

**UNIVERSITÀ DEGLI STUDI DELL'AQUILA**  
**Prof. Marco Tallini**  
**Curriculum scientifico**

(Aggiornato il 2024/08/03)

2020 to date: Full Professor of Applied Geology (GEO/05)

2005-2020: Associate Professor of Applied Geology

1993-2004: Assistant Professor of Applied Geology

1994: PhD in Earth Sciences (University of Perugia)

1987: Master's degree with honors in Geological Sciences (University of Rome "La Sapienza")

Teacher of Applied Geology and Applied Hydrogeology (University of L'Aquila)

Supervisor of over 70 Master's degree theses

Tutor and co-tutor of 16 PhD theses and tutor of 6 research grants/scholarships

Tutor of a EU funded researcher in Applied Geology (POM AIM TDA)

Tutor of a PNC funded researcher in Applied Geology (POM AIM TDA)

Teacher and organizing board of courses in Seismic Microzonation and Applied Geology

Visiting fellow, also within the SOCRATES project, at the Universities of Paris, Stirling (UK), Ghent (Belgium) and Guelph (Canada) where he held specialist seminars

Scientific field of interest: Hydrogeology and Seismic Microzonation in central Italy

Author ORCID ID: [orcid.org/0000-0003-4641-7824](https://orcid.org/0000-0003-4641-7824), Author SCOPUS ID: 6506322038

Data (August 2024), documents: 71, citations: 1656 total citations by 1102 documents, h-index: 24, co-authors: 24

Team coordinator, in projects financed by several institutions, including MIUR, DPC, CNR, INGV, UniRomaTre, Abruzzo Region, LNGS-INFN, Gran Sasso Laga National Park, Aurunci Regional Park, L'Aquila Municipality

Author of over 300 scientific papers including 53 papers published in IF journals. One of his papers was awarded in the 1995 by the Italian Geological Society

Referee for many scientific journals in the field of Geology, Hydrogeology and Seismic Microzonation (Elsevier, Springer, Taylor & Francis, MDPI)

Member in the editorial board of the MDPI journal "Sustainability" (2019 to date)

Member of scientific committees of several conferences concerning the Hydrogeology and the Seismic Microzonation organized by IAH-Italy, Italian Geological Society, L'Aquila University

Reference fellow for L'Aquila University of memorandums of understanding in the field of Seismic Microzonation and Earthquake Geology between universities and qualified institutions (INGV, University of Roma Tre, University of Rome "La Sapienza")

Member of the Seismic Microzonation Working Group of Italian Department of Civil Protection and of the Abruzzo Region (2012 to date)

Participation within the EU project ArtEmis financed by EURATOM - Topic/Call HORIZON-EURATOM-2021-NRT-01-11; role: WP coordinator (<https://www.artemisproject.eu/>)

He was scientific responsible for the agreement between his Department and the Extraordinary Commissioner for the safety of the Gran Sasso aquifer (2020-2022).

Member of the following scientific institution: IAH-Italy, Italian Geological Society (SGI) and Italian Association of Engineering Geology and Environmental Geology (AIGAA).

### **Selected papers**

Guerriero V., Scorzini A.R., Di Lena B., Di Bacco M., Tallini M. (2024) - Measuring Variation of Crop Production Vulnerability to Climate Fluctuations over Time, Illustrated by the Case Study of Wheat from the Abruzzo Region (Italy). *Sustainability*, 16, 6462. <https://doi.org/10.3390/su16156462>

Sciortino A., Guerriero V., Marini R., Spadi M., Mazzanti P., Tallini M. (2024) - Geological and hydrogeological drivers of seismic deformation in L'Aquila, Italy: insights from InSAR analysis. *Geomatics, Natural Hazards and Risk*, 15(1). <https://doi.org/10.1080/19475705.2024.2362395>

Sciortino A., Marini, R., Guerriero, V. Mazzanti, P., Spadi, M., Tallini M. (2023) - Satellite A-DInSAR pattern recognition for seismic vulnerability mapping at city scale: insights from the L'Aquila (Italy) case study. *GIScience Remote Sensing*, <https://doi.org/10.1080/15481603.2023.2293522>

Guerriero V., Scorzini A. R., Di Lena B., Iulianella S., Di Bacco M., Tallini M. (2023) - Impact of Climate Change on Crop Yields: Insights from the Abruzzo Region, Central Italy. *Sustainability*, 15(19), 14235, doi: 10.3390/su151914235

