

The Contribution of the Geodetic Community (WG4) to EPOS

R.M.S Fernandes



WG4 COMPOSITION				
<i>First Name</i>	<i>Last Name</i>	<i>Official ROLE within WG4</i>	<i>Country</i>	<i>Institution</i>
Rui	Fernandes	WG Chair	PORTUGAL	UBI/IDL
Luisa	Bastos	WG co-Chair	PORTUGAL	FC UP
Carine	Bruyninx	WG co-Chair	BELGIUM	ROB
Nicola	D'Agostino	WG co-Chair	ITALY	INGV
Athanassios	Ganas	WG co-Chair	GREECE	NOA
Martin	Lidberg	WG co-Chair	SWEDEN	LM
Jean Mathieu	Nocquet	WG co-Chair	FRANCE	CNRS
Matthias	Becker	WG Member	GERMANY	TU Darmstadt
Richard	Bingley	WG Member	UNITED KINGDOM	University of Nottingham
Rahsan	Cakmak	WG Member	TURKEY	TUBITAK MAM
Jan	Dousa	WG Member	CZECH REPUBLIC	Geodetic Observatory Pecny
Mariusz	Figurski	WG Member	POLAND	Military University of Technology Fac of Civil Eng. and Geodesy
Andrzej	Araszkiewicz			
Jorge	Gárate	WG Member	SPAIN	ROA
Ivan	Georgiev	WG Member	BULGARIA	BAS
Nicolas	Houlié	WG Member	SWITZERLAND	ETH
Halfdan	Kierulf	WG Member	NORWAY	STATKART
Abbas	Khan	WG Member	DENMARK	DTU-Space
Laurentiu	Munteanu	WG Member	ROMANIA	National Institute for Earth Physics
Giulio	Selvaggi	WG Member	ITALY	INGV
Bojan	Stopar	WG Member	SLOVENIA	University of Ljubljana
Hans	van der Marel	WG Member	NETHERLANDS	Delft University of Technology

EPOS a long term integration plan of research infrastructures for solid Earth Science in Europe

Preparatory Phase Project

www.epos-eu.org



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What is EPOS?

- It is an ESFRI project (Preparatory Phase)
 - (European Strategic Forum on Research Infrastructures)
- It aims at integrating existing RIs for solid Earth
 - Supporting construction/implementation of community data centers
 - Building core services for different stakeholders
- It aims at creating the governance structure to manage this distributed RI and its services to users
- It aims at building a legal body to secure funds for maintaining RIs for solid Earth science

