



BEYOND, European Center of Excellence for EO based Disaster Management

The European Centre of Excellence BEYOND for Earth Observation based monitoring of Natural Disasters in South-Eastern Europe



*Building a Centre of Excellence for
EO-based monitoring of Natural Disasters*

Funded under FP7-REGPOT-2012-2013-1

*Activity: 4.1 Unlocking and developing the research potential of
research entities established in the EU's Convergence regions and
Outermost regions*



Dr Haris KONTOES

Research Director of IAASARS/NOA

Project Coordinator





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The European Centre of Excellence for EO based Disaster Management
Observation based monitoring of Natural Disasters
South-Eastern Europe



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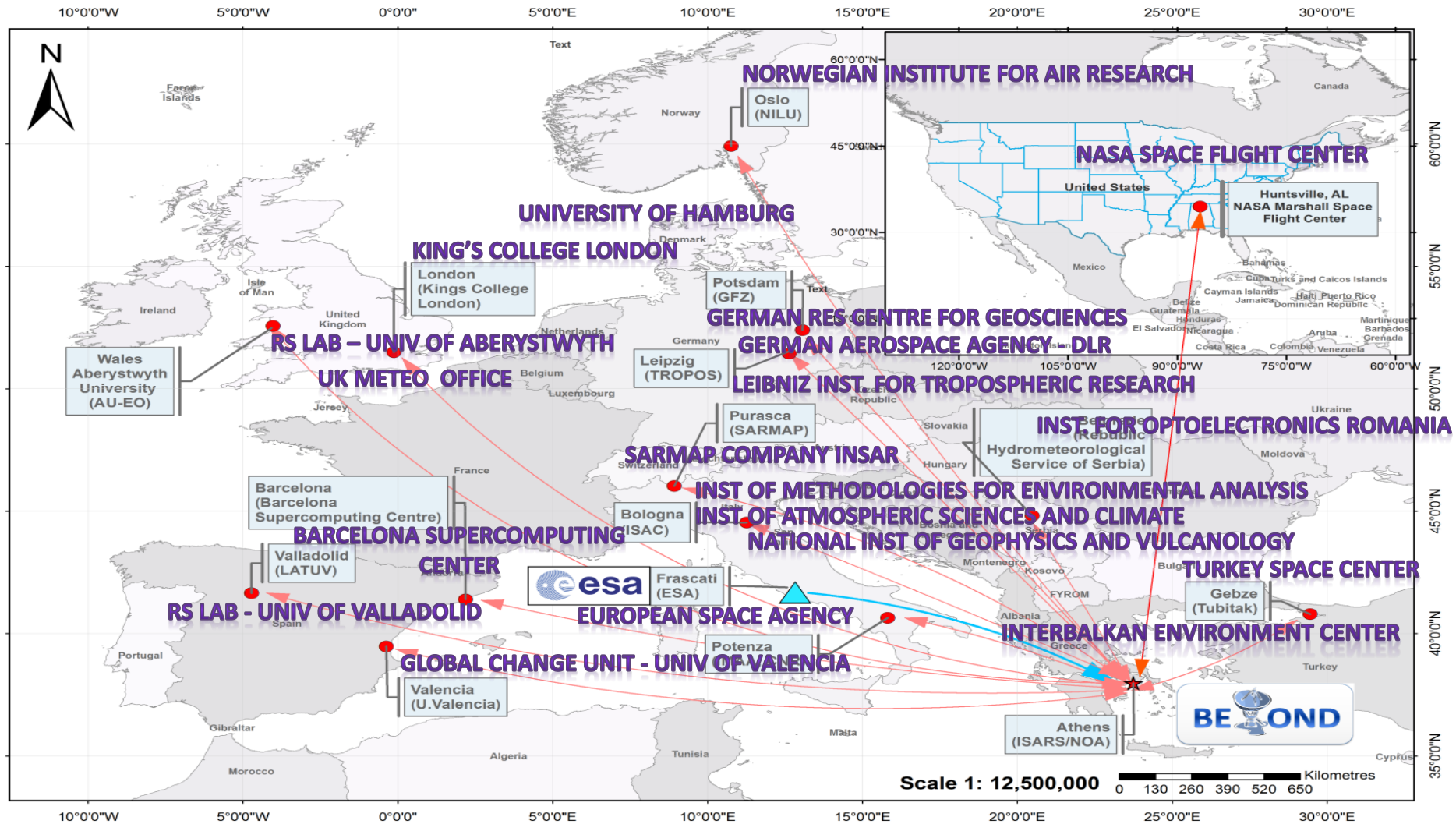
*Activity: 4.1 Unlocking and developing the research potential of
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Highly ranked priorities in **BEYOND**

