Organic Law: 2012

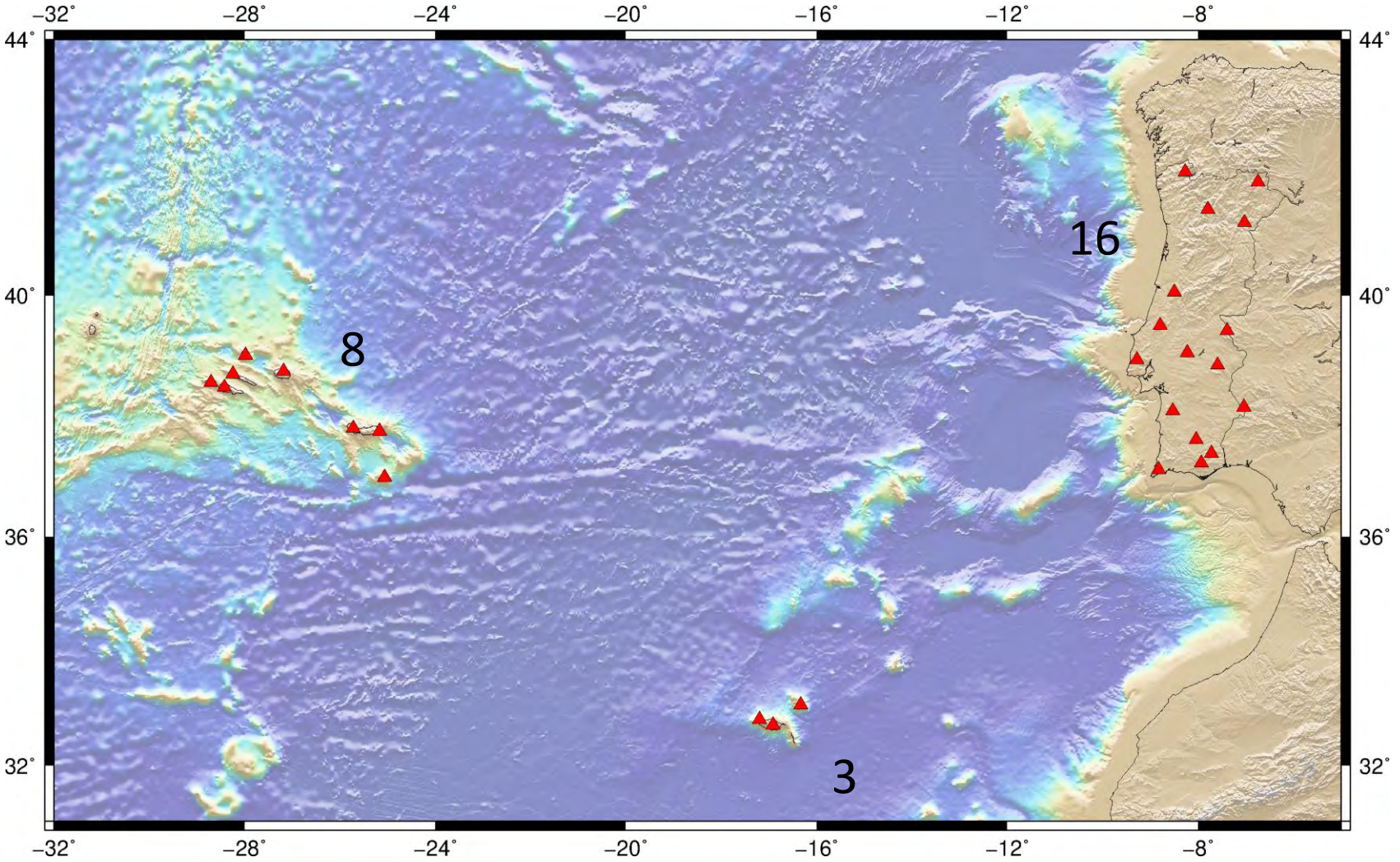
- Mission
  - "IPMA is the **national authority** in the domains of meteorology, aeronautic meteorology, **seismology** and geomagnetism"

- Atributions
  - "... **ensure** meteorological, climatic, geomagnetic and **seismic surveillance**"
  - … Integrate data from other sensor network of relevant state variables for the aforementioned surveillance activities and, where necessary, plan the installation, promote maintenance, ensure calibration and efficient operation of new ones, namely for sea level measurement and ground shaking.."

Seismic network

- Quality data acquisition in highly sensitive stations which are also equipped with strong-motion sensors
- High quality digital transmission
- Real time monitoring at the Operational Center
- Automatic signal detection
- Automatic association of detections, event location and magnitude evaluation
- Rapid earthquake information system for Civil Protection authorities
- Automatic archive of recorded data
- High-level products (bulletins, shakemaps, regional moment tensor, etc.)
- Support of the Tsunami Service for NE-Atlantic
- Contribute to international monitoring efforts (FDSN, ORFEUS, tsunami projects [NEAMTWS])
- Data for scientific research purposes

