European Plate Observing System:

EPOS Implementation Phase (EPOS-IP – www.epos-eu.org)

and EPOS-Norway (EPOS-N – www.epos-no.org) Projects

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EPOS: European Plate Observing System
Research Infrastructure and e-science for data and observations on geo-hazards and geo-resources
European Tectonic Plate covers a considerable geographical area.
EPOS: a single, pan-European distributed RI

Diverse Data

TCS Seismology
80 Seismic Networks
4939 Seismic Stations
1 PB of Data

TCS Geodesy
56 GNSS Networks
2272 GPS Stations
1.2 PB of Data

Seismograms
Geological Maps

SAR Interferograms
Hazard Maps
What is EPOS?

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

EPOS integrates the existing (and future) advanced European facilities into a single, distributed, sustainable infrastructure taking full advantage of new e-science opportunities.

Several PetaBytes of solid Earth Science data will be available. Several thousands of users expected to access the infrastructure.
Solid Earth Science

- Different communities involved
- Multidisciplinary contributions
- Community building

→ Services to society
  - Geo-Resources
  - Geo-Hazards
  - Environmental hazards (including anthropogenic hazards)
EPOS architecture: main elements

EPOS-ERIC hosting Institution: INGV, Italy
ICS-C hosting: BGS-UK, BRGM-France and GEUS-Denmark
Norwegian National EPOS Consortium

Research Infrastructure and E-science for Data and Observatories on Earthquakes, Volcanoes, Surface Dynamics and Tectonics

www.epos-no.org

Participating Institutions:

University of Bergen, University of Oslo
NORSAR, Kartverket, NGU, CMR
Main objectives of EPOS-Norway

The main vision of the European Plate Observing System (EPOS) is to address the three basic challenges in Earth Sciences:

• Unravelling Earth’s deformational processes which are part of the Earth system evolution in time.
• Understanding geohazards and their implications to society.
• Contributing to the safe and sustainable use of georesources.

The goal of EPOS is to bring all data that maps the physical conditions of the Earth’s crust under a unified umbrella that:

• Makes data available and easier accessible to the full geoscience community (and to the public).
• Provides an integrated infrastructure that can be used by geoscientists and provide mechanisms for improved use of all available geodata.
• Initiates and facilitates closer interaction between scientists from different fields in terms of joint interpretation of different data for the same geographical areas.

EPOS-Norway aims to implement this goal through:

• Component-1: Developing a Norwegian EPOS e-infrastructure to integrate the data from the seismological and geodetic networks, as well as data from the geological and geophysical data repositories, which is in line with European EPOS implementation.
• Component-2: Improving the monitoring capacity in the Arctic, including northern Norway and the Arctic islands.
• Component-3: Establishing a Solid Earth Science Forum for providing a constant feedback mechanism for improved integration of multidisciplinary data, as well as training of young scientists for future utilization of all available solid Earth observational data through a single e-infrastructure.
Seismicity in Norway and the adjacent offshore areas in the period 1980-2010 (data from NNSN)
The Arctic Dimension of EPOS

European Plate Boundary in the Arctic

Seismicity in the Arctic

(data from USGS 1900-2013, M>4)
Increased monitoring in the Arctic:

Svalbard
- Six new BB seismograph and six new GPS stations (yellow circles) are planned taking into account the seismicity in Svalbard
- Existing seismograph stations (green stars)

Bjørnøya
- New BB seismograph array (9-nodes) is planned

Nordland
- Seven new BB seismograph and GPS stations
Thank you for your attention!