CURRICULUM VITAE
Antonio Avallone

CURRENT POSITION & RESEARCH

Researcher at Istituto Nazionale di Geofisica e Vulcanologia (INGV), working on:

- Earthquake source studies by using High-Rate GNSS waveforms
- Real-time GNSS analysis and earthquake-related deformation responses
- Observation of early afterslip deformation by means of high-rate GPS data analysis
- Study of the strain accumulation in seismogenetic structures at the Africa-Eurasia plate margin.
- Collaboration to the creation and to the scientific and technological development of the RING infrastructure (http://ring.gm.ingv.it), a nation-wide permanent GNSS network in Italy.

PROFESSIONAL EXPERIENCE

- 2003: Researcher at the Institut de Physique du Globe in Paris (IPGP, France), working on the study of active tectonics in the Gulf of Corinth (Greece) through GPS and InSAR data;
- 1997-2001: Researcher with various fellowships (ERASMUS, CIES, EC Marie Curie) at IPGP (France) (Responsible: Dr. Pierre Briole) working on GPS and InSAR techniques for the study of the deformation field in seismogenic and volcanic areas.

EDUCATION

- 2003: PhD at IPGP (France) on the analysis of the deformation in the Corinth rift (Greece) by means of space geodesy (http://ardoise.ens.fr/IMG/pdf/avallone_these_2003.pdf).
- 1998: Master Degree in Geological Sciences - Geophysics at the University "Federico II" of Napoli (Italy) on the analysis of deformation in seismic and volcanic areas.

EXPERTISE IN COORDINATION AND MANAGING

- 2017-today: Member (and Coordinator since 2020) of the Scientific Board of the RING (INGV permanent GNSS network);
- 2015-today: Responsible for INGV in the TCS “GNSS Data and Data Products” of the infrastructure EC-funded program EPOS (EPOS-Implementation Phase; EPOS-Sustainability Phase).
- 2008-2011: Co-Responsible of a PhD thesis at the University “La Sapienza” of Roma, on the subject: “High-rate GPS as a potential contribution for monitoring a seismogenic structure”.

RESEARCH PROJECTS

- 2012-2018: Participation to EPOS (European Plate Observing System) with the contribution of the RING infrastructure.
- 2012-2016: Participation to projects on feasibility studies devoted to the Tsunami Early Warning, funded by EC (ASTARTE) and Italian Ministry of Research (RITMARE, Flag Project), contributing with feasibility studies on real-time GPS and their relative accuracies.
- 2008-2010: WP Responsible on a Civil Protection project on “High rate GPS for monitoring active seismic faults”.
- 2004-2008: Participation to the project CESIS (CEntro di Sismologia e Ingegneria Sismica) funded by Italian Ministry of Reasearch, aimed to the development of a permanent GPS network in Southern Italy and a densification of the national INGV seismic network.
- 2000-2007: Participation to various multidisciplinary EU-funded projects (SING; CORSEIS; 3HAZ-CORINTH) to study the active tectonics and seismic hazard of the Corinth rift (Greece).

SCIENTIFIC ROLES

- Since 2020, Lecturer at the Corinth Rift Laboratory (CRL school)

- Since 2014, Associate Editor of the journal Scientific Reports.
- 2013-2015, Reviewer of French projects for ANR (Agence Nationale pour la Recherce).
- Since 2011, Reviewer for several JCR journals in the Earth Sciences domain;
- 2008-today: Seismologist for the Seismic and Tsunami Monitoring in INGV Rome and, since 2018, also Officer on Call for the Tsunami Alert Centre.
- 2004-2008: On-site training and coordination of a team of 15 people in the INGV Grottaminarda (Italy) observatory focusing on geodesy (GPS), on GPS instrumentation for field surveys and for developing a real-time continuous GPS networks in Italy;
- 2000-today: Oral presentations and posters to national and international meeting and workshop;

EXPERIMENTS AND FIELD SURVEYS

- April 2015: Organization of an experiment on real-time GPS data analysis carried out in INGV Grottaminarda observatory on 27/04/2015.
- April 2015: Organization of an experiment in Rome on simultaneous very high-rate GPS data acquisition (50 Hz) and strong motion on an earthquake simulator, in collaboration with the Department of Civil Protection (DPC) on 14/04/2015.
- 2008-2009: Post-seismic GPS field surveys after the L'Aquila (Italy, 6/4/2009) and Andravida (Greece, 8/6/2008) main shocks for measuring the co-seismic and post-seismic deformation.
- 1999-2010: Participation to several GPS field surveys in the Gulf of Corinth (Greece), Southern Italy, Mt. Etna volcano (Sicily, Italy) for measuring interseismic and volcano deformation;

