

Czech Regional Seismic Network FDSN Report 2003

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Seismic network

Geophysical Institute of the Academy of Sciences of the Czech Republic (GI-ASCR) operates five broadband seismological stations of the Czech Regional Seismic Network (CRSN): Pruhonice (PRU), Kasperske Hory (KHC), Dobruska/Polom (DPC), Novy Kostel (NKC) and Panska Ves (PVCC). Station OKC is operated in cooperation with Technical University / Institute of Geonics in Ostrava. Short-period station Upice (UPC) is operated in cooperation with Astronomical observatory at Upice. Stations of the CRSN are depicted in Fig.1.

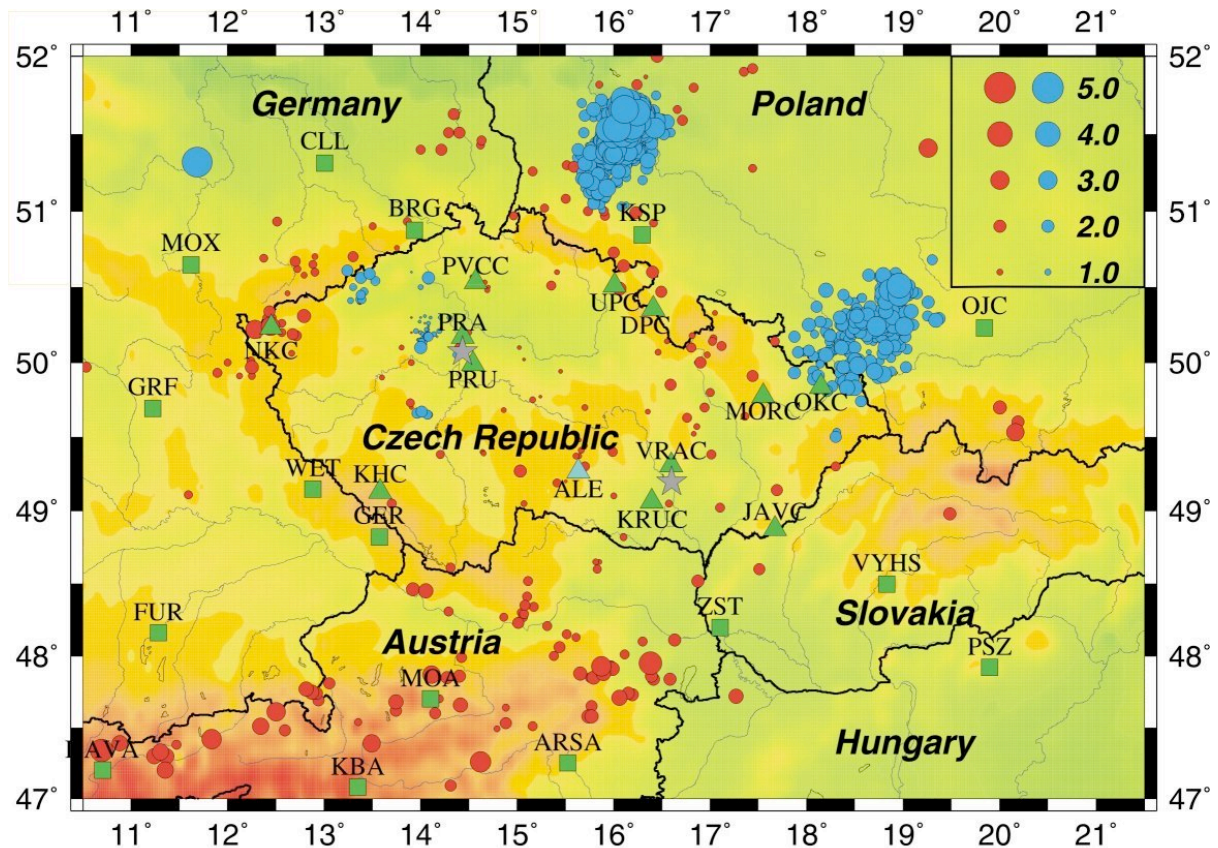


Fig. 1. Permanent seismological stations in Czech Republic in 2003 (green triangles - operational stations; blue triangle - planned station; squares - stations in neighbouring countries; stars - GI-ASCR and IPE-MUB data centers; red circles - epicentres of earthquakes in 1995-1999, blue circles - mining-induced seismic events in 1995-1999).