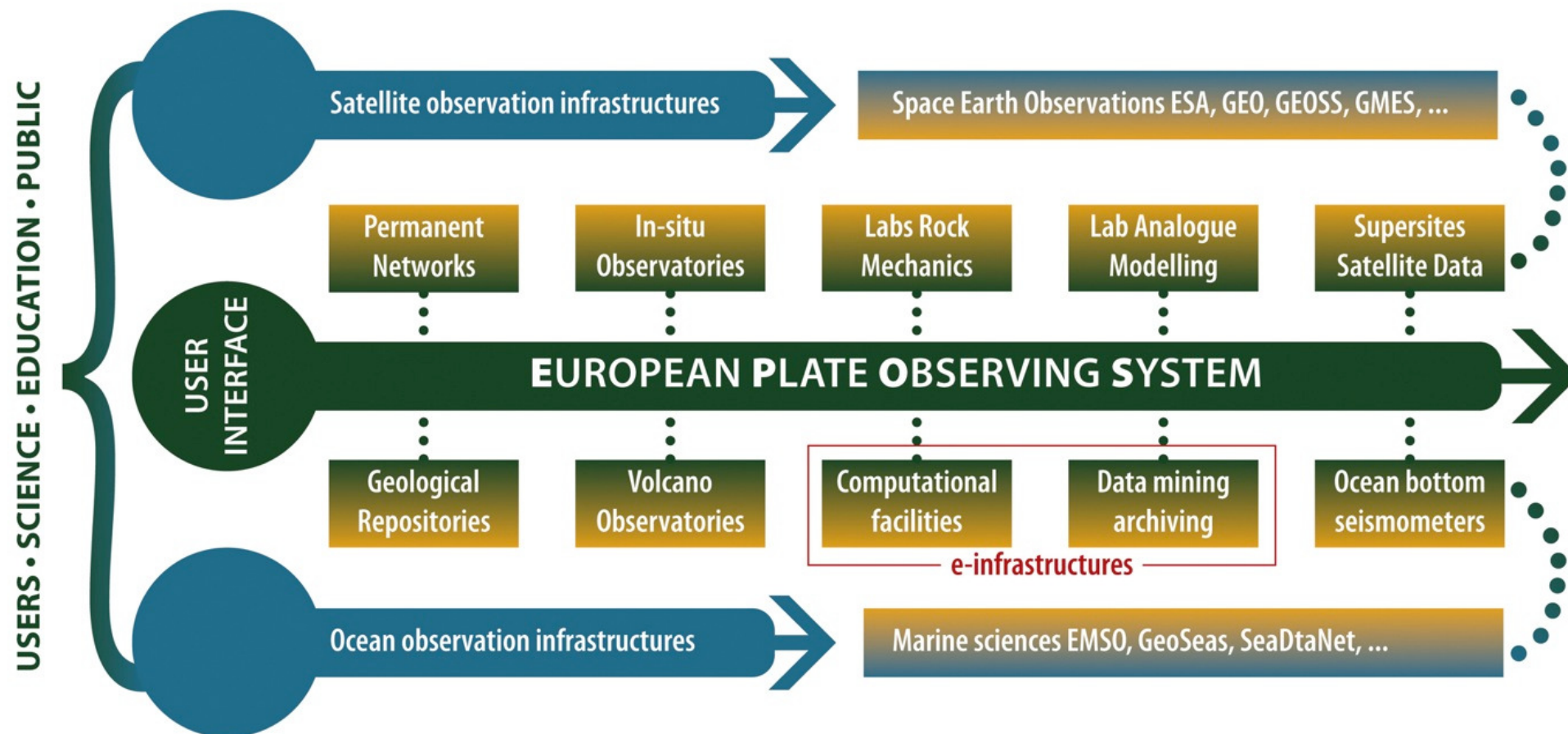
EPOS PP Mission

- The European Plate Observing System (**EPOS**) is a **long-term integrated research infrastructure plan** to promote innovative approaches for a better understanding of the physical processes controlling earthquakes, volcanic eruptions, unrest episodes and tsunamis as well as those driving tectonics and Earth surface dynamics
- The EPOS plan aims at integrating the currently scattered, but highly advanced European facilities into one, distributed, but coherent multidisciplinary Research Infrastructure (RI) taking full advantage of new e-science opportunities

EPOS PP Timeline



EPOS Components

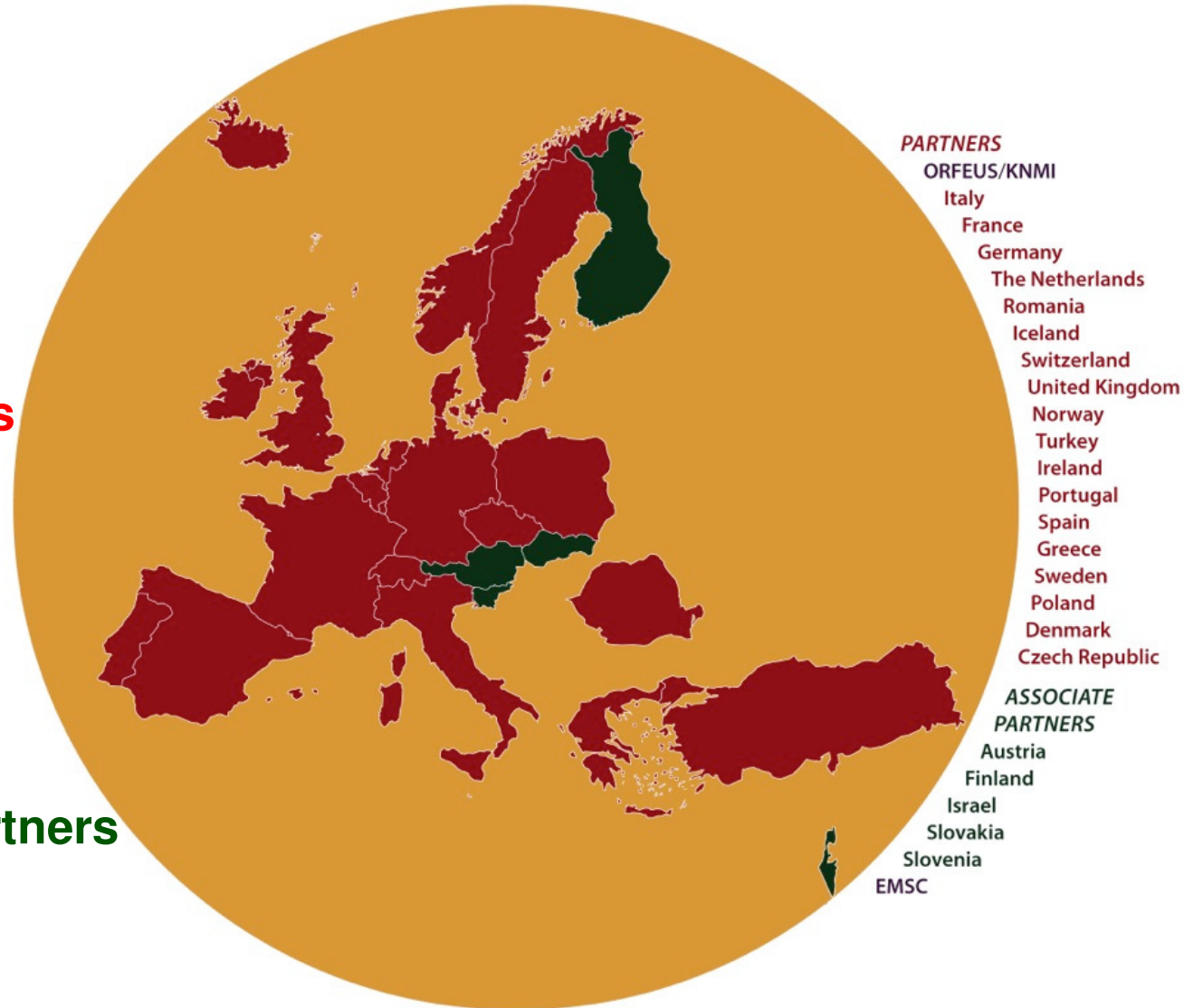


EPOS: the Partnership

Who?

