

## GIOVANNA VESSIA Curriculum Vitae et Studiorum

Giovanna Vessia took her Master Degree in Civil Engineering at Polytechnic of Bari on 14/07/1997 with the maximum qualification cum laude.

In 1998 she qualified as Professional Civil Engineer and she enrolled to Engineer Professional Order of Bari province in 1999.

In 2001 she took her PhD in Geotechnical Engineering at the Technical University of Ancona with the maximum qualification.

Since 2012 she is Assistant Professor at University "G. d'Annunzio" of Chieti-Pescara (Qualified as Associate Professor by Italian ASN)

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### **Research activity**

On 15/02/2001 she defended her PhD thesis on "**Numerical simulation of local seismic response of a confined domain of soil by means of stochastic boundary elements**". In this thesis the influence of the inherent variability of soil physical and mechanical parameters of soil dynamic response was investigated by means of the spectral approach applied to stochastic simulation.

In 2002 she won a four year post-doc fellowship (June 2002-June 2006) at Technical University of Bari with the research programme titled "**Evaluation of seismic response of soils by means of stochastic approach. Evaluation of seismic soil slope stability**".

From 2006 to 2009 she got seven fixed term research fellowships at the Polytechnic of Bari on the following issues:

1. Seismic microzonation of urban centres in Garfagnana and Lunigiana areas.
2. Numerical modelling of unstable slope for hazard estimates of seismic-induced land sliding phenomena in Garfagnana and Lunigiana areas.
3. Quantitative estimates of landsliding hazard at Troia urban center (FG - Italy).
4. Probabilistic approach for liquefaction hazard estimation.
5. Numerical simulations of seismic-induced landslides at Gramolazzo district (LU - Italy).
6. Investigation of Seismic Structure Interaction (SSI) for evaluating seismic response of buildings set in high seismic hazard territory.
7. Stability analyses of underground quarries placed within Bari district.

In 2008 she won (**first classified**) the international research fellowship spent at Universidad de Castilla-La Mancha supported by Apulia Region with the research project titled: **“Liquefaction analyses carried out in some European sites by means of statistical tools and considering the soil-structure interaction”**.

From September 2010 to February 2011 she won an International Research Fellowship with the financial support of the Apulia Region to perform laboratory tests on soil behaviour under dynamic loading at Universidad de Castilla-La Mancha (Ciudad Real - Spain).

In 2011 she won one year post-doc fellowship (**first classified**) at the Italian Council of National Research (CNR) – Institute of Research on Hydrogeological protection (IRPI) on a two-year research project titled: **“Intensity-duration thresholds for slope stability triggering”**.

From October to December 2011 she won the SNF (Swiss National Science Foundation) fellowship (Grant Number: IZKOZ2\_139574). The project titled is **“In field CPTU tests used for estimating the horizontal permeability of varved clay: statistical tools for quantifying the measured parameter variability with a view to improving design for driven and bored piles”**.

From March 2012 to the present she has got a permanent position as Assistant Professor in Engineering Geology at University “G. d’Annunzio” of Chieti-Pescara.

From March 2012 to June 2016 she is Affiliated Researcher to the Italian National Council of Research (CNR), Institute of Research for Hydrogeological Protection (IRPI).

#### **Main research projects she took part of as component or coordinator of the research group:**

##### *1) European research projects:*

- Landslide Management Project «LAND-MAN»(2002-2003) – title: *“Development of Distance-learning activities relating to the Landslide stability phenomenon: hazard analysis, monitoring and stabilization methods”* (Position: **member**)
- International research fellowship – 6 months (2010-2011)- title: *“Estimation of potential damage on foundation structures due to liquefaction occurrence: a new approach”* (Position: **member**)
- Interreg IIIA Italia-Albania – title: *“TEKNICA EUROPIANE”* (2006-2007) – Asse IV – Measure 4.3 Institutional and cultural cooperation – Action 2 – WorkPackage 2.2 : *Technical code harmonization: volcanic, seismic and hydrogeological risk.* (Position: **member**)
- Italy-Spain Integrated action – 2 year project (2005-2006) – title: *“Study of liquefaction phenomenon by means of statistical and soil structure interaction approach applied at Italian and Spanish sites”*. (Position: **member**)

