Czech Regional Seismic Network
FDSN Report 2004

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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 run in cooperation with Technical University / Institute of Geonics in Ostrava. Short-period station Upice (UPC) is operated in cooperation with Astronomical observatory at Upice. Data from stations PRU, KHC, DPC, NKC, OKC, PVCC and UPC are transferred to GI-ASCR in real time through Internet.
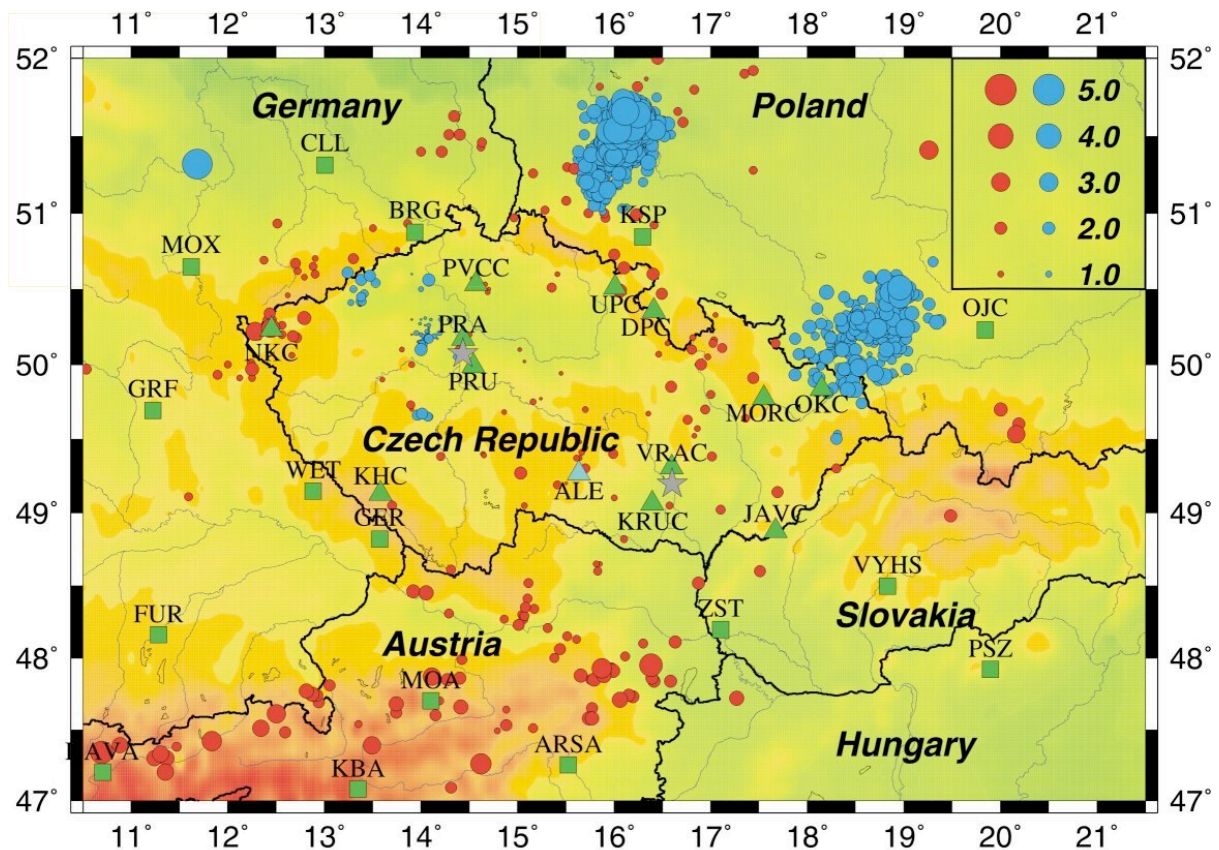

Fig. 1. Permanent seismological stations in Czech Republic in 2004 (green triangles - operational stations; blue triangle – planned station; squares – stations in neighbouring countries; stars – GI-ASCR and IPE-MUB data centers; red circles – epicentres of earthquakes in 1995-1999, blue circles - mining-induced seismic events in 1995-1999.