20 partners
for 18 countries

6 associate partners
for 5 countries



**On going initiatives for integrating the partnership:
Bulgaria, Belgium, Russia,**

Erice September 2011

Who makes EPOS?

- 20 partners + 6 assoc. partners (23 countries + ORFEUS & EMSC)
 - 146 institutes (38 universities)
- 271 people on the EPOS Collaborative Area
 - 230 people officially involved in WPs or WGs
 - The majority are researchers and top-level scientists
- 230 RIs declared so far
 - 195 RI contact persons

EPOS PP Objectives

Strategic objectives

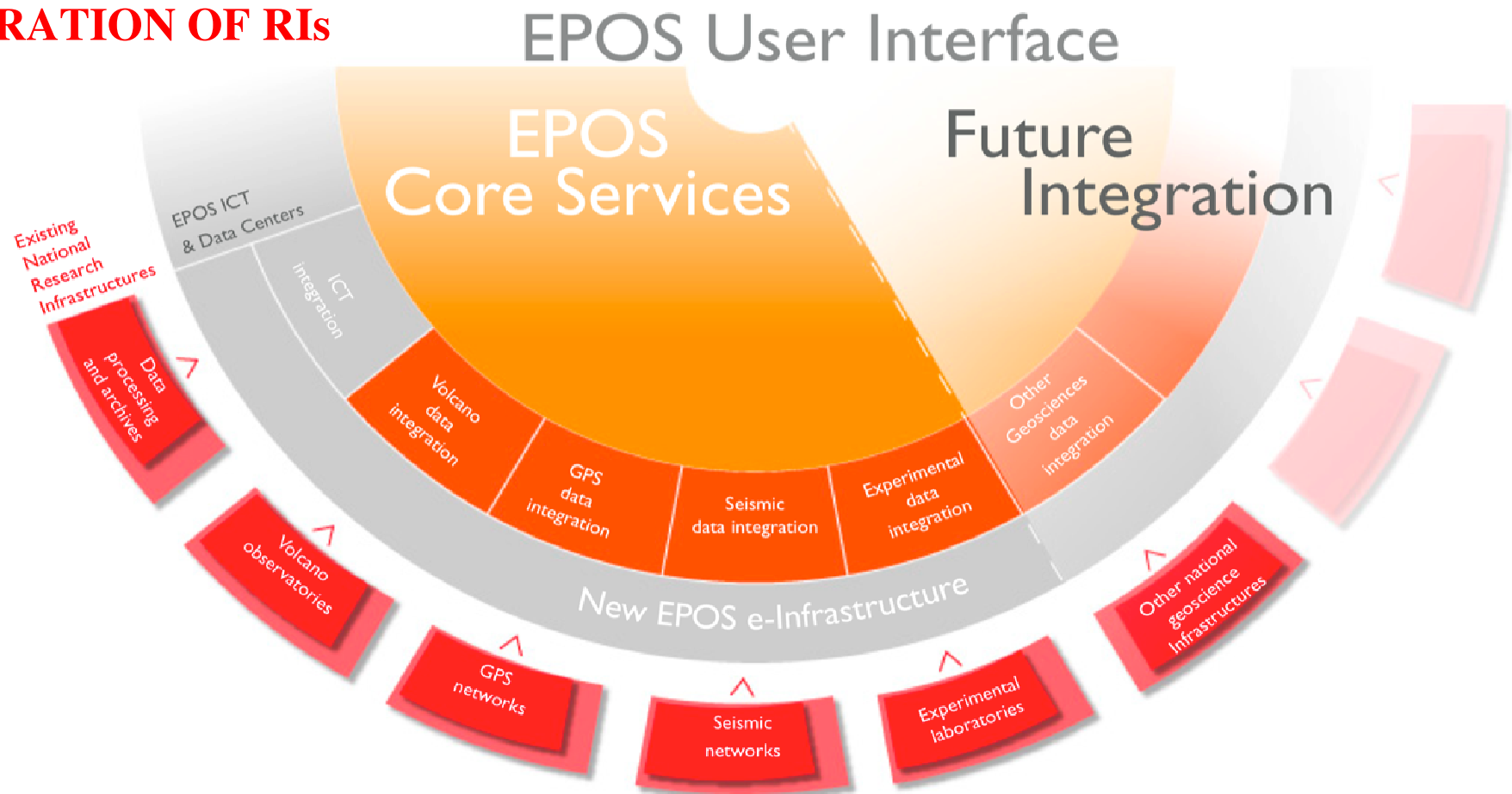
- **Establishing an efficient coordination and management of the infrastructure at European level that will govern the process of building the necessary components, the expenditure assessment and the outreach at the project level**
- **Reaching mutual agreement among the countries involved regarding the core legal entity, its governance structure, and the commitments for long-term funding**