- **BEYOND** aims to maintain and expand the existing state-of-the-art and interdisciplinary research potential in EO, by **Building a Centre of Excellence for Earth Observation based monitoring of Natural Disasters**
- **BEYOND** addresses societal needs of south-eastern Europe, with a prospect to increase its access range to the wider Mediterranean region through the integrated cooperation with more than **20 twining organizations**

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- **BEYOND** aspires to setting up innovative observational solutions, allowing to a multitude of monitoring networks (space borne and in-situ) available over the region to operate in a complementary, unified, and coordinated manner
- **BEYOND** builds innovative research and skills capacity in the domain of EO through scientific exchange with European and regional partnering organisations
- **BEYOND** transforms the observations to added value products ready for down-streaming to specific societal needs in the domain of environmental monitoring and Natural Disasters
- **BEYOND** delivers online observations and higher level EO products and services to stakeholders, and international scientific and End User communities

Funding: 2.3 MEuros EC Contribution

Additional funding from Structural Funds ~270KEuros

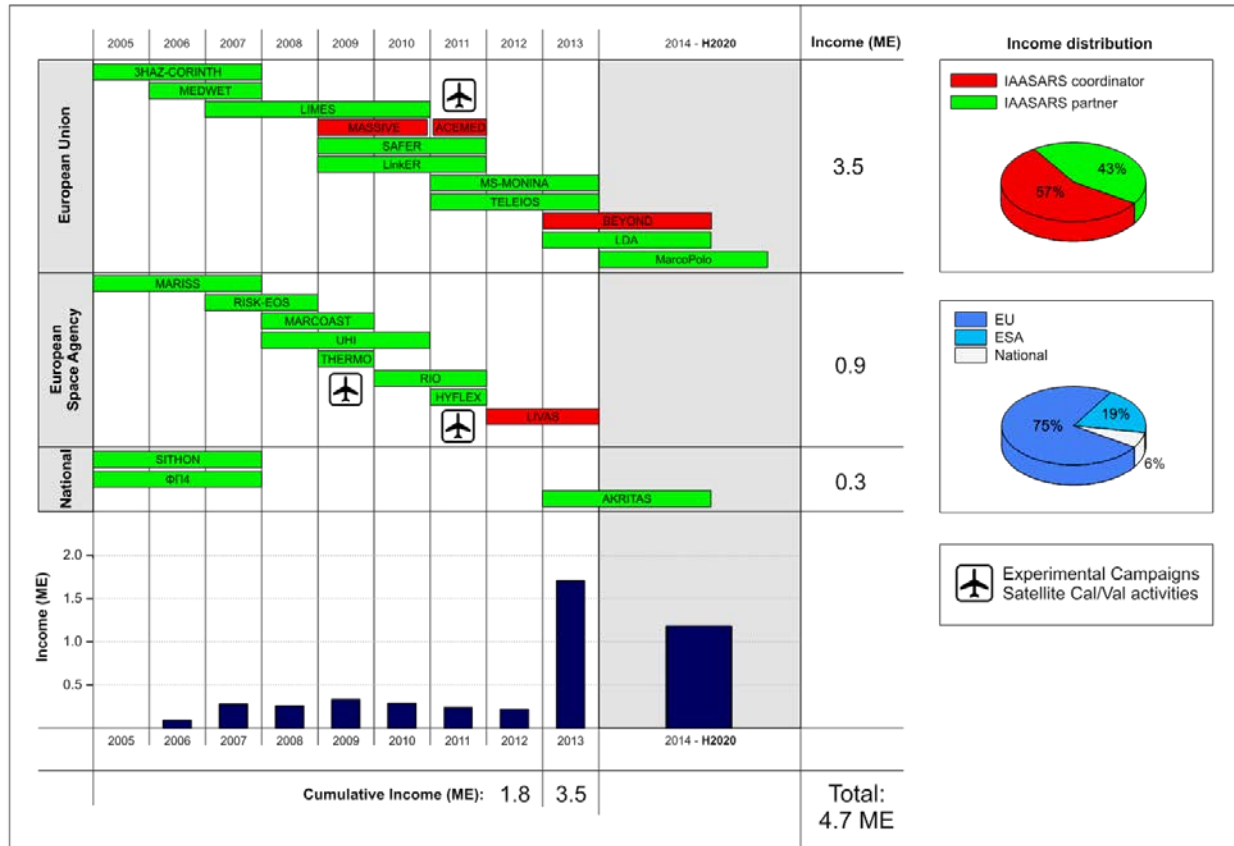
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LDA Large-scale demonstrators in support of GMES and GNSS based services in Athens, Greece, GMES/DG ENTR

