Test site
Irpinia Fault System

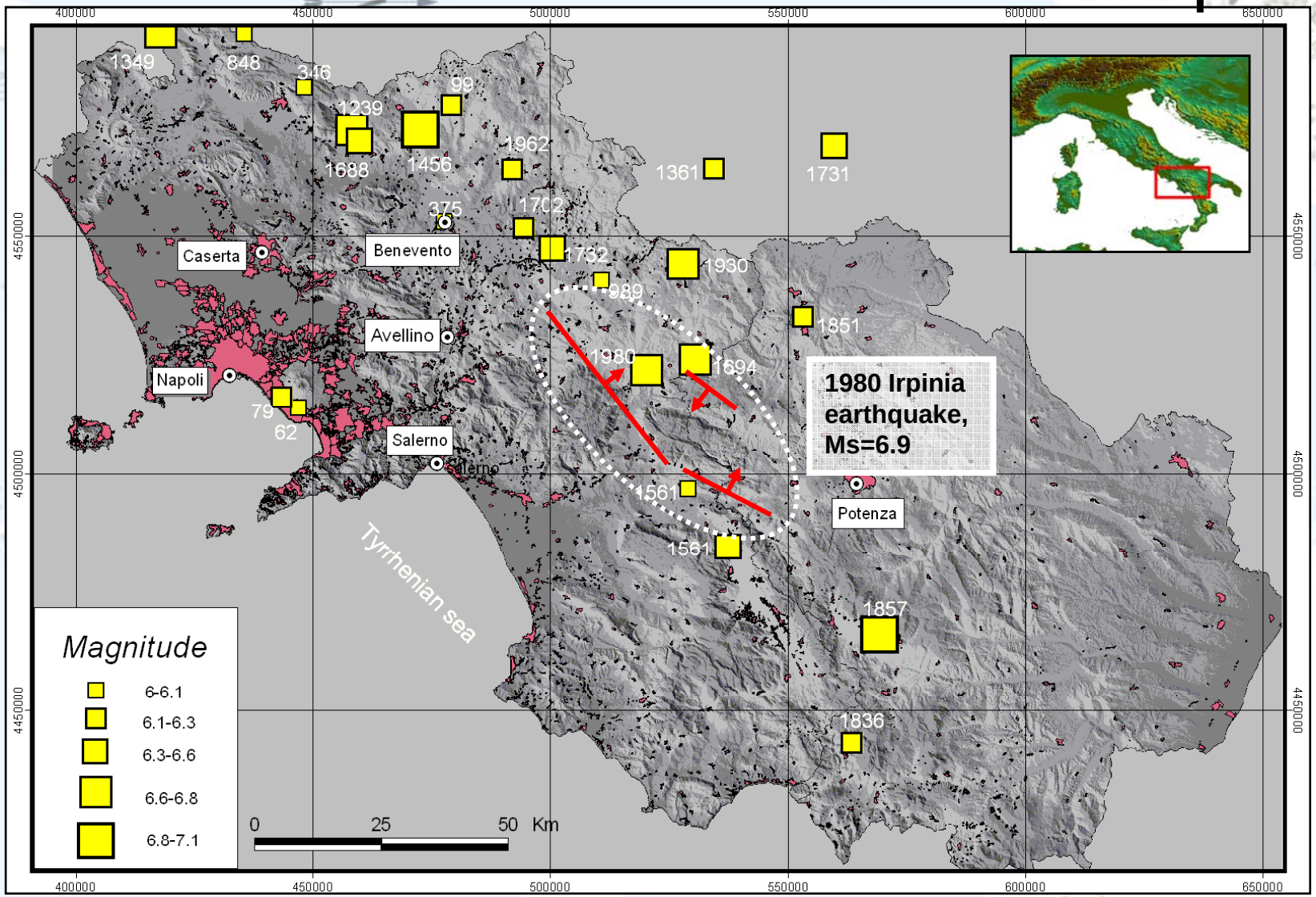
• Implementiation and testing of a prototype system for seismic early and post-event warning, based on a dense, wide dynamic seismic network (ISNet, Irpinia Seismic Network)

• Ongoing project financed by the Regional Department of Civil Protection, the Center of Competence AMRA (Analysis and Monitoring of Environmental Risks)

• On a wider spatial scale, other dense seismic, accelerometric and geodetic networks are operated by INGV and Dipartimento della Protezione Civile, with more than one hundred recording instruments deployed

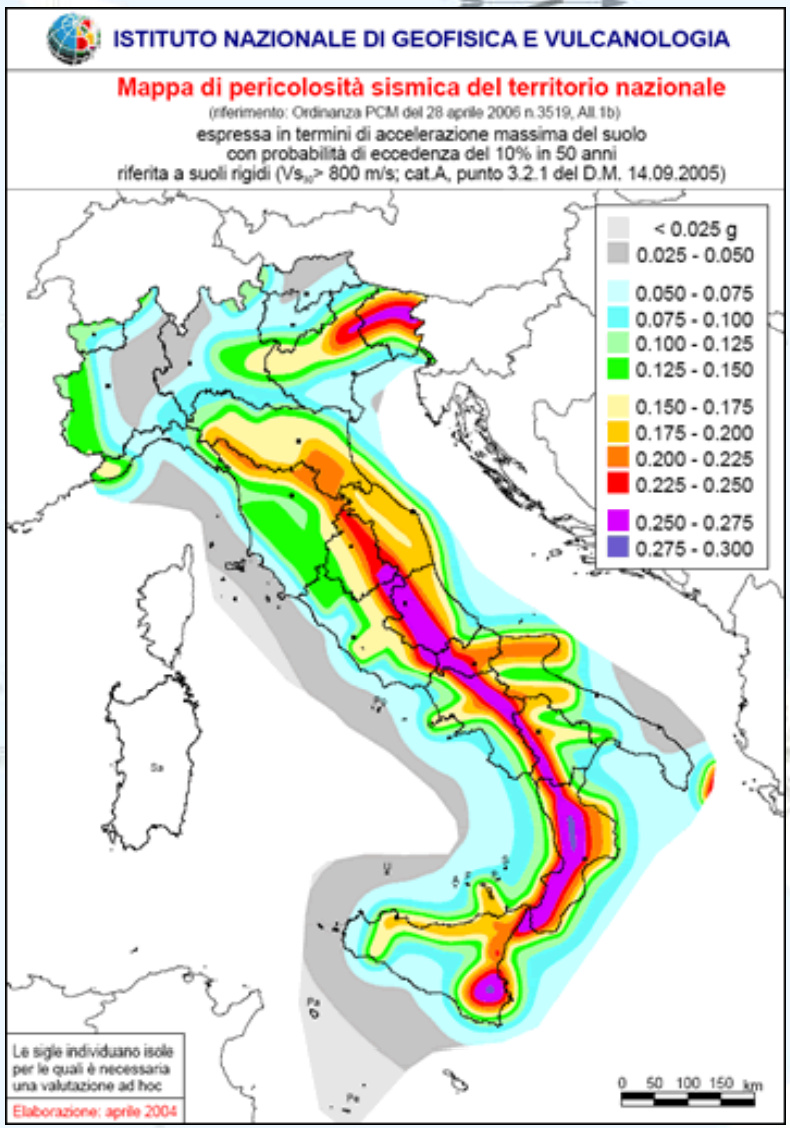
• the Irpinia test site is one of the highest instrumented seismic regions in Italy. It is an ideal site for experimenting new technologies and methodologies for seismic monitoring and imaging of active fault systems.

