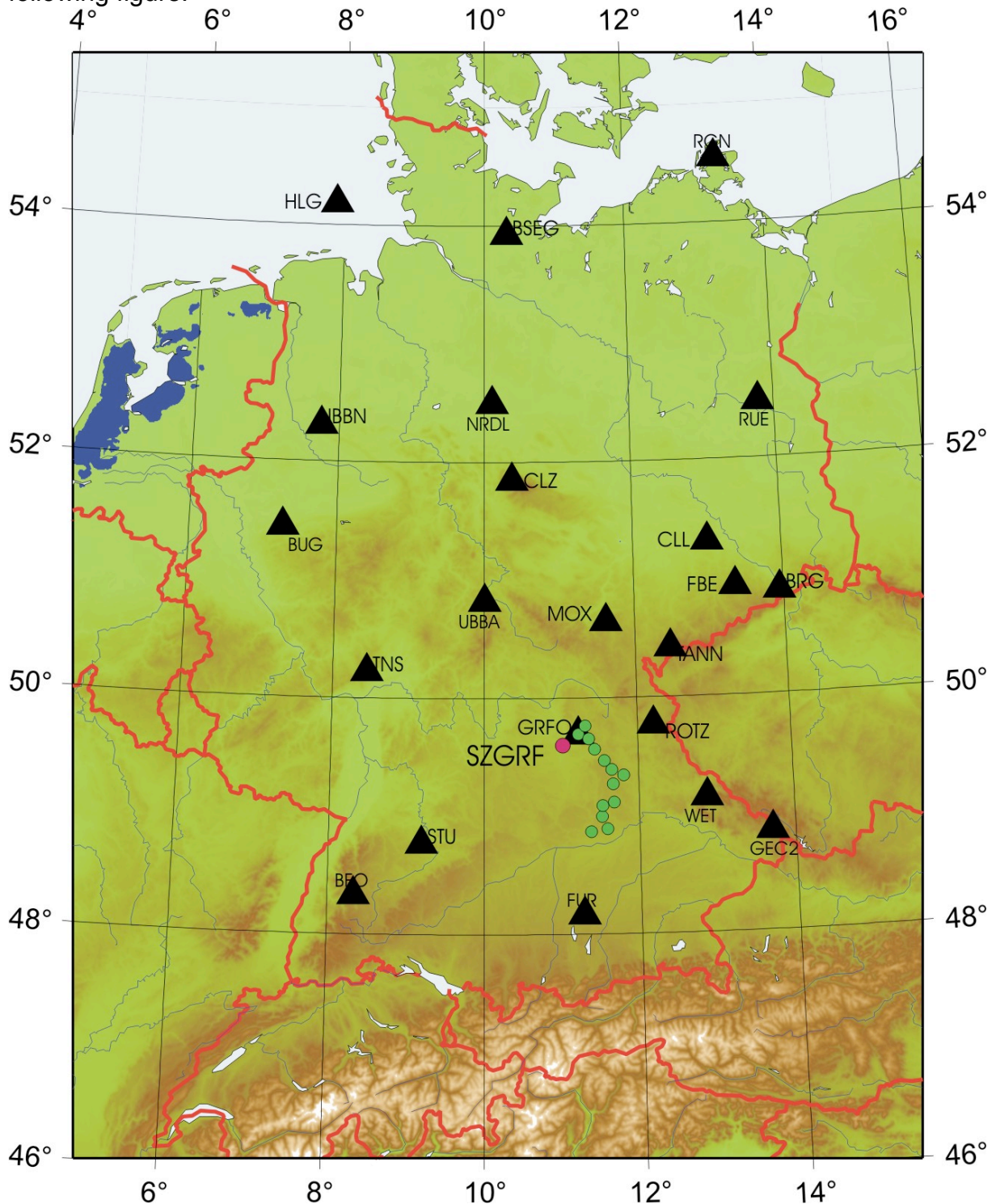# German broadband stations of GRF and GRSN
FDSN report 2005

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The broadband stations in Germany consist mainly of stations of the GRF-array (Gräfenberg array) and of the GRSN (German Regional Seismological Network). The current setup of the GRF and GRSN (including associated stations) is shown in the following figure:

black triangles: stations of the GRSN (including associated stations), green dots: stations of the GRF-array, SZGRF: Central Seismological Observatory Graefenberg