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 in real time. Stations of the CRSN are depicted in Fig.1. and summarizes in Table 1.

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	49.3084	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	49.3087	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

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). ORB-ORB, SeedLink-SeedLink and SeedLink-ORB connections and RT data exchange were also established with IRIS DMC Seattle, GFZ Potsdam, INGV Rome, ZAMG Vienna, GPISAS Bratislava, ETHZ Zurych, and EARS Ljubljana data centers. Fig. 2 shows the data exchange between GI-ASCR and European data centers. IPE-MUNI as Czech NDC established connection with CTBTO in Vienna.

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 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 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. Continuous data for the period 2000 – present in miniSeed format were transferred from the CD-ROM archive to hard disk during the EC project Meredian. 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.
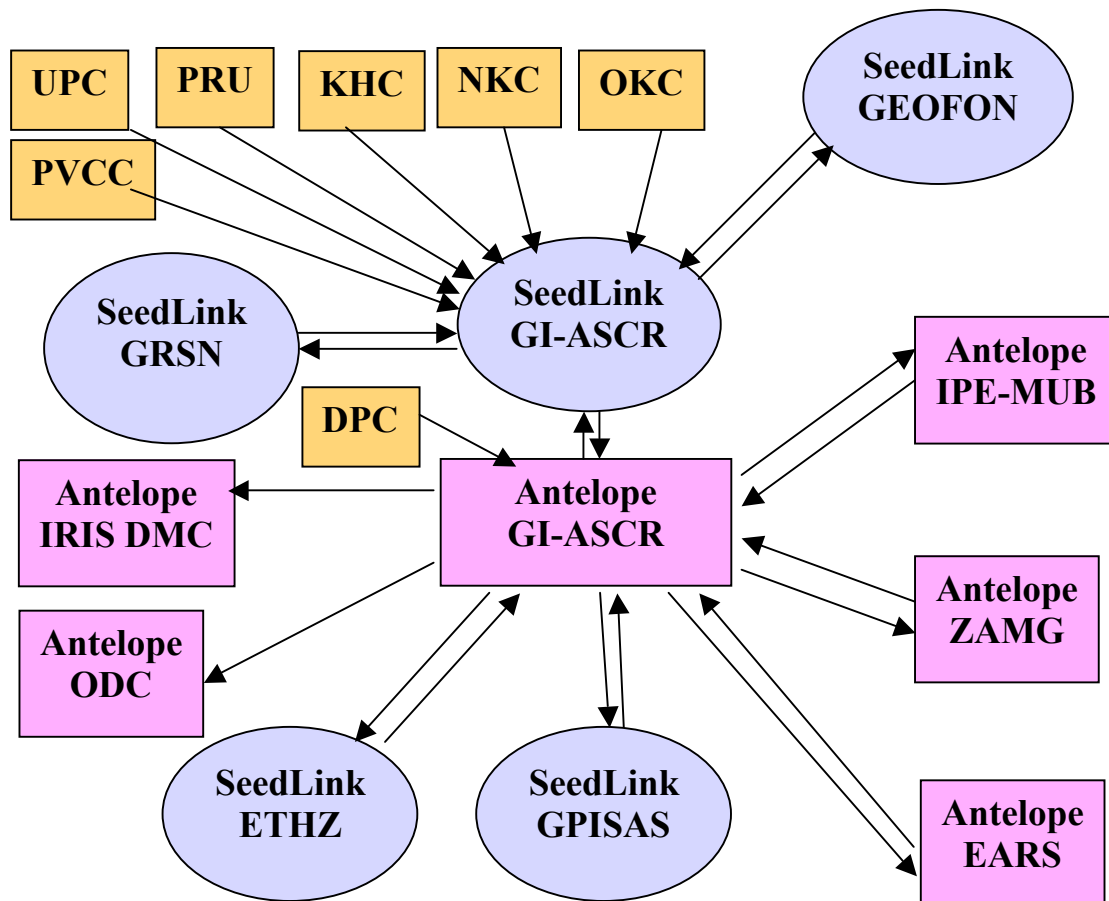
Fig. 2. Data flow from / to GI-ASCR. SeedLink and Antelope programs are used for real-time data acquisition and exchange.