MASSIVE: Mapping Seismic Vulnerability and Risk of Cities, European Commission - DG ENV A.3 – Civil Protection

TELEIOS—Virtual Observatory Infrastructure for Earth Observation Data, FP7-ICT-2009-5

LIMES (Land and Sea Integrated Monitoring for European Security/GMES / EC DG Enterprise



LinkER - Supporting the implementation of an operational GMES service in the field of emergency management, Invitation to Tender No: ENTR/08/028

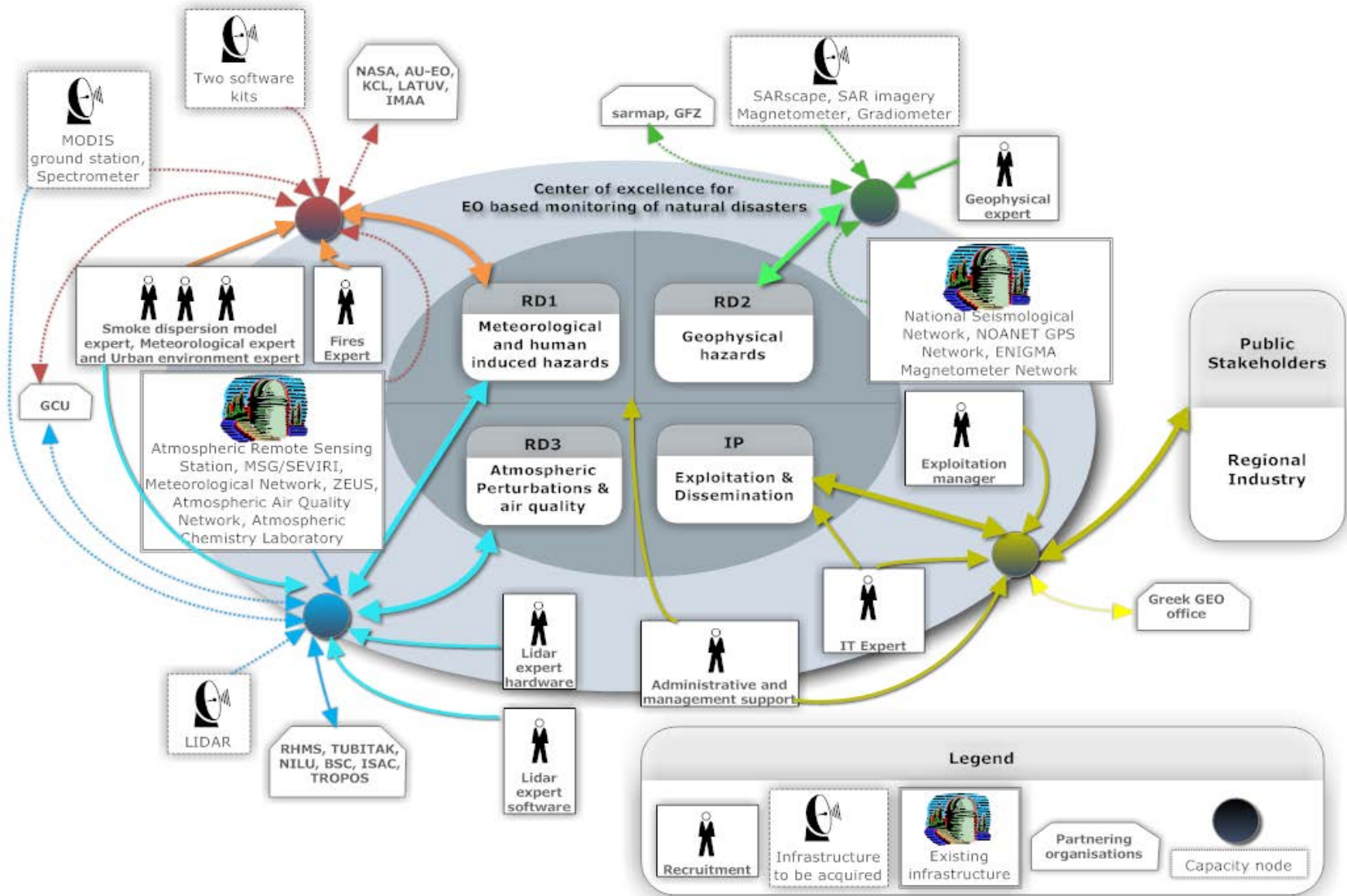
SAFER – EMERGENCY: Building Emergency Response Core Service, FP7-2007-SPACE-1/ GMES Collaborative Project