The station list of the GRSN is:

Station	Latitude (deg)	Longitude (deg)	Elev (m)	Delay	Availa-bility	Operated by
BFO	48.3311	8.3303	589	1min	was	Univ. Karlsruhe+Stuttgart/BGR
BRG	50.8748	13.9469	296	1min	was	Univ. Freiberg/BGR
BSEG	53.9252	10.3169	40	20min	was	Univ. Hamburg/BGR
BUG	51.4418	7.2703	85	1min	was	Univ. Bochum/BGR
CLL	51.3090	13.0043	230	1min	was	Univ. Leipzig/BGR
CLZ	51.8429	10.3741	680	1day	wa	Univ. Clausthal/BGR
FBE	50.9212	13.3541	235	1min	was	Univ. Freiberg/BGR
FUR	48.1639	11.2768	565	1min	was	Univ. Munich/BGR
GEC2	48.8451	13.7016	1132	1day	wa	BGR
GRFO	49.6919	11.2217	384	20min	was	IRIS/USGS/BGR
HLG	54.1847	7.8839	41	20min	was	Univ. Kiel/GFZ
IBBN	52.3072	7.7566	140	1min	was	Univ. Bochum/GFZ/BGR
MOX	50.6461	11.6161	455	1min	was	Univ. Jena/BGR
NRDL	52.4943	10.1073	-355	1day	wa	BGR
RGN	54.5477	13.3214	15	20min	was	GFZ
ROTZ	49.7680	12.2080	430	20min	was	Univ. Munich
RUE	52.4759	13.7800	30	20min	was	GFZ
STU	48.7708	9.1933	360	1min	was	Univ. Stuttgart/GFZ
TANN	50.4150	12.4610	???	20min	was	Univ. Leipzig
TNS	50.2236	8.4489	815	20min	was	Univ. Frankfurt/BGR
UBBA	50.8188	10.0010	-526	1day	wa	BGR
WET	49.1453	12.8800	613	1min	was	Univ. Munich/BGR

The station list of the GRF-array is:

Station	Latitude (deg)	Longitude (deg)	Elev (m)	Delay	Availa-bility	Operated by
GRA1	49.6919	11.2217	500	90min	wa	BGR
GRA2	49.6552	11.3594	512	90min	wa	BGR
GRA3	49.7622	11.3187	455	90min	wa	BGR
GRA4	49.5654	11.4359	503	90min	wa	BGR
GRB1	49.3913	11.6520	494	90min	wa	BGR
GRB2	49.2709	11.6700	552	90min	wa	BGR
GRB3	49.3435	11.8060	517	90min	wa	BGR
GRB4	49.4689	11.5608	507	90min	wa	BGR
GRB5	49.1121	11.6767	525	90min	wa	BGR
GRC1	48.9962	11.5214	512	90min	wa	BGR
GRC2	48.8676	11.3755	445	90min	wa	BGR
GRC3	48.8902	11.5858	438	90min	wa	BGR
GRC4	49.0867	11.5263	503	90min	wa	BGR

The following abbreviations are used: BGR = Federal Institute for Geosciences and Natural Resources, Germany; GFZ Georesearch Center Potsdam, Germany. The SZGRF operating many of the listed stations, partly in cooperation with universities and other research institutions, is part of the BGR.

The characters specified in the Availability column mean: w = the data are available via the web site of the SZGRF (http://www.szgrf.bgr.de), a = the data are available via the AutoDRM of the SZGRF (autodrm@szgrf.bgr.de), s = the data are available through seedlink on host 193.174.161.30, port 18000.

All stations listed above are stored continuously and permanently at the SZGRF in Erlangen, Germany. The GRF data are stored in 20Hz streams and the GRSN station produce 20Hz and 1Hz for the continuous archive. The first data of the GRF array are recorded in 1976, from the GRSN in 1991.

Plan for 2005/2006

The GRF array, currently equipped with STS-1 broadband instruments, will be modernized and the STS-1's will be replaced by STS-2 instruments in steps until 2008. The reasons are reduced maintenance time and evident aging effects of the 30 year old STS-1 instruments. The transmission protocol is intended to be changed to seedlink to make it compatible with the GRSN data streams.

It is planned to add stations to the network of the GRSN, preferably in the northern and southern part of Germany, where the station coverage is less dense than in the central part. A detailed time schedule for this does not yet exist, however.