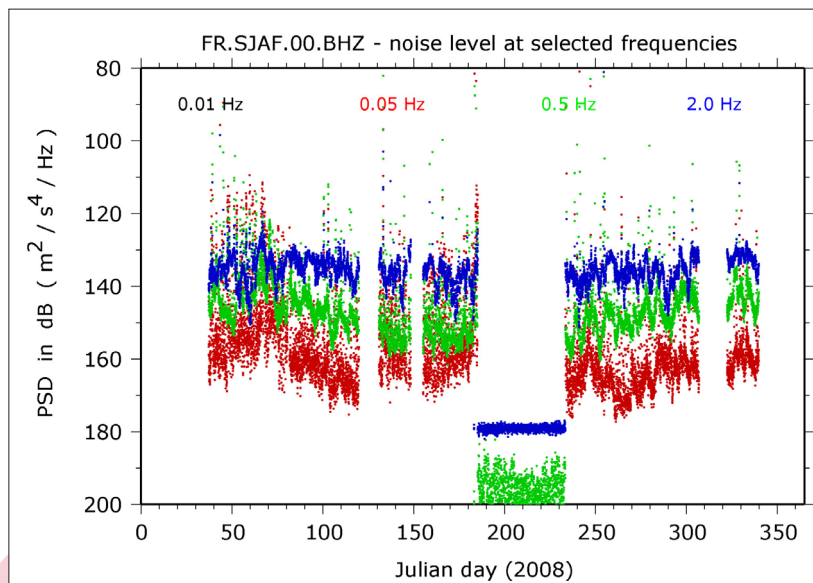


ORFEUS Data Centre (ODC)

Mission and operations

The mission of the ORFEUS Data Centre (ODC) is to collect and archive high-quality seismic broadband waveform data from European-Mediterranean organizations and to provide open access to this data for monitoring and research purposes by the scientific community. The core activity of the ODC is to run an automatic, sustainable system to achieve this mission. Our 4 key operations are: data exchange protocols, quality control procedures, data management and data services. All activities at the ODC benefit from developments within the EC Infrastructure (I3) project NERIES (Network of Research Infrastructure for European Seismology).

The ODC uses different standard, real-time data exchange protocols (e.g. Antelope, SeedLink, Scream, InternNAQS) to ensure a very high data availability from stations in the Virtual European Broadband Seismic Network (VEBSN). The quality of both waveform data and metadata is monitored continuously in time by Power Spectral Density (PSD) calculations and PSD probability density functions (PDF). Waveforms and metadata from VEBSN stations are archived on a Storage Area Network (SAN) device in SEED format and managed through a MySQL database. The ODC operates a uniform data interface (GDI - Generic Data Interface) to enable common and sustainable access to the data by different services and request methods.



A near real-time data quality monitor for the VEBSN, implemented at the ODC. The monitor displays the Power Spectral Density of the background noise as function of time, for selected frequencies.

Acquisition protocols

- Antelope
- Seedlink
- Scream
- InterNaqs
- CD1.x

Quality control

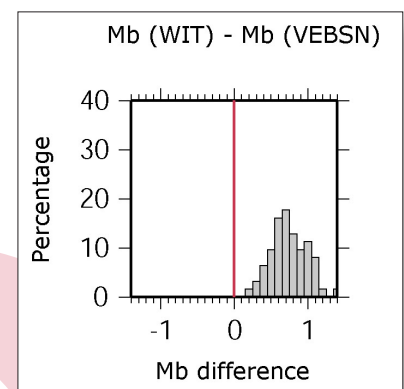
- PSD
- PQLX
- Antelope

Data management

- MySQL
- GDI

Services

- FTP
- WilberII
- AutoDRM
- OWI
- NetDC
- Breq_fast
- WebDC (ArcLink)

