

Czech Regional Seismic Network FDSN Report 2005

Jan Zednik
Geophysical Institute Acad. Sci. Czech Republic
jzd@ig.cas.cz

Seismic network

Geophysical Institute of the Academy of Sciences of the Czech Republic (GI-ASCR) operates six broadband seismological stations of the Czech Regional Seismic Network (CRSN): Pruhonice (PRU), Kasperske Hory (KHC), Dobruska/Polom (DPC), Novy Kostel (NKC), Panska Ves (PVCC) and newly established station Trest (TREC). Station OKC is operated in cooperation with Technical University / Institute of Geonics in Ostrava, short-period station Upice (UPC) in cooperation with the Astronomical observatory at Upice. Data from stations PRU, KHC, DPC, NKC, OKC, PVCC, TREC and UPC are transferred to GI-ASCR in real time through Internet.

Institute of Physics of the Earth, Masaryk University Brno (IPE-MUB) operates four broadband stations of the CRSN: Vranov (VRAC), Moravský Beroun (MORC), Moravský 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 in real time. Stations of the CRSN are depicted in Fig.1. and summarizes in Table 1.

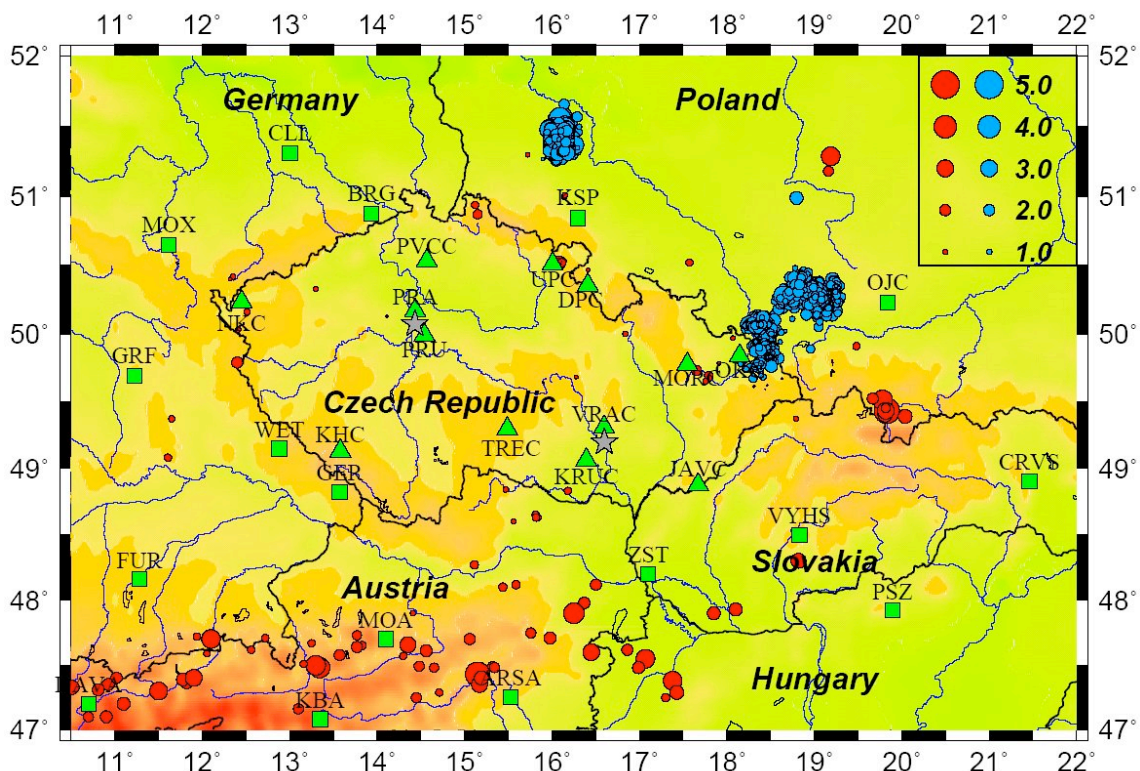


Fig. 1. Permanent seismological stations in Czech Republic in 2005 (green triangles - operational stations; squares – stations in neighbouring countries; stars – GI-ASCR and IPE-MUB data centers; red circles – epicentres of earthquakes in 2004, blue circles - mining-induced seismic events in 2004.

