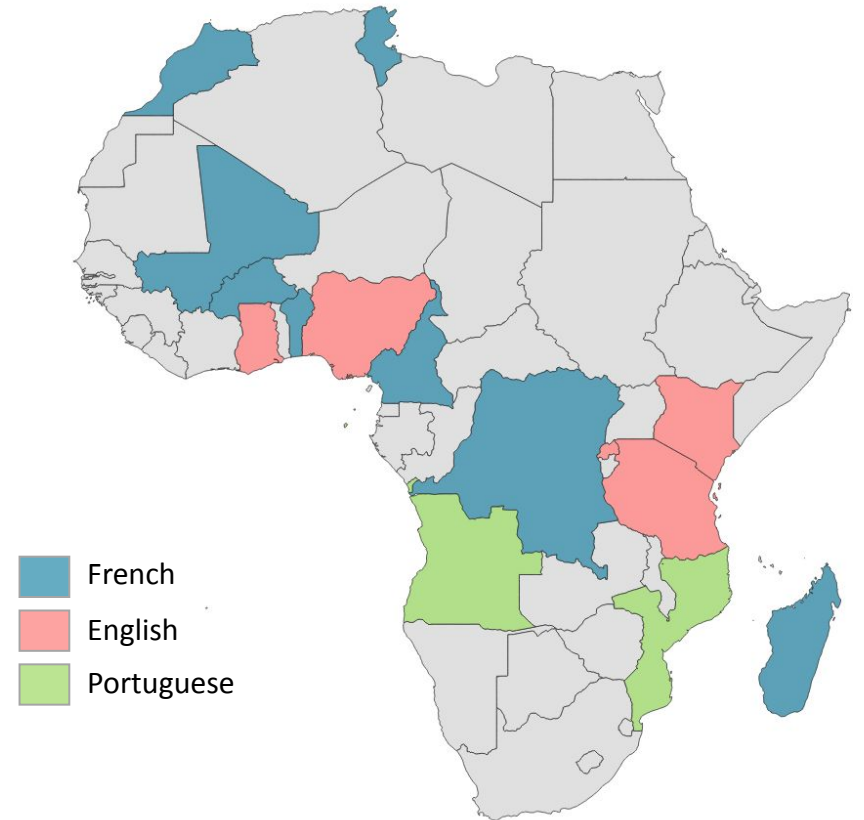
WG Africa principles for action

- WG Africa partners : **12 national institutions of 8 European countries**, members of Copernicus Relays and Academies network
- **Sharing** of knowledge and expertise
- Sharing of training resources and assets
- **Joint actions** : communication, webinars
- Action is meant to be **complementary to existing programs** carried out by European and African Institutions (GMES&Africa, EOAfrica,...)
- Open to **synergies** with existing programs



WG Africa Participating Countries (16 + 1 tbc)

- Angola
- Mozambique
- Sao Tome y Principe
- Cape Verde
- Nigeria
- Ghana
- Tanzania
- Rwanda
- Kenya
- Cameroon
- Madagascar
- Democratic Republic of Congo
- Benin
- Morocco
- Burkina Faso
- Tunisia
- Ivory coast (TBC)





African trainers

Training in French - Nominal list

Country	Trainer name	Gender	Partner	Thematics
Morocco	Mustapha EL METOUI	M	CBK PAN	
Cameroon	Alida Felicite Mbia	F	IDGEO	
RDC	Julien Bwazani	M	VisioTerra	
Madagascar	Andrianarivo Avisoa	M	GeoDev	
Madagascar	Arisetra Razafinimaro	M.	GeoDev	
Benin	Fabrice Dovonou	M	GeoDev	
Benin	Nicanor Kouton	M	GeoDev	
Mali	Sidi Dembele	M	GeoDev	
Burkina Faso	Farid Traoré	M	ISSEP	
Côte d'Ivoire	Julien Zahouli	M.	NOA / PRAXI	