##### *2) Italian research project:*

- Technical University of Bari co-funded by Italian Ministry for Research – 2 year program (2005-2007) – title: *“Innovative methodologies for landsliding previsions in high seismicity areas”*. (Position: **member**)
- Technical University of Bari supported by STRAGO S.p.A. corporation (2007)– title: *“Two dimensional numerical simulations for seismic local response predictions. The case study of Pomigliano D’Arco (NA)”* (Position: **member**)
- Technical University of Bari supported by Tuscan Regional Office for for Protection and Mitigation of Seismic Risk – title: *“Evaluation of Local seismic effect within urban areas situated in Lunigiana and Garfagnana territories”* (VEL project) – five year project 2003-2008. (Position: **member**)
- Technical University of Bari supported by Troia city (FG) local administration (2008) – title: *“Assessment of hydrogeological upheaval around Troia village”* (Position: **member**)
- Technical University of Bari supported by Apulia Region – Office for Mining activity – 1 year project (2009) – title: *“Updating of Apulia plan for mining activity according to the Regional law 37/85”* (Position: **member**)

- CNR-IRPI Bari supported by the Municipal administration of Castelfranci city (AV) Italy (2014) – title: *"Landslide Susceptibility and Hazard Maps on Castelfranci territory"* (Position: **Research Coordinator**).
- University of Chieti-Pescara supported by the Tuscan Regional Office for Protection and Mitigation of Seismic Risk – 2 year project (2014-2015) – title: *"Local Seismic Response numerical analyses performed for microseismic studies of level 3 within the Tuscan Region territory"* (Position: **Research Coordinator**).
- University of Chieti-Pescara supported by The Italian Ministry for Research - 3 year National project of research (PRIN) 2012-2015 – title: *"Spatial and Temporal forecast of landslide phenomena of huge impact on territory and society triggered by the rainfall regimes affected by the climatic changes"* (Position: **member**)
- CNR-IRPI Perugia- 5 year project (2010-2015)- title: *"Intensity-duration thresholds for slope stability triggering"* (Position: **member**)
- CNR-IRPI Bari supported by the Apulian Regional Office for Civil Protection – 1 year project (2014) – title: *"Empirical Rainfall threshold for shallow landslide onset within the Apulia Region and their validations for being used by the SANF system (National Alert System against Landslide)"* (Position: **member**)
- University "G.d'Annunzio" of Chieti-Pescara and Italian National Office for Civil Protection – 1 year project (2014) – title: *"Microzonation activities of Level 3 at Fivizzano town (LU)"* (Position: **member** – Scientific Consultant for Numerical Simulations)
- (in 2016 – 2017) University "G.d'Annunzio" of Chieti-Pescara and Avezzano local administration: *"Microzonation of the district territory with respect to the Liquefaction hazard at the Fucino Lake"* (Position: **Member**).
- (in 2016-2017) Department of Engineering and Geology (INGEO) of University "G.d'Annunzio" of Chieti-Pescara and The Abruzzi Regional Office : *"Microzonation of Level II in the Sulmona (AQ) district"* (Position: **Responsible for Liquefaction analyses**).
- (in 2017-2018) University "G.d'Annunzio" of Chieti-Pescara and CNR Office IGAG, *"Seismic Microzonation at level III of Central Italy after 2016-2017 seismic sequence"* (Position: **Member and Responsible for Dynamic Laboratory Testing**).
- (in 2019) University "G.d'Annunzio" of Chieti-Pescara and Avezzano local administration: *"Level III Microzonation studies at Avezzano district"* (Position: **Member**).
- (in 2019-2020) Software hour STACEC and Department of Engineering and Geology of ) University "G.d'Annunzio" of Chieti-Pescara: *"development of a simplified liquefaction estimation routine to be implemented within LSR2D commercial code"* (Position: **Research Coordinator**)

### 3) Consulting service for public administration:

- Regional Office for seismic risk prevention (Tuscany Region): 11 technical reports delivered on *"2D and 1D numerical simulation of co-seismic effects: amplification, liquefaction and slope instability; 2D and 3D numerical simulation of seismic soil-structure interaction"*.
- Troia city (FG) local administration. 1 technical report delivered on *"Assessment of hydrogeological upheaval around Troia village"*

### 4) Consulting service for private corporation:

- Bologna savings bank foundation (CARISBO) – professional advice on *" Seismic response studies at Rocchetta Mattei castel (BO)"*

- DESA s.r.l. Engineering corporation – professional advice on “*seismic effects on water purification plant for Conza dam (AV)*”

5) *Other activities:*

- Level 1 post seismic event survey on the building practicability performed at L’Aquila and Sulmona city after seismic event of 6th April 2009 on behalf of Apulian Civil Protection. As volunteers, Civil Protection Department of Abruzzo Region asked qualified researchers to investigate on seismic effects suffered by the buildings (superstructures and their foundations) for people safety protection.