Data acquisition system at stations PRU, KHC, NKC, OKC, PVCC and UPC was upgraded in mid 2003 from Czech system Vistec to 24-bit EarthData digitizer + SeisComp datalogger. Station DPC is equipped with Quanterra Q4134 datalogger. STS-2 sensors were installed at PRU and PVCC stations. A new broadband station is planned at Aleje (ALE) in W Moravia - see blue triangle in Fig. 1.

SeedLink and Antelope program packages are used for real-time (RT) data acquisition and exchange. Broadband data from station PRU, KHC, NKC, OKC, PVCC and UPC are transferred to the SeedLink server at the GI-ASCR in RT through Internet. Qt2orb connection between station DPC and the Antelope system at GI-ASCR was established in December 2002.

Institute of Physics of the Earth, Masaryk University Brno (IPE-MUB) operates four broadband stations of the CRSN: Vranov (VRAC), Moravsk_Beroun (MORC), Moravsk_Krumlov (KRUC), and Velká Javorina (JAVC). Stations are equipped with Quanterra dataloggers and STS-2 sensors. Data from stations VRAC, MORC, KRUC and JAVC are radio-telemetered to IPE-MUB. Table 1. summarizes stations of the CRSN.

Station	Code	Latitude	Longit.	Alt.	Operator(s)	Sensor	Acquisition	Open
Pruhonice	PRU	49.9883	14.5417	302	GI Prague	STS-2	EarthData +SeisComP	1991
Kasperske Hory	KHC	49.1309	13.5782	700	GI Prague	STS-2	EarthData +SeisComP	1973
Dobruska/Polom	DPC	50.3502	16.3222	748	GI Prague	STS-2	Quanterra	1992
Novy Kostel	NKC	50.2331	12.4479	564	GI Prague	STS-2	EarthData +SeisComP	1997
Panska Ves	PVCC	50.5282	14.5690	311	GI Prague	STS-2	EarthData +SeisComP	2003
Upice	UPC	50.5074	16.0121	416	GI Prague-Astron. Observatory Upice	S-5S	EarthData +SeisComP	1983
Vranov	VRAC	49.3087	16.5954	470	IPE Brno	STS-2	Quanterra	1991
Moravsky Beroun	MORC	49.7760	17.5470	743	IPE Brno/Geofon	STS-2	Quanterra	1994
Moravsky Krumlov	KRUC	49.0619	16.3951	341	IPE Brno/ZAMG	STS-2	Quanterra	1995
Velka Javorina	JAVC	48.8591	17.6707	827	IPE Brno/ZAMG	STS-2	Quanterra	1995
Praha	PRA	50.0703	14.4331	225	Charles University Prague	Kirnos	PC acq.	1994
Ostrava/Krasne Pole	OKC	49.3087	18.1472	272	TU/IGN Ostrava	CMG- 3ESP	EarthData +SeisComP	1998

Table 1. Summary of the stations of the Czech Regional Seismic Network.

Real-time Data Exchange

ORB-ORB connection between ORFEUS Data Center and GI-ASCR was established in mid 2002. Real-time data from stations PRU, KHC, NKC, DPC and OKC are transferred to ODC and are included in the Virtual European Broadband Seismograph Network (VEBSN). ORB-ORB, SeedLink-SeedLink and SeedLink-ORB connections and RT data exchange were also established with GFZ Potsdam, INGV Rome, ZAMG Vienna, GPISAS Bratislava, ETHZ Zurich, and EARS Ljubljana data centers. Fig. 2 shows the data exchange between GI-ASCR and European data centers.

Antelope and Seedlink packages are used for real-time data exchange at IPE-MUB. ORB-ORB and ORB-SeedLink connections and RT data exchange were established with ORFEUS Data Center, CTBTO Vienna, GFZ Potsdam, GI-ASCR Prague, ZAMG Vienna, and GPISAS Bratislava data centers.