EPOS PP Objectives

Technical Objectives

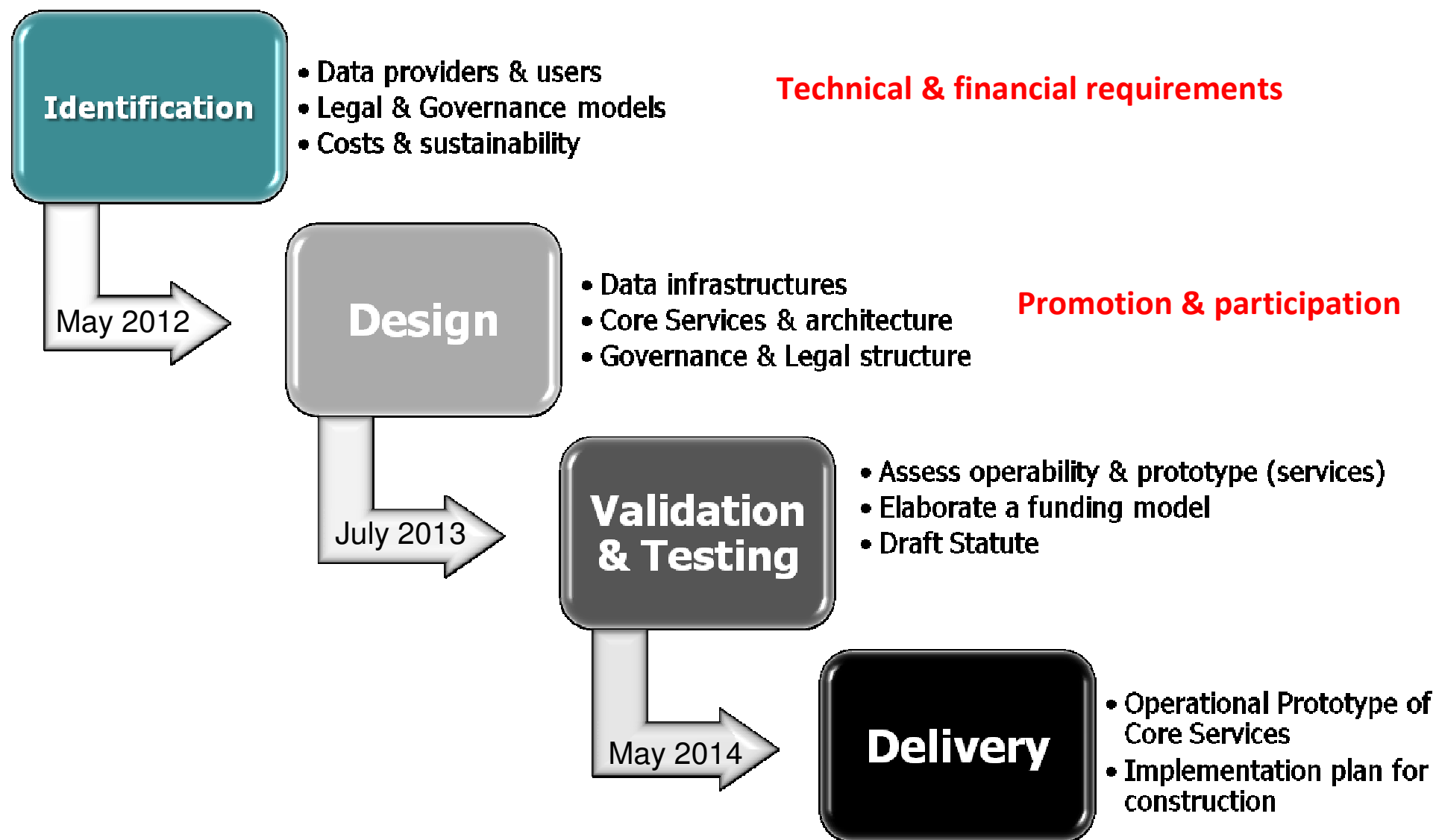
- **Design of the EPOS Data Centers that each solid Earth science community is willing to develop or further integrate**
- **Design of the EPOS Core Services and create a prototype**
- **Linking EPOS with other international Earth Observing Systems**
- **Promoting coherent training, educational and dissemination programs and outreach**