**Teaching activity**

Dr. Ing. Vessia currently teaching experience during the last ten years are listed below:

***Under graduate courses***

- From 2007 to 2009 she taught: “Probability and statistics” at the *Degree course of “Civil Engineering”*
- 2010 she taught “*Engineering Geology of Seismic Territory*” at the *Degree course of “Civil Engineering”*
- *Since 2003 to the present she has Tutored about 30 degree theses discussed at Polytechnic of Bari – Degree course of “Civil Engineering” and “Engineering for Territorial Management” and at University of Chieti-Pescara – Degree course of “Geology”, on the following issues:*
  - Estimation of the Reliability of foundation design;
  - Assessment of uncertainty and variability structure of different Italian soil formation;
  - Seismic risk analyses in ancient urban centres;
  - Local seismic effect prediction;
  - Soil-structure interaction numerical studies.

From the Academic year 2015/16 to 2018/19 she was appointed Professor in the Master degree in “Geological Sciences and Technologies” for the module titled “Engineering Geology of seismic territories”. Starting from the first semester of 2019/20 academic year she will teach the module “Seismic Microzoning and Seismic response analyses”.

***Master courses after the 5 year University Degree***

Teaching activity within the following Master courses:

- Master in “Disaster Management” organized by the II Engineering Faculty of Polytechnic of Bari on “*Seismic risk*”. (2004)
- International Master in “Territorial and urban monitoring” organized by University of Lecce on “*Slope stability evaluation in seismic areas*”. ((Italian)2005)
- Master in “Territorio, Infraestructuras y Medio Ambiente” organized by Universidad de Castilla-La Mancha on “*Definition of seismic hazard; seismic microzonation activity; evaluation of dynamic stability of soil and rock slopes*”. (two week lessons (English) – 40h, 2011)
- International Summer School on “Monitoring the historic buildings” organized by H<sub>2</sub>CU Center – University of Rome La Sapienza, the module title is “*Microzonation studies for the preservation of historical centres and monuments*” (half day lessons (English) - 4h, 2018)

From 2003 to 2019 she taught many professional training courses on seismic hazard and uncertainty in soil and rock characterization organized by the Geologist Professional Order.

### **Teaching Mobility within the Erasmus + Project**

In the last 4 years Dr. G. Vessia participated to the ERASMUS+ teaching mobility to give 8h lectures to Master Degree students and PhD students, on the following topics:

- 1) 2015: "Methods and criteria to recognize the spatial variability structure of soil properties. Theory and applications" given at Wroclaw Polytechnic
- 2) 2016: "Mechanical characterization of soil and rock in seismic territories" given at Wroclaw Polytechnic
- 3) 2017: "Local Seismic Response performed through one-dimensional numerical simulations" at Malta University
- 4) 2018: "Local Seismic Response performed through one-dimensional numerical simulations" at Wroclaw Polytechnic

### **Member of the examination and scientific boards**

From 2007 to 2009 she was component of the examination board of the following Degree courses: Foundation design; Engineering geology applied to seismic areas; Rock mechanics at Polytechnic of Bari at the Degree course of "Civil Engineering" and "Engineering for the Territorial Management".

Since 2013 she is component of the examination board of the following Degree courses: Engineering geology, Hydrogeology, Applied Geophysics and Geological investigations at University of Chieti-Pescara for the Degree course of "Geology".

She was component of the three boards for assigning three post-doctoral fellowships in "Rainfall Empirical Thresholds for the onset of shallow landslide in Italy" at CNR-IRPI Research Office of Bari and Perugia.

In 2013 she was appointed by the Italian Research Ministry (MIUR) as expert in Earthquake Geotechnical Engineering, at the first step evaluation of 2 research projects submitted to the programme "Future in Research 2013".

In 2013 she was appointed independent expert by the Apulia Regional Agency for Innovation and Technology in the scientific board for final evaluation of 5 research projects aimed at protecting the territory and the environment.

In 2014 she was appointed expert by the Italian Book Association for the first step evaluation of the recently issued scientific books in Engineering and Applied Sciences.

Since 2007 she is member of the **Geotechnical Safety Network (GEOSNet)**, that is a society that promotes, coordinates and supports activities in the field of the Geotechnical Safety and Reliability.

From 2014 to 2021 she is **member of the Technical Committee TC304** "Engineering Practice of Risk Assessment and Management" within the International Society for Soil Mechanics and Geotechnical Engineering.

Since 2014 she is member of the Society of the European Crisis Management Community of Practice (SECriMaCoP) with the aim to share the best practices in post-crises activities of civil protection related to natural hazards like earthquakes, floods, etc.

Between 2017 and 2018 she was component of 2 scientific boards for research fellowships within the Italian Project "Microzonation studies of level III in the Central part of Italy after the 2016-2017 Earthquake sequence".