RISK-EOS Extension to Greece - Promotion of the GSE RISK-EOS fire services portfolio in Greece, EarthWatch GMES Services Elements, ESA/GSE

MARCOAST/ISSUE-OS - Integrated system for suspect vessels emergency tracking – OIL SPILLS

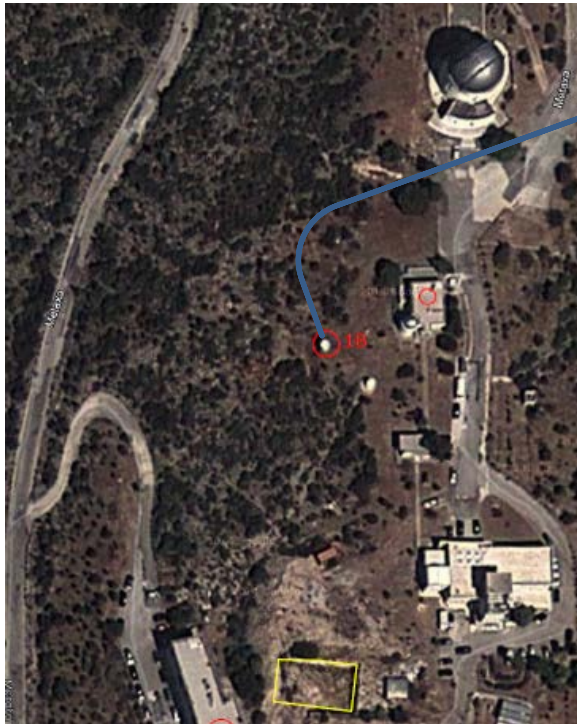


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Setting up integrated satellite based observational solutions

➤ **X-/L- band** acquisition station for (EOS Aqua and Terra, NPP, JPSS, NOAA, Met Op, FengYun) **(part of the DB network)**



IAASARS/NOA X-/L-band Acquisition station



Infrastructure Capacity Building

Setting up integrated satellite based observational solutions

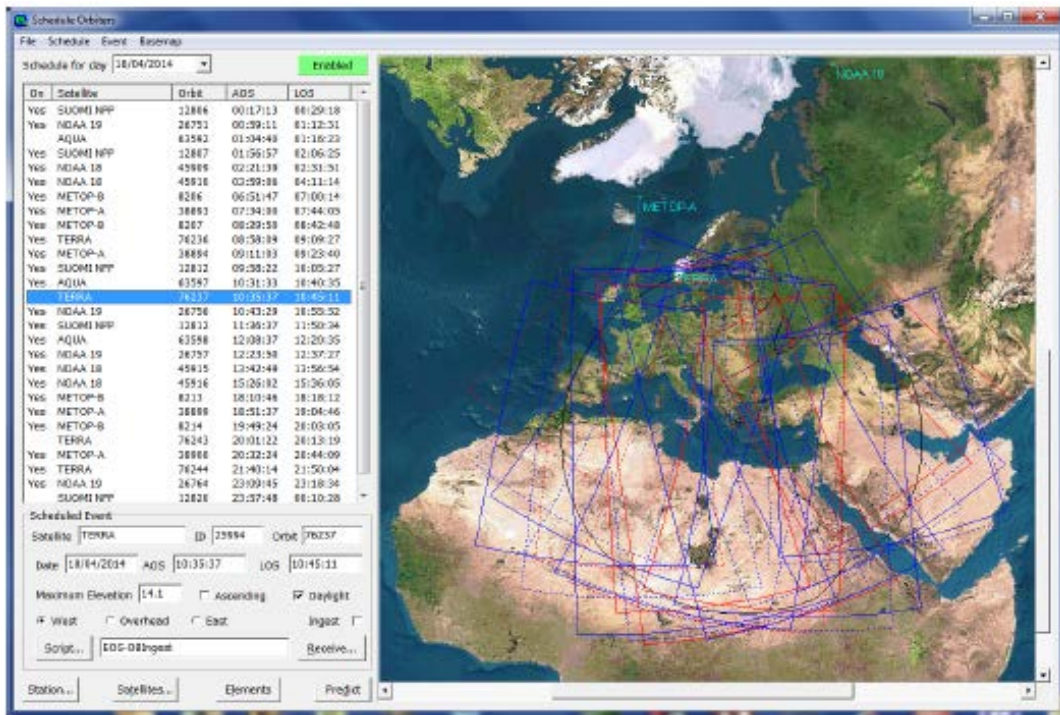
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IAASARS/NOA X-/L-band Acquisition station