IPMA Broadband Network
27 stations



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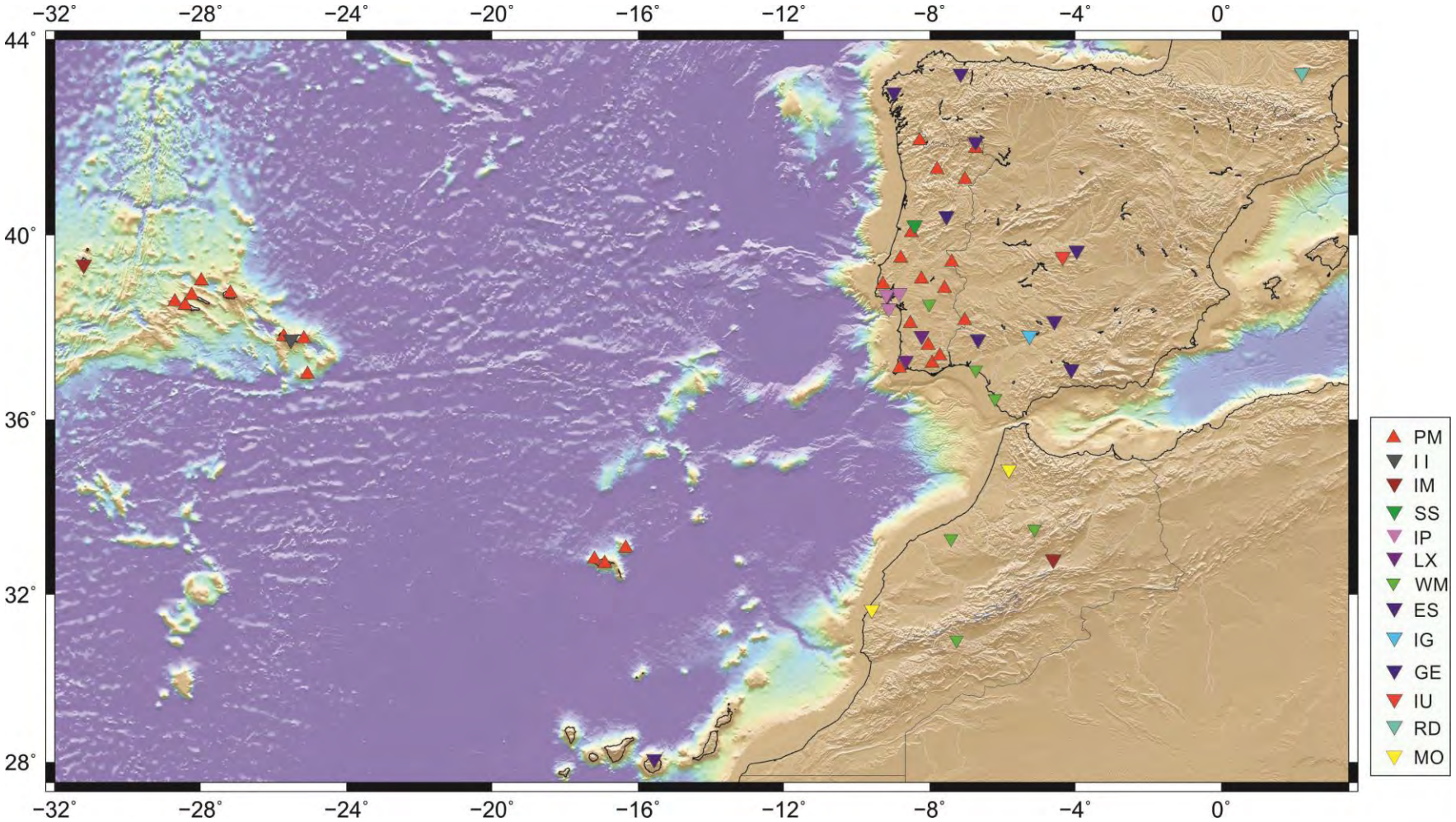
Extended Regional Broadband Network

62 stations



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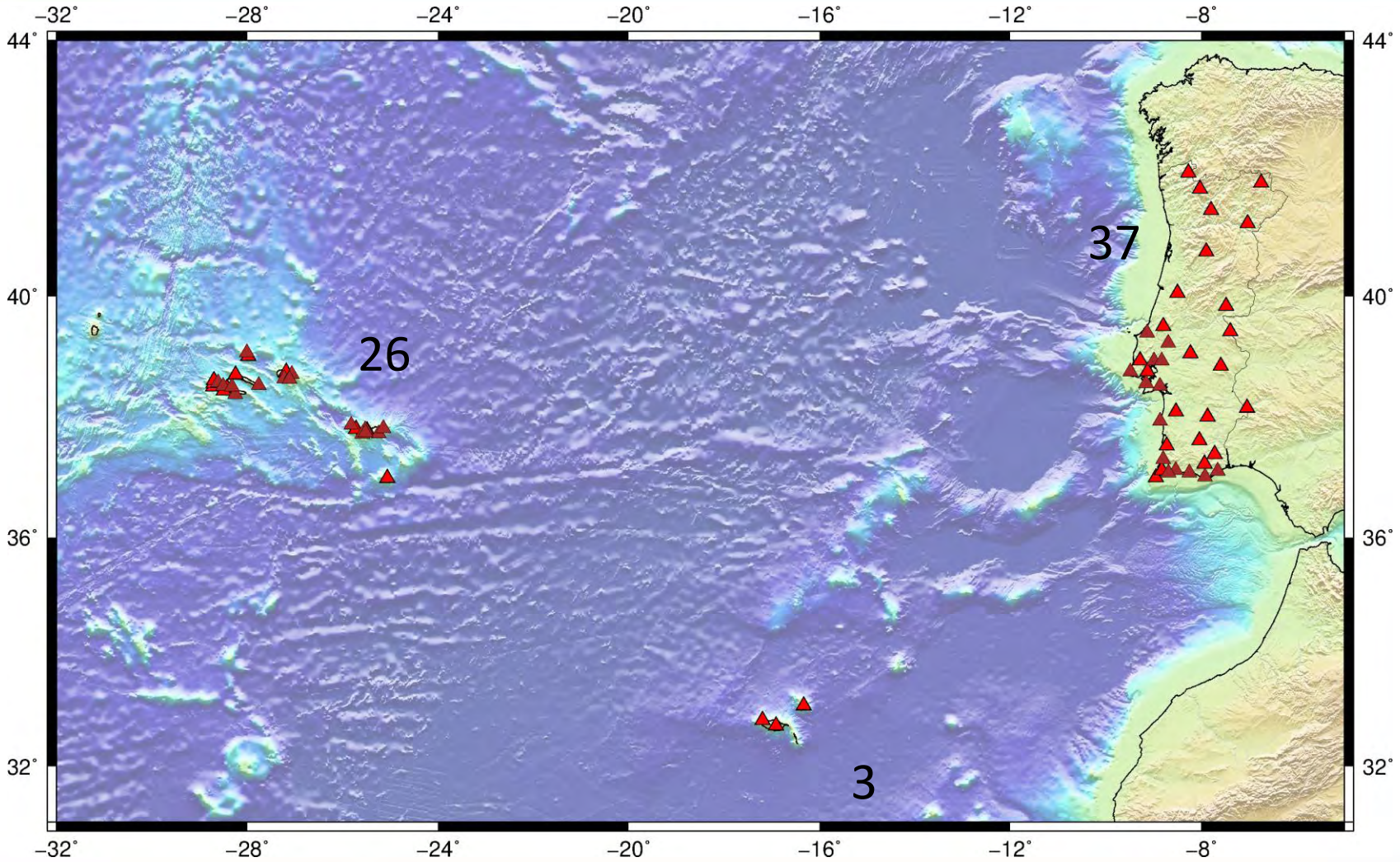
Strong Motion Network