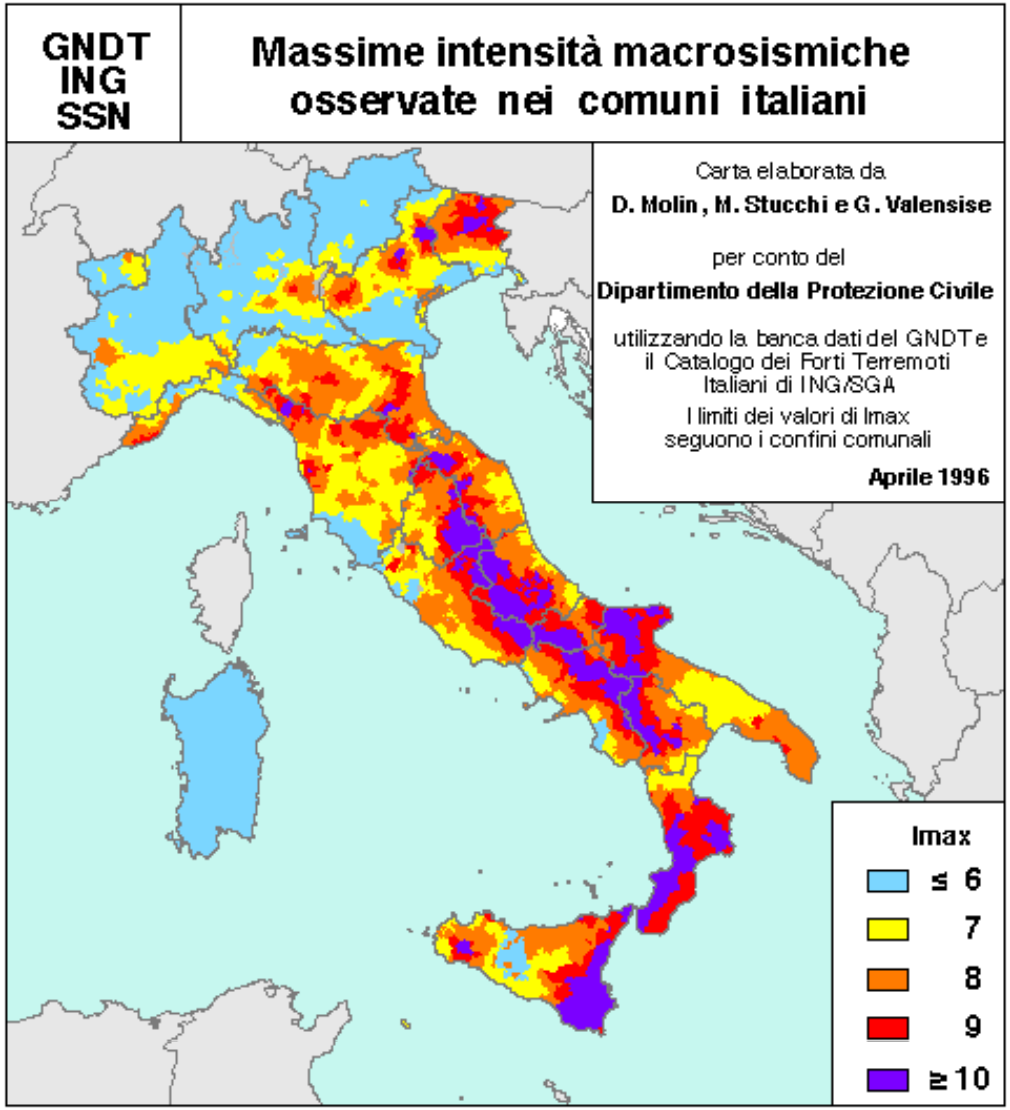
Historical Earthquakes



TEST-SITE IRPINIA

Hazard and Maximum Intensity Maps





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