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
Trest	TREC	49.2948	15.4871	559	GI Prague	CMG-3T	EarthData +SeisComp	2005
Upice	UPC	50.5074	16.0121	416	GI Prague-Astron. Observatory Upice	S-5S	EarthData +SeisComp	1983
Vranov	VRAC	49.3084	16.5933	470	IPE Brno	STS-2	Quanterra	1991
Moravsky Beroun	MORC	49.7768	17.5425	743	IPE Brno/Geofon	STS-2	Quanterra	1994
Moravsky Krumlov	KRUC	49.0619	16.3952	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	49.8375	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

Real-time data from stations PRU, KHC, NKC, DPC, OKC, VRAC, MORC, KRUC and JAVC are transferred to ORFEUS Data Center by ORB-ORB connections and are included in the Virtual European Broadband Seismograph Network (VEBSN). Antelope / SeedLink connections and RT data exchange were also established with IRIS DMC Seattle, GFZ Potsdam, INGV Rome, ZAMG Vienna, GPISAS Bratislava, ETHZ Zurich, EARS Ljubljana, NIEP Bucharest, and GI BAS Sofia data centers, mostly in frame of the EC project Meredian. Fig. 2 shows the data exchange between GI-ASCR and European data centers. IPE-MUNI as the Czech NDC established connection with the CTBTO in Vienna.

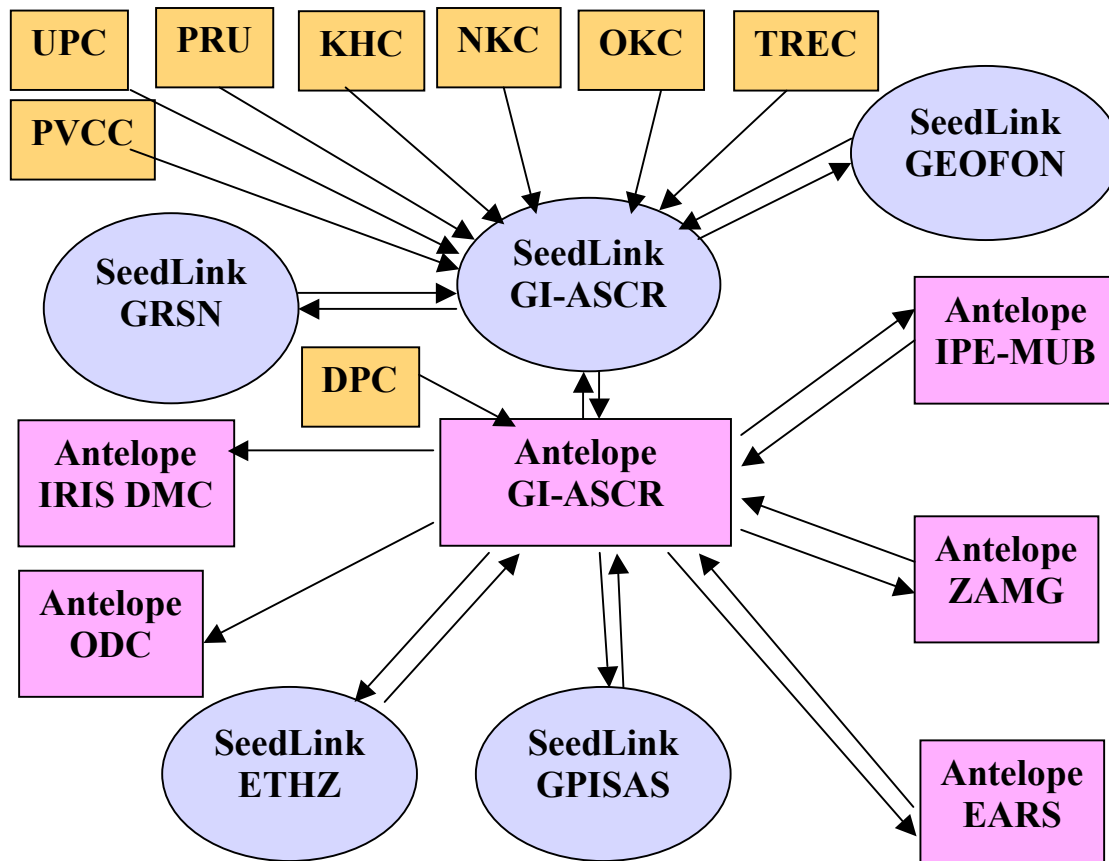


Fig. 2. Data flow from / to GI-ASCR. SeedLink and Antelope programs are used for real-time data acquisition and exchange.

Near Real-time Data Exchange

AutoDRM at GI-ASCR (autodrm@seis.ig.cas.cz) has been operational since 1996. Continuous data of PRU, KHC, DPC, NKC, OKC and PVCC stations since 2000 are available. DPC continuous data since 1992 are also available through IRIS DMC request mechanisms.

AutoDRM at IPE-MUB (autodrm@ipe.muni.cz) has been operational since 1994. By adding new disk capacity within the EC Meridian project, broadband data available at IPE-MUB by AutoDRM were extended from 2-3 weeks to 1 year.

Seismological Archive

Continuous BB data from stations PRU, KHC, NKC, DPC, OKC, PVCC and UPC are stored at GI-ASCR on a SUN disk array with total capacity 0.4 TB. The data are accessible for real-time exchange (seedlink, Antelope orb2orb communications) or for 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.