FEDERATION OF RIs



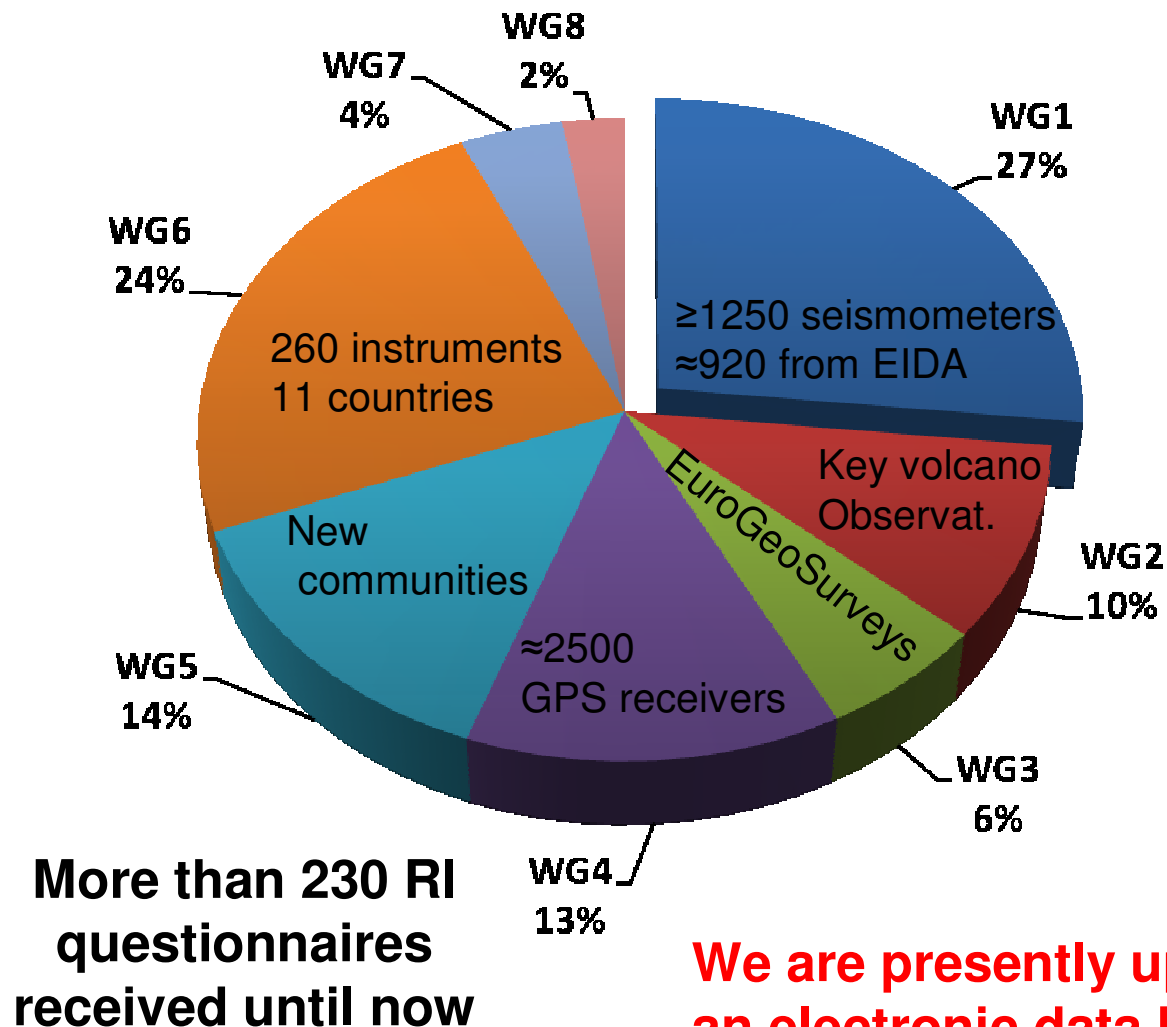
- The existing national research infrastructures are integrated into the EPOS Data Centres, which represent community specific services for data archiving and mining having their own computational resources.
- Community specific data centres are further integrated by the EPOS Core Services, representing the infrastructure layer consisting of common data services.
- EPOS data service infrastructure will be designed and established during the PP to serve multiple communities studying the solid Earth dynamics.