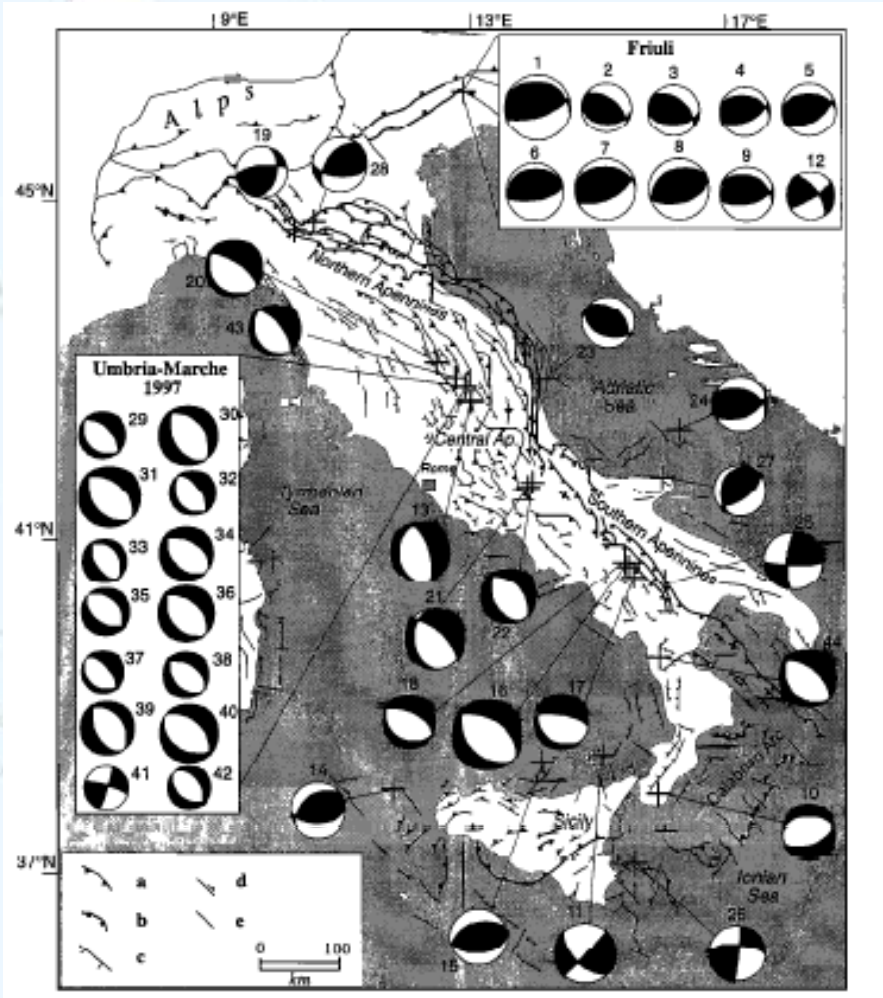
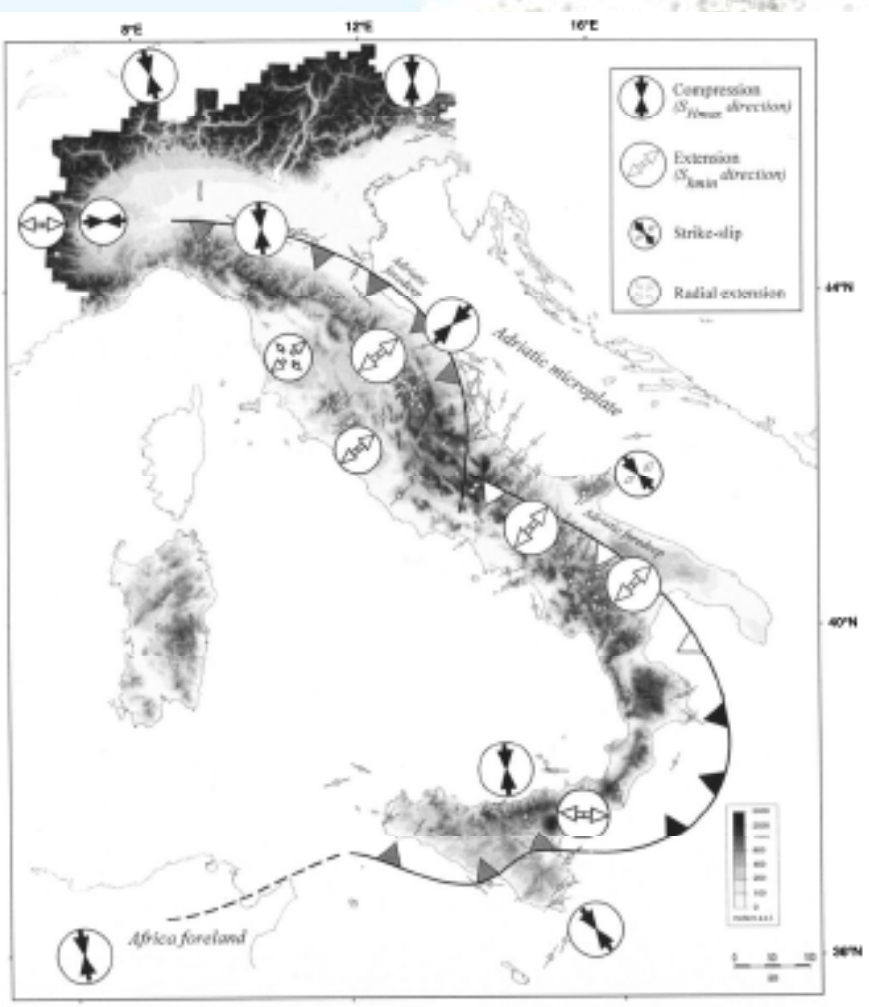
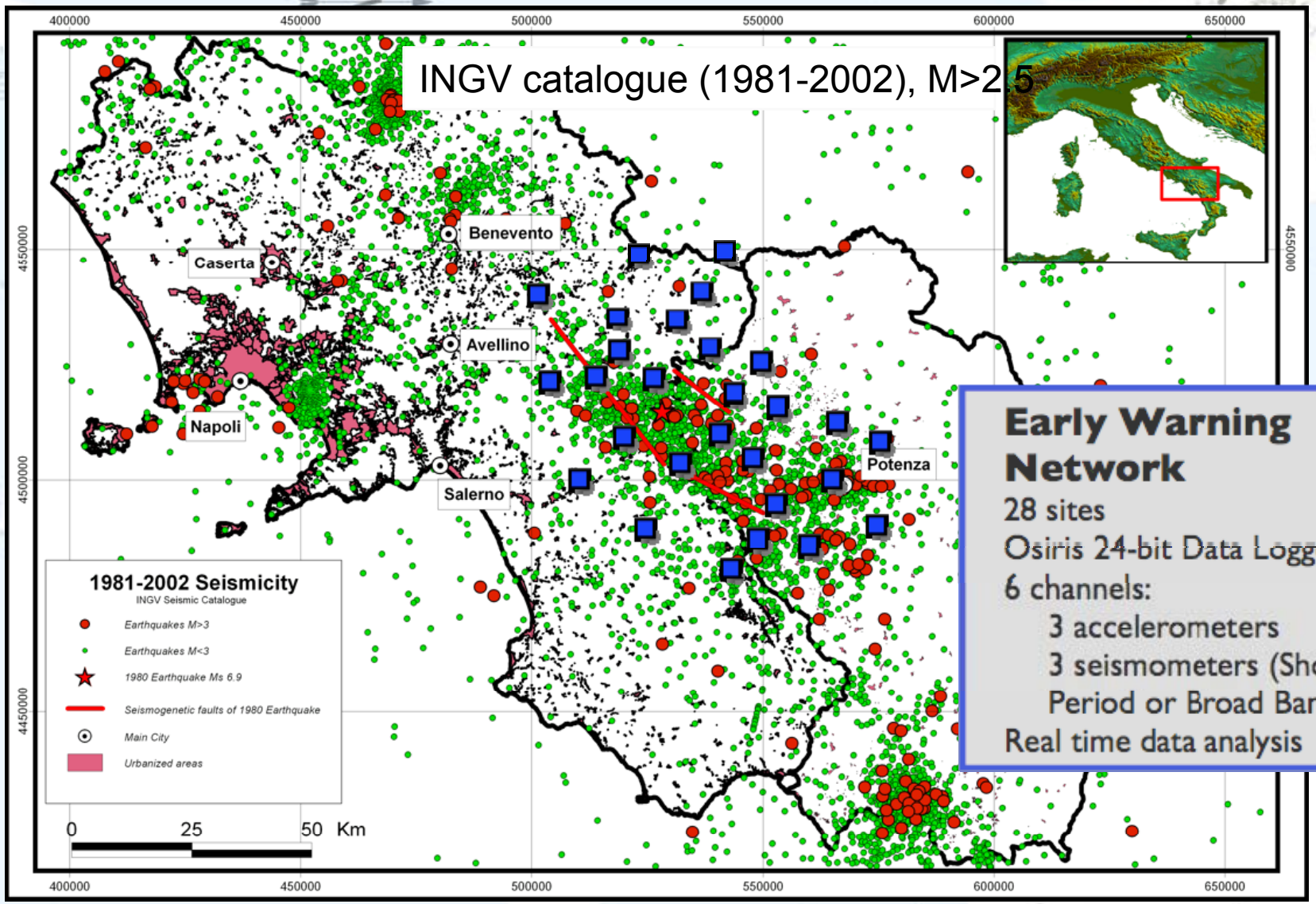
Focal mechanisms and stress regime