Infrastructure Capacity Building



Setting up integrated satellite based observational solutions

- **MSG SEVIRI acquisition stations of DVB-S & DVB-S2 systems exploiting high throughput provided with the new EUMETCast Europe service, based on using the EUTELSAT 10A (part of EUMETSAT's network)**
- **Access to NOA's in-situ monitoring seismological, magnetometer, and GPS networks**



IAASARS/NOA MSG SEVIRI Acquisition station DVB-S2

- **Develop and Operate of NOA's Collaborative Ground Segment (Hellenic Sentinel Data Hub-Mirror Site) dedicated to ESA Sentinel missions (Copernicus), allowing near real time acquisition of S-1, S-2, and future S3, S5P satellite missions**

Setting up integrated satellite based observational solutions

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- **Develop and Operate of NOA's Collaborative Ground Segment (Hellenic Sentinel Data Hub-**

**Activity in the framework of the
COPERNICUS PROGRAM**
The **EUROPEAN EARTH OBSERVATION FLAGSHIP
PROGRAM (EU/ESA)**

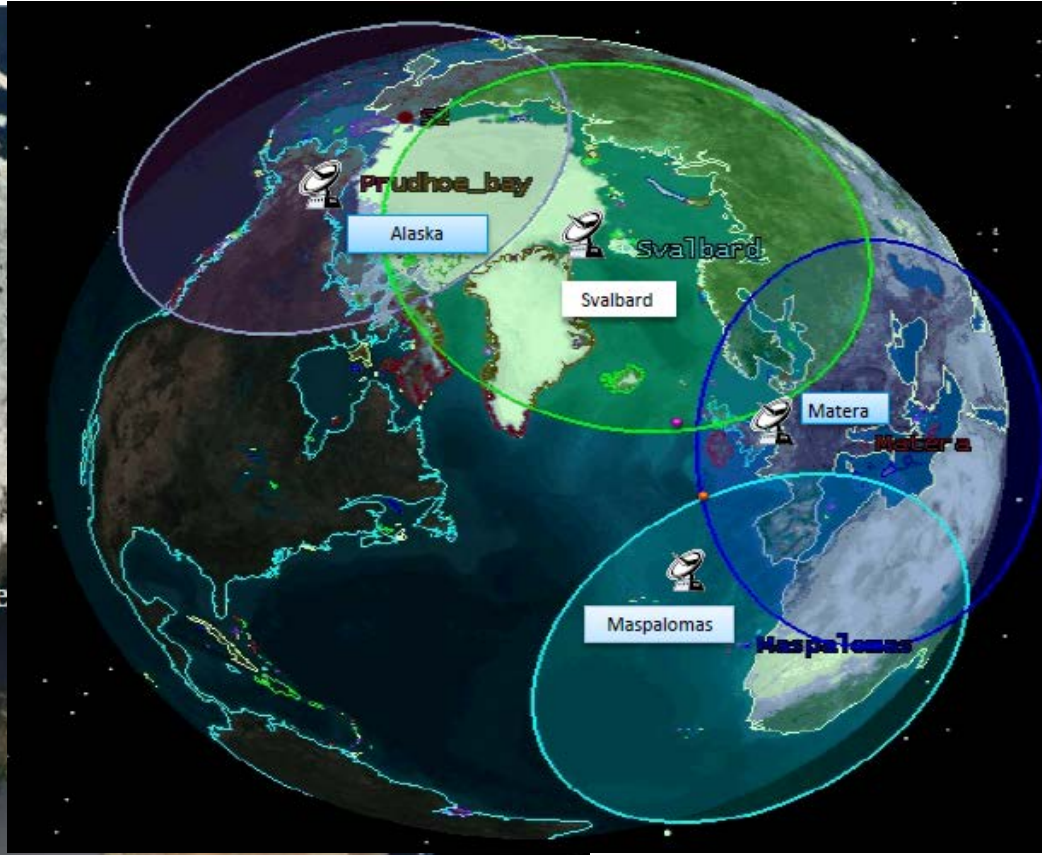
<http://www.copernicus.eu/>

Infrastructure Capacity
Building

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➤ a **GSC Core Ground Segment**, with **GSC-funded Functions and Elements**, providing :

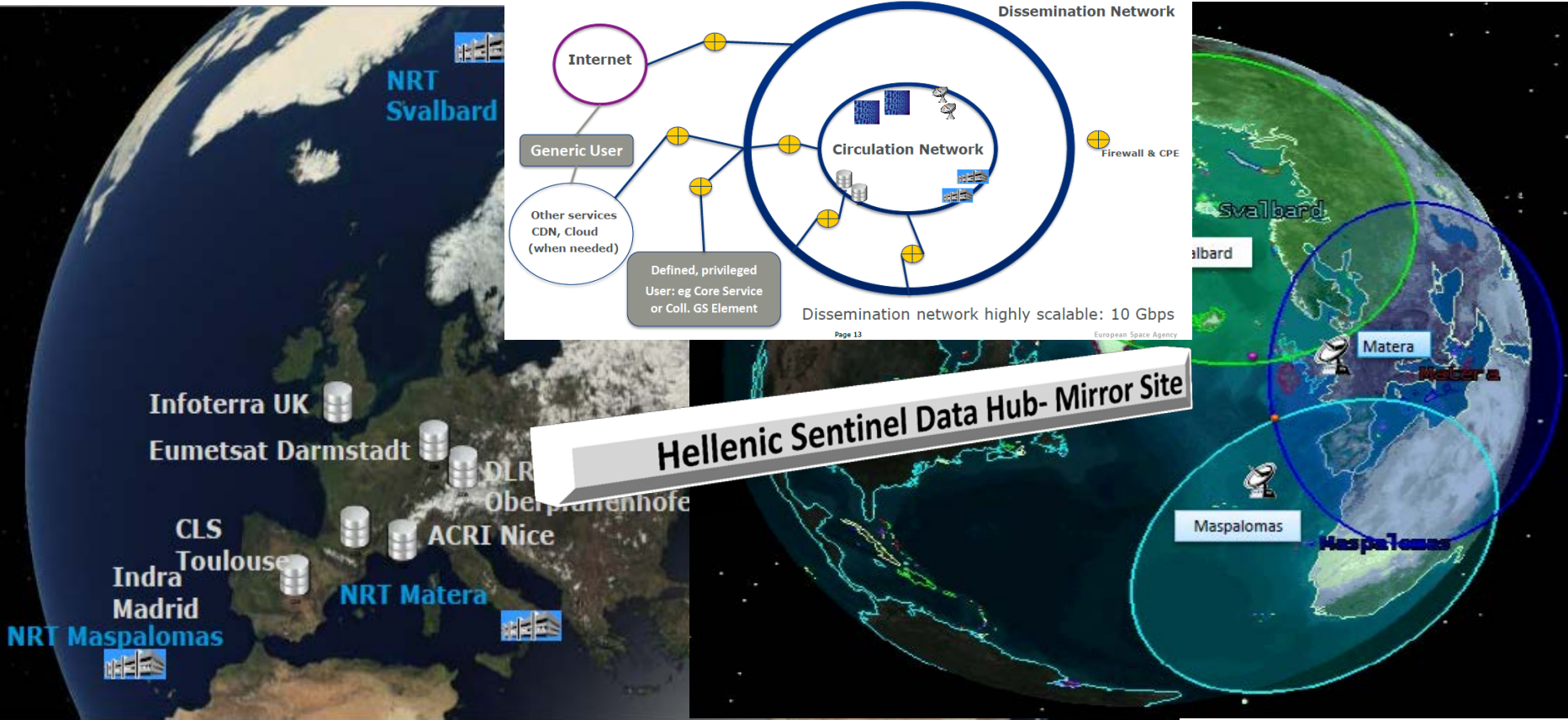
- the primary access to Sentinel Missions data as well as
- the coordinating access functions to Contributing Missions data