Scorzini A. R., Di Bacco M., De Luca G., Tallini M. (2023) - Deep learning for earthquake hydrology? Insights from the karst Gran Sasso aquifer in central Italy. *Journal of Hydrology*, 617, 129002, doi: 10.1016/j.jhydrol.2022.129002

Spadi M., Tallini M., Albano M., Cosentino D., Nocentini M., Saroli M. (2022) - New insights on bedrock morphology and local seismic amplification of the Castelnuovo village (L'Aquila Basin, Central Italy). *Engineering Geology* 297 (2022) 106506, <https://doi.org/10.1016/j.enggeo.2021.106506>

Chiaradonna A., Spadi M., Monaco P., Papasodaro F., Tallini M. (2021) - Seismic Soil Characterization to Estimate Site Effects Induced by Near-Fault Earthquakes: The Case Study of Pizzoli (Central Italy) during the Mw 6.7 2 February 1703, Earthquake. *Geosciences* 2022, 12, 2, <https://doi.org/10.3390/geosciences12010002>

Mondati G., Spadi M., Gliozzi E., Cosentino D., Cifelli F., Cavinato G.P., Tallini M., Mattei M. (2021). The tectono-stratigraphic evolution of the Fucino Basin (central Apennines, Italy): new insights from the geological mapping of its north-eastern margin. *Journal of Maps*, 17(2), 87-100. Doi: 10.1080/17445647.2021.1880981

Tallini M., Lo Sardo L., Spadi M. (2020) - Seismic site characterization of Red Soil and soil-building resonance effects in L'Aquila downtown (central Italy). *Bulletin of Engineering Geology and the Environment*, doi: 10.1007/s10064-020-01795-x

Amanti M., Muraro C., Roma M., Chiessi V., Puzzilli L.M., Catalano S., Romagnoli G., Tortorici G., Cavuoto G., Albarello D., Fantozzi P.L., Paolucci V., Pieruccini P., Caprari P., Mirabella F., Della Seta M., Esposito C., Di Curzio D., Francescone M., Pizzi A., Macerola L., Nocentini M., Tallini M. (2020) - Geological and geotechnical models definition for 3rd level seismic microzonation studies in Central Italy. *Bulletin of Earthquake Engineering*, doi: 10.1007/s10518-020-00843-x

Antonielli B., Della Seta M., Esposito C., Scarascia Mugnozza G., Schilirò L., Spadi M., Tallini M. (2020) - Quaternary rock avalanches in the Apennines: New data and interpretation of the huge clastic deposit of the L'Aquila Basin (central Italy). *Geomorphology*, 361, 107194, doi: 10.1016/j.geomorph.2020.107194

Tallini M., Spadi M., Cosentino D., Nocentini M., Cavuoto G., Di Fiore V. (2019) - High-resolution seismic reflection exploration for evaluating the seismic hazard in a Plio-Quaternary intermontane basin (L'Aquila downtown, central Italy). *Quaternary International*, 532, 34-47, doi: 10.1016/j.quaint.2019.09.016

Macerola L., Tallini M., Di Giulio G., Nocentini M., Milana G. (2019) - The 1D and 2D seismic modelling of deep Quaternary basin (L'Aquila downtown, central Italy). *Earthquake Spectra*, 35 (4), 1689–1710, <https://earthquakespectra.org/doi/pdf/10.1193/062618EQS166M>

Mannella A., Macerola L., Martinelli A., Sabino A., Tallini M. (2019) - The local seismic response and the effects of the 2016 central Italy earthquake on the buildings of L'Aquila downtown. *Bollettino di Geofisica Teorica ed Applicata*, 60 (2), 263-276; doi 10.4430/bgta0241

Pagliaroli A., Pergalani F., Ciancimino A., Chiaradonna A., Compagnoni M., de Silva F., Foti S., Giallini S., Lanzo G., Lombardi F., Luzi L., Macerola L., Nocentini M., Pizzi A., Tallini M., Teramo C. (2019) - Site response analyses for complex geological and morphological conditions: relevant case-histories from 3rd level seismic microzonation in Central Italy. *Bulletin of Earthquake Engineering*, <https://doi.org/10.1007/s10518-019-00610-7>