Training in Portuguese - Nominal list

Country	Trainer name	Gender	Partner	Thematics
Cape Verde	Nuno Vieira	M	Air Centre	
Sao Tome	Lúcio Carvalho	M	Air Centre	
Angola	Ana Viera	F	PTSpace	
Angola	Jandira Domingos	F	PTSpace	
Angola	Waldemar Kiluange	M	PTSpace	
Angola	Eduardo Saquenha	M	PTSpace	
Angola	Dr. Gilberto Gomes	M	PTSpace	
Angola	Eng. Luciano Lupédia	M	PTSpace	
Angola	Eng. João Junior	M	PTSpace	
Mozambique	Prof. Dr. Paulo Covele	M	PTSpace	

Training in English - Nominal list

Country	Trainer name	Gender	Partner	Thematics
Nigeria	Dr. Isa Elegbede	M	Air Centre	Marine science
Ghana	Fifi Baidoo	M	NOA/PRAXI	Ocean and Coastal
Tanzania	Opportuna Kweka	F	CBK PAN	Fires
Tanzania	MSC Ephraim Danford	M	U. Turku	Urban mapping
Tanzania	Dr. Ernest Mauya	M	U. Turku	Urban & Forest
Kenya	Mr. Jacques Matara	M	ISPRA / ASI	Water Resource
Kenya	Dr. Pamela Ochungo	F	ISPRA / ASI	Water Resource
Kenya	Dr. Kuria Thiong'o	M	ISPRA / ASI	Water Resource
Kenya	Dr. Eunice Nduati	F	ISPRA / ASI	Water Resource
Kenya	Dr. Godfrey Makokha	M	ISPRA / ASI	Water Resource
Rwanda	Fidele Mwizerwa	M	ISSEP	Urban mapping



Advisory Committee

- Dr. Mariane Diop Kane, Programme Manager, WMO Regional Office for Africa
- Cecilia Donati, Policy Officer – Digital for Development, DG INTPA, EC
- Vincent Gabaglio, International Relations Officer, EUMETSAT
- Catherine Ghyoot, International Aid / Cooperation Officer in the unit “Regional and Multi-Country Programmes for Africa” at the DG INTPA
- Dr. Benjamin Koetz, Head of Sustainable Initiatives Office, ESA
- Dr. Michel Massart, GMES & Africa Program Coordinator, DG DEFIS, European Commission
- Dr. Jane Olwoch, Executive Director, SASSCAL
- Dr. Tidiane Ouattara, Spaces Sciences Expert, GMES & Africa Program Coordinator, African Union Commission



WG Africa Action Key Performance Indicators

To be revised

- Number of African countries targeted: minimum 10-12
- Number of African trainers : at least 20
- Number of trainings implemented by African trainers: at least 20
- Number of African trainees trained by African trainers: at least 300
- Number of persons attending the Webinars: 100 per Webinar, 1000 altogether
- Number of entities to which the call for joining the programme will be sent: at least 60
- Advanced training materials available in three languages for the core modules
- Number of funding applications for trainers: 5

Training of Trainers Programme starting June 19th

Module 1

- Trainer pedagogical methods and techniques
- Practicals: preparing a training about Earth Observation topic in which each trainee is comfortable

Module 2

- GIS and Remote Sensing basics
- Geospatial data handling in QGIS

Module 3

- Introduction to Copernicus data and services?
 - Knowledge of Copernicus program, datasets and sensors,
 - Copernicus data processing & modelisation (Sentinel 1 and Sentinel 2)

Module 4

- Python scripting, Jupyter notebook/Colab
- Artificial Intelligence for Earth Observation data analysis (Machine Learning/Deep Learning)

Module 5

- Delivering web maps and geo-data

Module 6

- Thematic trainings (optional and flexible week)



Thank you!