66 stations



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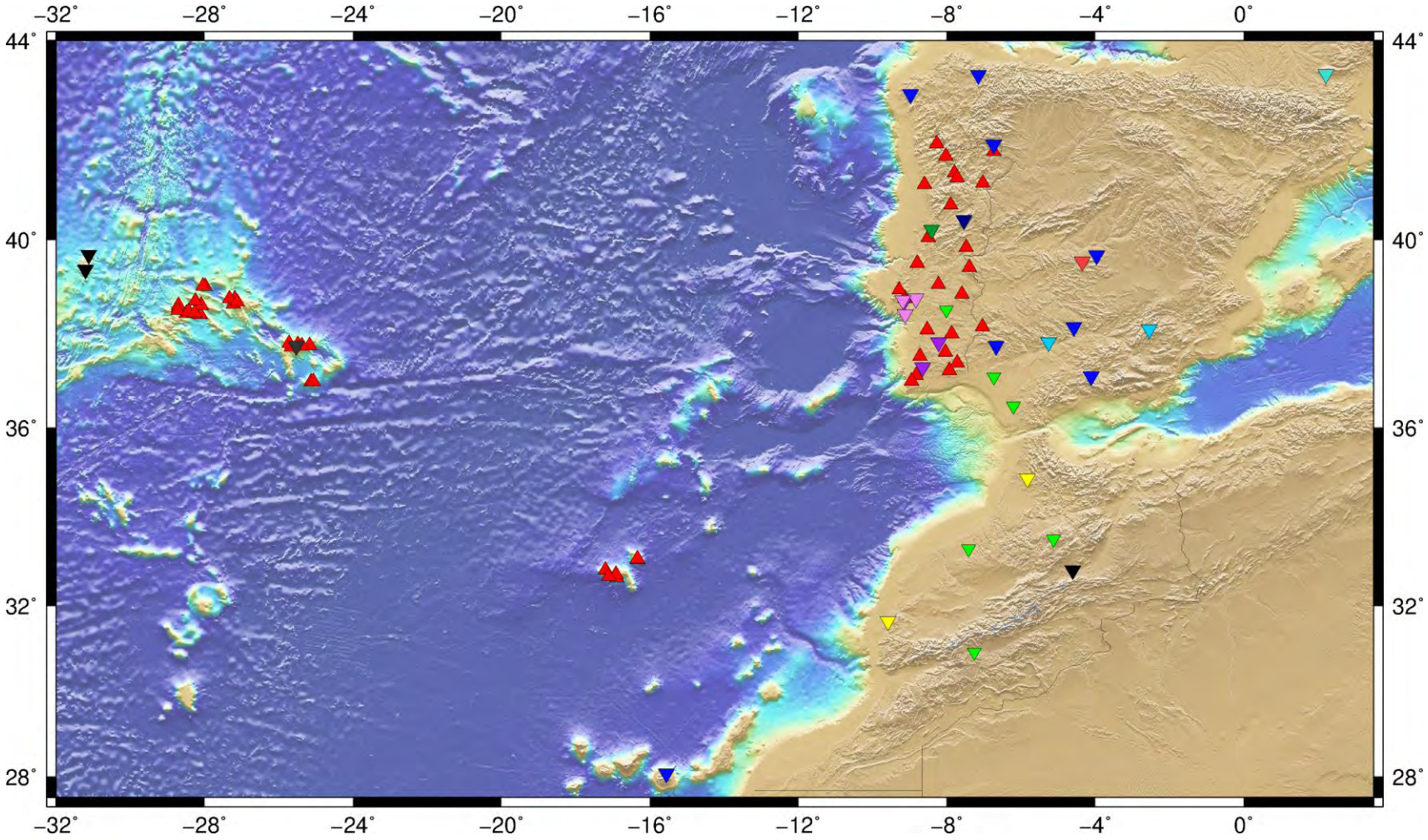
The Regional Network