PUBBLICATIONS

1. Amato, A., *et al.* (**2021**), From Seismic Monitoring to Tsunami Warning in the Mediterranean Sea. *Seism. Res. Lett.*, 92 (3), 1796–1816, https://doi.org/10.1785/0220200437;
2. P. Briole *et al.*, (**2021**), Using Kinematic GNSS Data to Assess the Accuracy and Precision of the TanDEM-X DEM Resampled at 1-m Resolution Over the Western Corinth Gulf, Greece, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 14, pp. 3016-3025, doi: 10.1109/JSTARS.2021.3055399;
3. Cirella A., Romano F., **Avallone A.**, *et al.* (**2020**), The 2018 Mw 6.8 Zakynthos (Ionian Sea, Greece) Earthquake: Seismic source and local tsunami characterization, *Geophys. J. Int.*, doi: 10.1093/gji/ggaa053;
4. Palano, M., Pezzo, G., Serpelloni, E. *et al.* (**2020**), Geopositioning time series from offshore platforms in the Adriatic Sea. *Sci Data* **7,** 373, https://doi.org/10.1038/s41597-020-00705-w;
5. Ragon T., *et al.* (**2019**), Joint estimates of co-seismic slip and early afterslip: neglecting early afterslip may bias co-and post-seismic slip models, *J. Geophys. Res. Solid Earth*, doi: 10.1029/2018JB017053;
6. Cheloni D., *et al.* (**2019**), Heterogeneous Behavior of the Campotosto Normal Fault (Central Italy) Imaged by InSAR GPS and Strong-Motion Data: Insights from the 18 January 2017 Events. REMOTE SENSING, vol. 11, ISSN: 2072-4292, doi: https://doi.org/10.3390/rs11121482;
7. **Avallone A.**, *et al.* (**2017**), Near Source High-Rate GPS, Strong Motion data and InSAR to Image the Rupture History of the 2015, Mw 6.5, Lefkada, Greece, Earthquake, *Scientific Reports,* doi: 10.1038/s41598-017-10431-w*;*
8. Cheloni, D., *et al.* (**2017**), Geodetic model of the 2016 Central Italy earthquake sequence inferred from InSAR and GPS data, *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL073580;
9. Cheloni, D., *et al.* (**2017**), Aseismic transient during the 2010-2014 seismic swarm: evidence for longer recurrence of M>=6.5 earthquakes in the Pollino gap (Southern Italy)?, *Scientific Reports*, 576, 7, doi: 10.1038/s41598-017-00649-z*;*
10. Devoti R., *et al.* (**2017**), A Crustal Velocity Map for the Mediterranean region, *Annals of Geophysics*, 60, 2, S0215, doi:10.4401/ag-7059;
11. **Avallone A.** *et al.* (**2016**), Preliminary coseismic dynamic displacements for the 2016 August 24 M_w 6.0 Amatrice earthquake (central Italy) carried out from High-Rate GPS data, *Annals of Geophysics*,

