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Integrating distributed data archives in seismology: the European Integrated waveform Data Archives (EIDA)

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ORFEUS is the non-profit foundation that coordinates and promotes digital broadband seismology in Europe. Since 1987 the ORFEUS Data Center (ODC) has been its jointly funded data center. However, within the last decade we have seen an exponential growth of high quality digital waveform data relevant for seismological and general geoscience research. In addition to the rapid expansion in number and density of broadband seismic networks this growth is fuelled by data collected from other sensor types (strong motion, short period) and deployment types (aftershock arrays, temporary field campaigns, OBS). As a consequence, ORFEUS revised its data archiving infrastructure and organization, a major component of this is the formal establishment of the European Integrated waveform Data Archives (EIDA).

Within the NERIES and NERA EC projects GFZ has taken the lead in developing ArcLink as a tool to provide uniform access to distributed seismological waveform data archives. The new suite of software and services provides the technical basis of EIDA. To ensure that those developments will become sustainable, an EIDA group has been formed within ORFEUS. This founding group of EIDA nodes, formed in 2013, will be responsible for steering and maintaining the technical developments and organization of an effective operational distributed waveform data archive for seismology in Europe.

The EIDA Founding nodes are: ODC/ORFEUS, GEOFON/GFZ/Germany, SED/Switzerland, RESIF/CNRS-INSU/France, INGV/Italy and BGR/Germany. These represent EIDA nodes that have committed themselves within ORFEUS to manage EIDA, that is, to maintain and develop EIDA into a stable sustainable research infrastructure. This task involves a number of challenges with regard to quality and metadata maintenance, but also to provide efficient and uncomplicated data access for users. This also includes effective global archive synchronization with developments within the International Federation of Digital Seismograph Networks (FDSN). This ORFEUS – EIDA initiative represents another step towards the construction of the European Plate Observing System (EPOS), and will be a cornerstone of the EPOS services for seismology.

The EIDA infrastructure and organization will be presented with a main emphasis on on-going developments and challenges.