The EPOS Roadmap



Integrating data infrastructures

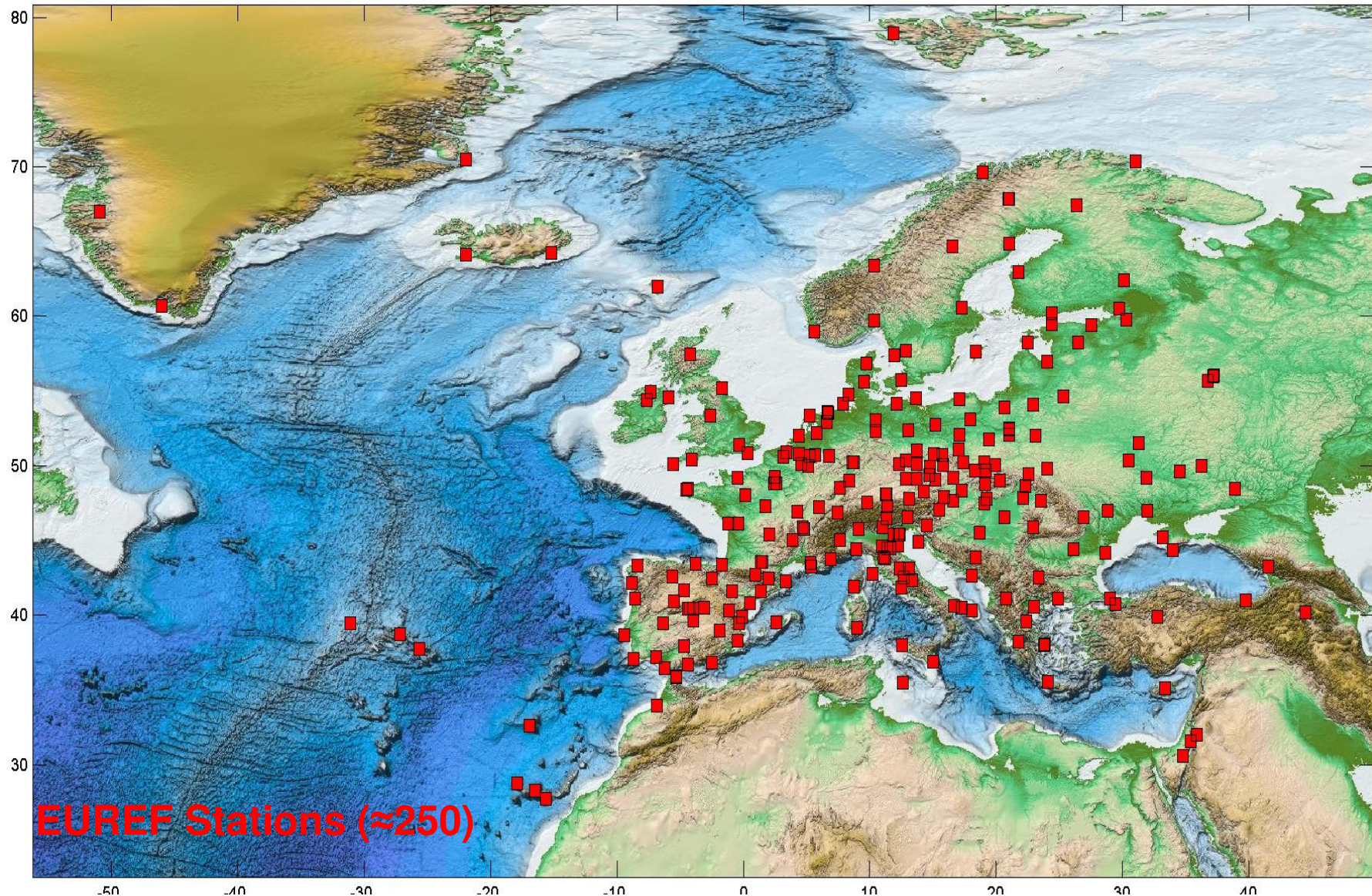
Response to RI - Questionnaires from the EPOS technical Working Groups (WGs)



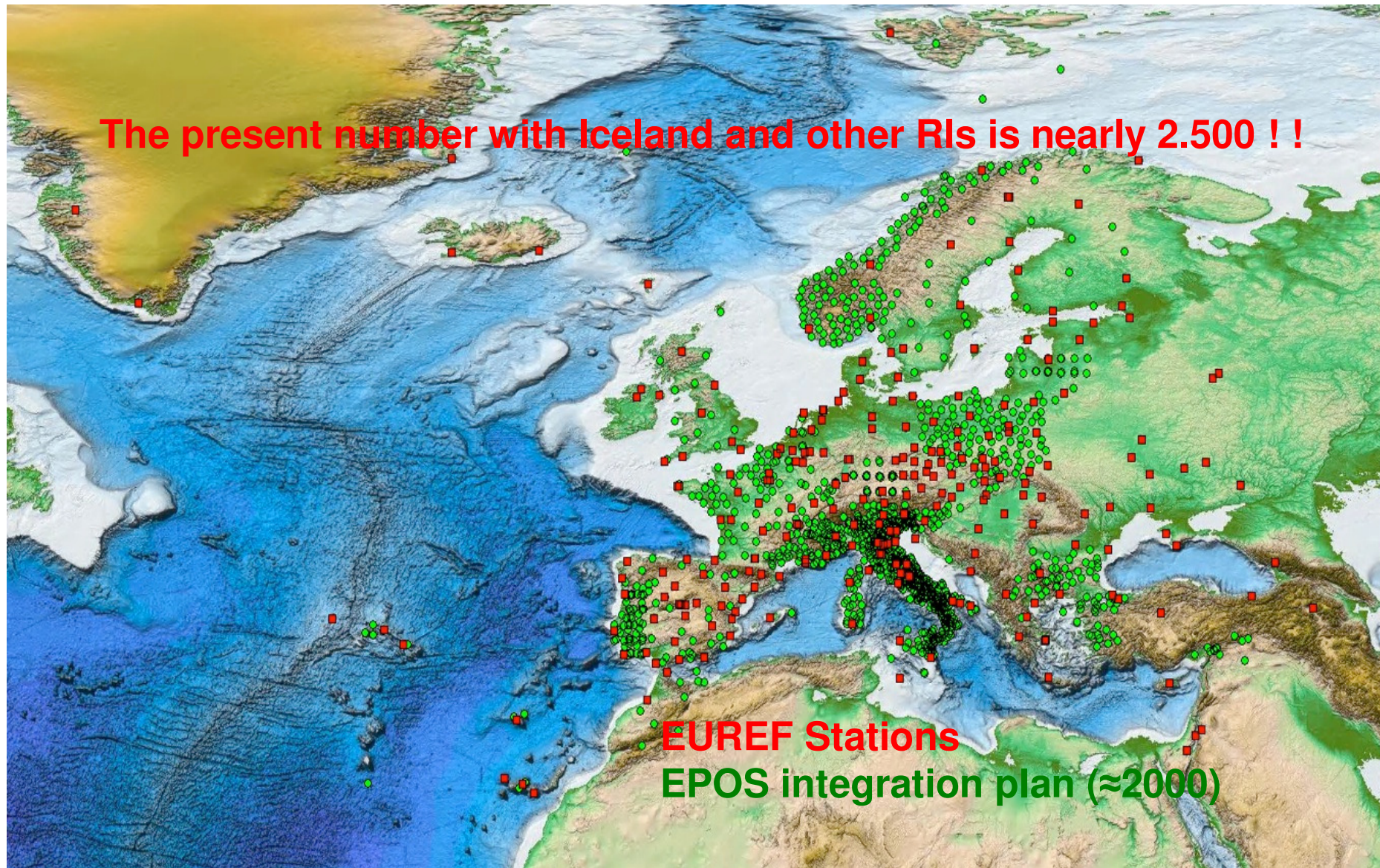
- ✓ WG1 Seismological Observatories and RIs
- ✓ WG2 Volcano Observations
- ✓ WG3 Geological and Surface Dynamics Data
- ✓ WG4 Geodetic Data
- ✓ WG5 Other Geoscience Data
 - ✓ Magnetic Observatories
 - ✓ Infrastructures for geo-resources
- ✓ WG6 Analytical and Experimental Laboratories
- ✓ WG7 ITC and e-IR Facilities
- ✓ WG8 Satellite Information Data