She worked as a tutor of a PhD thesis (2014-2017), titled “Spatial-temporal distribution of landslide phenomena in Molise Region territory analyzed through the changing in soil coverings” (in Italian).

In 2017 she was appointed as independent expert to evaluate a PhD thesis in Engineering Geology titled “Slope Stability assessment under seismic and post-seismic conditions at the South-Eastern sector of the Daunian Apennine “ (in Italian).

In 2020 she was appointed as independent expert to evaluate a PhD thesis by Chantelle Marie Dimech in Seismic Hazard assessment, titled: “High-Frequency Ground Motion Scaling and Ground Shaking Scenarios for Earthquakes in the Eastern Mediterranean Area”, from University of Malta.

### **Invited TALK and CONTRIBUTION**

In 2006 she gave an invited talk titled “Statistical soil characterization of Italian sites for reliability analyses” during the 2<sup>nd</sup> International Workshop on Characterization and engineering properties of natural soils (University of Singapore)

In 2014 she was invited to hold a Solicited Talk within the Soil System Science Division President's Scientific Session "Milestones in Soil Science: Senior and junior soil scientists share their perspectives on the leading problems of soil science today", EGU General Assembly, Vienna, 3 May.

In 2017 she was invited to give a Lecture titled “From Geoengineering knowledge of the 2016 Central Italy earthquake to a new rationale in Seismic Engineering Designing: the Resilience” during the 40<sup>th</sup> Winter school of Geotechnics and Mechanics (Polytechnic of Wroclaw – Poland)

In 2018 she was invited to write the Chapter: “Lacustrine soils” within the Encyclopedia of Engineering Geology.

In 2019 she gave an invited talk titled: “The 2009 L’Aquila earthquake: the experiences, the site effects and the open issues” (“Il terremoto del 6 aprile 2009: le esperienze, gli effetti di sito ed i problemi aperti”) (in Italian) at the 10<sup>th</sup> Anniversary conference of the 2009 L’Aquila earthquake, University “G. d’Annunzio” of Chieti-Pescara, April 12.

In 2020 she gave an invited talk titled: “Regionalized variables and geostatistical tools to enable a reliable geo-mechanical site characterization for civil engineering designing and natural hazard mapping” at the XXXII Conference on Computer Methods in Design and Analysis of Hydrotechnical Structures held on held from 24 to 27 February 2020 at Korbielow (Poland).

### ***Referee in peer review activity***

Reviewer for the following International Journals: Bulletin of Earthquake Engineering, Soil dynamics and Earthquake Engineering, Rock Mechanics and Rock Engineering, Civil and Mechanical Engineering, Acta Geotechnica and Mechanica, Geomorphology, Engineering Geology, Bulletin Engineering Geology and the environment, Journal of Mountain Science, Journal of Seismology.

Reviewer for “Special Issues” of the American Society of Civil Engineering (ASCE), Structural Safety and Engineering Geology.

### ***Scientific Conference organization***

Giovanna Vessia was the Convener of the following sessions at the General Assembly of the European Geoscience Union within the Soil System Science Division:

- 1) EGU 2014, Session SSS11.8 “Measuring and modelling spatial and temporal variability of soil properties and processes related to human activities”, Co-Conveners: Kook Kwang Phoon, Wojciech Pula, Ana Maria Tarquis, Joanna Pieczyńska - Kozłowska, Vienna, 27 aprile – 2 maggio.

- 2) EGU 2015, Session SSS11.4 “Methods and Models to deal with spatial and temporal variability of natural soils in engineering applications, their management and related hazards”, Co-Conveners: Ana Maria Tarquis, Wojciech Pula, K.K. Phoon, Łukasz Zaskórski, Vienna, 12-17 aprile.
- 3) EGU 2015, the SHORT COURSE SESSION SSS0.13 “Methods and criteria to recognize the structure of the vertical variability of soil properties” Co-conveners: Prof. Wojciech Pula. (Organizing and Teaching activity).
- 4) EGU 2018, Session IE4.3/SSS13.73/AS5.19/BG1.20/ESSI1.8 HS11.4/NH11.13 “Geostatistical and statistical tools to perform the data fusion of large datasets in geo-engineering and environmental studies” (Co-conveners: Di Curzio D., Castrignanò A., Micallef A., Rusi S., Viscarra Rossel R.)

2015 - At the 5th international Symposium on Geotechnical Safety and Risk, Giovanna Vessia was invited to be the Chairwoman of the:

Special Session “Uncertainty and reliability of landslide hazard models” within the (ISGSR, Rotterdam, 13-16 October 2015).