How to participate

Dr. Ali Nadir Arslan

Arctic Space Center, Finnish Meteorological Institute

May 17, 2023



**WORKING
GROUP
AFRICA**



Planning of actions 2023 – 2024 (reminder)

- *On demand* actions by the consortium members in partner countries (2023 – 2024) : information, training, workshops, etc.
- Information webinars on WG Africa project and Copernicus data & services
 - 3 webinars in 2023 (FR, EN et PT)
 - 1 webinar en 2024 (joint action)
- Training of trainers : 2x 5 weeks of training in June-July and October-November (on line)
- Training sessions by the trainers in their countries : sessions to be defined and opened in 2024 with support from the WG Africa members



Webinars 2023 – 2024

- Webinar # 1
- Webinar # 2
 - September 2023, between the 2 training of trainers sessions
 - Sharing experiences & expectation for the second training session
- Webinar # 3
 - December 2023, at the end of the training sessions
 - Feedbacks & training perspectives from the trainers for 2024
- Webinar # 4, End of Project
 - Feedbacks from 2024 training sessions in the countries
 - Review of project activities, project closure and outlook



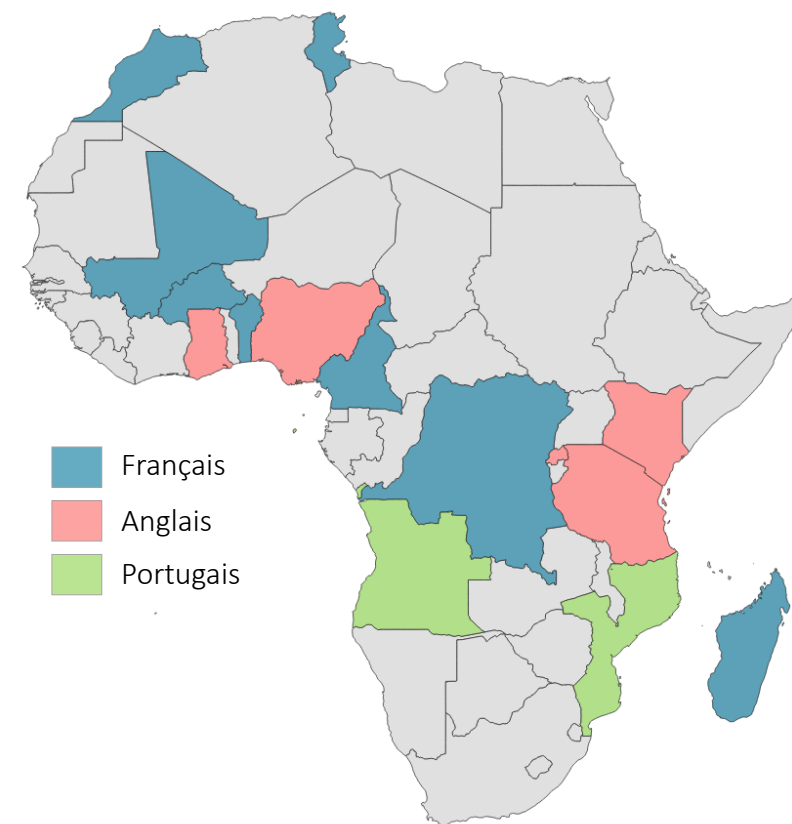
How to participate in the training that will be delivered by the trainers trained by the Project ?

- Survey participants will be kept informed directly
- The Project will communicate the dates and terms via the website and social networks, via the websites of the partners, via the trainers
- Practical modalities of participation: the sessions will be delivered either face-to-face and virtual, or virtual
- The dates, content and training programs will be communicated in early 2024

FR: [https://www.surveymonkey.com/r/P9YS7VD?name=\[name_value\]](https://www.surveymonkey.com/r/P9YS7VD?name=[name_value])

PT: [https://www.surveymonkey.com/r/ZKRST2N?name=\[name_value\]](https://www.surveymonkey.com/r/ZKRST2N?name=[name_value])

EN: [https://www.surveymonkey.com/r/ZKB7DYR?name=\[name_value\]](https://www.surveymonkey.com/r/ZKB7DYR?name=[name_value])





Thank You

ali.nadir.arslan@fmi.fi