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EGU2013 SM1.4/GI1.6 session: "Improving seismic networks performances: from site selection to data integration"

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Abstract. The number and quality of seismic stations and networks in Europe continually improves, nevertheless there is always scope to optimize their performance. In this session we welcomed contributions from all aspects of seismic network installation, operation and management. This includes site selection; equipment testing and installation; planning and implementing communication paths; policies for redundancy in data acquisition, processing and archiving; and integration of different datasets including GPS and OBS.

1 Introduction

The history of seismic network sessions at European Geosciences Union (EGU) General Assemblies starts in 2010 with the SM1.3 "Seismic Centers Data Acquisition" session (Pesaresi, 2011 and EGU2010 SM1.3 Seismic Centers Data Acquisition, 2010), where the Convener Damiano Pesaresi supported by the Orfeus Data Center Director Co-Convener Reinoud Sleeman chaired a session of 7 oral and 16 posters. A similar session was later the same year held at the XXXII European Seismological Commission (ESC) General Assembly: "SD1, 3 Seismic centers data acquisition", conveners D. Pesaresi and R. Sleeman, with 15 oral presentations.

The history continues in 2011 with the EGU2011 SM1.3/G3.8/GD3.7/GI-19/TS8.7 "Improving seismic networks performances: from site selection to data integration" session (EGU2011 SM1.3/G3.8/GD3.7/GI-19/TS8.7 Improving seismic networks performances: from site selection to data integration, 2011) where the Convener Damiano Pesaresi supported by the Co-Conveners John Clinton and Robert Busby chaired a session of 9 oral and 20 posters and in 2012 with the EGU2012 SM1.3/GI1.7 "Improving seismic networks performances: from site selection to data integration" session (Pesaresi and Vernon, 2013 and EGU2012 SM1.3/GI1.7 Improving seismic networks performances: from site selection to data integration, 2012) where the Convener Damiano Pesaresi supported by the Co-Convener Frank Vernon chaired a session of 6 oral and 22 posters.

2 The EGU2013 SM1.4/GI1.6 session

In the EGU2013 SM1.4/GI1.6 "Improving seismic networks performances: from site selection to data integration" session (EGU2013 SM1.4/GI1.6 Improving seismic networks performances: from site selection to data integration, 2013) the Convener Damiano Pesaresi supported by the Co-Convener Robert Busby chaired a session (Fig. 1) of 6 oral (Table 1) and 13 posters (Table 2).

The 19 presentations comes from 9 countries (France, Switzerland, Italy, Portugal, USA, Austria, Bulgaria, Algeria, Greece) from 3 different continents (North America, Europe, and Africa), which well fits the goals of the European Geosciences Union.

Presentations worth mentioning in this session were:

1. "Site selection for the future stations of the French permanent broadband network" by J. Vergne, O. Charade and the RESIF-CLB Team (Vergne et al., 2013), which showed the re-organization and modernization of the French seismic network with new standards for installations;

2. "SalanderMaps: A rapid overview about felt earthquakes through data mining of web-accesses" by U. Kradolfer (Kradolfer, 2013), a very interesting presentation that showed how it is possible to get a rapid

Table 1. Oral Programme EGU2013 SM1.4/GI1.6 session.