2018 - At the 36<sup>th</sup> General Assembly of the European Seismological Commission:

ESC 2018, Session S29 “Advances in seismic site response and microzonation for improving the resilience of urban centers” (Co-conveners: Laurenzano G., Pagliaroli A., Pilz M., Vessia G., Biswas R., Bora N.)

2019 - At the 29<sup>th</sup> European Safety and Reliability Conference (ESREL 2019, Sept 22-26, Hannover):

ISSMGE TC304 (Engineering Practice of Risk Assessment and Management) Student Contest Session for students (oral presentations and prizegiving to the best student group question solvers) (Co-conveners: W. Pula)

2019 - At the 7<sup>th</sup> International Symposium on Geotechnical Safety and Risk (ISGSR 2019, Dec 11-13, Taipei):

IS10, Session title: “Numerical techniques for integrating the spatial variability of soil and groundwater parameters into designing and environmental management” (Co-conveners: D. Di Curzio, W. Pula)

### **Editorial duties**

Associate Editor of *Studia Geotechnica et Mechanica*.

Member of the following Editorial Boards: *Bulletin of Engineering Geology and the Environment*, *Georisk*, *Mistral*, *Journal of Geological Resource and Engineering*, *Journal of Civil Engineering and Architecture*.

She worked as Chief Guest Editor team for the following Special Issues:

- 1) SI 2015 titled “Methods and models for dealing with spatial variability in soil and rock characterization: design, management and related hazards” on *Journal of Assessment and management of risk for Engineered systems and Geohazards*;
- 2) SI 2017 titled “Method to assess the reliability of landslide hazard mapping” on *Bulletin of Engineering Geology and the Environment*;
- 3) SI 2018 titled “Computational Tools to Support Soil Management Decisions” on *Biosystems Engineering*.
- 4) SI 2019 titled “Seismic site response estimation for microzonation studies promoting the resilience of urban centers” on *Engineering Geology*.

Prof. Ing. Giovanna Vessia published more than 100 papers on peer reviewed international and national journals and international and national conferences. List below are papers issued in the last **13 years**:

1. **Vessia G.**, Rainone M.L., De Santis A., D'Elia G. (2020). Lessons from April 6, 2009 L'Aquila earthquake to enhance microzoning studies in near-field urban areas, accepted in *Geoenvironmental Disasters*. DOI : 10.1186/s40677-020-00147-x.
2. **Vessia G.**, D. Di Curzio, A. Castrignanò (2020). Modeling 3D soil lithotypes variability through geostatistical data fusion of CPT parameters, *Science of The Total Environment*, Volume 6981, Article 134340.
3. **Vessia G.**, Di Curzio D., Chiaudani A., Rusi S. (2020). Regional rainfall threshold maps drawn through multivariate geostatistical techniques for shallow landslide hazard zonation, *Science of The Total Environment*, Volume 70525, Article 135815. <https://doi.org/10.1016/j.scitotenv.2019.135815>
4. Signanini P., Vessia G., Elia V., Napoli E., Germano R. (2019). Study on the changes in physical properties of demineralized water put in contact with porous hydrophilic materials: experimental evidences on metabrick material. *Journal of Porous Media*. Doi:10.1615/JPorMedia.2019026816.
5. Ciancimino A., Lanzo G., Alleanza G.A., Amoroso S., Bardotti R., Biondi G., Cascone E., Castelli F., Di Giulio A., D'Onofrio A., Foti S., Lentini V., Madiai C., **Vessia G.** (2019). Dynamic characterization of fine-grained soils in Central Italy by laboratory testing, *Bulletin of Earthquake Engineering*, Doi: 10.1007/s10518-019-00611-6.
6. Signanini P., **Vessia G.**, Elia V., Napoli E., Germano R. (2019). Study on the changes in physical properties of demineralized water put in contact with porous hydrophilic materials: experimental evidences on metabrick material. *Journal of Porous Media*. Doi: 10.1615/JPorMedia.2019026816
7. Diprizio G., Andriani G.F., **Vessia G.**, Pennetta L. (2018). GIS-based permanent displacement maps for urban planning of unstable seismic territories: a case study in Daunian Subapennine area (Apulia, Italy), *Italian Journal of Engineering Geology and Environment* , 1: 25-38.
8. Fiore A., N.L. Fazio, P. Lollino, M. Luisi, M.N. Miccoli, R. Pagliarulo, M. Perrotti<sup>2</sup>, L. Pisano, L. Spalluto, C. Vennari, **G. Vessia**, M. Parise (2018). Evaluating the susceptibility to anthropogenic sinkholes in Apulian calcarenites, Southern Italy. From: Parise, M., Gabrovsek, F., Kaufmann, G. & Ravbar, N. (eds) *Advances in Karst Research: Theory, Fieldwork and Applications*. Geological Society, London, Special Publications, 466, <https://doi.org/10.1144/SP466.20>.
9. Perrotti, M., Lollino, P., Fazio, N.L., Pisano, L., **Vessia, G.**, Parise, M., Fiore, A., Luisi, M. (2018). Finite element-based stability charts for underground cavities in soft calcarenites, *International Journal of Geomechanics*, 18(7),04018071, DOI: 10.1061/(ASCE)GM.1943-5622.0001175.
10. **Vessia, G.**, Russo, S. (2018). Random field theory to interpret the spatial variability of lacustrine soils, *Biosystem Engineering*, 168: 4-13.
11. **Vessia, G.**, Falconer, R., Zimmermann, B., Tarquis, A.M. (2018). Computational tools to support soil management decisions (Editorial), *Biosystem Engineering*, DOI: 10.1016/j.biosystemseng.2018.03.012.
12. Lanzo, G., Tommasi, P., Ausilio, A., Aversa, S., Bozzoni, F., Cairo, R., D'Onofrio, A., Durante, M.G., Foti, S., Giallini, S., Mucciacciaro, M., Pagliaroli, A., Sica, S., Silvestri, F., **Vessia, G.**, Zimmaro, P. (2019).



