

EPOS: a Research Infrastructure for solid Earth science

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

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EPOs Solid Earth Science

• Pan-European dimension

- 25 countries for data provision
- 138 Research Organizations
- 256 Research Infrastructures
- 5 International Organizations

Distributed Environmental RI

- 23 Governments engaged
- Novel e-infrastructure (ICS-C)
- 10 Scientific Communities (TCS)

Multidisciplinary data & products

- ≈5000 seismic stations
- ≈3000 GNSS receivers
- o 118 laboratories / 829 instruments
- several Volcano Observatories
- Satellite data products
- ≈100 Petabytes of solid Earth data

Operational services to Society

- o Anthropogenic Hazards
- Services for Hazards & Risk
- Data & Products for Tsunami Alert



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EARTHQUAKES

VOLCANIC ERUPTIONS

SURFACE DYNAMICS

& TECTONICS

(cc)(i)

GEORESOURCE



EPOS from conception to operation

> NERIES, NERA > MEDSUV, FUTUREVOLC, MARSITE > ORFEUS, EMSC, EUREF, EuroGeoSurvey, INTERMAGNET > OneGeology Europe > SHARE, SAFER, REAKT > GEM, ICDP, IODP > VERCE



THEMATIC CORE SERVICES UNDER IMPLEMENTATION

Seismology Near-Fault Observatories GNSS Data & Products Volcano Observations Satellite Data Geomagnetic Observations Anthropogenic Hazards Geological Information and Modeling Multi-scale Laboratories Geo-Energy Test Beds for Low Carbon Energy



EPOS 30 October 2018: EPOS ERIC granted by EC

a key result achieved through a construction process lasted 10 years



Key objectives of EPOS Implementation Phase:

- Establishment of EPOS ERIC
- TCS & ICS implementation for data & service provision

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from Implementation to Operation

 EC projects and ESFRI roadmap are essential to proceed in the RI life-cycle

EPSS

- I3 projects are important for sustaining the community building focused around RIs
- Centrality of RIs in designing and developing pan-EU e-science initiatives [EOSC, EDI, EUROHPC]
- For a Distributed RI like EPOS the transition from implementation to operation, which include construction, is not sharp and require time and resources
- Achieving long-term sustainability is currently a challenge also depending on conditions external to the RI
- A sustainability phase might include simultaneous activities dealing with implementation, construction and operation



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Additional Slides for Q/A

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A vision for 2021 onward

- **Preserve financial support** to Research Infrastructures
- Maintain the role of ESFRI, its Roadmap and harmonization
- Support the ERIC's construction and operation
- Foster harmonization of pan-European integration with national priorities, strategies and support to RIs
- **Preserve the collaborative frameworks** for participative scientific research (not only applications)
- Take into account time and resources needed to make FAIR data principles a practice and foster open science
- Take into account the Ethical Dimension of service provision to society from Environmental RIs





For Distributed pan-European RI

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Data Generation

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EPOS Architecture



The EPOS data & service provision to diverse category of stakeholders

SCIENTISTS

- Data providers
- Data users within the SE community
- Data users outside the SE community
- IT experts

GOVERNMENTS

- National governments
- Funding agencies
- European Commission

PRIVATE SECTOR

- Industry
- Small Medium Enterprises

SOCIETY

- Students at any level
- General public

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