117 stations



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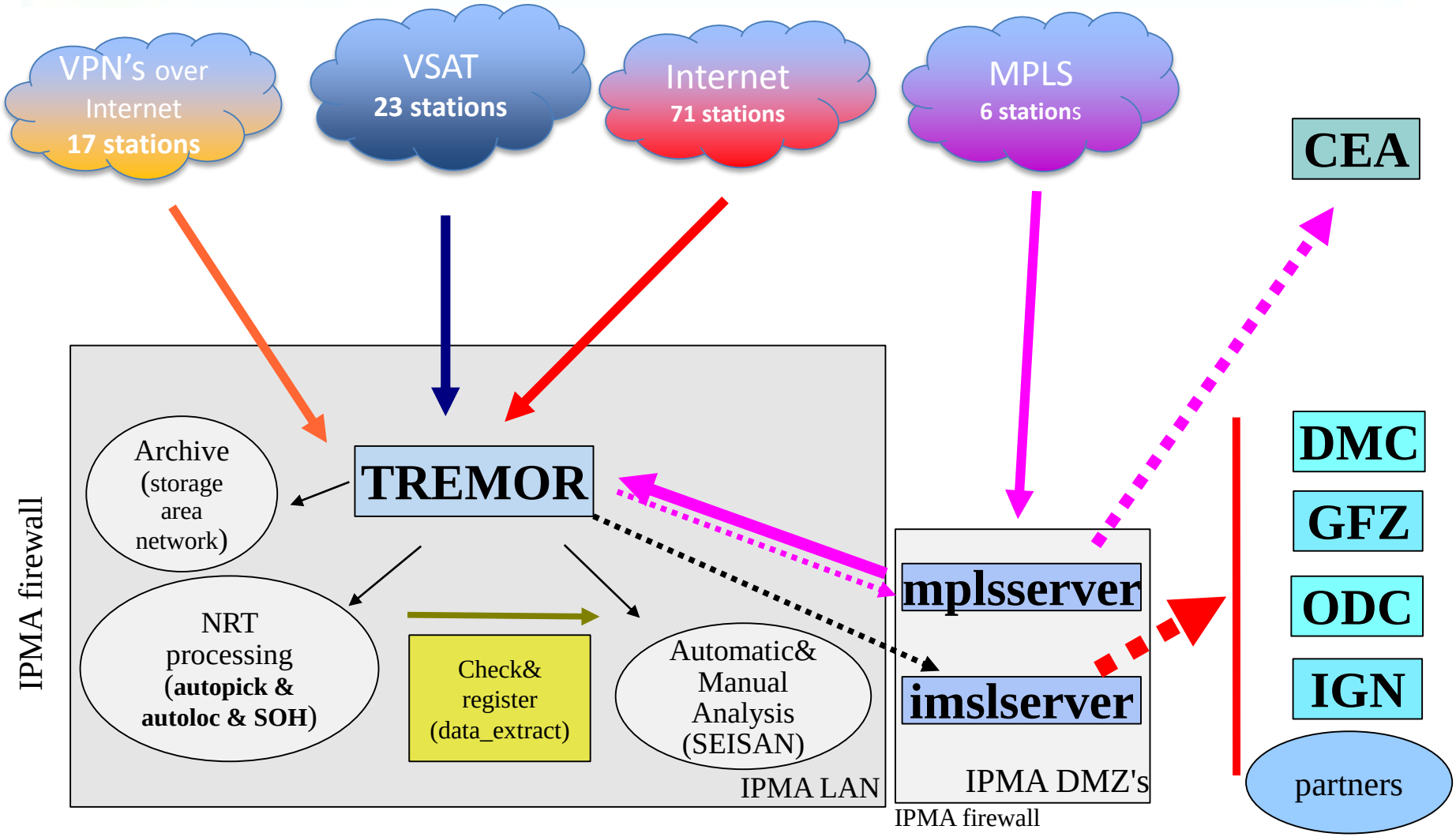
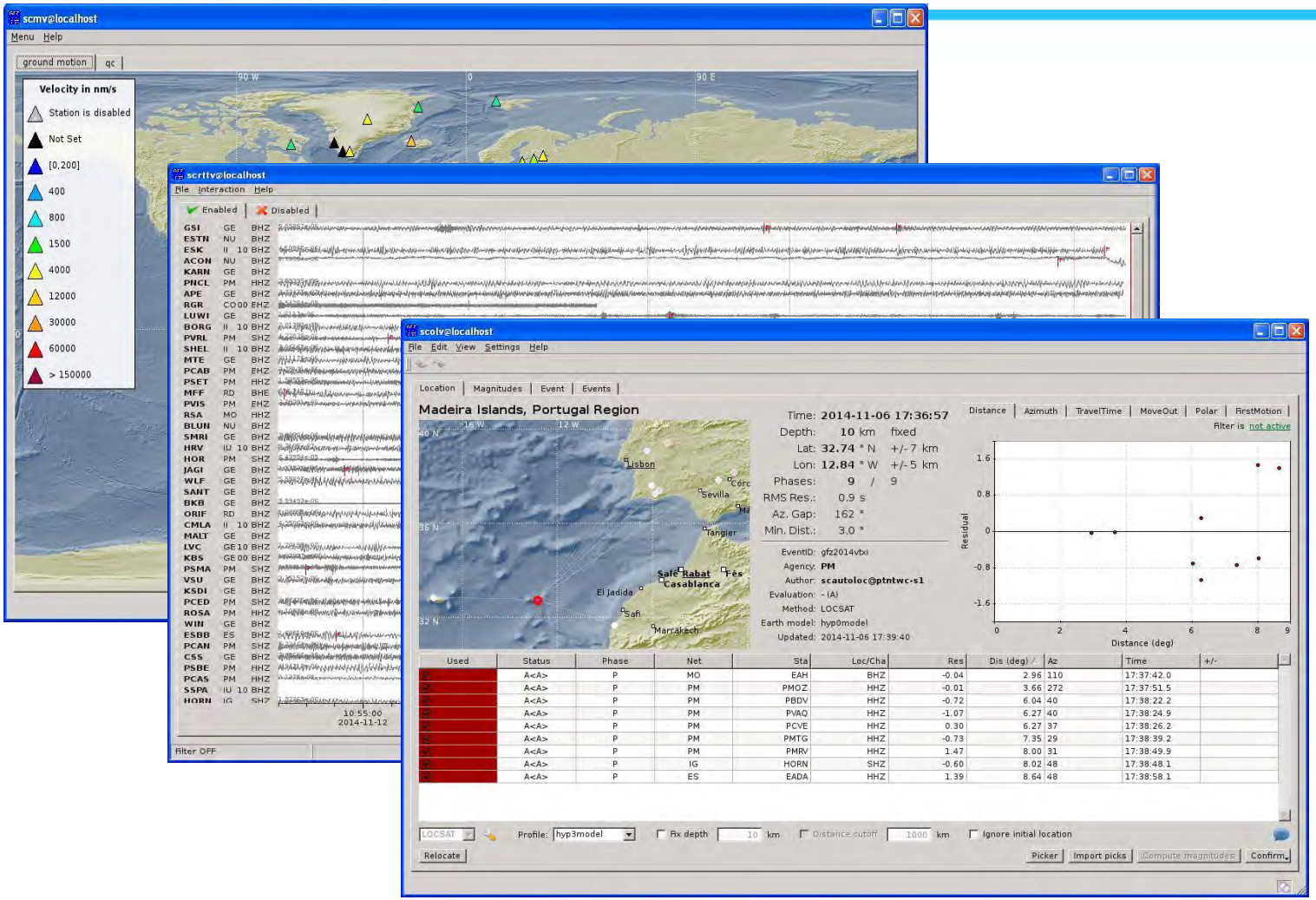
Seismic stations

Sensors	Digitisers/Dataloggers	Communication
Guralp CMG-3T (120sec)	**Guralp DM24**	**VSAT**
Guralp CMG-3ESPc (120sec)	**Guralp EAM6**	**DSL**
Streckeisen STS-2 (120sec)	**Nanometrics CENTAUR**	**GPRS**
Lennartz LE3D20 (20sec)	**Geosig GSD24**	
Lennartz LE3D5 (5sec)	**Geosig GMS+**	
Lennartz LE3D1 (1 Hz)	Mars88 (Obsolet)	
Trillium 120QA [*]		
	Alpha2000	
Guralp CMG-5T	Alix1D	
Kinemetrics Episensor		
Nanometrics TITAN		