Montone et al., JGR,1999

Current seismicity



Early Warning Network

28 sites

Osiris 24-bit Data Logger

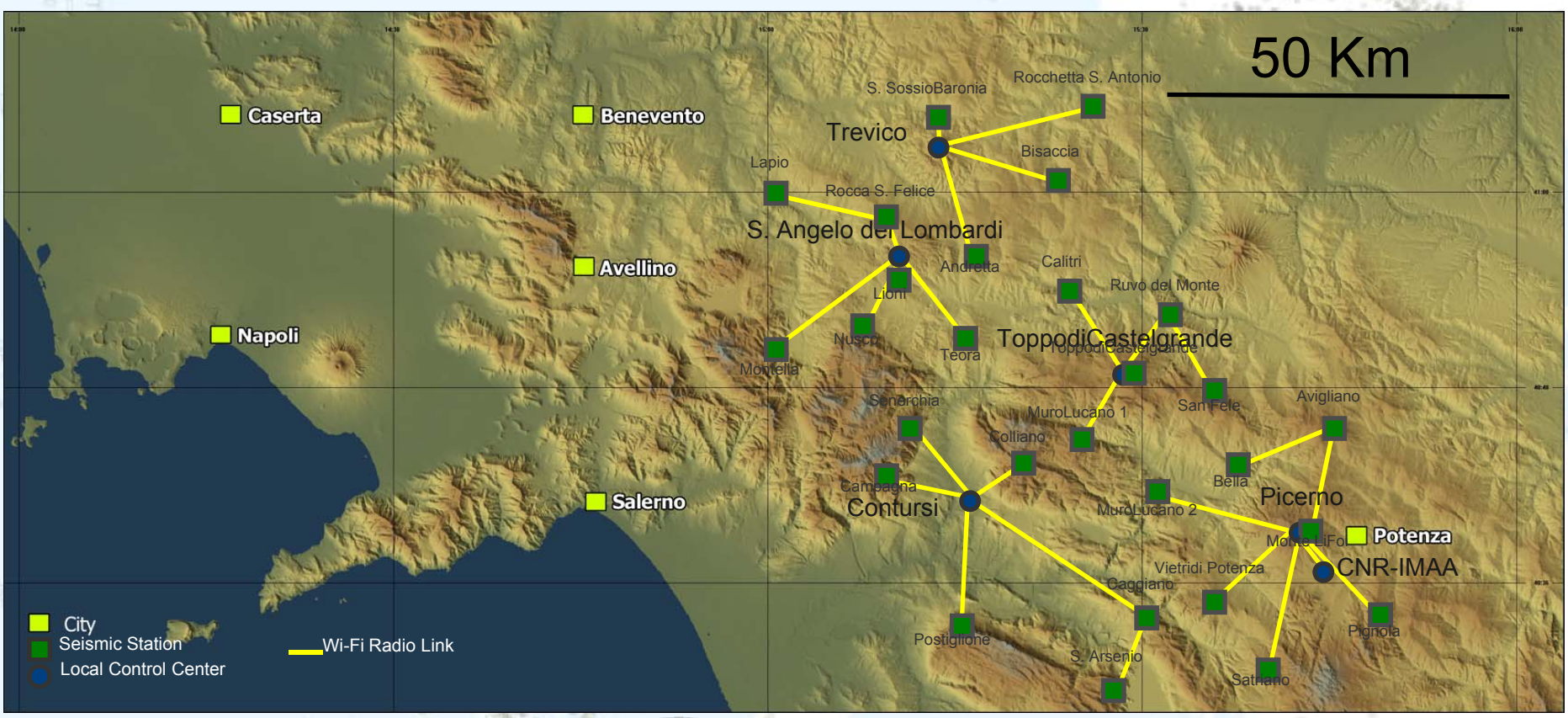
6 channels:

- 3 accelerometers
- 3 seismometers (Short Period or Broad Band)

Real time data analysis

The Irpinia Seismic Network (ISNet)

Seismic Stations and Local Control Centers



28 Sites

OSIRIS

CMG-5T

and

S13-J

or

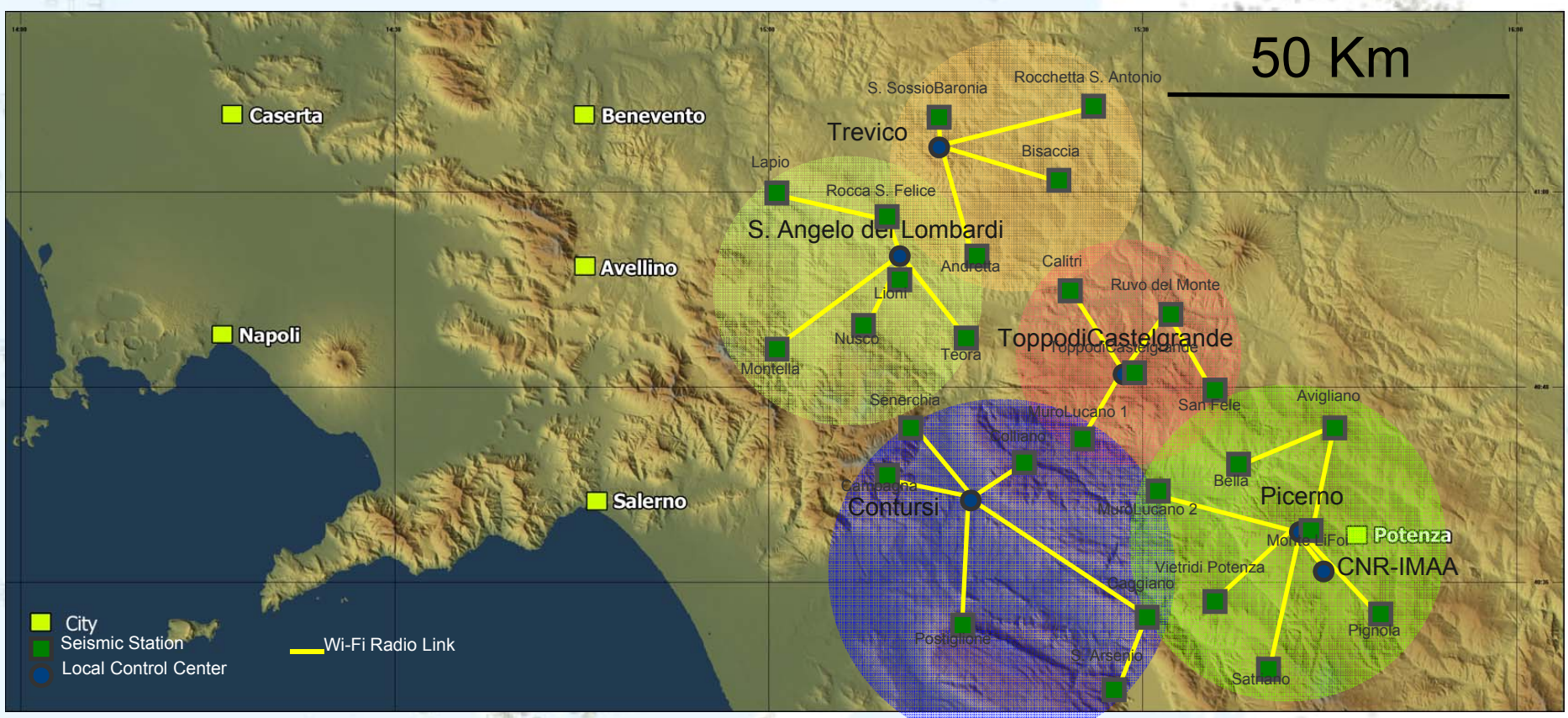
Trillium 40S

TEST-SITE IRPINIA

Kick-off meeting - Rome, 4 July 2008

The Irpinia Seismic Network (ISNet)