We are presently uploading all this information on an electronic data base (RIDE) and we plan to launch an implementation phase

EPOS: integrating GNSS networks



EPOS: integrating GNSS networks



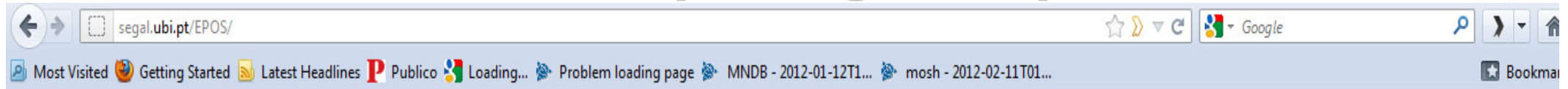
Working Group 4

GNSS data and other geodetic data

- **Main questions being addressed:**
 - Types of data (GNSS or also others; permanent, monument, rate acquisition)?
 - Involvement of commercial partners?
 - Centralized or seamless storage? Data preservation!
 - Metadata handling.
 - Data provider or also solution provider?
 - Development of Tools (e.g., time-series computation)?
 - Cooperation with other European Projects (EUREF, E-GVAP, EUVN, etc.

2nd Questionnaire – WG4

available at <http://segal.ubi.pt/EPOS/>



EUROPEAN PLATE OBSERVING SYSTEM WG4 Data Form

RI GENERAL

RI Acronym: RI Name: *

RI Website:

Institution: * Country: *

Manager: * Email: * Phone: *

Number of Data Centre Facilities: *

Number of Data Processing Facilities: *

Number of GNSS Networks: *

* mandatory fields

Please, fill the initial information concerning your RI and the number of existing Data Centre & Processing Facilities and GNSS Networks – in the next step you will be asked to fill information about each infra-structure. Please, note that your GNSS networks should be divided according to your internal divisions and also according to the data policy (this will be helpful in order to process the information for our databases).

2nd Questionnaire – WG4

available at <http://segal.ubi.pt/EPOS/>

segal.ubi.pt/EPOS/step2.php

Most Visited Getting Started Latest Headlines Publico Loading... Problem loading page MNDB - 2012-01-12T1... mosh - 2012-02-11T01...

DATA CENTRE FACILITIES 1 DATA PROCESSING FACILITIES 1 **GNSS NETWORK 1** GNSS NETWORK 2 GNSS NETWORK 3

Network name: * Type*: Local ▾

Number of sites: *

Is Raw data archived? * ☐ Yes ☐ No

Data Transmisson*: ☐ Real-Time ☐ Hourly ☐ Daily ☐ Manual

Data Format*: ☐ Raw/Rinex ☐ RTCM 2.x ☐ RTCM 3.x ☐ Binex ☐ Other

Data Policy*: Open ▾

Number of stations with 1s daily data, available with some delay: 0 *

Number of stations with 1s daily data, available next day: 0 *

Number of stations with 1s hourly data, available with some delay: 0 *

Number of stations with 1s hourly data, available next hour: 0 *

Number of stations with 1s sub-hourly data, available with some delay: 0 *


Number of stations with 1s sub-hourly data, available sub-hourly: 0 *

Number of stations with real-time data: 0 *

Stations list file upload [\[Download .xlsx model\]](#)

Enter your comments/special situations here...