De Luca G., Di Carlo G. Tallini M. (2018) - A record of changes in the Gran Sasso groundwater before, during and after the 2016 Amatrice earthquake, central Italy. *Scientific Reports*, 8:15982, doi: 10.1038/s41598-018-34444-1

- Nocentini M., Cosentino D., Spadi M., Tallini M. (2018) - Plio-Quaternary geology of the Paganica-San Demetrio-Castelnuovo Basin (Central Italy). *Journal of Maps*, 14(2), 411-420, doi: 10.1080/17445647.2018.1481774
- Amoroso S., Gaudiosi I., Tallini M., Di Giulio G., Milana G. (2018) - 2D site response analysis of a cultural heritage: the case study of the site of Santa Maria di Collemaggio Basilica (L'Aquila, Italy). *Bulletin of Earthquake Engineering*, <https://doi.org/10.1007/s10518-018-0356-2>
- Nocentini M., Cosentino D., Spadi M., Tallini M. (2018) - Plio-Quaternary geology of the Paganica-San Demetrio-Castelnuovo Basin (central Italy). *Journal of Maps*, 14(2), 411-420, doi: 10.1080/17445647.2018.1481774
- Petitta M., Mastrorillo L., Preziosi E., Banzato F., Barberio M.D., Billi A., Cambi C., De Luca G., Di Carlo G., Di Curzio D., Di Salvo C., Nanni T., Palpacelli S., Rusi S., Saroli M., Tallini M., Tazioli A., Valigi D., Vivalda P., Doglioni C. (2018) - Water-table and discharge changes associated with the 2016–2017 seismic sequence in central Italy: hydrogeological data and a conceptual model for fractured carbonate aquifers. *Hydrogeology Journal*, <https://doi.org/10.1007/s10040-017-1717-7>
- Cosentino D., Asti R., Nocentini M., Gliozzi E., Kotsakis T., Mattei M., Esu D., Spadi M., Tallini M., Cifelli F., Pennacchioni M., Cavuoto G., Di Fiore V. (2017) - New insights into the onset and evolution of the central Apennine extensional intermontane basins on the tectonically active L'Aquila Basin (central Italy). *GSA Bulletin*, 129 (9-10), 1314-1336, doi: 10.1130/B31679.1
- Durante F., Di Giulio G., Tallini M., Milana G., Macerola L. (2017) - A multidisciplinary approach to the seismic characterization of a mountain top (Monteluco, central Italy). *Physics and Chemistry of the Earth, Parts A/B/C* 98, 119-135, <http://dx.doi.org/10.1016/j.pce.2016.10.015>
- Moro M., Saroli M., S., Stramondo S., Bignami C., Albano M., Falcucci E., Gori S., Doglioni C., Polcari M., Tallini M., Macerola L., Novali F., Costantini M., Malvarosa F. and Wegmüller, U. (2017). New insights into earthquake precursors from InSAR. *Scientific Reports*, 7, 12035, doi:10.1038/s41598-017-12058-3
- Nocentini M., Asti R., Cosentino D., Durante F., Gliozzi E., Macerola L., Tallini M. (2017) - Plio-Quaternary geology of L'Aquila – Scoppito Basin (Central Italy). *Journal of Maps*, 13:2, 563-574, doi: 10.1080/17445647.2017.1340910
- De Luca G., Di Carlo G., Tallini M. (2016) - Hydraulic pressure variations of groundwater in the Gran Sasso underground laboratory during the Amatrice earthquake of August 24, 2016. *Annals of Geophysics*, 59, FAST TRACK 5, doi: 10.4401/AG-7200
- Porreca M., Smedile A., Speranza F., Mochales Lopez T., D'Ajello Caracciolo F., Di Giulio G., Vassallo M., Villani F., Nicolosi I., Carluccio R., Amoroso S., Macrì P., Buratti N., Durante F., Tallini M., Sagnotti L. (2015) – Geological reconstruction in the area of maximum co-seismic subsidence during the 2009 Mw=6.1 L'Aquila earthquake using geophysical and borehole data. *Italian Journal of Geosciences*, doi: 10.3301/IJG.2015.37
- Fiorillo F., Petitta M., Preziosi E., Rusi S., Esposito L., Tallini M. (2015) - Long term trend and fluctuations of karst spring discharge in a Mediterranean area (Central-Southern Italy). *Environmental Earth Sciences*, 74:153–172, doi: 10.1007/s12665-014-3946-6