Seedlink flow



SeiscomP3 – Global Seismic Monitoring



Fast locations
MW Fast evaluation

IPMA , NDC Portugal SeedLink Monitor

Real-time stations

Station	Latencies		
	Data	Feed	Diff.
PM PGRA	3.9 d	3.9 d	10.1 m
RD MFF	1.3 d	1.3 d	96.7 s
MO RSA	16.0 h	3.8 h	12.2 h
PM PSVI	3.3 h	-	-
PM INMG	2.5 m	-	-
PM PCASC	2.0 m	-	-
PM PVRL	108.2 s	20.7 s	87.5 s
PM FUL	100.2 s	15.7 s	84.6 s
PM PMPS	100.2 s	13.3 s	87.0 s
PM PTO	100.2 s	7.4 s	92.8 s
PM PSETU	87.0 s	-	-
PM PBEN	85.0 s	-	-
PM PCDRA	72.0 s	-	-
II CMLA	2.4 s	1.0 s	1.3 s
LX PW10	2.2 s	1.3 s	0.9 s
PM PPOR	2.0 s	-	-
SS COI	1.9 s	1.3 s	0.6 s
WM AVE	1.8 s	0.7 s	1.1 s
PM PFARO	1.0 s	-	-
PM PALJ	1.0 s	-	-
PM PALBU	1.0 s	-	-

Latencies:

<10 m	< 1 h	< 2 h	< 6 h	< 1 d	< 2 d	< 3 d	< 4 d	< 5 d	> 5 d

Last updated 2016/06/18 22:02:24 UTC

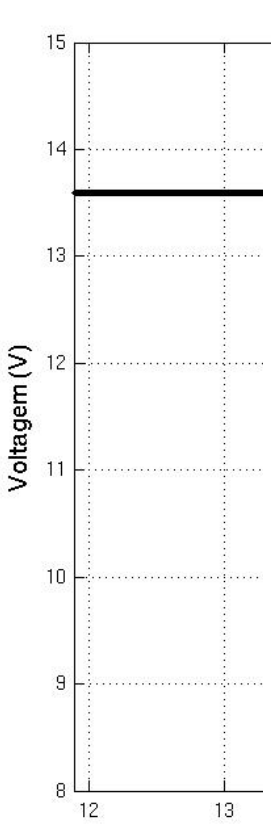
IPMA, NDC Portugal StatOH Monitor

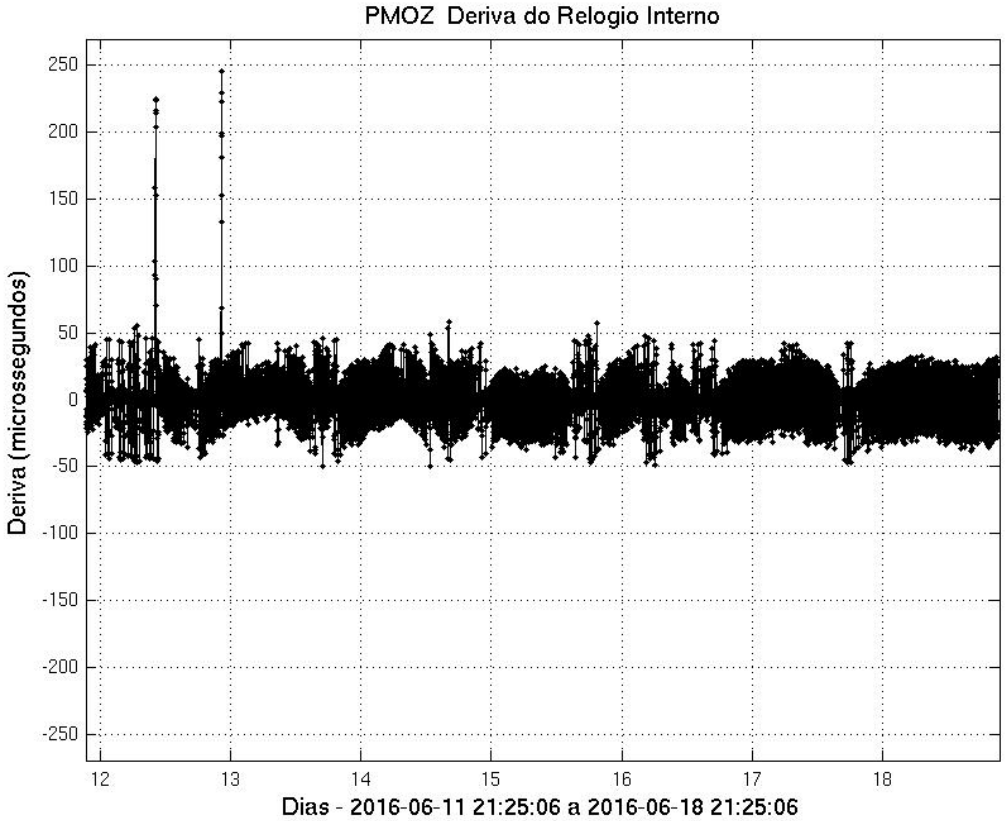
Estacao	Data/Hora	Bateria(V)	Off-set(Us)	Deriva(Us)	Massas(%)	Temp(C)
MORF	2016-06-18 21:00:00	13.2	-	0.0	-	25.0
MESJ (S)	2016-06-18 21:00:00	12.4	-	-1.0	-	36.0
MTE	2016-06-18 21:00:01	13.6	-	-	-	28.7
PMAFR	2016-06-18 21:00:00	13.9	-	-2.0	-9 5 4	26.0
PGAV	2016-06-18 20:55:00	13.5	218	-2.0	13 16 -5	16.6
PBRG	2016-06-18 21:02:43	14.7	210	48.0	-6 -4 -15	28.2
POLO	2016-06-18 20:55:00	13.2	218	-40.0	-8 -13 13	22.9
MVO	2016-06-18 20:54:58	14.2	210	0.0	9 -17 -9	21.9
PCAS	2016-06-18 21:07:21	13.7	erro GPS	erro GPS	-7 -5 3	26.2
PMRV	2016-06-18 20:55:00	13.1	229	-51.0	-14 -17 9	28.4
PSBE	2016-06-18 20:55:00	13.0	220	-2.0	-12 5 -3	30.4
PESTR	2016-06-18 21:05:00	14.0	280	44.0	5 -14 -9	37.2
PMTG	2016-06-18 21:05:00	13.4	220	-49.0	1 -11 -4	28.6
PNCL	2016-06-18 21:00:00	12.6	-	0.0	-3 -2 -3	29.0
PCVE (S)	2016-06-18 21:05:00	12.6	220	0.0	2 9 3	31.1
PVAQ	2016-06-18 20:55:00	13.7	196	-13.0	-2 -9 9	22.9
PBAR	2016-06-18 21:11:03	12.1	302	-25.0	-56 -6 10	34.8
PBDV	2016-06-18 20:55:00	13.2	227	-29.0	0 0 -4	24.8
PFVI (S)	2016-06-18 21:05:00	12.7	220	0.0	0 -9 4	33.6
PTEO	2016-06-18 21:05:00	13.1	220	-10.0	0 0 0	31.4
PBEJ	2016-06-18 20:55:00	13.1	274	-8.0	0 0 0	33.7
PCBR	2016-06-18 21:13:59	13.5	231	15.0	0 0 -1	35.2
PVIS	2016-06-18 21:03:59	13.4	243	-18.0	0 0 0	31.1
PCAB	2016-06-18 21:05:00	13.4	275	13.0	0 0 0	35.2
PCED	2016-06-18 21:02:00	13.4	0	-	-	39.5