EGU Abstract ref.	Title	Authors
EGU2013-4305	Site selection for the future stations of the French permanent broadband network	Jérôme Vergne, Olivier Charade and the RESIF-CLB Team
EGU2013-6400	SalanderMaps: A rapid overview about felt earthquakes through data mining of web-accesses	Urs Kradolfer
EGU2013-7166	OGS improvements in 2012 in running the Northeastern Italy Seismic Network: the Ferrara VBB borehole seismic station	Damiano Pesaresi, Marco Romanelli, Carla Barnaba, Pier Luigi Bragato, and Giorgio Durì
EGU2013-7496	Ambient noise recorded at broadband stations in Portugal and Morocco: Characterization and Sources	Susana Custódio, Guilherme Madureira, Carlos Corela, Paulo Alves, Christian Haberland, Fernando Carrilho, Joao Fonseca, Bento Caldeira, Nuno Dias and the WILAS Team
EGU2013-9072	Strategy for the deployment of a dense broadband temporary array in the Alps: lessons learnt from the CIFALPS experiment	Aubert Coralie, Paul Anne, Solarino Stefano, Roussel Sandrine, Salimbeni Simone, Zangelmi Pierre, Cougoulat Glenn, Ai Yinshuang, Xu Weiwei, He Yumei, and Zhao Liang
EGU2013-13298	Sensor Emplacement Techniques and Seismic Noise Analysis for USArray Transportable Array Seismic Stations	Robert Busby, Andy Frassetto, Katrin Hafner, Robert Woodward, and Allan Sauter