Reconnaissance of geotechnical aspects of the 2016 Central Italy earthquakes, *Bulletin of Earthquake Engineering*, 17:5495–5532. DOI: 10.1007/s10518-018-0350-8.

13. Boncio P., S. Amoroso, **G. Vessia**, M. Francescone, M. Nardone, P. Monaco, D. Famiani, D. Di Naccio, A. Mercuri, M.R. Manuel, F. Galadini, G. Milana (2018). Evaluation of liquefaction potential in an intermountain Quaternary lacustrine basin (Fucino basin, central Italy): implications for seismic microzonation mapping. *Bulletin of Earthquake Engineering*, 16(1), pp. 91-111. DOI 10.1007/s10518-017-0201-z.
14. Stewart J.P., Lanzo G., Ausilio E., Cairo R., Bozzoni F., Capatti M.C., Della Pasqua F., Dezi F., Di Sarno L., Simonelli A.L., Foti S., Chiabrande F., Dabove P., Di Pietra V., Maschio P., Passeri F., Sgobio A., Teppati Lose' L., Franke K., Reimschiessel B., Galadini F., Falcucci E., Gori S., Kayen R.E, Kishida T., Lingwall B., A. Pagliaroli, Giallini S., Gogoladze Z., **Vessia G.**, A. Pizzi, Di Domenica A., Pelekis P., Santo A., De Falco M., Forte G., Scasserra G., Santucci de Magistris F., Castiglia M., Fierro T., Gautam D., Mignelli L., Staniscia F., Sextos A., De Risi R., Sica S., Mucciacciaro M., Tommasi P., Di Giulio A., Tropeano G., Durante M.G., Zimmaro P. (2017). *Engineering Reconnaissance following the October 2016 Central Italy Earthquakes*. Doi:10.18118/G6HS39 Geotechnical Extreme Events Reconnaissance Association, Report. N. GEER-050D, 8 May 2017 (323pp).
15. **Vessia G.**, Amoroso S., Franceschini M. (2017). Comparison between deterministic and stochastic field approach to pile designing at Araquari (Brazil) test site. Accepted at the 19th International Conference of Soil Mechanics and Geotechnical Engineering, Seoul, 17-22 September.
16. **Vessia G.**, Amoroso S. (2017). Random field theory applied to the prediction of a pile bearing capacity and settlement measured at Araquari site (Brazil). Accepted at the 12th International Conference on Structural Safety & Reliability (ICOSSAR2017), Wien, 6-10 August.
17. Pieczyńska-Kozłowska J.M., Puła W. and **Vessia G.** (2017). A Collection of Fluctuation Scale Values and Autocorrelation Functions of Fine Deposits in Emilia Romagna Plain, Italy. *Geo-Risk 2017 GSP 284*, pp. 290-299, ASCE, Proc. 6th International Symposium on Geotechnical Safety and Risk (Geo-Risk), Denver.
18. Lesny K., Akbas S., Bogusz W., Burlon S., **Vessia G.**, Zhang L. (2017). Evaluation of the Uncertainties Related to the Geotechnical Design Method and Its Consideration in Reliability Based Design. *Geo-Risk 2017 GSP 283*, pp. 435-444, ASCE, Proc. 6th International Symposium on Geotechnical Safety and Risk (Geo-Risk), Denver.
19. Stewart J.P., Lanzo G., Ausilio E., Cairo R., Bozzoni F., Capatti M.C., Della Pasqua F., Dezi F., Di Sarno L., Simonelli A.L., Foti S., Chiabrande F., Dabove P., Di Pietra V., Maschio P., Passeri F., Sgobio A., Teppati Lose' L., Franke K., Reimschiessel B., Galadini F., Falcucci E., Gori S., Kayen R.E, Kishida T., Lingwall B., A. Pagliaroli, Giallini S., Gogoladze Z., **Vessia G.**, A. Pizzi, Di Domenica A., Pelekis P., Santo A., De Falco M., Forte G., Scasserra G., Santucci de Magistris F., Castiglia M., Fierro T., Gautam D., Mignelli L., Staniscia F., Sextos A., De Risi R., Sica S., Mucciacciaro M., Tommasi P., Di Giulio A., Tropeano G., Durante M.G., Zimmaro P. (2017). *Engineering Reconnaissance following the October 2016 Central Italy Earthquakes*. Doi:10.18118/G6HS39 Geotechnical Extreme Events Reconnaissance Association, Report. N. GEER-050D, 8 May 2017 (323pp).
20. Martinotti, M. E., Pisano, L., Marchesini, I., Rossi, M., Peruccacci, S., Brunetti, M. T., Melillo, M., Amoroso, G., Loiacono, P., Vennari, C., **Vessia, G.**, Trabace, M., Parise, M., and Guzzetti, F. (2017). Landslides, floods and sinkholes in a karst environment: the 1–6 September 2014 Gargano event, southern Italy, *Nat. Hazards Earth Syst. Sci.*, 17, 467-480, doi:10.5194/nhess-17-467-2017.