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➤ a **GSC Core Ground Segment**, with **GSC-funded Functions and Elements**, providing :

- the primary access to Sentinel Missions data as well as
- the coordinating access functions to Contributing Missions data



Sentinel-1A/2A passes in IWS mode (250 km swath)

OFFICIAL ANNOUNCEMENT OF
HELLENIC MIRROR SITE
ATHENS SPACE EXPO:
28 MARCH – 5 APRIL

[HTTP://SENTINELS.SPACE.NOA.GR](http://sentinels.space.noa.gr)

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Operation of the mobile lidar of ESA by IAASARS

Development of a state-of-the-art multi-wavelength lidar to be installed in Crete (FKL), in the framework of the BEYOND project, part of the EARLINET network.



Infrastructure Capacity Building

ACHIEVEMENTS – EO SERVICES

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Service	Status	End Users	Scale	
EMERGENCY RESPONSE/EMERGENCY SUPPORT-METEO RELATED HAZARDS				Delivered
Real Time Fire Monitoring	Operational GMES Standard	Fire Brigades, Civil Protection, Public, Private Sector	National Regional	
Rapid Fire Mapping	Operational GMES Standard	Fire Brigades, Civil Protection, Forestry Services, Min of Env	Regional Local	
Disaster Event Mapping & Damage Ass.	Operational GMES Standard	Forestry Services, Min of Env (DG for Nat. Vegetation/Forest Protection)	Local	
Seasonal/Diachronic Fire Mapping & Damage Ass.	Operational GMES Standard	Forestry Services, Min of Env (DG for Nat. Vegetation/Forest Protection, Cadastral Org, Fire Brigades)	National	
Wild Fire Smoke Dispersion	Research/ Preoperational	Fire Brigades, Civil Protection, Min of Env	Regional Local	
Saharian Dust Episodes	Research/ Preoperational	Civil Protection, Min of Env, Public	National	
Flood Risk	Research/ Preoperational	National Electric Power Org, Min of Development, Local Authorities, Civil Protection	Regional Local	
Heat Waves Risk	Research/ Preoperational	Min of Public Health, Local Authorities, Medical Science	Local	
				To be Delivered as V1.0 in 2014
				To be Delivered as V1.0 in 2015-2016

Web service

Web service



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EMERGENCY RESPONSE/EMERGENCY SUPPORT- GEO- HAZARDS			
Earthquake related crustal deformation field	Operational GMES Standard	Anti-seismic Planning & Protection Org, EQ Scientists	Local
Volcano related surface velocity field	Operational GMES Standard	Anti-seismic Planning & Protection Org, Local Authorities, EQ Scientists	Local
Landslide related surface velocity field	Research	Anti-seismic Planning & Protection Org, Local Authorities, Entrepreneurs, Civ. Eng, Geologists	Local
ATMOSPHERIC DISTURBANCES - CLIMATOLOGY			
3D-Climatology	Operational GMES Standard	Cal/Val Industry, Global Atm Monitoring Networks	Global
Atmospheric Episodes	Research	Cal/Val Industry, Global Atm Monitoring Networks,	Local
LULC CHANGE MONITORING – UAV / AIRBORNE / SATELLITE			
Urban Mapping	Operational GMES Standard	World Bank, EIB, Min of Env, Cadastral Org	Local
UAV Damage Recording	Research/ Preoperational	Anti-seismic Planning and Protection Organisation	Local
Ecosystem Monitoring and Mapping (Forests/Wetlands)	Operational	Min of Env, Hellenic Biotope & Wetlands Center, Cadastral Org	National Regional

Delivered

To be Delivered as V1.0 in 2014

To be Delivered as V1.0 in 2015-2016

Web service



Thank you for your attention!

For more information

<http://beyond-eocenter.eu>