Codigo:

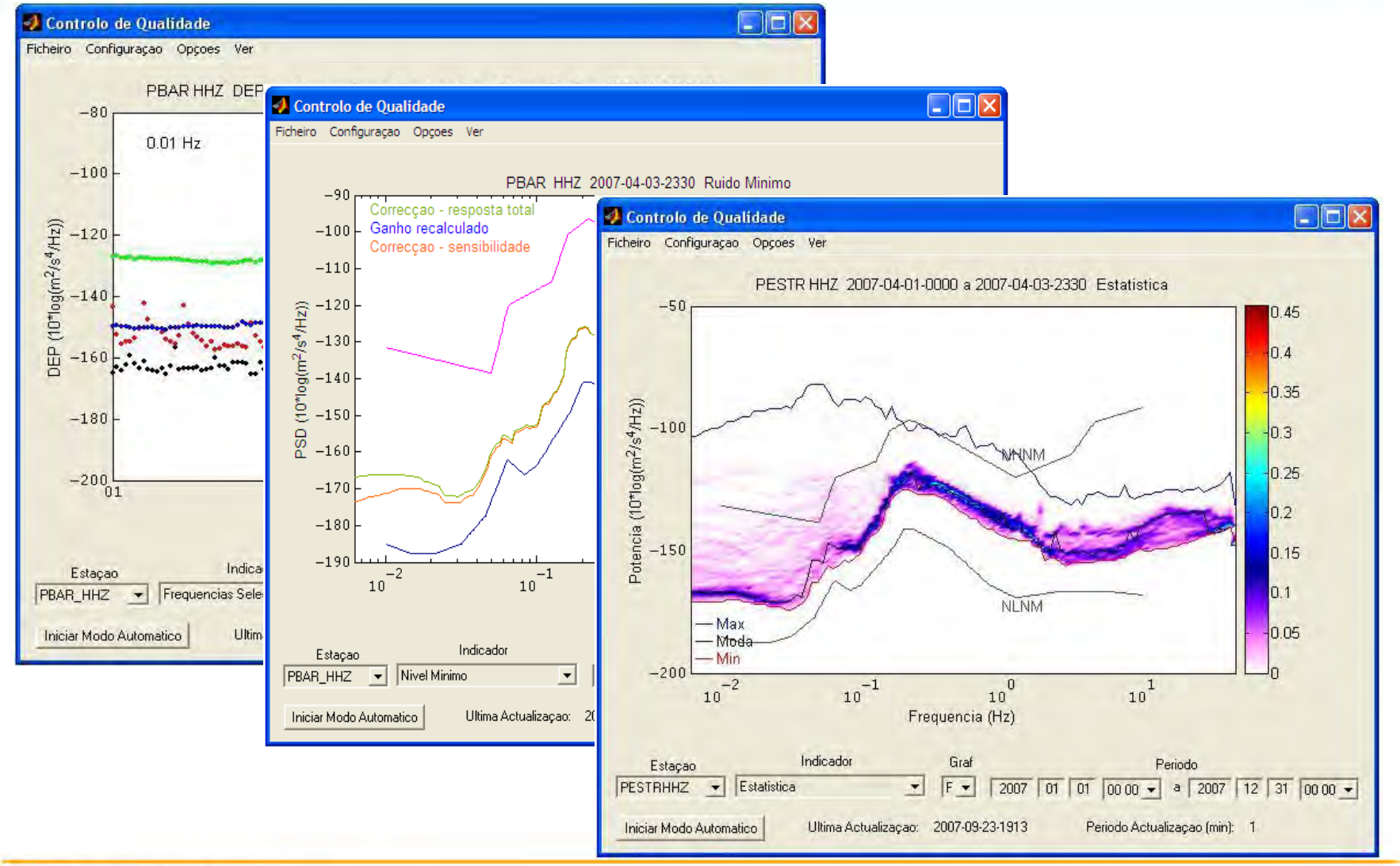
atrasado	normal	proximo do critico	valor critico	erro GPS	sem dados