21. **Vessia G.**, Kozubal J., Pula W. (2017). High dimensional model representation for reliability analyses of complex rock-soil slope stability. *Archives of Civil and Mechanical Engineering*, 17: 954–963. doi: 10.1016/j.acme.2017.04.005.
22. **Vessia G.**, Coco L., Rossi M. (2017). Introduction to a thematic set of papers on methods to assess the reliability of landslide hazard mapping. *Bulletin of Engineering Geology and the Environment*, 76(2):393-395. doi: 10.1007/s10064-017-1026-3.
23. **Vessia G.**, Pisano L., Tromba G., Parise M. (2016). Seismically induced slope instability maps validated at an urban scale by site numerical simulations. *Bulletin of Engineering Geology and the Environment*, 76(2):457–476. doi:10.1007/s10064-016-0940-0.
24. **Vessia G.**, Pula W. (2015). Editorial of the Special Issue: “Methods and models for dealing with spatial variability in soil and rock characterisation: design, management and related hazards”, *Georisk: Assessment and Management of Risk for Engineered Systems and Geohazards*, 9(4):223.
25. Pisano L., Dragone V., Vennari C., **Vessia G.**, Parise M. (2016). The influence of slope instability processes in demographic dynamics of landslide-prone rural areas. In: *Landslides and Engineered Slopes. Experience, Theory and Practice*. Aversa et al. (Eds). ISBN 978-1-138-02988-0. Proceedings of XII International Symposium on Landslides, Associazione Geotecnica Italiana, 12-19 giugno, Naples, Italy , pp. 1655-1660.
26. **Vessia G.**, Pisano L., Vennari C., Rossi M., Parise M. (2016). Mimic expert judgement through automated procedure for selecting rainfall events responsible for shallow landslide: A statistical approach to validation. *Computers & Geosciences*, 86:146–153.
27. **Vessia G.**, Pisano L., Tromba G., Parise M. (2016). *Seismically induced slope instability maps validated at an urban scale by site numerical simulations*. *Bulletin of Engineering Geology and the Environment*, 76(2):457–476. doi:10.1007/s10064-016-0940-0.
28. Pisano L., Vennari C., **Vessia G.**, Trabace M., Amoruso G., Loiacono P., Parise M. (2015). Data collection for reconstructing empirical rainfall thresholds for shallow landslides: challenges and improvements in the Daunia SubApennine (Southern Italy). *Rendiconti Online della Società Geologica Italiana*, 35: 236-239, ISSN: 2035-8008, doi: 10.3301/ROL.2015.109.
29. **Vessia G.**, M. Parise, M. T. Brunetti, S. Peruccacci, M. Rossi, C. Vennari, and F. Guzzetti (2014). Automated reconstruction of rainfall events responsible for shallow landslides. *Natural Hazards and Earth System Sciences*, 14: 2399-2408. ISSN: 1561-8633, doi: 10.5194/nhess-14-2399-2014.
30. Bruno G., **Vessia G.**, Bobbo L. (2013). Statistical Method for Assessing the Uniaxial Compressive strength of Carbonate Rock by Schmidt Hammer Tests Performed on Core Samples. *Rock Mechanics and Rock Engineering*, 46: 1-8, ISSN: 0723-2632, doi: 10.1007/s00603-012-0230-5.
31. **Vessia G.**, Parise M., Tromba G. (2013). A strategy to address the task of seismic micro-zoning in landslide-prone areas. *Advances In Geosciences*, 1:1-27. ISSN: 1680-7340, doi: 10.5194/adgeo-35-23-2013.
32. **Vessia G.**, Russo, S. (2013). Relevant features of the valley seismic response: The case study of Tuscan Northern Apennine sector. *Bulletin of Earthquake Engineering*, 11(5), 1633–1660.
33. **Vessia G.**, Venisti N. (2011). Liquefaction damage potential for seismic hazard evaluation in urbanized areas. *Soil Dynamics and Earthquake Engineering*, 31: 1094-1105. ISSN: 0267-7261.