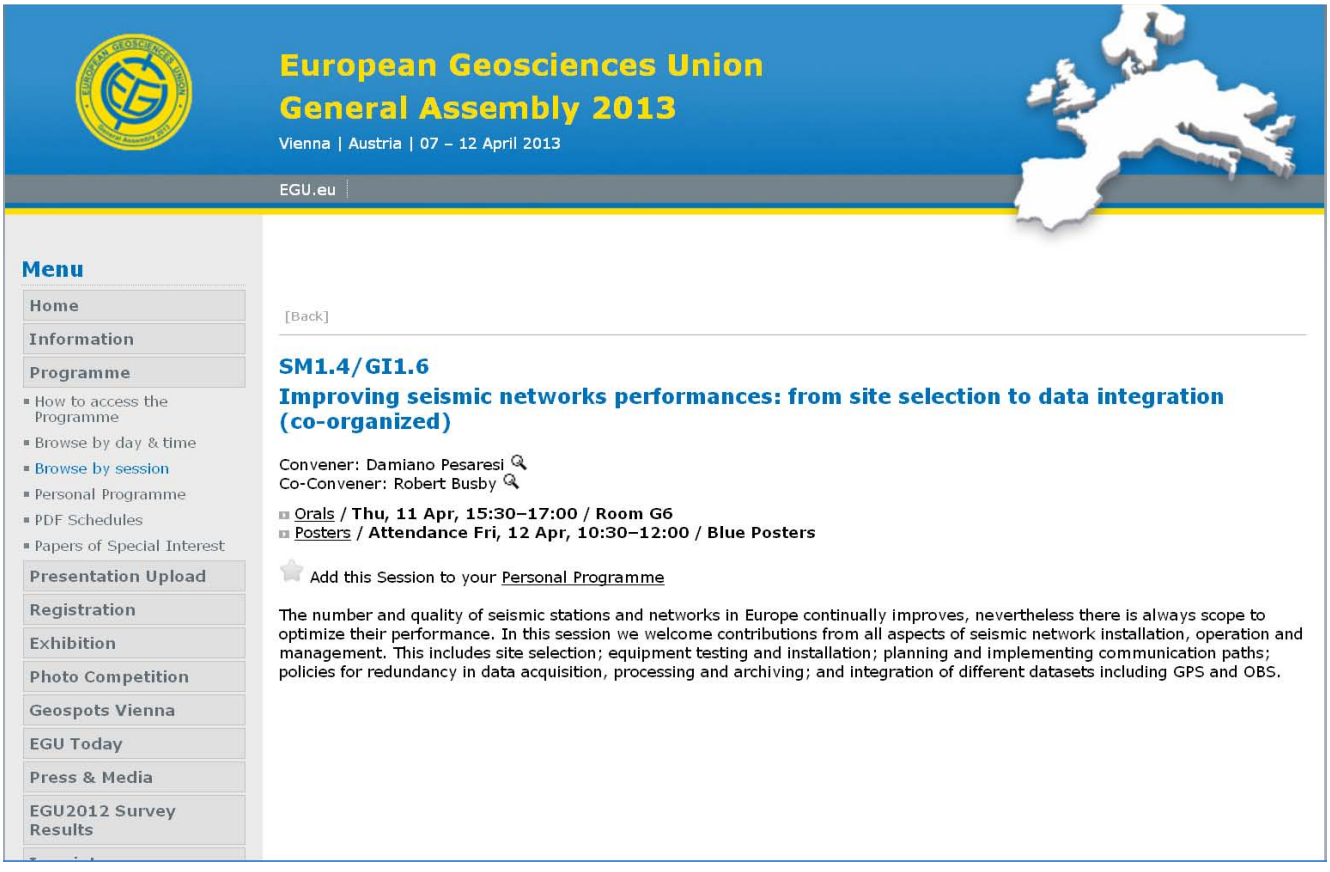

Fig. 1. EGU2013 SM1.4/GI1.6 session (from EGU2013 Homepage).

Table 2. Poster Programme EGU2013 SM1.4/GI1.6 session.

EGU Abstract ref.	Title	Authors
EGU2013-3837	Improving Seismic Monitoring in Northern Switzerland	Katrin Plenkers, Stephan Husen, and Michael Schnellmann
EGU2013-4532	Instrument Self-Noise and Sensor Misalignment	Andreas Gerner and Götz Bokelmann
EGU2013-5283	Automatic pickers performances in the case of the Emilia sequence of May–June 2012	Lara Tiberi, Daniele Spallarossa, and Giovanni Costa
EGU2013-6491	Acquisition Hardware for Rapid Seismic Event Notification System	Leonid Zimakov, Paul Passmore, Phil Davidson, and Tom Drake
EGU2013-6985	Identification of response and timing issues at permanent European broadband stations from automated data analysis	hristian Weidle, Riaz Ahmed Soomro, Luigia Cristiano, and Thomas Meier
EGU2013-7343	The Interreg IV Italia-Austria "SeismoSAT" Project: connecting Seismic Data Centers via satellite	Damiano Pesaresi, Wolfgang Lenhardt, Markus Rauch, Mladen Zivcic, Rudolf Steiner, Paolo Fabris, and Michele Bertoni
EGU2013-7423	A multiple-criteria network optimization	Anna Tramelli, Giuseppe De Natale, Claudia Troise, and Massimo Orazi
EGU2013-7906	Extending a Lippmann style seismometer's dynamic range by using a non-linear feedback circuit	Giovanni Romeo and Giuseppe Spinelli
EGU2013-9486	System of Earthquakes Alert (SEA) on the territory of Bulgaria developed as a result of DACEA project	Dimcho Solakov, Liliya Dimitrova, Stela Simeonova, Irena Aleksandrova, Stoyan Stoyanov, and Metodi Metodiev
EGU2013-9828	The Algerian Seismic Network: Performance from data quality analysis	Abdelkarim Yelles, Toufik Allili, and Azouaou Alili
EGU2013-10783	Evolution and strengthening of the Calabrian Regional Seismic Network during the Pollino sequence	Antonino D'Alessandro, Anna Gervasi, and Ignazio Guerra
EGU2013-10994	Planning the improvement of seismic monitoring in a volcanic supersite: experience on Mt. Etna	Antonino D'Alessandro, Luciano Scarfi, Antonio Scaltrito, Giampiero Aiesi, Sergio Di Prima, Ferruccio Ferrari, and Salvatore Rapisarda
EGU2013-12634	Operational network improvements and increased reporting in the NOA (Greece) seismicity catalog	Gerasimos Chouliaras, Nikolaos Melis, Georgios Drakatos, and Konstantinos Makropoulos

rough earthquake location by simply checking anomalous internet connections to seismic information web pages;

3. "Strategy for the deployment of a dense broadband temporary array in the Alps: lessons learnt from the CIFALPS experiment" by C. Aubert, A. Paul, S. Solarino, S. Roussel, S. Salimbeni, P. Zangelmi, G. Cougoulat, Y. Ai, W. Xu, Y. He, and L. Zhao (Aubert et al., 2013), which showed the very valuable practical experience coming from the installation and operation of the CIFALPS experiment;

