



European Plate Observing System – Norway (EPOS-N): Norwegian Solid Earth Data Integration and Arctic Observations

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The European Plate Observing System (EPOS) aims to create a pan-European infrastructure for solid Earth science to support a safe and sustainable society (Horizon2020 – InfraDev Programme – Project no. 676564). The main vision of the European Plate Observing System (EPOS) is to address the three basic challenges in Earth Science: (i) unravelling the Earth's deformational processes which are part of the Earth system evolution in time, (ii) understanding geo-hazards and their implications to society, and (iii) contributing to the safe and sustainable use of geo-resources. The mission of EPOS-Norway is therefore in line with the European vision of EPOS, i.e. monitor and understand the dynamic and complex Earth system by relying on new e-science opportunities and integrating diverse and advanced Research Infrastructures for solid Earth science.

The EPOS-Norway project (RCN Infrastructure Programme – Project no. 245763) started in January 2016 with a national consortium consisting of six institutions. These are: University of Bergen (Coordinator), NOR-SAR, National Mapping Authority, Geological Survey of Norway, Christian Michelsen Research and University of Oslo. EPOS-N will during the next five years focus on the implementation of three main components. These are: (i) Developing a Norwegian e-Infrastructure to integrate the Norwegian Solid Earth data from the seismological and geodetic networks, as well as the data from the geological and geophysical data repositories, (ii) Improving the monitoring capacity in the Arctic, including Northern Norway and the Arctic islands, and (iii) Establishing a national Solid Earth Science Forum 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.

A list of data, data products, software and services (DDSS) is already prepared. Integration of these elements with the EPOS-N data/web-portal has started. In addition to the standard data and data products, such as seismological, geodetic, geomagnetic and geological data, there are a number of non-standard data and data products that will be integrated. A prototype of the EPOS-N data/web-portal is already developed and has been tested extensively through a dedicated user workshop. In parallel, advanced visualization technologies are being implemented, which will provide a platform for a possible future ICS-D (distributed components of the Integrated Core Services) for EPOS.

In order to enhance the monitoring capacity in the Arctic, planning and site selection process for the new instrument installations are well underway, as well as the procurement of the required equipment. In total, 17 new seismological and geodetic stations will be co-located in selected sites in Northern Norway, Jan Mayen and Svalbard. A site selection survey in Svalbard was conducted in 2017, and preparations for the installations are underway. In addition, a seismic array is planned. An aeromagnetic survey along the Knipovich Ridge has started, and when completed, will give new insights to the tectonic development of the mid-ocean ridge systems in the North Atlantic.