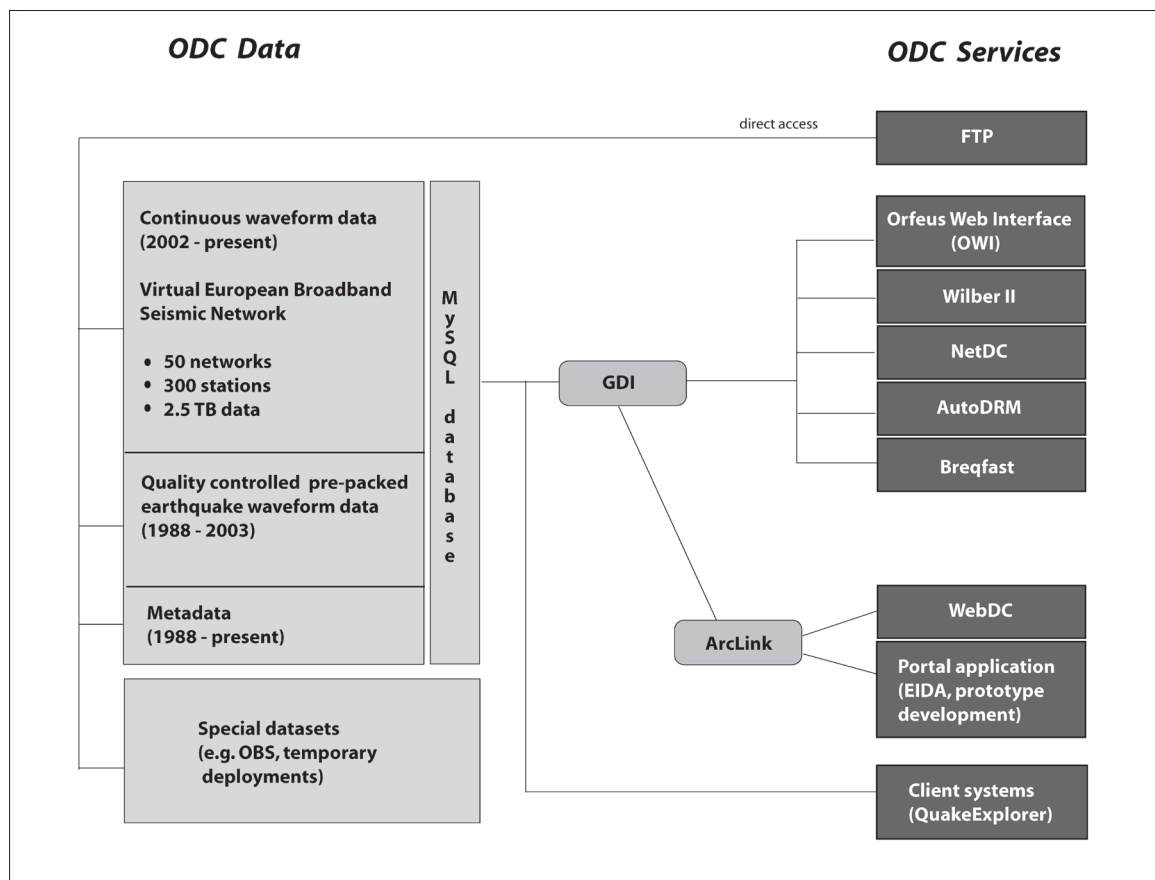


The ODC monitors the differences between station magnitudes and VEBSN magnitudes for all VEBSN stations, as illustrated in this example.

Data holdings and services

The **ODC** holds quality controlled earthquake waveform data (110 Gb total) from 1988 to 2003, continuous waveform data from 2002 to present (2.5 Tb total), and metadata for (almost) all waveform data. As of June 2008, the **ODC** collects data from about 300 broadband stations (VEBSN), with sample rates between 20 and 100 samples per second, at a dataflow of about 2.0 Gb per day. VEBSN networks and stations are internationally registered at the FDSN (International Federation of Digital Seismograph Networks) and the ISC (International Seismological Centre). Besides the regular dataset, the **ODC** archives special datasets from OBS stations or temporary deployments.

Data is highly accessible to the community through the different services at the **ODC**: direct access (ftp), interactive tools (WilberII, OWI, WebDC) and request techniques (NETDC, Breqfast, AutoDRM). The **ODC** is one of the major nodes in EIDA (European Integrated Data Archive) through the use of ArcLink.



Schematic overview of seismic waveform data holdings at the ODC, the data management and the various services available to the user (www.orfeus-eu.org).