Quality Control
Latency & State of Health

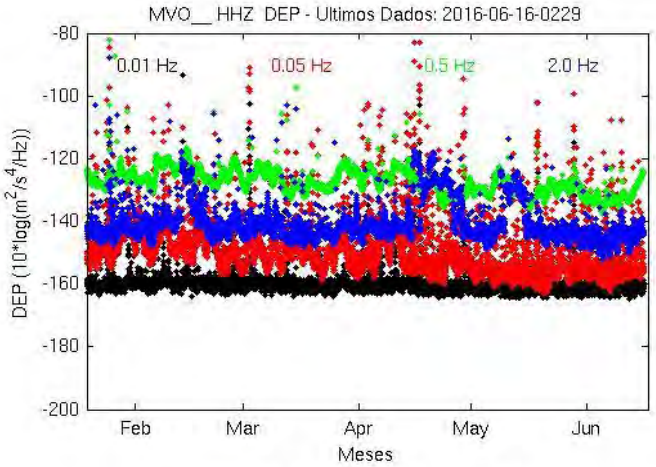


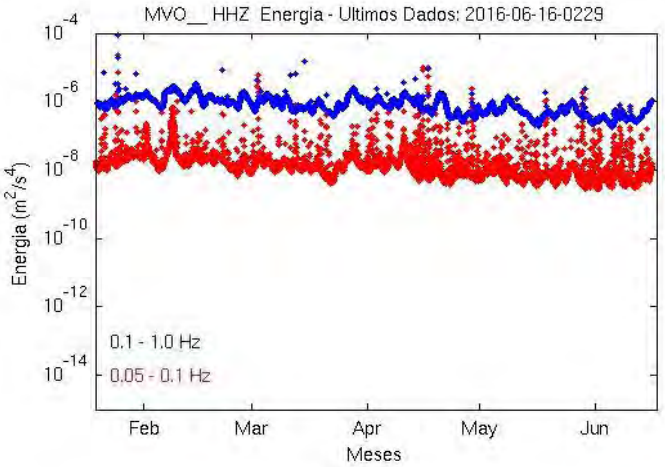


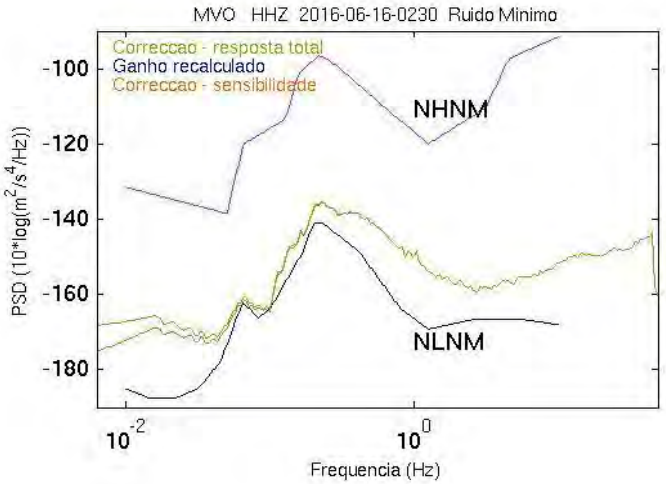
Quality control – Seismic noise

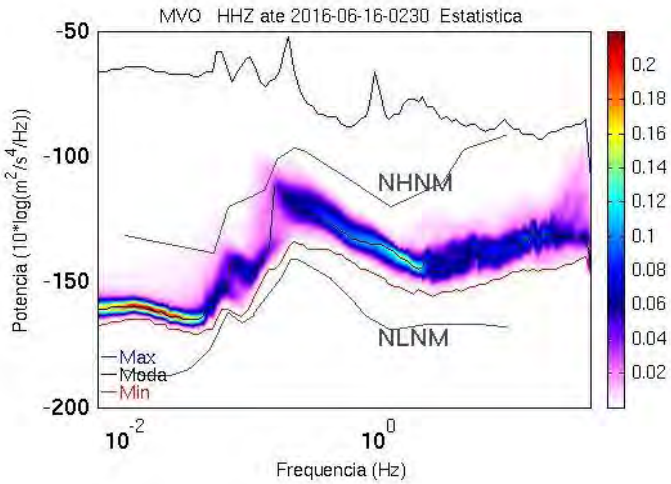


Quality control – Seismic noise



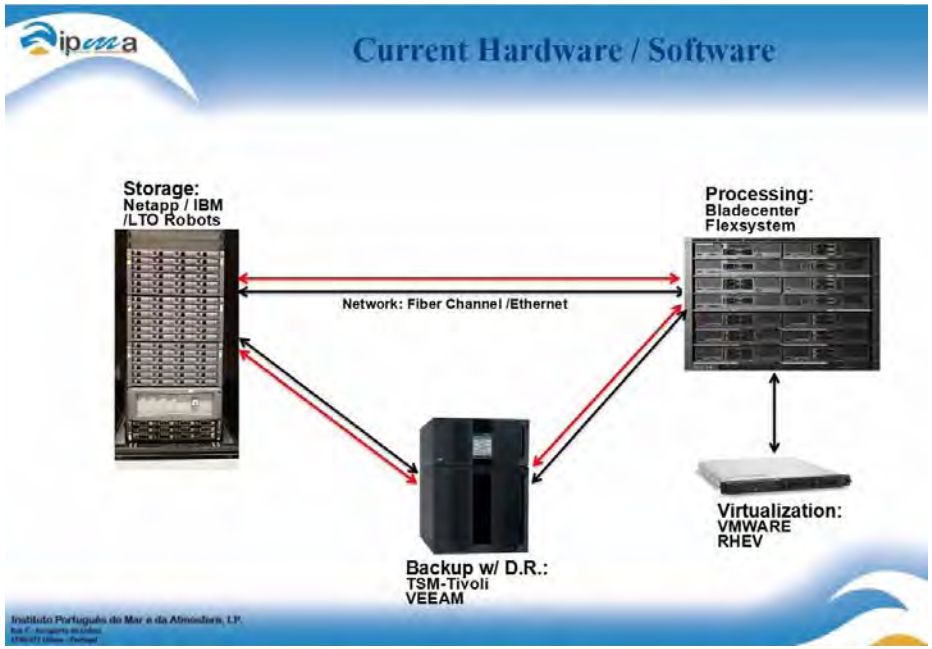






Data archive

- CPU: Virtual machines / IBM blade center
- Format: SeisComP Data Structure (SDS)
- Management: SeiscomP3 and in-house tools
- Storage: NetApp Storage system



