EPOS NEAR-FAULT OBSERVATORIES

Near Fault Observatories (NFO) are multidisciplinary research infrastructures collecting innovative data and observations near active faults aimed at understanding the physics of faulting and the earthquakes preparatory phase.

Faults are complex geological systems whose physical and chemical properties evolve over time. Thus, in conducting fault investigation and developing advanced alert systems, NFOs ground on interdisciplinary data and approaches, a road of integration. NFO monitoring is based on modern infrastructures hosting geochemical, geodetic, seismic, and geophysical sensors capable of collecting high-resolution data in the vicinity of active faults.

Today the NFO community in Europe consists of 8 permanent NFO members and 12 member organizations, whose infrastructures are settled in tectonically active areas characterized by different kinematics and deformation rates.

In line with EPOS goals, the **NEAR-FAULT OBSERVATORIES TCS** is committed to sharing and integrating new scientific products fostering and facilitating solid Earth science knowledge. Data collected by the NFO's modern infrastructures also offer a unique opportunity to generate advanced scientific products giving a fundamental contribution to seismic hazard estimation and risk mitigation for exposed populations in areas surrounding NFOs.

Services

The NFO-TCS integrates seismological, geodetic, geological, geochemical and satellite data collected by individual observatories into a network with common monitoring standards. These data are distributed via the federated community portal harmonised with EPOS services.

www.epos-eu.org/tcs/near-fault-observatories

FRIDGE provides users with a common gateway to discover, visualize, and download NFO data and products describing processes occurring in active fault zones. NFO multidisciplinary data accessed by these services are integrated into the EPOS DATA PORTAL providing open access to a vast collection of datasets related to solid Earth science. Real-time monitoring of various faults in different tectonic areas can help in developing ground-shaking scenarios for a more resilient society. NFO provides high-resolution data collected near faults and a virtual environment for testing advanced Early Warning Systems.

CREW is a testing facility that evaluates the performance of the Earthquake Early Warning systems at NFOs. Performances are based on the accuracy in the characterization of the source parameters and on the rapidness of the alert. CREW is based on a local server hosted on Virtual Machines, where all tested software can run for fair comparison. A web interface reports the results of the performance evaluation.

EPOS, the **European Plate Observing System**, is a multidisciplinary, distributed research infrastructure that facilitates the integrated use of data, data products, and facilities from the solid Earth science community in Europe. EPOS ensures the long-term access to Solid Earth science data and services, with the goal of answering some of the most pressing societal questions concerning geo-hazards and those geodynamic phenomena relevant to the environment and human welfare.