Local Control Centers: Virtual Sub-Networks



5 LCCs

HP Proliant DL140

debian

GFZ POTSDAM

SeisComP

Earthworm

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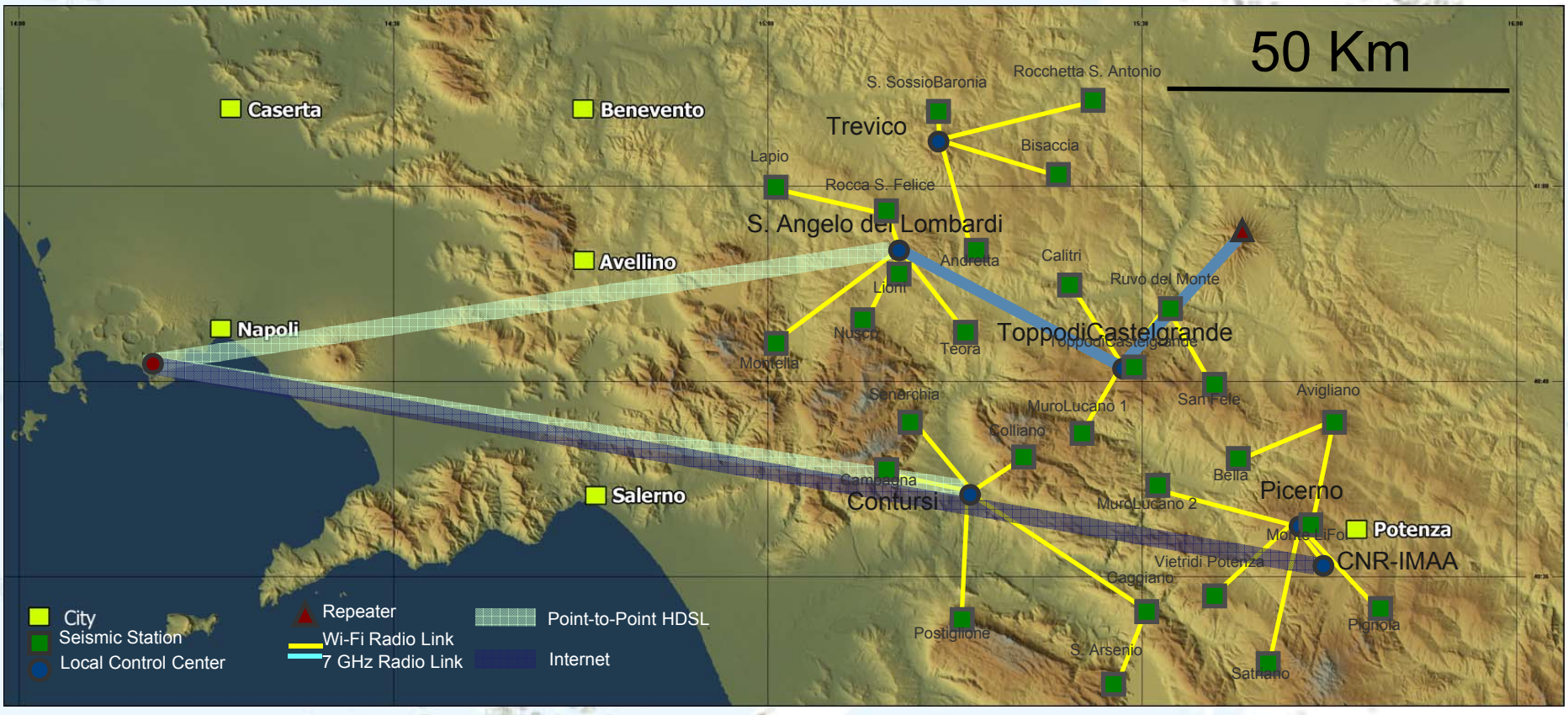
The Irpinia Seismic Network (ISNet)

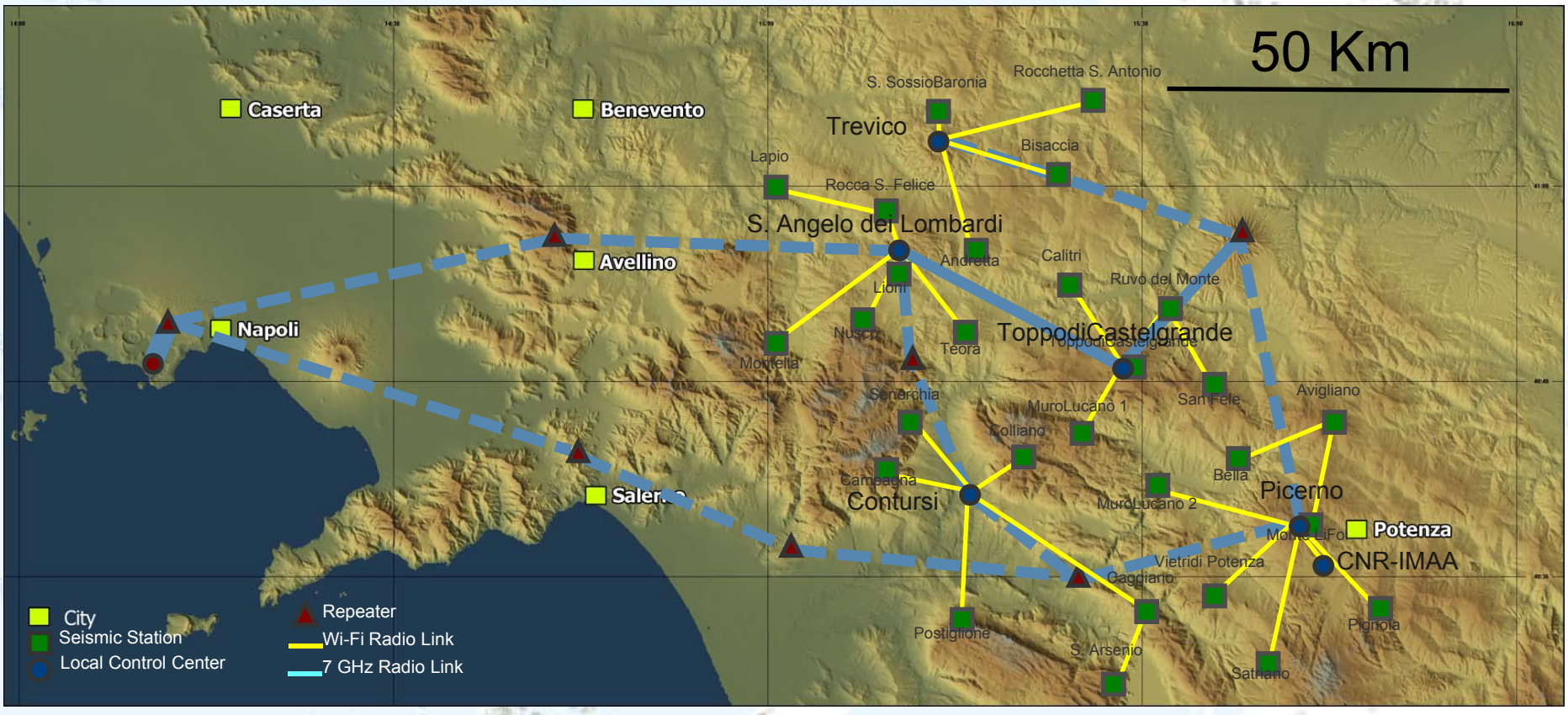
Current Communication System: HDSL + Internet + Radio-Links



TEST-SITE IRPINIA

The Irpinia Seismic Network (ISNet)

Planned Communication System: Fully Proprietary Radio-Links



TEST-SITE IRPINIA

Screenshots from ISNet Bulletin (http://lxserver.ov.ingv.it)

File Modifica Visualizza Cronologia Segnalibri Strumenti Guida

http://lxserver.ov.ingv.it/cgi-bin/isnet-events/isnet.cgi

ISNet Events (beta)

Automatically detected by the Earthworm Binder

Last 24h Last 48h Last week Older False events Download Map

Intensity (I_{MM})

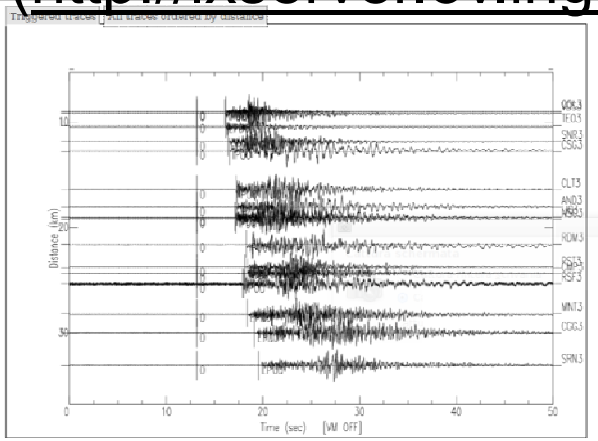
Show/Hide false events.

(n) = note, indicates an event outside the network. Location and magnitude may be not reliable.

Click on (n) to get the event coordinates and magnitude from EMSC

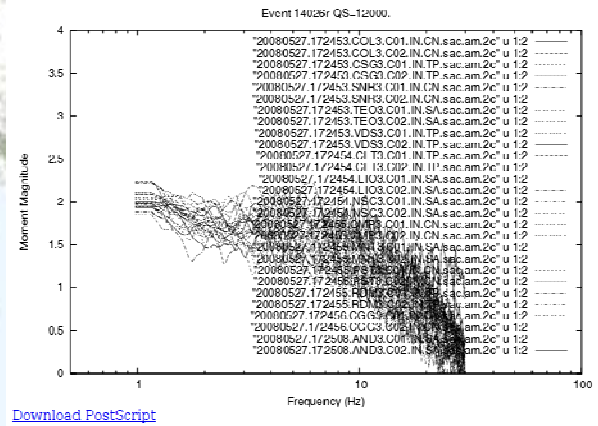
evid	date	time	lat	lon	depth	ML	MW	place	triggered stations	S-spec.	PGA, PGV, Int, Obs
14033	2008-05-28	10:22:08.02	40.77	15.33	14.81	1.3±0.2	2.0±0.1	Laviano (SA)	7	View	Low mag
14032	2008-05-28	10:19:56.49	40.77	15.33	16.21	1.3±0.3	1.9±0.1	Laviano (SA)	5	View	Low mag
14030 (n)	2008-05-27	23:27:49.55	40.59	15.47	20.13	1.8±0.1	2.2±0.1	Salvitelle (SA)	11	View	Low mag
14028	2008-05-27	21:09:45.36	40.77	15.32	14.61	1.2±0.2	2.0±0.1	Laviano (SA)	5	View	Low mag
14026	2008-05-27	17:25:18.75	40.77	15.32	17.15	1.5±0.3	2.1±0.1	Laviano (SA)	13	View	Low mag
14025	2008-05-27	17:24:07.03	40.78	15.30	1.62	1.9±0.0	2.1±0.1	Laviano (SA)	15	View	Low mag
14024	2008-05-27	16:19:31.77	40.78	15.32	19.43	2.8±0.3	2.9±0.2	Laviano (SA)	14	View	
14019	2008-05-26	00:41:17.23	40.46	15.77	1.00	1.7±0.6	2.2±0.3	Marsico Nuovo (PZ)	5	View	Low mag
14018	2008-05-25	18:14:09.83	40.79	15.33	17.91	1.1±0.3	1.9±0.1	Laviano (SA)	8	View	Low mag

Completato



Download PostScript Download SAC (all stations)

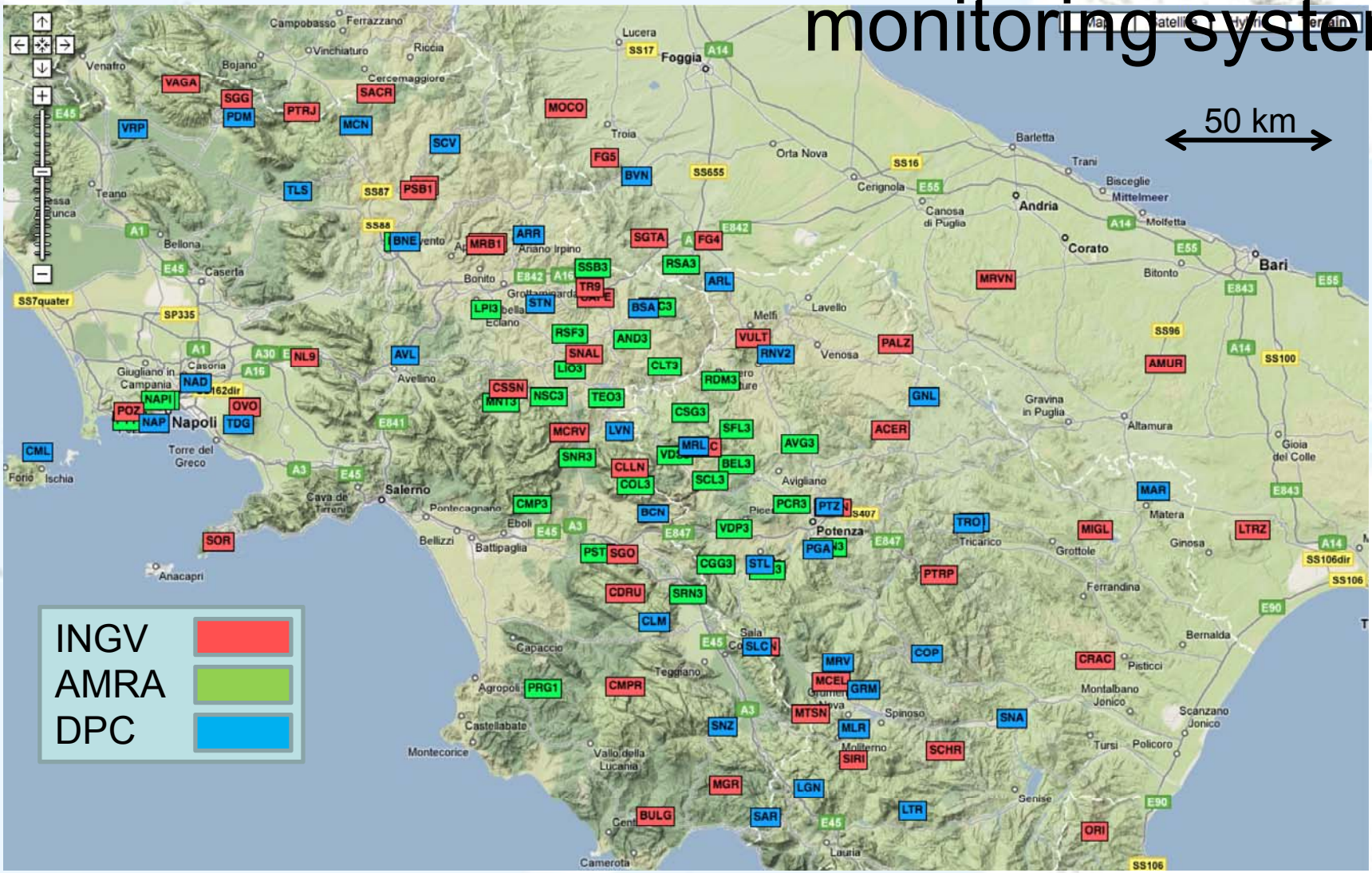
http://lxserver.ov.ingv.it/isnet-events/spectra/14026r/14026r.spec.png.html



