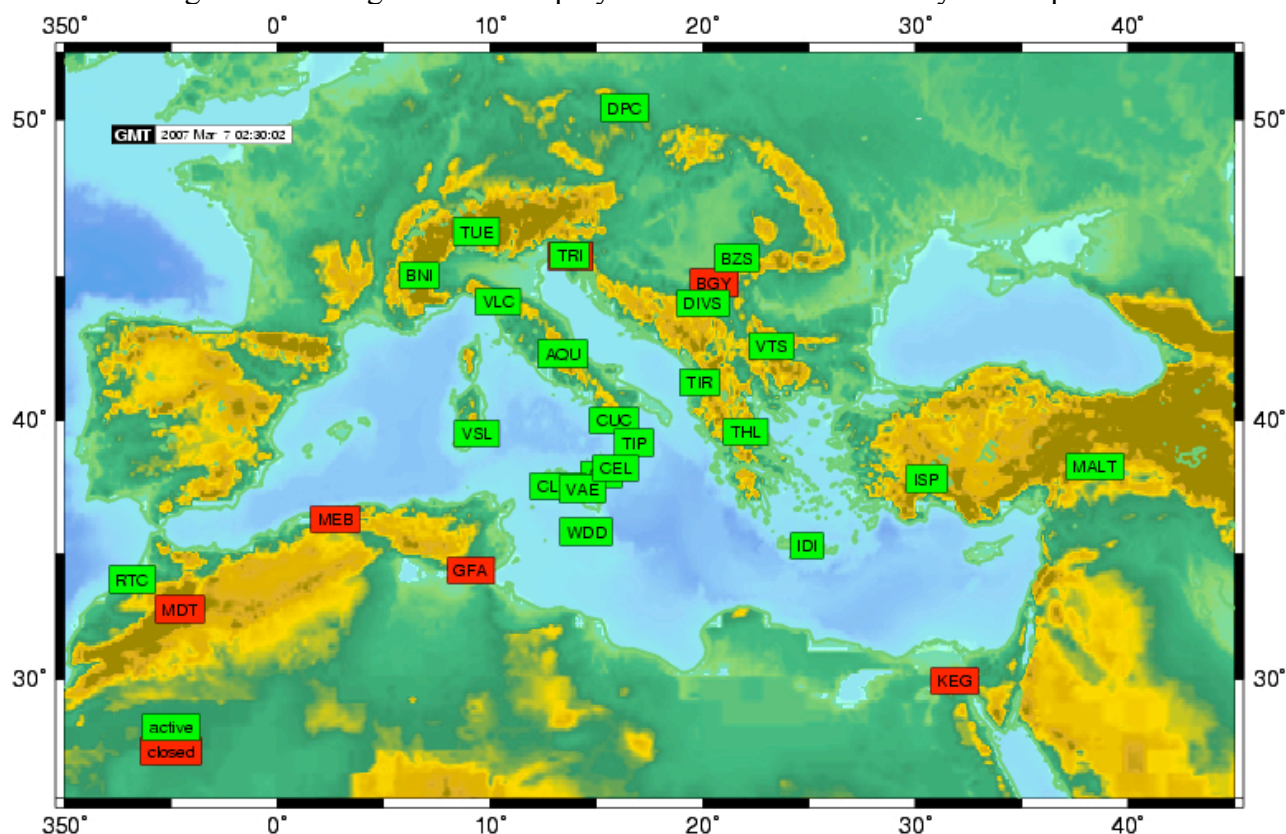


# MedNet status report

M. Olivieri & S. Mazza  
Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy

MedNet is a network of very broadband seismic stations installed in countries bordering the Mediterranean area. The project started in 1987, with a final goal of 12-15 stations and a spacing of about 1000 km between stations. It was motivated both by research interest and by seismic hazard monitoring.

The network presently comprises 23 operating stations, all of them equipped with state of the art seismographic stations. Their deployment is still governed by the principle of increasing broadband station coverage with due regards to the deployment of similar stations by other operators.



Station Map: closed stations are shown in red, open stations in green.

Seismometers are mostly Streckeisen STS2, with a few STS-1/VBB installed during the early phases of the project. Almost all data-loggers are from Quanterra (Q380-680, Q730, Q4120 and Q330). Data are transmitted in real time from the stations to Rome using TCP protocol and via several different physical links: leased lines, VPN, Internet and satellite link. Real time data acquisition and distribution is accomplished by means of the SeedLink protocol and SeisComp, a software package developed, maintained and freely distributed by GEOFON.

