

June 2023 Antelope Users Group Meeting GeoSphere Austria – Wien

THE REGIONAL ACCELEROMETRIC NETWORK OF VENETO (ITALY)

Pier Luigi Bragato, Giorgio Capotosti, Paolo Comelli, Helga Siracusa, Piero Ziani





③ OGS Seismometric Network



Seismometric Network and Alerting in Veneto





UNA REGIONE +SICURA

Rete di Monitoraggio Sismico Diffuso del Veneto

Intervento realizzato avvalendosi del finanziamento:

POR — Obiettivo "Investimenti in favore della crescita e dell'occupazione" parte FESR Fondo Europeo di Sviluppo Regionale 2014-2020 Asse 5 Rischio Sismico e Idraulico

Azione 5.3.1 Integrazione e sviluppo di sistemi di prevenzione multirischio, anche attraverso reti digitali interoperabili di coordinamento operativo precoce.

Distributed accelerometric network (334 instruments)





Covering over 50% of municipalities in Veneto region

Mainly based in Civil Protection Volunteers headquarters

- Good coverage
- Good technical support
- Integration with other activities that involve the volunteers in the seismological framework (e.g., filing post-event impact evaluations)

Sensor: ADEL ASX2000 accelerometer

- chosen by a European tender
- 420 specimens, ordered in August 2021



- Accelerometer with ground shaking registrations in three orthogonal directions
- 2 MEMS accelerometers for each direction
- full scale ±2g, 21 bit, 1.95 µg resolution
- Synchronized via GPS
- Connected via 4G-LTE modem, WiFi, Ethernet
- 220 V power supply with internal battery
- Resistant to shocks, dust and water (IP68)
- Linux/Ubuntu OS, supports custom software installation (e.g. for early warning analyses)
- Seismological SW ringserver/seedlink/seiscomp

Preliminary check on the accelerometer frequency response



X component calibration



Systematic tests on 10 accelerometers using shaker table with interferometric laser sensor available at CRS (OGS)

334 installed accelerometers312 sites304 municipalities

- a) 148 installed in Civil Protection
 Volunteer headquarters (127),
 town halls (20) and schools (1);
- b) 120 installed in TIM telephone centrals
- c) 42 installed in Poste Italiane post offices
- d) 2 installed in industrial facilities



Stations installed in facilities with broad territorial spread















In 22 sites, an additional accelerometer was installed on top of the building



Data acquisition system



Bosnia and Herzegovina earthquake 2 April 2022 (M 5.7)

Main recordings in Veneto, about 1 mg



Recordings of an ML 2.6 earthquake (the only one with ML>2 in Veneto since October 2022)



Much larger accelerations on SW than those predicted by GMPE (~5 times), explaining the anomalous reports collected through the service "Did you feel it" by INGV