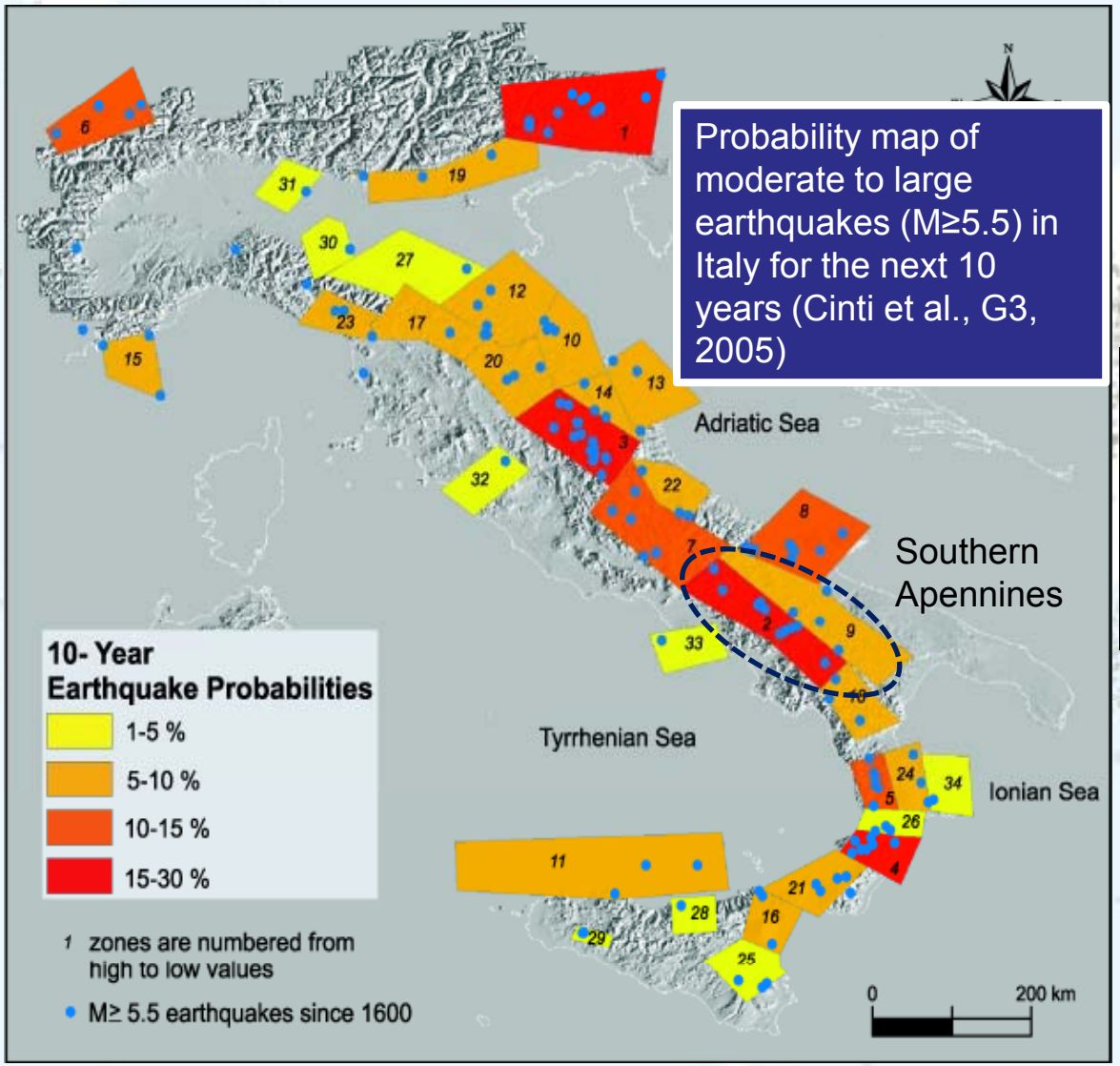
Download PostScript

Completato

Potential for an integrated seismic monitoring system



Earthquake Occurrence Probability



	Instrumental data
M>4.0	1 event every 1.5 years
M>5.0	1 event every 4 years
M>6.0	1 event every 32 years

Earthquake occurrence rate in southern Apennines based on the Gutenberg-Richter relationship estimated from instrumental seismicity catalogs (Boschi et al.,2003)

TEST-SITE IRPINIA