Tallini M., Adinolfi Falcone R., Carucci V., Falgiani A., Parisse B., Petitta M. (2014) - Isotope hydrology and geochemical modeling: new insights into recharge process and water-rock interaction in the Gran Sasso fissured carbonate aquifer (Central Italy). *Environmental Earth Sciences*, 72(12), 4957-4971. doi: 10.1007/s12665-014-3364-9

Di Giulio G., Gaudiosi I., Cara F., Milana G., Tallini M. (2014) - Shear-wave velocity profile and seismic input derived from ambient vibration array measurements: the case study of downtown L'Aquila. *Geophys. J. Int.* (August, 2014) 198 (2): 848-866, doi: 10.1093/gji/ggu162

Bordoni P., Del Monaco F., Milana G., Tallini M., Haines J. (2014) - The Seismic Response at High Frequency in Central L'Aquila: A Comparison between Spectral Ratios of 2D Modeling and Observations of the 2009 Aftershocks. *Bulletin of the Seismological Society of America*, 104(3), 1374-1388, doi: 10.1785/0120130230

Amoruso A., Crescentini L., Martino S., Petitta M., Tallini M. (2014) - Correlation between groundwater flow and deformation in the fractured carbonate Gran Sasso aquifer (INFN underground laboratories, Central Italy). *Water Resour. Res.*, 50, 1-19, doi: 10.1002/2013WR014491

Tallini M., Parisse B., Petitta M., Spizzico M. (2013) - Long-term spatio-temporal hydrochemical and <sup>222</sup>Rn tracing to investigate groundwater flow and water-rock interaction in the Gran Sasso (central Italy) carbonate aquifer. *Hydrogeology Journal*, 21 (7), 1447-1467, doi: 10.1007/s10040-013-1023-y

Storti F., Aldega L., Balsamo F., Corrado S., Del Monaco F., Di Paolo L., Mastalertz M., Monaco P., Tallini M. (2013) - Evidence of strong Quaternary earthquakes in the epicentral area of the April 6th 2009 L'Aquila seismic event from sediment paleofluidization and overconsolidation. *Journal of Geophysical Research*, 118 (7), 3767-3784, doi: 10.1002/jgrb.50254

Parotto M., Tallini M. (2013) - Geometry and kinematics of the Montelanico-Carpineto Backthrust (Lepini Mts., Latium) in the hangingwall of the early Messinian thrust front of the central Apennines: implications for the Apennine chain building. *Ital. J. Geosci. (Boll. Soc. Geol. It.)*, Vol. 132, No. 2, 274-289, doi: 10.3301/IJG.2012.34

Gaudiosi I., Del Monaco F., Milana G., Tallini M. (2013) - Site effects in the Aterno River Valley (L'Aquila, Italy): comparison between empirical and 2D numerical modeling starting from April 6th 2009 MW 6.3 earthquake. *Bulletin of Earthquake Engineering*, 12, 697-716, doi: 10.1007/s10518-013-9540-6

Del Monaco F., Tallini M., De Rose C., Durante F. (2013) - HVNSR survey in historical downtown L'Aquila (central Italy): site resonance properties vs. subsoil model. *Engineering Geology*, 158, 34-47, doi: 10.1016/j.enggeo.2013.03.008

Tallini M., Cavuoto G., Del Monaco F., Di Fiore V., Mancini M., Caielli G., Cavinato G.P., De Franco R., Pelosi N., Rampolla A. (2012) - Seismic surveys integrated with geological data for in-depth investigation of Mt. Pettino active fault area (Western L'Aquila Basin). *Ital. J. Geosci. (Boll. Soc. Geol. It.)*, 131, 389-402, doi: 10.3301/IJG.2012.10

Martelli L., Boncio P., Baglione M., Cavuoto G., Mancini M., Scarascia Mugnozza G., Tallini M. (2012) - Main geologic factors controlling site response during the L'Aquila 2009 earthquake. *Ital. J. Geosci. (Boll. Soc. Geol. It.)*, 131, 423-439, doi: 10.3301/IJG.2012.12