<http://epos-couch.cloudant.com/epos-couch/design/epos-couch/index.html>



RIDE
RESEARCH INFRASTRUCTURE DATABASE for EPOS













What's RIDE? What's EPOS? Help Login

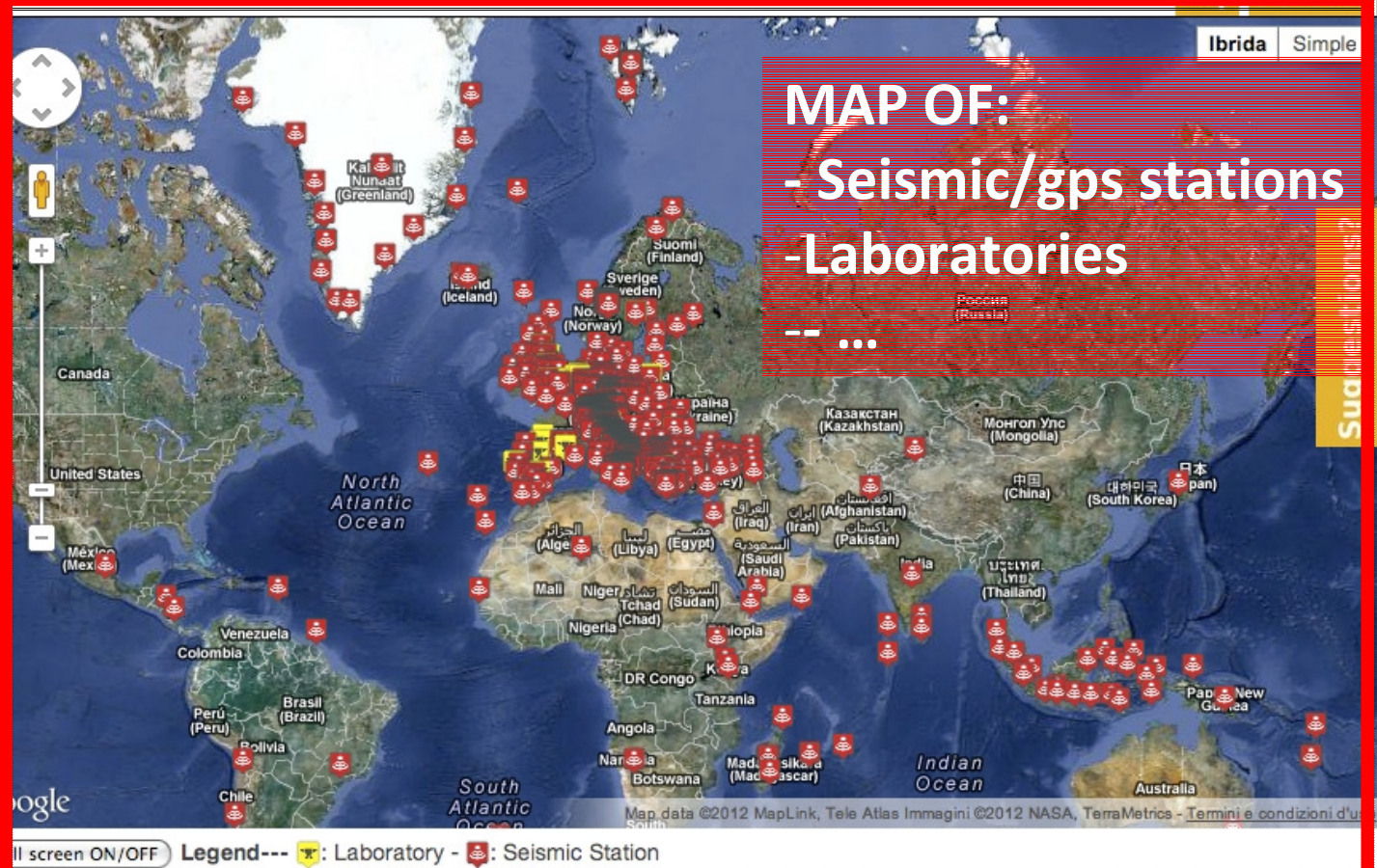
EPOS is: 129 Institutions



Q * COUNTRY: click-to-select

Research Infrastructure List

1.  AFAD - Turkey National Seismology Network - WG 1
2.  Applied Geophysics - WG 5
3.  ASCR - Czech regional seismic center - WG 1
4.  ASCR - Local seismic array East Bohemia - WG 1
5.  ASCR - Local seismic array Provdia - WG 1
6.  ASCR - Local seismic network norther Moravia (Masaryk Univ.) - WG 1
7.  ASCR - Mobile seismic network (mobnet) - WG 1
8.  ASCR - Seismological software center - WG 1
9.  ASCR - West Bohemia Seismic network (Webnet) - WG 1
10.  BCMT - WG 5
11.  Beowulf Computer Cluster for Volcanic Plume Modelling - WG 2
12.  BGR - German Regional Seismic Network - Graefenberg Array (Grnsn-grf) - WG 1



MAP OF:

- Seismic/gps stations
- Laboratories

Legend --- * : Laboratory - : Seismic Station

Thank you for attention



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