34. **Vessia G.**, Russo S., Lo Presti D. (2011). A new proposal for the evaluation of the amplification coefficient due to valley effects in the simplified local seismic response analyses. *Italian Geotechnical Journal*, 4: 51–77.
35. **Vessia G.**, C. Cherubini, J. Pieczyńska, W. Puła (2009). Application of random finite element method to bearing capacity design of strip footing. *Journal of Geoengineering*, 4:103-111. ISSN: 1990-8326.
36. Cherubini C., **Vessia G.**, Pula W. (2007). Statistical soil characterization of Italian sites for reliability analysis. In: Tan, Phoon, Height and Leroueil. In: *Characterisation and Engineering Properties of Natural Soils*, pp. 2681-2705, LONDON: London: Taylor and Francis Ltd. ISBN: 9780415426916.
37. Cherubini C., **Vessia G.** (2007). Reliability approach to the side resistance of piles by means of the total stress analysis (alfa method). *Canadian Geotechnical Journal*, 44: 1378-1390. ISSN: 0008-3674.

### International Conferences

1. Pieczynska-Kozłowska J., Vessia G. (2019). An application of the kriging technique to support the geotechnical designing of foundations based on CPTs in Po Plain alluvial deposits. *Proceedings of the 7<sup>th</sup> International Symposium on Geotechnical Safety and Risk (ISGSR 2019)*, pp. 1-6, Taipei, Taiwan, 11-13 December 2019.
2. Ciancimino A., Foti S., Lanzo G., Alleanza G.A., D'Onofrio A., Amoroso S., Bardotti R., Madiati C., Biondi G., Cascone E., Castelli F., Lentini V., Di Giulio A., **Vessia G.** (2019). Dynamic characterization of fine-grained soils for the seismic microzonation of Central Italy, In *Earthquake Geotechnical Engineering for Protection and Development of Environmental and Construction*, Silvestri and Moraci (Eds.), pp. 1812-1819, ISBN: 978-0-367-14328-2.
3. **Vessia G.**, Castrignanò A., Di Curzio D., Pula W. (2018). *3D spatial variability of mechanical properties of Emilia Romagna alluvial deposits and its implications in geotechnical design of foundations*. Extended abstract *Proceedings of the 4<sup>o</sup> International Symposium on Computational Geomechanics (COMGEO IV)*, pp. 118-119, 1-4 maggio 2018, Assisi.
4. **Vessia G.**, Amoroso S. (2017). Random field theory applied to the prediction of a pile bearing capacity and settlement measured at Araquari site (Brazil). Accepted at the 12<sup>th</sup> International Conference on Structural Safety & Reliability (ICOSSAR2017), Wien, 6-10 August.
5. Lesny K., Akbas S., Bogusz W., Burlon S., **Vessia G.**, Zhang L. (2017). *Evaluation of the Uncertainties Related to the Geotechnical Design Method and Its Consideration in Reliability Based Design*. *Geo-Risk 2017 GSP 283*, pp. 435-444, ASCE, Proc. 6<sup>th</sup> International Symposium on Geotechnical Safety and Risk (Geo-Risk), Denver.
6. **Vessia G.**, Amoroso S., Franceschini M. (2017). Comparison between deterministic and stochastic field approach to pile designing at Araquari (Brazil) test site. 19<sup>th</sup> International Conference of Soil Mechanics and Geotechnical Engineering, pp. 1-4, