

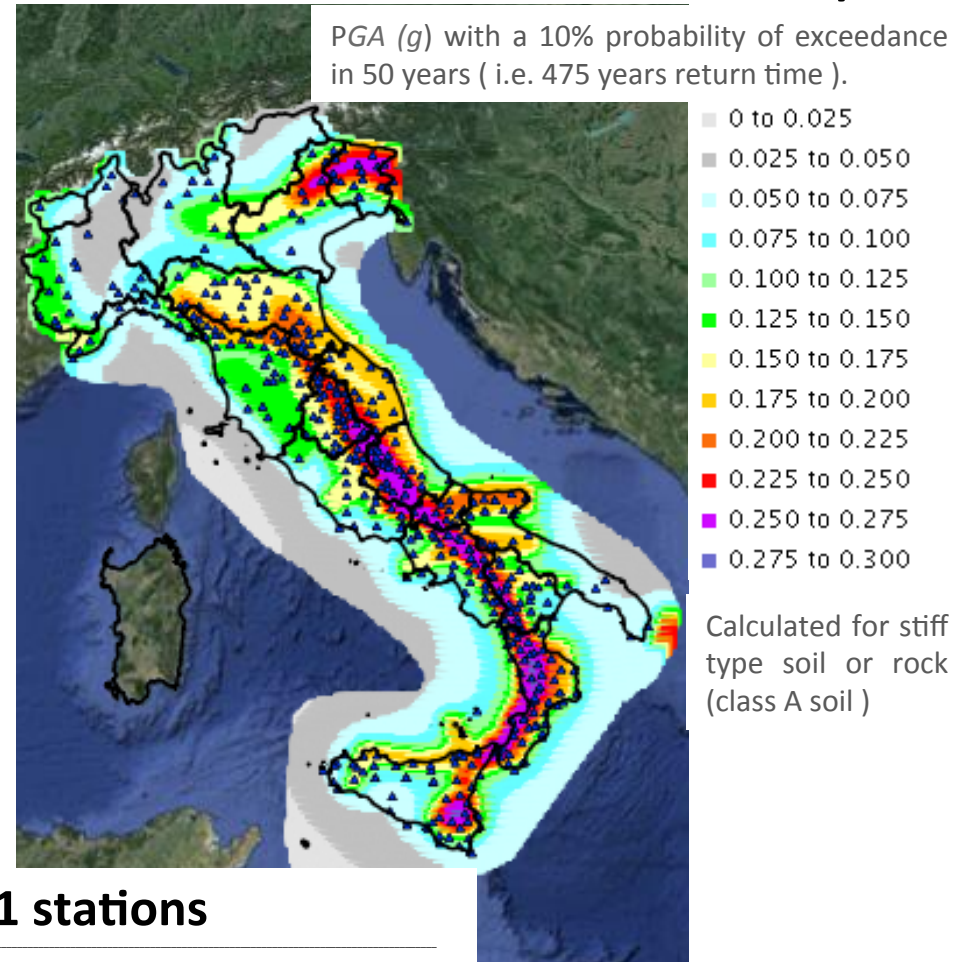
RAN – ITALIAN STRONG MOTION NETWORK

Antelope Users Group meeting Rome, 18-20 May 2016



RAN – Italian strong motion network (FDSN code «IT»)

RAN vs Italian seismic hazard map

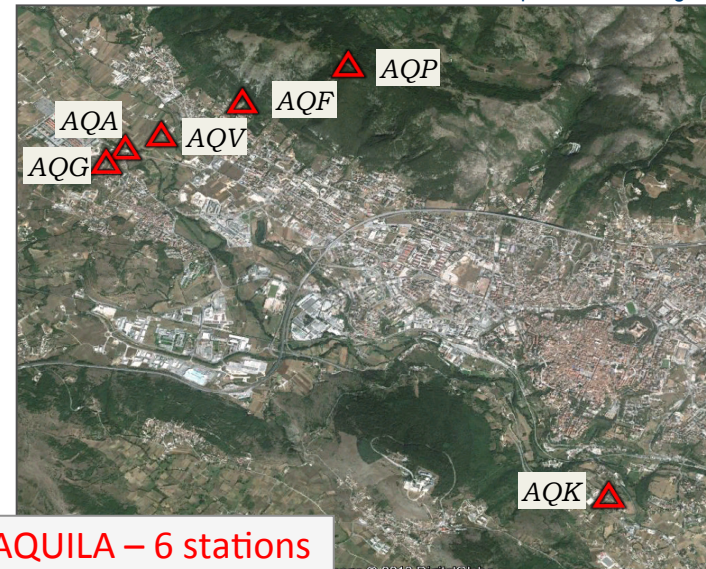


531 stations

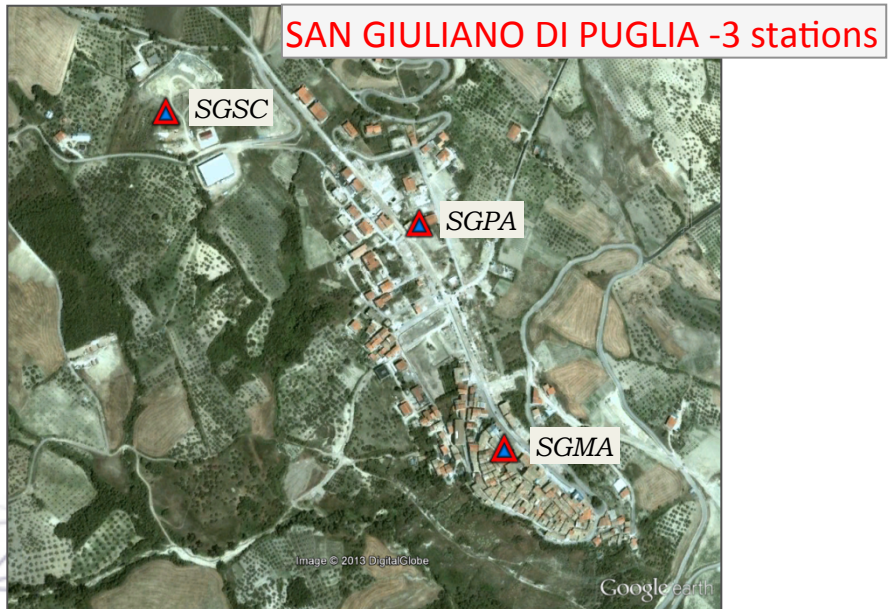
529 3-components stations

2 6-components stations

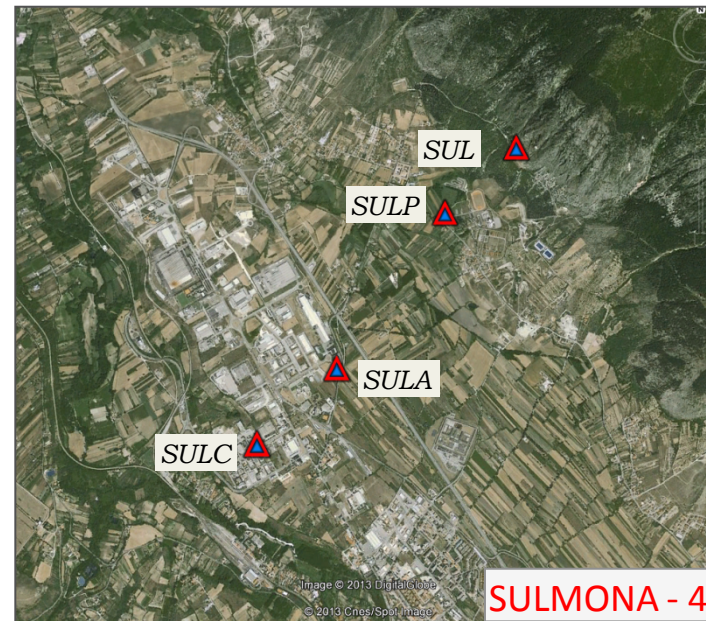
RAN – Urban arrays



L'AQUILA – 6 stations



SAN GIULIANO DI PUGLIA -3 stations



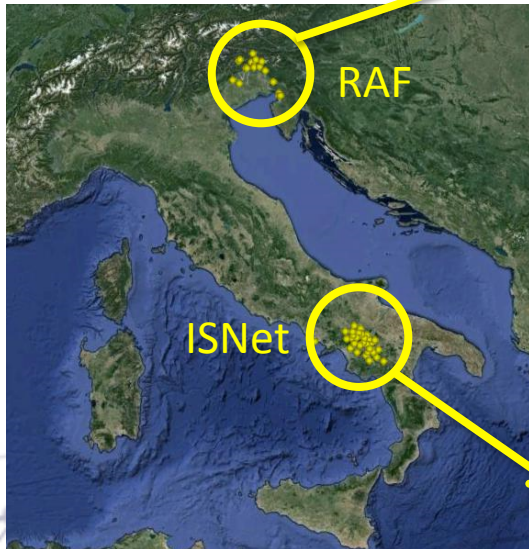
SULMONA - 4 stations

RAN – data center

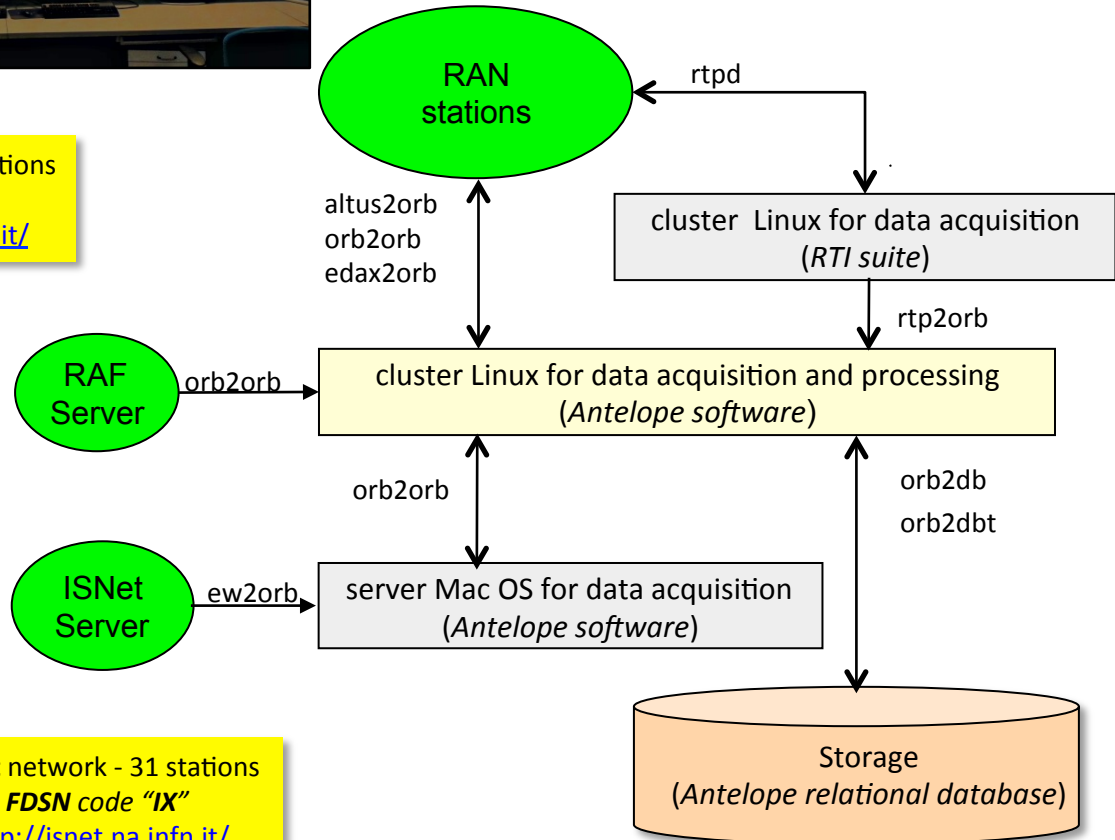
- ❑ Antelope 5.5 is running
- ❑ receives data from RAN stations and from RAF and ISNet networks



RAF network - 14 stations
FDSN code "RF"
<http://rtweb.units.it/>



ISNet network - 31 stations
FDSN code "IX"
<http://isnet.na.infn.it/>



FASE 1. INDIVIDUAZIONE DELLA PERICOLOSITÀ DEL SITO


Ricerca per coordinate
LONGITUDINE: 7.768 LATTITUDINE: 45.368

Ricerca per comune
REGIONE: Piemonte PROVINCIA: Torino COMUNE: Agliè

Elaborazioni grafiche:
Grafici spettri di risposta
Variabilità dei parametri

Elaborazioni numeriche:
Tabella parametri

Nodi del reticolo intorno al sito



Controllo sul reticolo:
 Sito esterno al reticolo
 Interpolazione su 3 nodi
 Interpolazione corretta

Interpolazione:
superficie rigata

La "Ricerca per comune" utilizza le coordinate ISTAT del comune per identificare il sito. Si sottolinea che all'interno del territorio comunale le azioni sismiche possono essere significativamente diverse da quelle nodi individuate e si consiglia, quindi, la "Ricerca per coordinate".

INTRO **FASE 1** FASE 2 FASE 3

□ Technical Regulations for Buildings

The response spectrum for building design is **"site specific"**, calculated according to

- Seismic hazard at the site
- Site effects evaluation



Consiglio Superiore dei Lavori Pubblici

(<http://www.cslp.it>)

FASE 2. SCELTA DELLA STRATEGIA DI PROGETTAZIONE

Vita nominale della costruzione (in anni) - V_n info

Coefficiente d'uso della costruzione - c_u info

Valori di progetto

Periodo di riferimento per la costruzione (in anni) - V_R info

Periodi di ritorno per la definizione dell'azione sismica (in anni) - T_R info

Stati limite di esercizio - SLE $\left\{ \begin{array}{l} \text{SLO} - P_{VR} = 81\% \quad 30 \\ \text{SLD} - P_{VR} = 63\% \quad 50 \end{array} \right.$

Stati limite ultimi - SLU $\left\{ \begin{array}{l} \text{SLV} - P_{VR} = 10\% \quad 475 \\ \text{SLC} - P_{VR} = 5\% \quad 975 \end{array} \right.$

Elaborazioni:
Grafici parametri azione
Grafici spettri di risposta
Tabella parametri azione

Strategia di progettazione



LEGENDA GRAFICO
---D--- Strategia per costruzioni ordinarie
---■--- Strategia scelta

INTRO FASE 1 **FASE 2** FASE 3

FASE 3. DETERMINAZIONE DELL'AZIONE DI PROGETTO

Stato Limite
Stato Limite considerato: SLV info

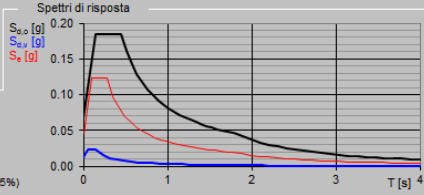
Risposta sismica locale
Categoria di sottosuolo: C info $S_B = 1.500$ $C_C = 1.600$ info
Categoria topografica: T1 info $h/H = 0.000$ $S_T = 1.000$ info
(h=quota sito, H=altezza rilievo topografico)

Compon. orizzontale
 Spettro di progetto elastico (SLE) Smorzamento ξ (%) $\eta = 1.000$ info
 Spettro di progetto inelastico (SLU) Fattore q_d Regol. in altezza: no info

Compon. verticale
Spettro di progetto Fattore q_v $\eta = 0.667$ info

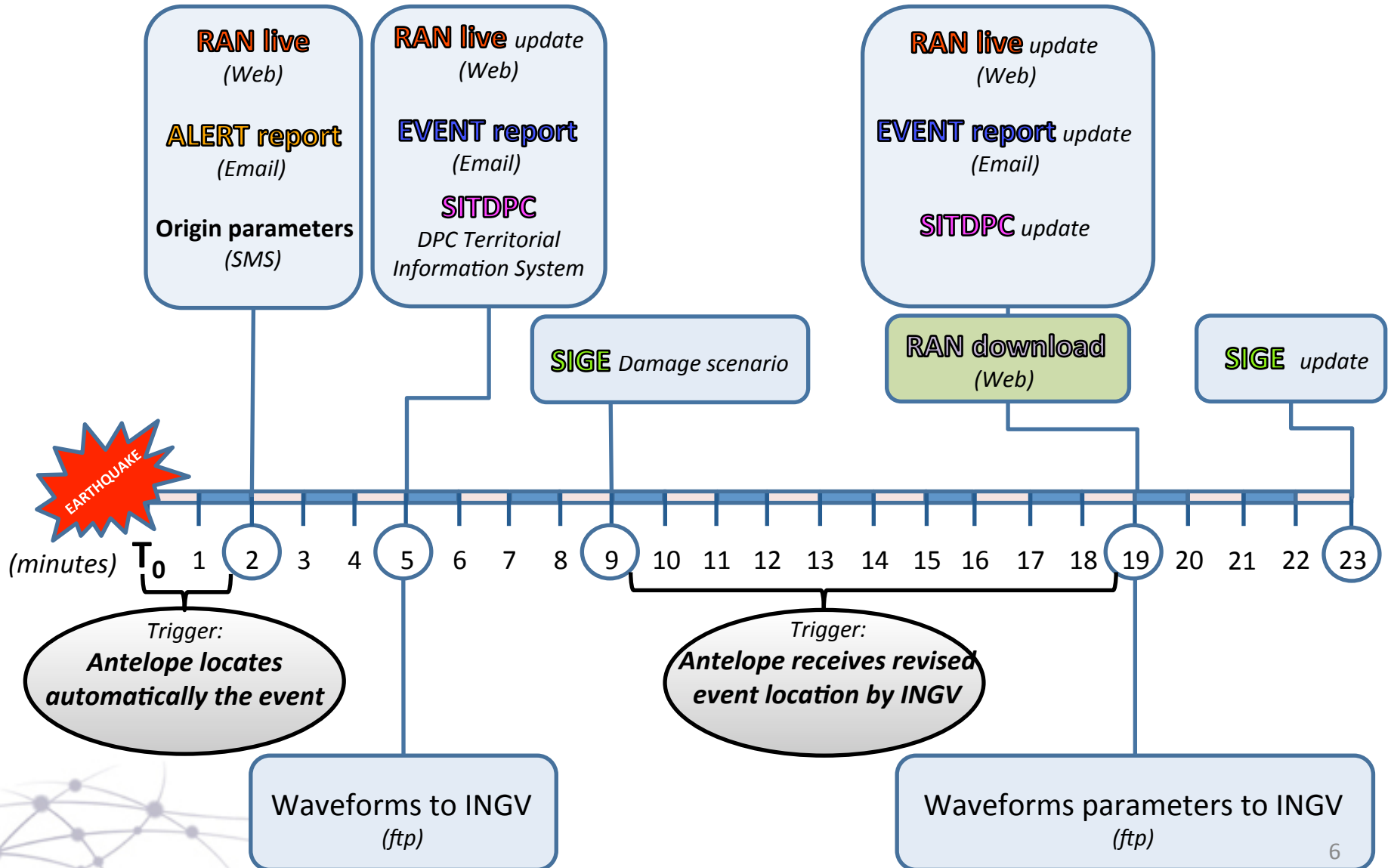
Elaborazioni:
Grafici spettri di risposta
Parametri e punti spettri di risposta

Spettri di risposta



— Spettro di progetto - componente orizzontale
— Spettro di progetto - componente verticale
— Spettro elastico di riferimento (Cat. A-T1, $\xi = 5\%$)

INTRO FASE 1 FASE 2 **FASE 3**



DPC-RAN: OriginTime=2016/04/25
07:47:52 MI=3.4 Place=Prato lat=44.0502
lon=11.3149 depth=10.0 nrec=9
[maps.google.com/maps?
q=44.0502,11.3149](https://maps.google.com/maps?q=44.0502,11.3149)

Origin parameters
(SMS)

25 apr

25/04/2016 09:55:18



ORID: 340212 EVID: 340212

PROTEZIONE CIVILE
Presidenza del Consiglio dei Ministri
Dipartimento della Protezione Civile

ALERT report
(Email)

Earthquake AUTOMATIC REPORT

Dipartimento della Protezione Civile - Rome - Italy
Rete Accelerometrica Nazionale
RAN

WARNING:

These information are preliminary
and may be revised when more data are available.

Event: NORTHERN ITALY

Origin time: 2016/04/25 07:47:52

Latitude: 44.050 Longitude: 11.315

Depth: 10 km

Magnitude MI: 3.4

Hostname: aspendpc5

nass: 10

PGA max: 3 cm/s*s channel: HGZ

Min distance: 9 km station: BRM

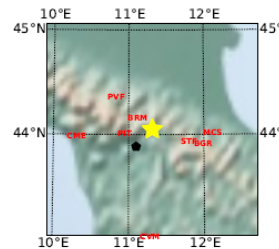
Nearest cities:

Prato 25 km

Firenze 32 km

Pistoia 34 km

Bologna 50 km



sta	net	styp	dist	EvAz	Phase	Time	TRes	SNR	ML	pga (cm/s*s)	ch	pgv (cm/s)	ch
BRM	IT	A	9	119	P	07:47:54.990	-0.9	111.5	3.0	2.9 (E)		3.8e-02 (N)	
PTT	IT	A	16	77	P	07:47:58.080	0.2	53.3	3.7	n/a		n/a	
STF	IT	A	21	293	P	07:47:59.000	-0.7	89.2	3.4	< 1.0 (N)		4.7e-03 (N)	
PVF	IT	A	26	129	P	07:48:03.000	1.8	37.2	3.3	< 1.0 (E)		1.6e-03 (N)	
BGR	IT	A	30	289	P	07:48:02.010	-0.3	53.7	3.6	< 1.0 (E)		3.6e-03 (E)	
MCS	IT	A	33	276	P	07:48:04.000	0.5	37.0	3.4	< 1.0 (E)		3.7e-03 (N)	
CME	IT	A	42	82	P	07:48:07.105	0.6	35.1	3.7	< 1.0 (N)		1.3e-03 (Z)	
CVM	IT	A	61	1	P	07:48:13.020	0.4	17.3	3.4	< 1.0 (E)		5.9e-04 (N)	
LSP	IT	A	62	92	P	07:48:14.010	0.8	25.6	3.3	< 1.0 (Z)		5.8e-04 (Z)	
FDS	IT	A	147	201	P	07:48:33.225	-0.6	5.8	3.8	< 1.0 (N)		1.2e-04 (Z)	

25/04/2016 09:56:19



ORID: 340212 EVID: 340212

PROTEZIONE CIVILE
Presidenza del Consiglio dei Ministri
Dipartimento della Protezione Civile

EVENT report
(Email)

Earthquake AUTOMATIC REPORT

Dipartimento della Protezione Civile - Rome - Italy
Rete Accelerometrica Nazionale
RAN

WARNING:

These information are preliminary
and may be revised when more data are available.

Event: NORTHERN ITALY

Origin time: 2016/04/25 07:47:52

Latitude: 44.050 Longitude: 11.315

Magnitude MI: 3.4

AGENCY: DPC

Seismic Moment: 1.11e+15 Nm

Mw: 3.8

AGENCY: DPC

Records analyzed by procedure: 101

Selected limits: max distance=100. km min PGA=1.0 cm/s*s

min PGA to show response spectra=1.0 cm/s*s

Records inside the selected limits: 8 response spectra inside the limits: 8

Nearest station: BRM distance: 18.13 km

HGE - PGA=2.71 cm/s*s, PGV=0.04 cm/s

Max recorded PGA: 3.22 cm/s*s Station: MRR Marradi

HGN - distance=23.16 km, PGV=0.05 cm/s

Procedure implemented by SeisKaM group, University of Trieste, Italy - ver: SPT - 2015

An automatic procedure

- runs in Antelope environment
- is triggered by a new event (new record in table “origin”) in Antelope database
- generates and transmits

Event parameters
([SMS](#))

ALERT report
([Email](#))

EVENT report
([Email](#))

Antelope database schema was modified.

New tables

- for the management of the procedure
- for storing waveform parameters (as Mw and response spectra)



File Options											Help
DSTalert	DSTalev	DSTcity	DSTproc	Geosite	Histopar	Polsite	Spetpar	affiliation	alertmeas	arrival	
assoc	calibration	changed	detection	event	gap	instrument	lastid	netmag	netmw	network	
origerr	origin	predarr	ratechange	schanloc	sensor	sensormodel	site	sitechan	snetsta	stage	
stamag	stamw	wfdamage	wfdisc	wfmeas	wfparam						

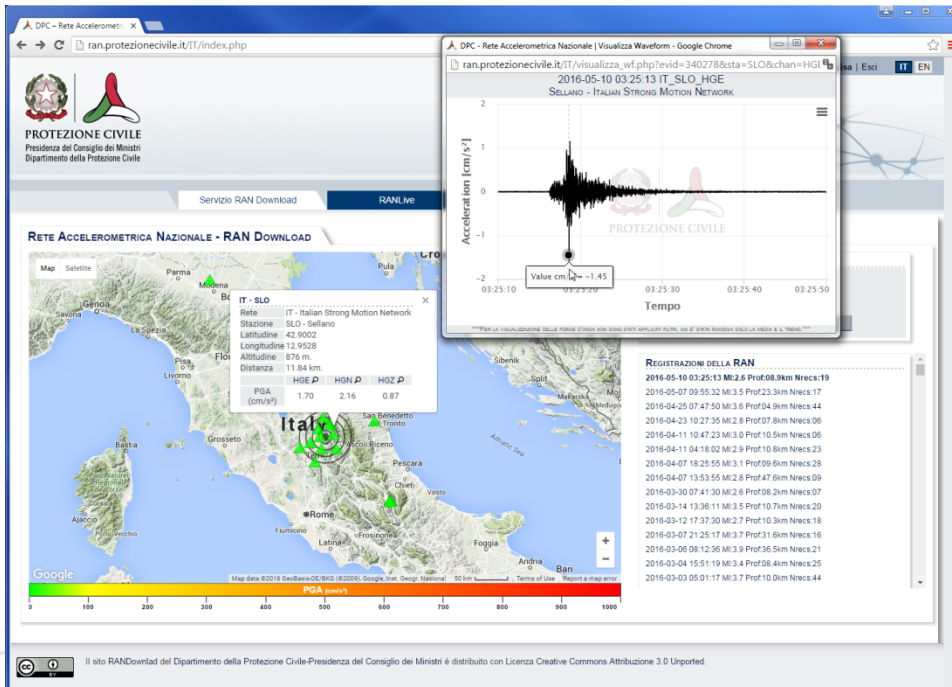
Quit

RAN – use of data (in short term)

RAN download
(Web)

Public access

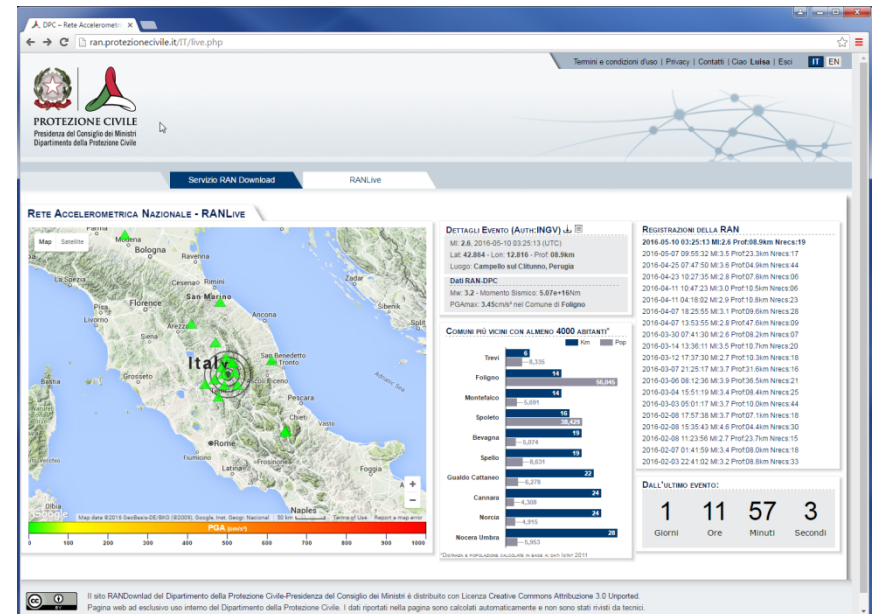
<http://ran.protezionecivile.it/IT/live.php>



RAN live
(Web)

Restricted access

<http://ran.protezionecivile.it/IT/index.php>



RAN data are published under the

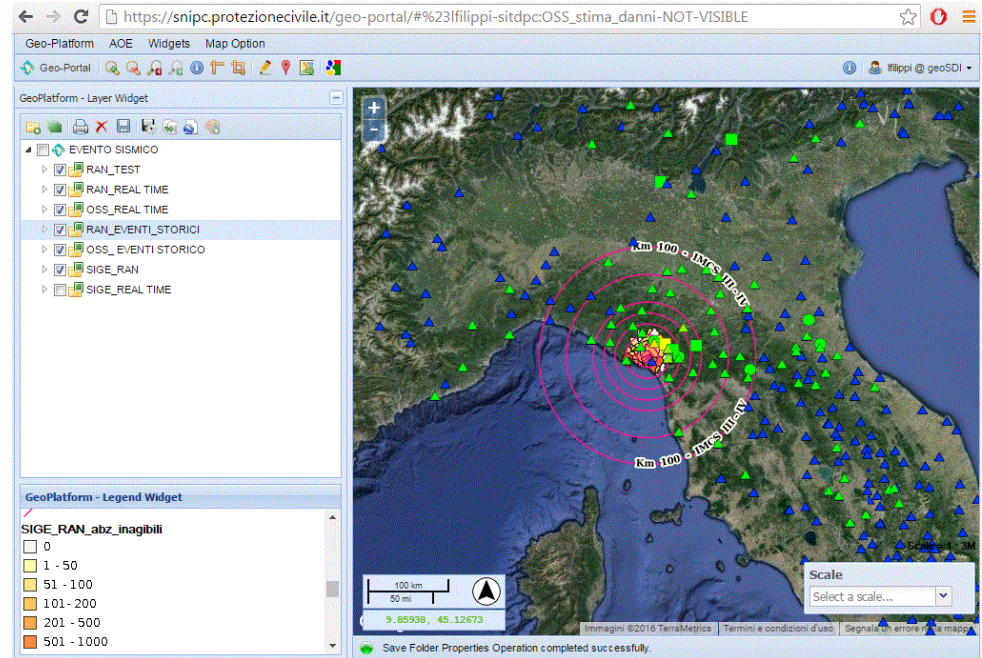
Common creative license
attribution 3.0



SITDPC

DPC Territorial Information System

- ✓ SITDPC is a DPC tool of analysis and decision-making
- ✓ SITDPC integrates data from different databases or Standard Web Services available from **SNIPC Components** and **Operative Structures**.



SNIPC (*National Service of Civil Protection*) is coordinated by **DPC**

Components:

National and local administrations, Public boards and professional associations, Institutes and scientific research groups with civil protection purposes, associated groups of volunteers, ...

Operative Structures:

Fire Department and Forestry corps, Armed Forces and Police Forces, National groups of scientific research, Italian Red Cross and National Health Service, Voluntary service, ...

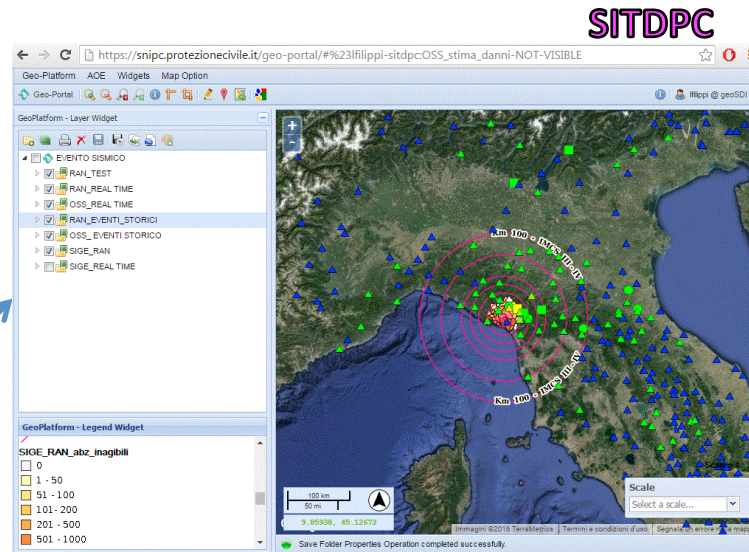
RAN – data center



SyncMySQL
(data synchronization)
exportData

dedicated Views
(Layers)

dedicated tables



RAN live / RAN download



RETE ACCELEROMETRICA NAZIONALE - RANLIVE

DETTAGLI EVENTO (Autm-INGV)

M: 3.8; 2016-04-25 07:47:59 (UTC)
 Lat: 44.827° - Lon: 11.462° Prof: 04.8km
 Luogo: Firenze, Firenze
 Qual: RAN DPC
 M: 3.8 - Momento Sismico: 1.22e+15Nm
 PGAmax: 3.34ms⁻² nel Comune di Marradi

CONFINI PIÙ VICINI CON ALMENO 4000 ABITANTI*

Comune	Pop.	Pro
Firenze	4,320	100%
Sesto San Giovanni	1,720	40%
Borgo San Lorenzo	11	17,20%
San Piero a Sieve	12	17,20%
Budonno di Mugello	14	17,20%
Vinci	15	17,20%
Viggiù	16	17,20%
Vernio	17	17,20%
Dicomano	18	17,20%
San Benedetto Val di Sambro	22	17,20%

RICOSTRUZIONE DELLA RAN

Time	M	Lat	Lon	Prof	Qual
2016-04-23 10:27:35	2.8	43.8	10.8	07	5m
2016-04-11 10:47:23	3.0	43.8	10.8	10	5m
2016-04-11 04:18:02	2.9	43.8	10.8	10	5m
2016-04-07 18:25:55	3.1	43.8	10.8	10	5m
2016-04-07 13:55:56	2.8	43.8	10.8	10	5m
2016-03-07 07:41:30	2.8	43.8	10.8	10	5m
2016-03-14 13:36:11	3.0	43.8	10.8	10	7m
2016-03-11 17:30:56	2.7	43.8	10.8	10	5m
2016-03-07 21:25:17	3.1	43.8	10.8	10	5m
2016-03-08 08:12:35	3.0	43.8	10.8	10	5m
2016-04-15 15:19:36	3.4	43.8	10.8	10	5m
2016-03-03 05:01:17	3.1	43.8	10.8	10	5m
2016-02-08 17:57:38	3.7	43.8	10.8	10	5m
2016-02-08 15:25:43	4.4	43.8	10.8	10	5m
2016-02-08 11:23:56	3.7	43.8	10.8	10	5m
2016-02-07 01:41:59	3.4	43.8	10.8	10	5m
2016-02-21 22:41:02	3.2	43.8	10.8	10	5m
2016-02-21 17:39:30	3.0	43.8	10.8	10	5m
2016-02-01 09:11:48	2.9	43.8	10.8	10	5m

DALL'ULTIMO EVENTO:
 8 Giorni 1 Ore 28 Minuti 29 Secondi



Tables

- ant_affiliation
- ant_assoc
- ant_eventi
- ant_geosite
- ant_instrument
- ant_netmw
- ant_network
- ant_origini
- ant_polsite
- ant_sensor
- ant_site
- ant_sitechan
- ant_stage
- ant_wfparam
- colori
- distanze
- distanze_temp
- downloads
- permessi
- places
- sync
- utenti
- wffiles

Views

- sitdpc_last_event
- sitdpc_PGA_last_event
- sitdpc_site
- sitdpc_site_full

views for SITDPC

ant_instrument inid: int insname: char(50) instype: char(6) band: char(1) samprate: decimal... ncalib: decimal(10,...) dir: char(64) dfile: char(32) rsptype: char(6) lddate: datetime	ant_netmw orid: int evid: int netmw: decimal(7,...) sigmamw: decima... netm0: float netf0: decimal(7, 2) neteqR: decimal(7,...) usta: int rjsta: int 3 more columns...	ant_stage sta: char(6) chan: char(8) time: datetime endtime: datetime stageid: int ssid: char(16) gnom: decimal(20,...) iunits: char(16) ounits: char(16) 6 more columns...	ant_site sta: char(6) ondate: char(50) offdate: char(50) location: geometry lat: decimal(9, 4) lon: decimal(9, 4) elev: decimal(9, 4) staname: char(50) lddate: datetime	ant_wfparam orid: int sta: char(6) chan: char(8) filter: char(30) time: decimal(17, 5) endtime: decimal(...) ml: decimal(7, 2) dista: decimal(7, 2) PGA: decimal(15, 6) 7 more columns...	ant_polsite sta: char(6) country: char(50) region: char(50) province: char(50) municipality: char(...) maintenance: char(...) lddate: datetime
ant_origini evid: int orid: int location: geometry lat: decimal(9, 4) lon: decimal(9, 4) time: datetime ml: decimal(7, 2) nass: int depth: decimal(9, 4) 3 more columns...	ant_sitechan sta: char(6) chan: char(8) ondate: char(8) offdate: char(8) ctype: char(4) edepth: decimal(9,...) hang: decimal(6, 1) vang: decimal(6, 1) descrip: char(50) 2 more columns...	ant_sensor sta: char(6) chan: char(8) time: datetime endtime: datetime inid: int chanid: int jdate: char(7) lddate: datetime	ant_assoc arid: int orid: int sta: char(6) phase: char(8) delta: decimal(8, 3) lddate: datetime	ant_geosite sta: char(6) time: datetime ec8: char(3) quality: char(3) auth: char(15) lddate: datetime	ant_eventi evid: int prefer: int auth: char(15) place: varchar(255) parameters: enum lddate: datetime

places idlayer: tinyint place: char(70) province: char(30) region: char(45) state: char(35) cod_istat: int cod_cat: char(4) population: int surface: decimal(9,...) 4 more columns...	utenti id: int UNSIGNED nome: varchar(50) cognome: varchar(...) username: varchar(...) password: varchar(...) email: varchar(80) istituto: varchar(80) data_registrazione: d... ultima_modifica: d... 3 more columns...	wffiles id: int UNSIGNED evid: int orid: int nomefile: char(50) extasci: char(4) extsac: char(4) extplot: char(4) sta: char(4) chan: char(3) 4 more columns...	downloads id: int UNSIGNED id_utente: int evid: int nome_file: varchar... tipo_file: varchar(10) data_download: da...	distanze orid: int place: char(70) cod_istat: int distance: double population: int	distanze_temp orid: int place: char(70) cod_istat: int distance: double population: int
sync nome_tabella: text last_upd: datetime freq_upd: tinyint inizio_upd: tinyint	colori param: char(10) valore: smallint R: smallint G: smallint B: smallint				

 Datascope tables
 «ad hoc» tables

SIGE Damage scenario

Elaborated on the basis of :

- origin parameters of the event (lat lon depth magnitude)
- empirical relationships (M_L vs M_w) & (M_w vs I_{MCS})
- territorial data
-

No instrumental data.

(Damage scenario Summary)

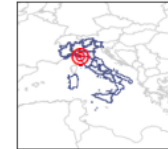


PROTEZIONE CIVILE
PRESIDENZA DEL CONSIGLIO DEI MINISTRI
Dipartimento della Protezione Civile
Ufficio III - Rischio sismico e vulcanico

RAPPORTO SUL TERREMOTO

Evento sismico:

Data evento = 21/06/2013
Ora evento = 10:33:56
Magnitudo evento: $M_w = 5.38$; $M_l = 5.2$
Intensita' epicentrale = 7.3
Posizione epicentro:
Longitudine = 10.133
Latitudine = 44.154
Profondita' = 9.98



Comune epicentrale:

Comune epicentrale: Fivizzano
Capoluogo di comune più vicino all'epicentro: Minucciano

Dati sintetici di esposizione nell' area colpita ($I_{MCS} \geq VI$):¹

Totale comuni	5
Totale abitanti comuni	25144
Totale abitazioni comuni	14827

Impatto complessivo su abitazioni e popolazione:¹

	Val.16%	Val. med	Val. 84%
Abitazioni con danno D1	912	4646	16087
Abitazioni con danno D2	430	2378	7864
Abitazioni con danno D3	116	752	2741
Abitazioni con danno D4	16	127	554
Abitazioni con danno D5	0	7	43
.			
Totale abitazioni crollate (D5)	0	7	43
Totale abitazioni inagibili (D5+D4+D3)	132	886	3338
Totale residenti in abitazioni crollate	0	8	74
Totale residenti in abitazioni inagibili	126	1162	6398
.			
Somma prodotti superf.x liv. di danno (mq)	32088	186869	642735

¹ Primo scenario di danno prodotto da DPC-SIV con ScMCS (vers. 07/2015) utilizzando come dati di ingresso i soli parametri Magnitudo e coordinate epicentrali (Fonte INGV) e usando:
- conversioni Magnitudo locale (Ml) - Magnitudo Momento (Mw) - Intensità macrosismica (Imcs_ipo):
 $M_w = 1.066 * M_l - 0.164$ (Gasperini 2013)
 $Imcs_ipo = (2.1258 * M_w) - 4.1135$ (cp11) per epicentri in aree vulcaniche: $Imcs_ipo = (2.2251 * M_w) - 2.2617$
- conversione del valore dell'Intensità epicentrale per profondità ipocentrali (Prof_ipo) superiori a 20 km: $Imcs_0 = Imcs_ipo - 0.0259 * (Prof_ipo - 20)$
- Attenuazione I_mcs:
per $M_l < 5.5$ Gomez Capera 2006: $Iris = Imcs_0 - (-1.3096 + 1.1833 * [DIST ** (1.0/3.0)])$ in aree vulcaniche: $Iris = Imcs_0 - (-0.486 + 1.4066 * [DIST ** (1.0/3.0)])$
per $M_l > 5.5$ Passolunghi 2008: $Iris = Imcs_0 - (0.0086 * [D - 3.91] - 1.037 * [math.log(D) - math.log(3.91)])$ dove $D = math.sqrt((DIST - D0) ** 2.0 + (3.91 * 3.91))$ e $D0 = 2.0 * M_l - 13.0$ [km] è il plateau
DPM versione 1999
- Soglia selezione comuni coinvolti: $Imcs > 6.0$ Gestione incertezze: varianza DPM e ± 0.25 sull'Intensità (per I>5.5)

RAN – integration of OSS data (test phase)

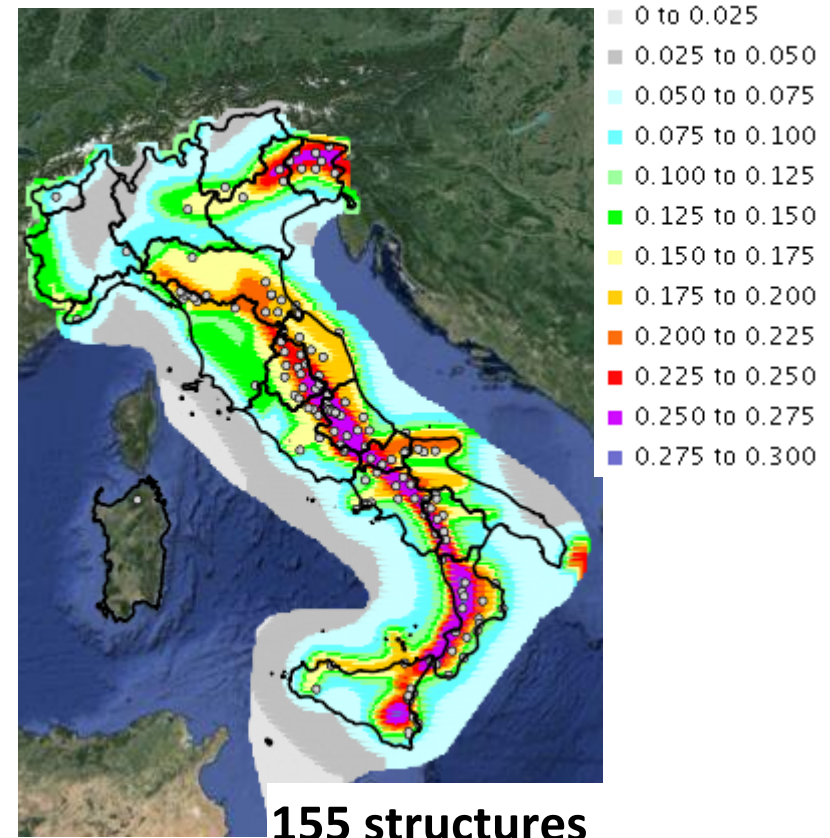
- ❑ The RAN and OSS projects were designed and implemented separately for several reasons.

RAN and OSS data centers are different

- ❑ The “near field” (NF) sensor of OSS monitoring systems is installed in site condition of many RAN stations

OSS vs Italian seismic hazard map

Peak Ground Acceleration (PGA in g) with a 10% chance of exceedance in 50 years.

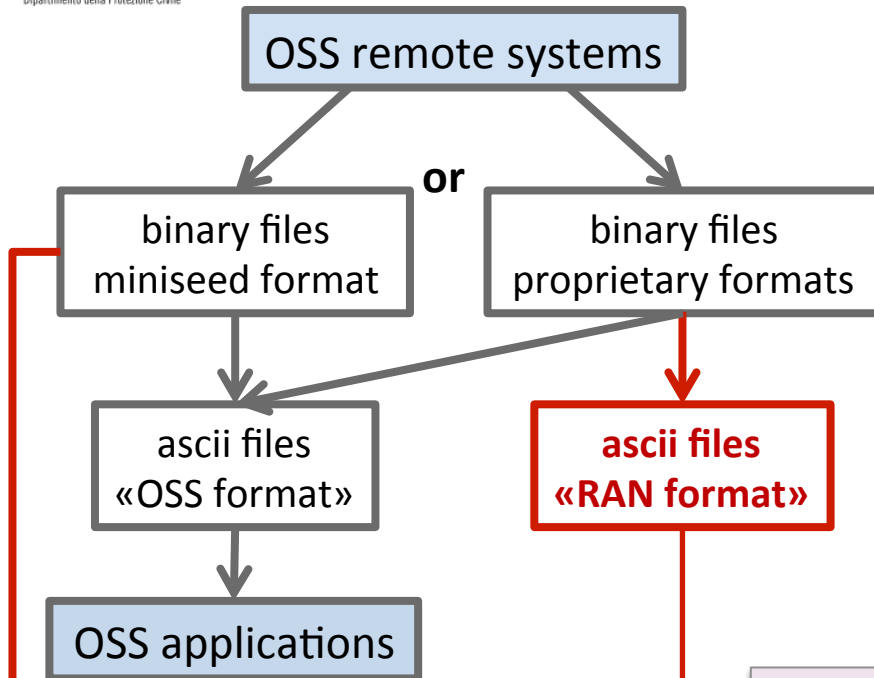


3049 accelerometric sensors

65 displacement sensors

RAN – integration of OSS data (test phase)

ascii file «RAN format»



```

SERIAL=4010
CHANNEL=NF-Y
TIME=2015/11/17 7:13:09.735
NSAMPLE=18000
SAMPLING= 200
DYNAMIC=24
SEGTYPE=A
VPP=10
SENSIBILITY=1.015
GAIN=1
USER1=
USER2=
INFO1=
INFO2=

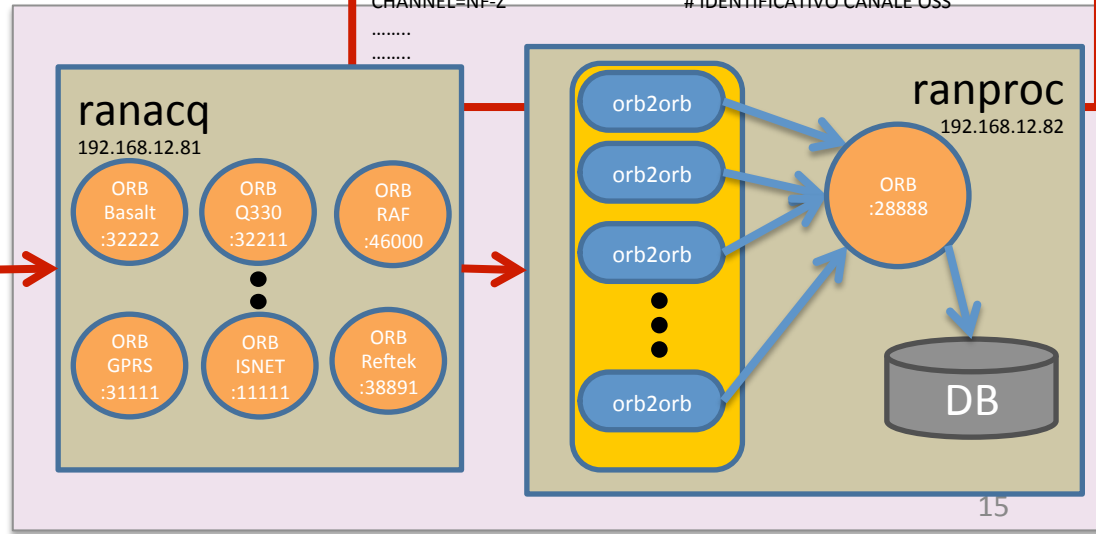
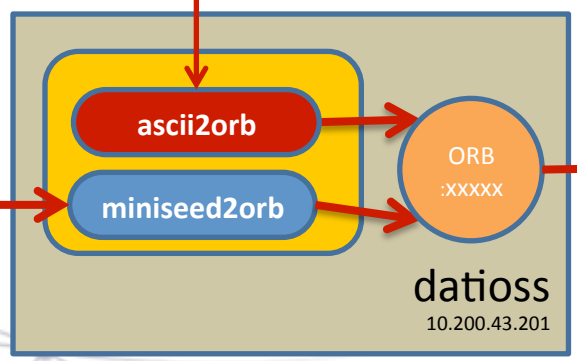
# IDENTIFICATIVO DI SERIE DATALOGGER
# IDENTIFICATIVO CANALE OSS
# TEMPO PRIMO CAMPIONE
# NUMERO DI CAMPIONI
# FREQUENZA DI CAMPIONAMENTO
# DINAMICA 16,18,24,..
# TIPO SENSORE: A=ACC. V=VELOC.
# FONDO SCALA PICCO PICCO. +/-5v = 10v
# COSTANTE DI TRASDUZIONE V/g
# GUADAGNO
# COMMENTI 64 CARATTERI X ANTELOPE
# COMMENTI 64 CARATTERI X ANTELOPE
# ULTERIORI INFORMAZIONI

-1532
-1538
.....
.....
SERIAL=4010
CHANNEL=NF-X
.....
.....
SERIAL=4010
CHANNEL=NF-Z
.....
.....

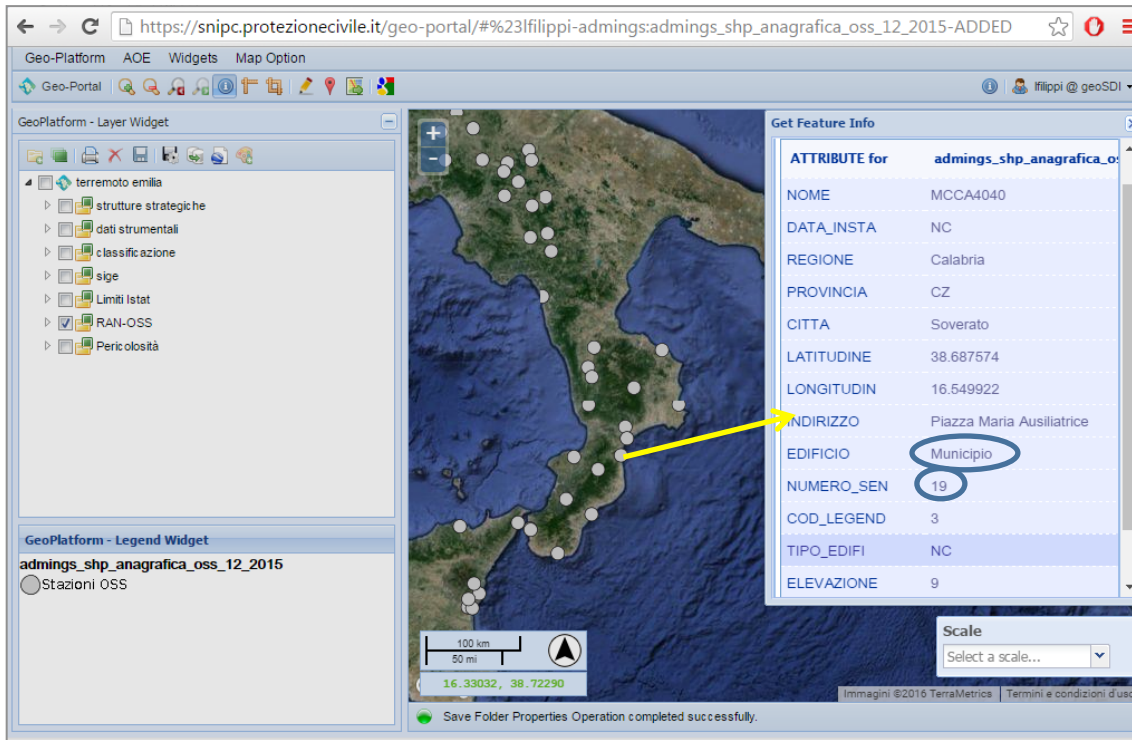
# DATI IN COUNT

# IDENTIFICATIVO DI SERIE DATALOGGER
# IDENTIFICATIVO CANALE OSS

# IDENTIFICATIVO DI SERIE DATALOGGER
# IDENTIFICATIVO CANALE OSS
  
```



RAN – integration of OSS data (test phase)



Geo-Platform - Layer Widget

- terremoto emilia
- strutture strategiche
- dati strumentali
- classificazione
- sige
- Limiti Istat
- RAN-OSS
- Peric. obstà

GeoPlatform - Legend Widget

adming_shp_anagrafica_oss_12_2015

- Stazioni OSS

Get Feature Info

ATTRIBUTE for adming_shp_anagrafica_oss_12_2015

NOME	MCCA4040
DATA_INSTA	NC
REGIONE	Calabria
PROVINCIA	CZ
CITTA	Soverato
LATITUDINE	38.687574
LONGITUDIN	16.549922
INDIRIZZO	Piazza Maria Ausiliatrice
EDIFICIO	Municipio
NUMERO_SEN	19
COD_LEGEND	3
TIPO_EDIFI	NC
ELEVAZIONE	9

Scale: Select a scale...

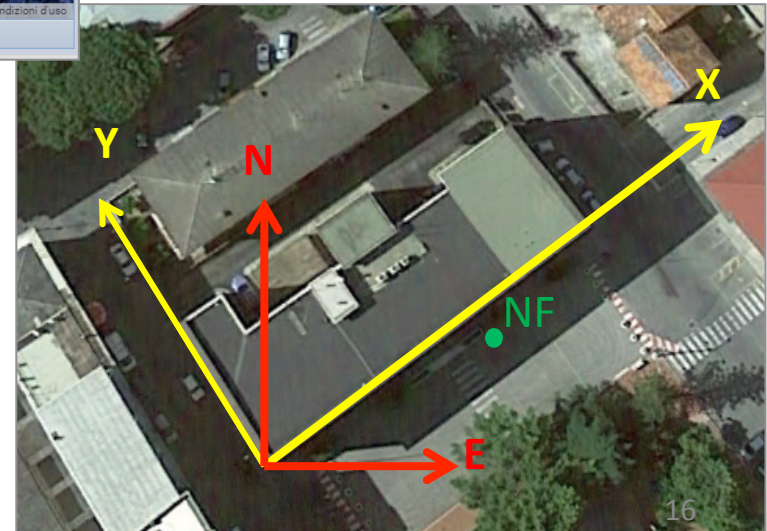
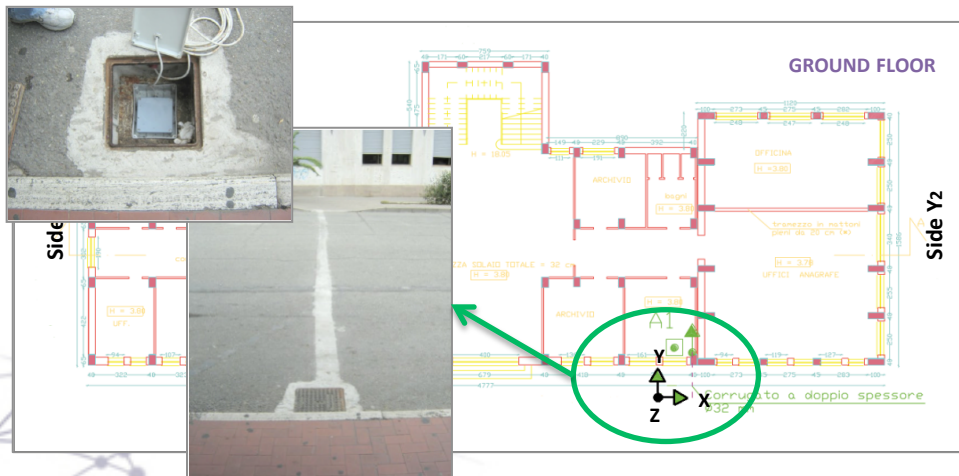
100 km / 50 mi

16.33032, 38.72290

Immagini ©2016 TerraMetrics | Termini e condizioni d'uso

Save Folder Properties Operation completed successfully.

SOV - Soverato Town hall building



RAN – integration of OSS data (test phase)

oss

File Options Help

calibration	changed	gap	instrument	lastid	network	schanloc	sensor	sensormodel	site	sitechan
snetsta	stage	wfdisc								

Quit

oss sitechan

File Edit View Options Graphics Help

0	sta	chan	ondate	edepth	hang	vang	descrip
	SOV	HGZ	2005299	0.0000	0.0	0.0	cfx_4041 4041
	SOV	HGY	2005299	0.0000	325.0	90.0	cfx_4041 4041
	SOV	HGX	2005299	0.0000	55.0	90.0	cfx_4041 4041
	ATP	HGZ	2005298	0.0000	0.0	0.0	cfx_4031 4031
	ATP	HGY	2005298	0.0000	278.0	90.0	cfx_4031 4031
	ATP	HGX	2005298	0.0000	8.0	90.0	cfx_4031 4031
	CZR	HGZ	2005299	0.0000	0.0	0.0	sara_4021 4021
	CZR	HGY	2005299	0.0000	47.0	90.0	sara_4021 4021
	CZR	HGX	2005299	0.0000	137.0	90.0	sara_4021 4021
	KRO	HGZ	2005300	0.0000	0.0	0.0	sara_4011 4011
	KRO	HGY	2005300	0.0000	338.0	90.0	sara_4011 4011
	KRO	HGX	2005300	0.0000	68.0	90.0	sara_4011 4011
	BOV	HGZ	2005298	0.0000	0.0	0.0	cfx_4001 4001
	BOV	HGY	2005298	0.0000	215.0	90.0	cfx_4001 4001
	BOV	HGX	2005298	0.0000	305.0	90.0	cfx_4001 4001

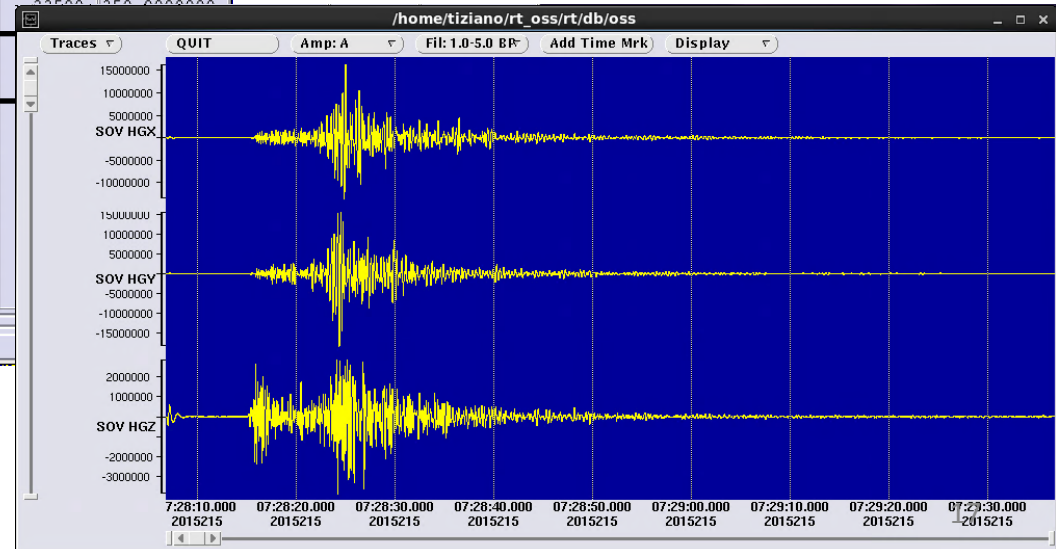
Dismiss

oss wfdisc

File Edit View Options Graphics Process

0	sta	chan	time	endtime	nsamp	samprate		
	CZR	HGX	3/02/2016 (062)	0:00:00.00000	3/02/2016 (062)	23:59:59.99600	21600000	250.000000
	CZR	HGY	3/02/2016 (062)	0:00:00.00000	3/02/2016 (062)	23:59:59.99600	21600000	250.000000
	CZR	HGZ	3/02/2016 (062)	0:00:00.00000	3/02/2016 (062)	23:59:59.99600	21600000	250.000000
	CZR	HGZ	12/28/2014 (362)	21:43:49.01370	12/28/2014 (362)	21:45:19.00970	22500	250.000000
	CZR	HGX	12/28/2014 (362)	21:43:49.01370	12/28/2014 (362)	21:45:19.00970	22500	250.000000
	CZR	HGY	12/28/2014 (362)	21:43:49.01370	12/28/2014 (362)	21:45:19.00970	22500	250.000000
	CZR	HGZ	3/02/2016 (062)	10:02:28.35460	3/02/2016 (062)	10:03:58.35060	22500	250.000000
	CZR	HGY	3/02/2016 (062)	10:02:28.35460	3/02/2016 (062)	10:03:58.35060	22500	250.000000
	CZR	HGX	3/02/2016 (062)	10:02:28.35460	3/02/2016 (062)	10:03:58.35060	22500	250.000000
	CZR	HGZ	8/03/2015 (215)	7:27:57.12340	8/03/2015 (215)	7:29:27.11940	22500	250.000000
	CZR	HGX	8/03/2015 (215)	7:27:57.12340	8/03/2015 (215)	7:29:27.11940	22500	250.000000
	CZR	HGY	8/03/2015 (215)	7:27:57.12340	8/03/2015 (215)	7:29:27.11940	22500	250.000000
	SOV	HGZ	8/03/2015 (215)	7:28:06.86380	8/03/2015 (215)	7:29:36.85980		
	SOV	HGX	8/03/2015 (215)	7:28:06.86380	8/03/2015 (215)	7:29:36.85980		
	SOV	HGY	8/03/2015 (215)	7:28:06.86380	8/03/2015 (215)	7:29:36.85980		
	KRO	HGZ	8/03/2015 (215)	7:28:11.81930	8/03/2015 (215)	7:29:41.81530		
	KRO	HGX	8/03/2015 (215)	7:28:11.81930	8/03/2015 (215)	7:29:41.81530		
	KRO	HGY	8/03/2015 (215)	7:28:11.81930	8/03/2015 (215)	7:29:41.81530		
	SOV	HGZ	12/28/2014 (362)	21:44:01.22820	12/28/2014 (362)	21:45:01.22420		
	SOV	HGX	12/28/2014 (362)	21:44:01.22820	12/28/2014 (362)	21:45:01.22420		
	SOV	HGY	12/28/2014 (362)	21:44:01.22820	12/28/2014 (362)	21:45:01.22420		
	KRO	HGZ	12/28/2014 (362)	21:44:04.64360	12/28/2014 (362)	21:45:34.63960		
	KRO	HGX	12/28/2014 (362)	21:44:04.64360	12/28/2014 (362)	21:45:34.63960		
	KRO	HGY	12/28/2014 (362)	21:44:04.64360	12/28/2014 (362)	21:45:34.63960		
	ATP	HGZ	12/28/2014 (362)	21:44:24.45750	12/28/2014 (362)	21:46:04.45350		

Dismiss



- ❑ Streaming data sharing and metadata sharing
 - Seedlink server
 - a web service for metadata download

- ❑ Integration of OSS data
 - to modify the automatic procedure in order to rotate OSS data before elaboration with RAN data

- ❑ Improve data security and data center operational continuity

The RAN data center will be upgraded in order to accomplish the Operational Continuity Plan that DPC has designed, by law.

- As first step, the servers at RAN data center will be virtualized and moved into IT infrastructures installed at the basement of the DPC's building.

- As second step, the Antelope database will be replicated and synchronized in the “disaster&recovery” site o DPC.