4. "Sensor Emplacement Techniques and Seismic Noise Analysis for USArray Transportable Array Seismic Stations" by R. Busby, A. Frassetto, K. Hafner, R. Woodward, and A. Sauter (Busby et al., 2013), which showed best practice and future standard for seismic installations of the USArray project;

5. "The Algerian Seismic Network: Performance from data quality analysis" by A. Yelles, T. Allili, and A. Alili (Yelles et al., 2013), which showed impressive improvements in the seismic networks in North Africa.

The papers published in these proceedings of the EGU2012 SM1.3/GI1.7 session are:

1. "Operational network improvements and increased reporting in the NOA (Greece) seismicity catalog" by G. Chouliaras, N. Melis, G. Drakatos, and K. Makropoulos, which shows the operation of the Greek seismic network;

2. "Extending a Lippmann style seismometer's dynamic range by using a non-linear feedback circuit" by G. Romeo and G. Spinelli, which shows how to extend electronically the capabilities of a classic seismic sensor;

3. "The new Algerian Digital Seismic Network (ADSN): Towards an early warning system" by A. Yelles-Chaouche, T. Allili, A. Alili, W. Messemen, H. Beldjoudi, F. Semmane, A. Kherroubi, H. Djellit, Y. Larbes, S. Haned, and C. Nait Sidi Said, which shows the upgrades ind improvements of the Algerian National Seismic Network;

4. "Evolution and strengthening of the Calabrian Regional Seismic Network" by A. D'Alessandro, A. Gervasi, and I. Guerra, which shows improvements of seismic monitoring in the South of Italy in a very active area;

5. "Testing and optimization of the seismic networks of Campi Flegrei (Southern Italy)" by A. Tramelli, C. Troise, G. De Natale, and M. Orazi, which again shows improvements and testing in seismic networks in the South of Italy;

6. "Planning the improvement of seismic monitoring in a volcanic supersite: experience on Mt. Etna" by A. D'Alessandro, L. Scarfì, A. Scaltrito, S. Di Prima, and S. Rapisarda, which shows seismic monitoring of volcanoes techniques;

7. "Identification of response and timing issues at permanent European broadband stations from automated data analysis" by C. Weidle, R. A. Soomro, L. Cristiano, and T. Meier, which shows an interesting tool of seismic networks analysis;

8. "Instrument Self-Noise and Sensor Misalignment" by A. Gerner and G. Bokelmann, which shows a very useful software tool to check seismic sensors noise and installation;

9. "OGS improvements in 2012 in running the Northeastern Italy Seismic Network: the Ferrara VBB borehole seismic station" by D. Pesaresi, M. Romanelli, C. Barnaba, P. L. Bragato, and G. Durì, which shows the installation of a very broad band seismic station in a 130 meter deep borehole in Central Italy;

10. "The Interreg IV Italia-Austria "SeismoSAT" Project: connecting Seismic Data Centers via Satellite" by D. Pesaresi, W. Lenhardt, M. Rauch, M. Zivčic, R. Steiner, P. Fabris and M. Bertoni, which shows how to connect seismic data canters via satellite;

11. "Sensor Emplacement Techniques and Seismic Noise Analysis for USArray Transportable Array Seismic Stations" by R. Busby, A. Frassetto, K. Hafner, R. Woodward, and A. Sauter, which shows the very valuable experience of USArray in installing semi-permanent seismic stations.

3 Conclusions

The quality and quantity of presentations made at the EGU2013 SM1.4/GI1.6 session well satisfied the expectations of the Convener and Co-Convener, and well fitted the goals of the European Geosciences Union.

The steady number of presentation at such yearly seismic networks sessions encourage the conveners that the path they followed in organizing such sessions is a valid one, and that there is need in the seismological community worldwide to present and discuss different solutions to common problems in running seismic networks.

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