- La Vigna F., Carucci V., Mariani I., Mattei M., Mazza R., Minelli L., Pascale F., Tallini M. (2012) - Intermediate-field hydrogeological response induced by L'Aquila earthquake: the Acque Albule hydrothermal system (Central Italy). *Ital. J. Geosci. (Boll. Soc. Geol. It.)*, 131, 475-485, doi: 10.3301/IJG.2012.05
- Amoruso A., Crescentini L., Petitta M., Tallini M. (2012) - Parsimonious recharge/discharge modeling in carbonate fractured aquifers: the groundwater flow in the Gran Sasso aquifer (Central Italy). *Journal of Hydrology*, 476, 136–146, <http://dx.doi.org/10.1016/j.jhydrol.2012.10.026>
- Agostini S., Di Canzio E., Palombo M.R., Rossi A.A., Tallini M. (2012) – *Mammuthus meridionalis* (Nesti, 1825) from Campo di Pile (L'Aquila, Abruzzo, Central Italy). *Quaternary International*, 276-277, 42-52, doi: 10.1016/j.quaint.2012.05.013
- Adinolfi Falcone R., Carucci V., Falgiani A., Manetta M., Parisse B., Petitta M., Rusi S., Spizzico M., Tallini M. (2012) - Changes on groundwater flow and hydrochemistry of the Gran Sasso carbonate aquifer due to the 2009 L'Aquila earthquake. *Ital. J. Geosci. (Boll. Soc. Geol. It.)*, 131, 459-474, doi: 10.3301/IJG.2011.34
- Lanzo G., Tallini M., Milana G., Di Capua G., Del Monaco F., Pagliaroli A., Peppoloni S. (2011) - The Aterno Valley strong-motion array: seismic characterization and determination of subsoil model. *Bulletin of Earthquake Engineering*, 9, 1855–1875, doi: 10.1007/s10518-011-9301-3
- Amoruso A., Crescentini L., Petitta M., Rusi S., Tallini M. (2011) - Impact of the April 6, 2009 L'Aquila earthquake on groundwater flow in the Gran Sasso carbonate aquifer, Central Italy. *Hydrological Processes*, 25 (11), 1754-1764, doi: 10.1002/hyp.7933
- Adinolfi Falcone R., Falgiani A., Parisse B., Petitta M., Spizzico M., Tallini M. (2008) - Chemical and isotopic ( $\delta^{18}\text{O}$ ,  $\delta^2\text{H}$ ,  $\delta^{13}\text{C}$ ,  $^{222}\text{Rn}$ ) multi-tracing for groundwater conceptual model of carbonate aquifer (Gran Sasso INFN underground laboratory – central Italy). *Journal of Hydrology*, 357, 368– 388, doi:10.1016/j.jhydrol.2008.05.016
- Tallini M., Gasbarri D., Ranalli D., Scozzafava M. (2006) – Investigating the epikarst by low frequency GPR: an example from Gran Sasso range (Central Italy). *Bulletin of Engineering Geology and the Environment*, 65 (4), 435-443, doi: 10.1007/s10064-005-0017-y
- Barbieri M., Boschetti T., Petitta M., Tallini M. (2005) – Stable isotopes ( $\delta^2\text{H}$ ,  $\delta^{18}\text{O}$  and  $^{87}\text{Sr}/^{86}\text{Sr}$ ) and hydrochemistry monitoring for groundwater hydrodynamics analysis in a karst aquifer (Gran Sasso, Central Italy). *Applied Geochemistry*, 20 (11), 2063-2081, doi:10.1016/j.culher.2003.05.001
- Ranalli D., Scozzafava M., Tallini M. (2004) – Ground Penetrating Radar investigations for restoration of historical buildings: the case study of Collemaggio Basilica (L'Aquila, Italy). *Journal of Cultural Heritage*, 5 (1), 91-99, doi:10.1016/j.culher.2003.05.001
- Petitta M., Tallini M. (2003) – Groundwater resources and human impacts in a Quaternary intramontane basin (L'Aquila Plain, Central Italy). *Water International*, 28 (1), 57-69
- Farroni A., Magaldi D., Tallini M. (2002) - Total sediment transport by the rivers of Abruzzi (Central Italy): prediction with the RAIZAL model. *Bulletin of Engineering Geology and the Environment*, 61, 121-127, doi: 10.1007/s100640100127

Scozzafava M., Tallini M. (2001) – Net infiltration in the Gran Sasso Massif (Central Italy): Thornthwaite water budget using the CN method (Soil Conservation Service). *Hydrogeology Journal*, 9, 461-475, doi: 10.1007/s100400100151

Magaldi D., Tallini M. (2000) - A micromorphological index of soil development for the Quaternary geology research. *Catena*, 41, 261-276