SeisComP3

Data archive

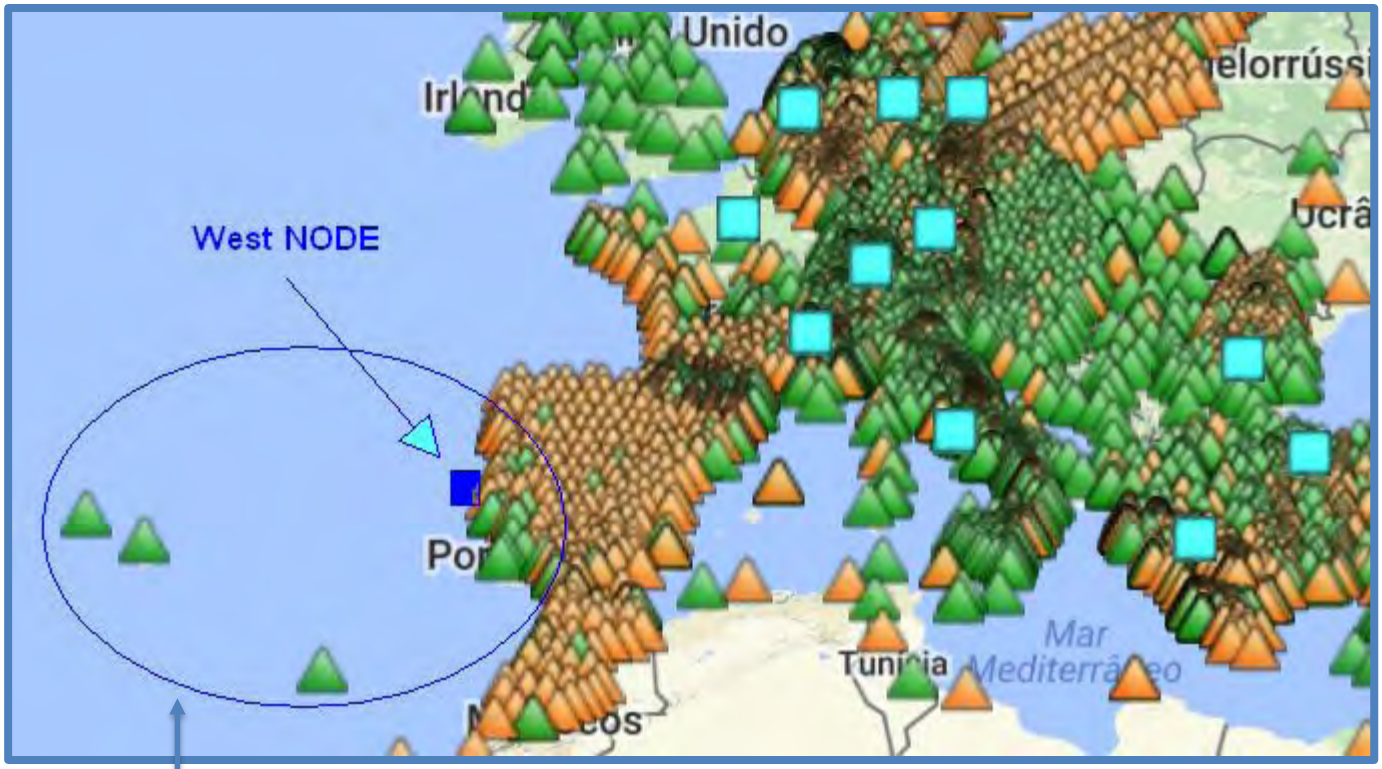
PT networks: ~**10TB** stored - Available

Net	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	total (GB)
PM	0	0	0	0	16	185	389	581	593	673	690	719	738	1126	1536	1638	**8884**
LX	0	0	0	0	1	16	14	14	43	50	74	66	58	59	63	66	**524**
IP	1	23	18	11	4	1	6	5	40	28	31	21	0	4	21	16	**230**
SS	0	0	0	0	0	0	0	0	0	15	28	27	27	24	22	25	**168**
WM/EVO	0	0	0	0	0	16	24	25	24	24	18	11	17	19	19	19	**216**
	1	**23**	**18**	**11**	**21**	**218**	**433**	**625**	**700**	**790**	**841**	**844**	**840**	**1232**	**1661**	**1764**	**10022**

Other networks: ~2.5TB

Net	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	total (GB)
II	0	0	0	0	0	10	13	22	1	5	25	23	24	25	23	28	199
GE/MTE	0	0	0	0	1	13	13	13	12	12	13	13	13	20	20	20	163
MO	0	0	0	0	0	0	0	1	8	11	17	22	20	13	3	5	100
WM	0	0	0	0	0	16	24	34	59	78	65	40	56	70	76	98	616
ES	0	0	0	0	0	0	0	12	122	102	119	87	136	162	97	109	946
RD	0	0	0	0	0	0	0	0	0	13	22	23	24	23	23	23	151
IM/(ha07)	0	0	0	0	0	0	0	0	33	34	31	39	35	36	36	36	280
																	2455

Join EIDA network



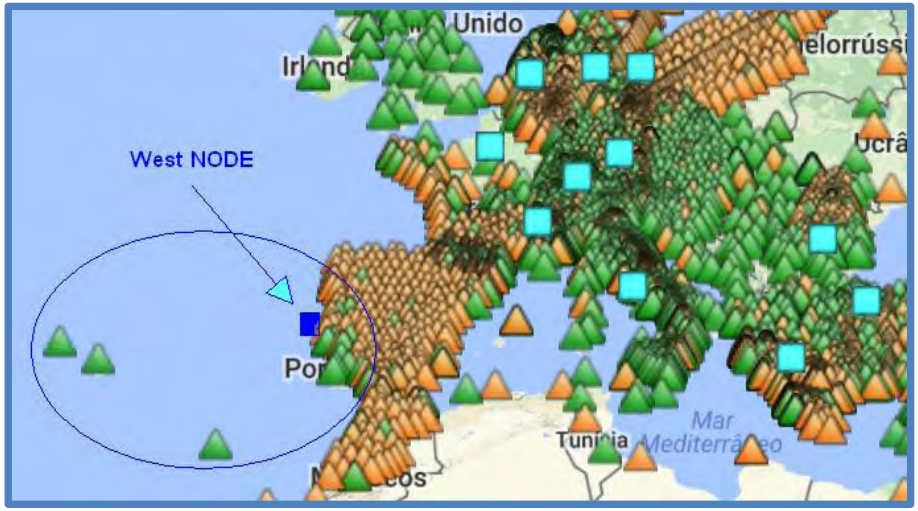
Azores, Madeira and PT Mainland region

(94 stations)

38 Broadband
24 Short-period
32 Strong-motion
[+ 24 co-located]

Join EIDA network

- IPMA mandate / Long-term support commitment
- Existing resources
- National support (C4G)



Collaboratory For Geosciences