59, FAST TRACK 5, doi:10.4401/ag-7275;
12. Cheloni, D., *et al.* (**2016**), GPS observations of coseismic deformation following the 2016, August 24, Mw 6 Amatrice earthquake (central Italy): data, analysis and preliminary fault model, *Annals of Geophysics*, 59, FAST TRACK 5, doi:10.4401/ag-7269;
13. Ganas, A., *et al.* (**2016**), Coseismic deformation, geo-environmental effects and seismic fault of the 17 November 2015 M=6.5, Lefkada Island, Greece earthquake, *Tectonophysics*, 687, 210-222, doi:10.1016/j.tecto.2016.08.012;
14. M. Metois, N. D'Agostino, **A. Avallone**, *et al.* (**2015**), Insights on Continental Collisional Processes from GPS Data: Dynamics of the Peri-Adriatic Belts, *J. Geophys. Res. Solid Earth*, 120, 8701–8719, doi:10.1002/2015JB012023;
15. Moschas F., **Avallone A.,** *et al.* (**2014**), Strong motion displacement waveforms using 10-Hz precise point positioning GPS: an assessment based on free oscillation experiments, *Earthquake Eng. & Struct. Dyn.*, 43, p. 1853–1866, doi:10.1002/eqe.2426;
16. **Avallone, A.**, *et al.* (**2014**), Wave-guide effect in very high rate GPS record of the 6 April 2009, Mw 6.1 L'Aquila, central Italy earthquake, *J. Geophys. Res*., 191, 490-501, doi:10.1029/2013JB010475;
17. **Avallone, A.**, *et al.* (**2012**), High-rate (1 to 20-Hz) GPS co-seismic dynamic displacements carried out during the 2012 Emilia seismic sequence, *Annals of Geophysics*, 55(4), doi: 10.4401/ag-6162;
18. Serpelloni, E., L. Anderlini, **A. Avallone** et al. (**2012**), GPS observations of coseismic deformation following the May 20 and 29, 2012, Emilia seismic events (northern Italy): data, analysis and preliminary models, *Annals of Geophysics*, 55 (4), doi:10.4401/ag-6168;
19. Lorito, S., *et al.* (**2011**), Limited overlap between the seismic gap and coseismic slip of the great 2010 Chile earthquake, *Nature Geoscience*, 4, 173-177, doi: 10.1038/ngeo1073;
20. **Avallone, A.**, *et al.* (**2011**), Very High rate (10 Hz) GPS Seismology for moderate magnitude earthquakes: the case of the Mw 6.3 L'Aquila event, *J. Geophys. Res.*, 116, B02305, doi:10.1029/2010JB007834;
21. Floyd, M. A., *et al.* (**2010**), A new velocity field for Greece: Implications for the kinematics and dynamics of the Aegean, *J. Geophys. Res.*, 115, B10403, doi:10.1029/2009JB007040;
22. **Avallone, A.** et al. (**2010**), The RING network: improvement of a GPS velocity field in Central Mediterranean, *Annals of Geophysics*, 53, 2, doi:10.4401/ag-4549;
23. Cheloni, D., N. D'Agostino, E. D'Anastasio, **A. Avallone** et al. (**2010**), Coseismic and initial postseismic slip of the 2009 Mw 6.3 l'Aquila earthquake, Italy, from GPS measurements, *Geophys. J. Int.*, doi: 10.1111/j.1365-246X.2010.04584.x;
24. N. D'Agostino, E. D'Anastasio, **A. Avallone** (**2010**) Present-day kinematics and recent evolution of the Calabrian Arc: the contribution of large GPS network analysis. *Acta Vulcanologica*, vol. 22 (1-2), http://www.earthprints.org/bitstream/2122/7906/;
25. D'Agostino, N., *et al.* (**2009**), Contemporary crustal extension in the Umbria–Marche Apennines from regional CGPS networks and comparison between geodetic and seismic deformation, *Tectonophysics*, 476, 1-2, pp. 3-12, doi: 10.1016/j.tecto.2008.09.033;
26. D'Agostino, N., **A. Avallone**, *et al.* (**2008**), Active tectonics of the Adriatic region from GPS and earthquake slip vectors, *J. Geophys. Res.*, Vol. 113, B12413, doi:10.1029/2008JB005860;
27. Chaabane, F., **A. Avallone**, *et al.* (**2007**), A Multitemporal Method for Correction of Tropospheric Effects in Differential SAR Interferometry: Application to Gulf of Corinth Earthquake, *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 45, NO. 6, 1605-1615, doi:10.1109/TGRS.2007.894026;
28. Peyret, M., *et al.* (**2007**), The source motion of 2003 Bam (Iran) earthquake constrained by satellite and ground-based geodetic data, *Geophys. J. Int.*, doi: 10.1111/j.1365-246X.2007.03358.x;
29. Bernard, P., *et al.* (**2006**), Seismicity, deformation and seismic hazard in the western rift of Corinth: New insights from the Corinth Rift Laboratory (CRL), *Tectonophysics*, 426, 1-2, 7-30, doi:10.1016/j.tecto.2006.02.012.
30. Elias, P., *et al.* (**2006**), A method for minimising of low frequency and unwrapping artefacts from

interferometric calculations, *Int. Journ. of Remote Sensing*, v. 27, n. 14, 3079-3086, doi:10.1080/01431160600578388;
31. **Avallone, A.**, *et al.* (**2004**), Analysis of eleven years of deformation measured by GPS in the Corinth Rift Laboratory area, *C.R. Geoscience* 336, 301-311, doi:10.1016/j.crte.2003.12.007;
32. **Avallone, A.**, *et al.* (**1999**), Subsidence of Campi Flegrei (Italy) detected by SAR interferometry, *Geophys. Res. Lett.*, Vol. 26, No. 15, p. 2303-2307, doi:10.1029/1999GL900497;
33. Stramondo, S., *et al.* (**1999**), The September 26, 1997, Colfiorito, Italy, earthquakes: Modelled co-seismic surface displacement from SAR Interferometry and GPS, *Geophys. Res. Lett.*, Vol. 26, No. 7, p.883-887, doi:10.1029/1999GL900141;

PERSONAL EXPERTISES

- Languages: Italian (mother); English (Very Good, read, listen and speak); French (Very Good, read, listen and speak);
- Good experience in UNIX, LINUX, WINDOWS e DOS systems and Sh and Csh coding;
- Good knowledge of the following non-commercial software for GPS/GNSS data analysis (GIPSY/OASIS II, teqc, BNC) and seismic (SAC) data analysis.