

EUREF 2009 - Florence

***National Report of
Italy***



ISTITUTO GEOGRAFICO MILITARE ITALIANO
Geodetic Service



28 EPN (6 abroad)

In progress the development of procedures for the automatic weekly computation of the network (september 2009)





Comparison national coordinates – EPN densification solution ITRF2005 (dec. 2008)

Name	East[mm]	North[mm]	Up[mm]
AQUI	+0.9	+20.6	-6.4
BZRG	-16.4	+11.3	+19.7
CAGL	-3.5	+0.8	-6.4
CAME	+9.1	+25.6	-17.0
ELBA	-5.0	+6.1	-3.5
GENO	+0.4	+1.3	-5.9
IENG	-5.1	-3.0	+0.5
LAMP	-26.6	+23.3	-4.1
MATE	+5.4	+33.6	+1.7
MEDI	+3.8	+16.7	-11.1
NOT1	-16.3	+37.9	-11.2
PADO	+0.2	+12.3	-11.7
PRAT	+2.2	+15.4	-10.5
TORI	+0.4	+0.8	+5.1
ZOUF	+0.7	+7.6	+6.6

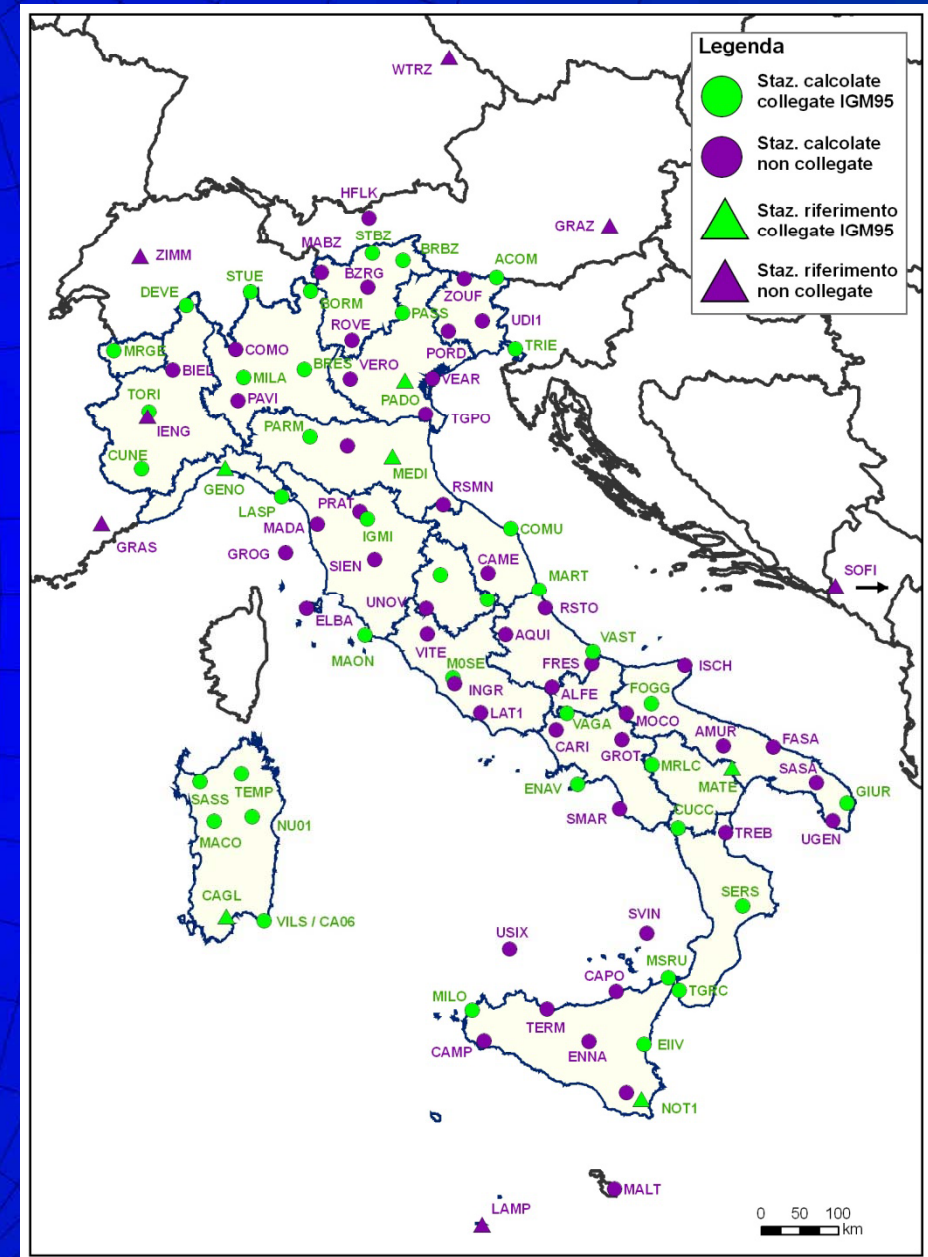
- 15 compared stations
(7 excluded because “use with care” or too recent)
- EPN coordinates: epoch 2000.0
National coordinates: epoch 2008.0
- Good results BUT:
Stations in south Italy have bigger differences: “neglection of intraplate velocities is considerable!”
Monitoring through recomputations.



GPS DYNAMIC PERMANENT NETWORK

- 45 RDN stations connected to IGM95 network
- All the IGM95 network (about 4500 points) recomputed from ETRF89 to ETRF2000
- The differences between the Italian realizations of ETRF89 and ETRF2000 be estimated at all the 4500 points

	Latitude	Longitude	h Ellips.
max positive diff. [m]	0.072	0.111	0.162
max negative diff. [m]	-0.024	-0.072	-0.117

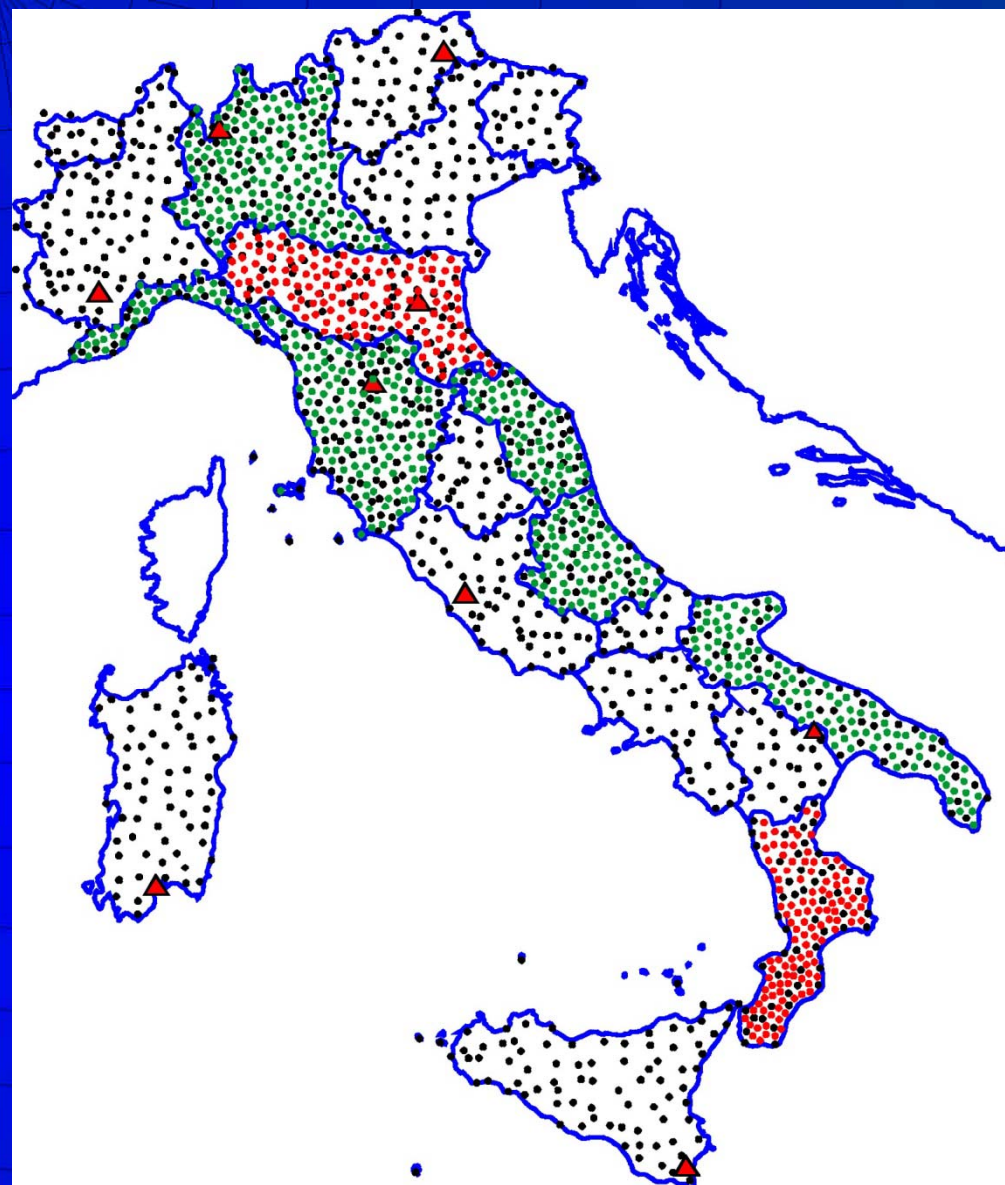




GPS STATIC NETWORK IGM95

- Original network realized from 1990 to 1995 (~1230 points; ~ 600 coincident with trigonometric points)
- Realization of ETRS89

- ▲ EUREF points
- IGM95 points
- Densification points (done)
- Densification points (planned)



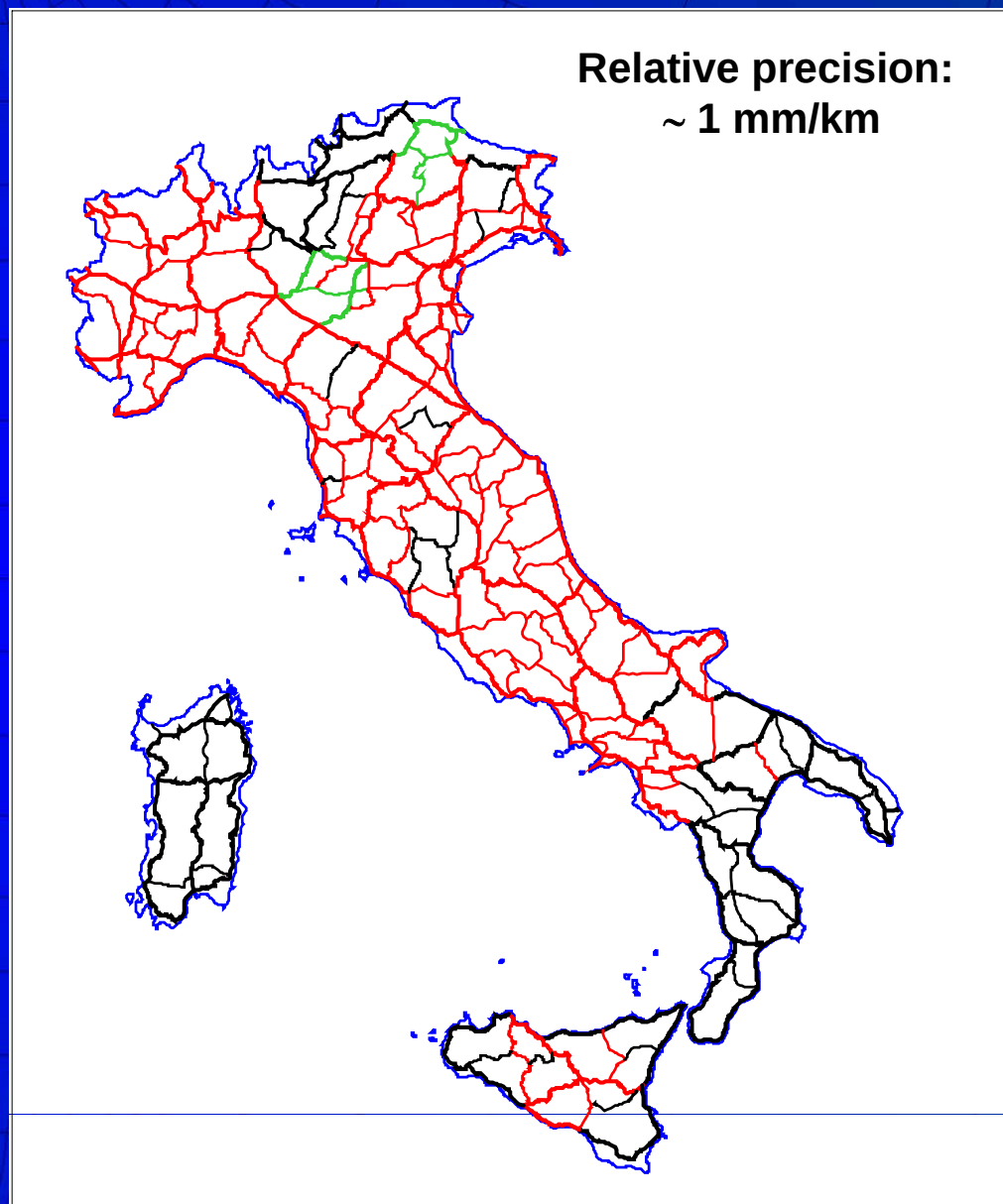
Relative precision:
~2,5 cm surface coordinates
~4,0 cm altimetric coordinates



HIGH PRECISION LEVELING NET

- Ancient network (1878-1900)
- Modern network (1950-1971)
13.000 km
3 tide gauges: Continental Italy: Genova 1942
Sardinia: Cagliari 1956
Sicily: Catania 1965
- On-going densification (1996-2010):
up to 20.000 km

Fundam. net	Densifi- cations	
		Set up 1950-71
		Measured 1996-08
		Ongoing 2009
		Planned





SOFTWARES

transformation between
Geodetic Datums

Verto2+

Verto3

Verto2mila

(also dealing with shapefiles)

*.gr1

*.gr2

*.gk1

*.gk2

Verto2k

Verto3k

Verto2ks



ROMA40

ED50

ETRF89



ROMA40

ED50

ETRF89

ETRF2000

Geodetic Activities at the University of Padova for 2008-09

- International
 - Support to IGS/EPN with the permanent stations PADO and UPAD
 - Local Analysis Center of EPN
 - Participation in the EPN-TWG, INSPIRE-TWG
 - Participation in CEGRN, WEGENER
- National
 - Support to IGMI for the computation of RDN
 - Weekly computation of 130+ permanent GNSS network, dissemination of updated ETRF2000 coordinates through weekly bulletin
 - Responsible of geodetic control of networks in seismic areas on behalf of the Department of Civil Protection
- Regional
 - Development and Management of the permanent GNSS network of Regione Veneto (26 permanent stations, RTK, RINEX), ETRF2000
 - Training



Thank you for your attention!

servizio.geodetico@igmi.191.it