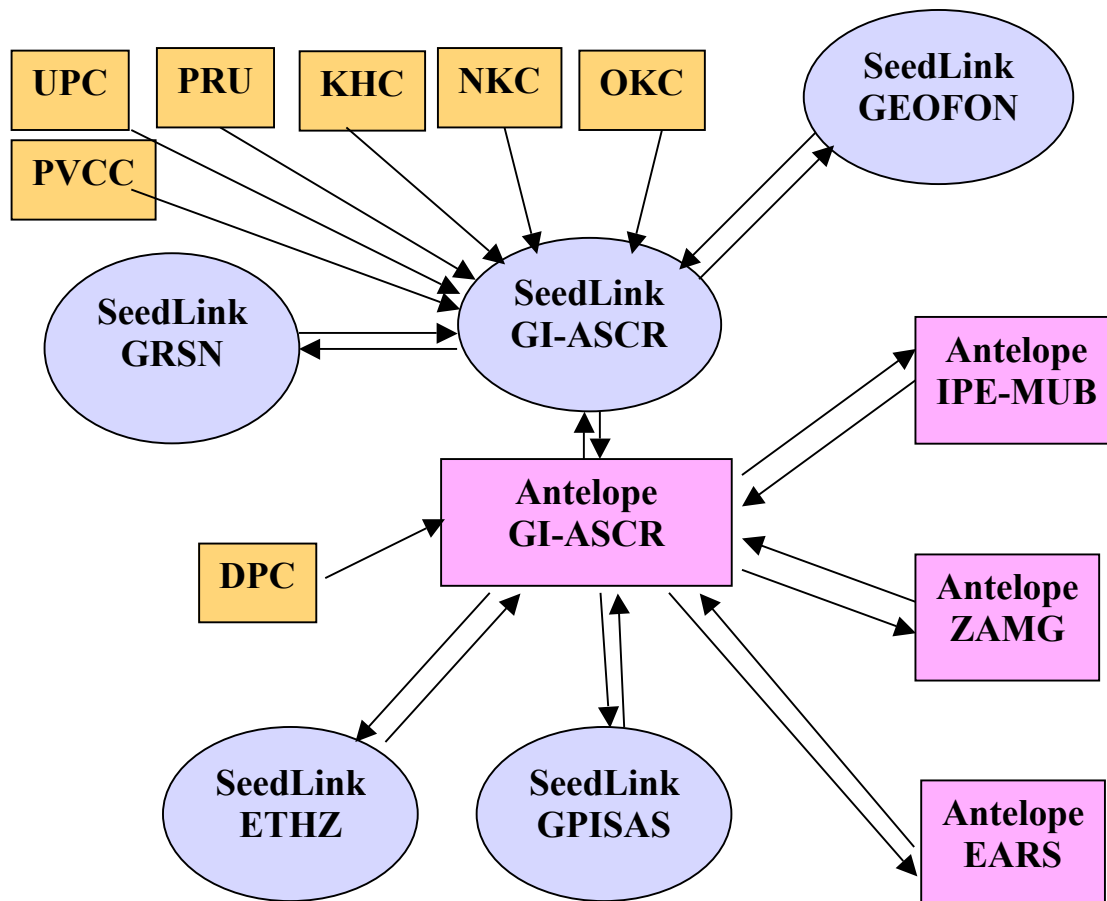


Fig. 2. Data flow from / to GI-ASCR. SeedLink and Antelope programs are used for real-time data acquisition and exchange.

Near Real-time Data Exchange

AutoDRM at GI-ASCR (autodrm@seis.ig.cas.cz) has been operational since 1996. Recent dramatic increase of disk capacity enabled extending the time period of available continuous data of PRU, KHC, DPC, NKC, OKC and PVCC stations from 2-3 months to more than 3 years. DPC continuous data since 1992 are available through IRIS DMC.

AutoDRM at IPE-MUB (autodrm@ipe.muni.cz) has been operational since 1994. By adding new disk capacity within the EC Meredian project, broadband data available at IPE-MUB by AutoDRM were extended from 2-3 weeks to 6 months.

Seismological Archive

Continuous BB data from the GI-ASCR stations PRU, KHC, NKC, DPC, OKC, PVCC and UPC are stored on a SUN disk array with total capacity 0.4 TB. Continuous data for the period 2000 – present in miniSeed format were transferred from the CD-ROM archive to hard disk during the Meredian-2 project. The data are accessible for real-time exchange (seedlink, Antelope orb2orb communication) or through off-line requests by AutoDRM or the Web interface developed at GI-ASCR. SUN LTO tape library with the total capacity 2 TB enables archiving of all available continuous and triggered data of the Czech Regional Seismic Network. The archive became fully operational in June 2003.