Net	Sta	Lat	Lon	Elev (m)	Start	End	Rate (sps)
GE/MN	ISP	37.84330	30.50930	1100	1996,297	present	20,1,0.1
GE/MN	MALT	38.31340	38.42730	1120	2000,146	present	100, 20,1,0.1
MN	AIO	37.97120	15.23300	751.4	1999,365	present	100, 20,1,0.1
MN	AQU	42.35400	13.40500	710	1988,213	present	100, 20,1,0.1
MN	BGY	44.80260	20.51580	250	1991,084	2001,364	20,1,0.1
MN	BNI	45.05200	6.67800	1395	1988,120	present	100, 20,1,0.1

MN	CEL	38.26030	15.89390	702	2003,301	present	100, 20,1,0.1
MN	CII	41.72300	14.30500	910	1994,291	2006,173	100, 20,1,0.1
MN	CLTB	37.57800	13.21600	949	2000,250	present	100, 20,1,0.1
MN	CUC	39.99380	15.81550	637	2003,196	present	100, 20,1,0.1
MN	DIVS	44.09810	19.99170	1000	2005,194	present	20,1,0.1
MN/CZ	DPC	50.35020	16.32220	748	2006,286	present	100, 20,1,0.1
MN	GFA	34.33800	9.07300	250	1989,160	1999,364	20,1,0.1
MN	IDI	35.28800	24.89000	750	1994,274	present	100, 20,1,0.1
MN	KEG	29.92750	31.82920	460	1990,336	1999,364	20,1,0.1
MN	MDT	32.81700	-4.61400	1200	1989,318	1999,364	20,1,0.1
MN	MEB	36.30300	2.73000	500	1992,140	1994,242	20,1,0.1
MN	RTC	33.98810	-6.85690	50	2002,202	present	20,1,0.1
MN	THL	39.56470	22.01450	107	2006,265	present	100, 20, 1, 0.1
MN	TIP	39.17940	16.75830	789	2003,252	present	100, 20,1,0.1
MN	TIR	41.34720	19.86310	247	2004,281	present	100, 20,1,0.1
MN	TRI	45.70900	13.76400	161	1996,135	present	20,1,0.1
MN	TUE	46.47223	9.34732	1924	2001,317	present	100, 20,1,0.1
MN	VAE	37.46900	14.35330	735.1	1999,365	present	20,1,0.1
MN	VLC	44.15940	10.38640	555	2000,366	present	100, 20,1,0.1
MN	VSL	39.49600	9.37800	370	1989,199	present	20,1,0.1
MN	VTS	42.61800	23.23500	1490	1996,130	present	20,1,0.1
MN	WDD	35.83730	14.52420	44.06	1995,186	present	100, 20,1,0.1
RO/MN	BZS	45.61660	21.61660	260	2005,345	present	100, 20,1,0.1

*Station table: closed stations in gray*

Data are distributed following three main routes: the fast, but restricted one of real time distribution (data are exchanged on a one-to-one basis between Institutions and are usually regulated by bilateral agreements), the intermediate one of distributing data grouped by event (available from the mednet web pages <http://mednet.ingv.it>), and the last one, slow, but very comprehensive, of sending data at users' request via e-mail or ftp, drawing them from the archive, by standard NetDC and AutoDRM protocols (in SEED and GSE formats respectively). The dissemination of station information is ensured by the so-called dataless SEED volumes, i.e. files in SEED format in which all the information regarding a station is reported, that is its location, channels, response functions, etc.

Presently, fully automatic network functions include:

- daily monitoring of state of health;
- data recover after link failures;
- triggered retrieval of event waveforms;
- update of web pages (<http://mednet.ingv.it>) for events and station information.

Two different techniques for rapid semiautomatic moment tensor solutions are running at MedNet. The first one makes use of the Regional CMT (Arvidsson & Ekström, 1998) routines. The procedure is very stable, but the human intervention is essential. The second procedure is based on Dreger & Romanowicz (1994) TDMT, producing a first unmanned solution, then a successive solution revised by a seismologist. This second approach uses higher frequencies, in order to lower the  $M_w$  threshold for which moments are estimated in areas with proper station coverage.

Developments at MedNet are following two main directives:

- within the EC Project NERIES, the MedNet Data Center is contributing to the European Integrated Data Archive, providing support and/or backup to the partner institutions, in cooperation with Orfeus, Geofon and Geoscope Data Centers;

- In the framework of IOC initiative on North East Atlantic Tsunami Warning System (NEAMTWS), INGV is developing a Regional Center for a tsunami watch in the Mediterranean. In this regard, two different algorithms (LocSat and NonLinLoc) and different network configurations are under test at MedNet to check the capability of the extended network for locating potentially tsunamigenic earthquakes.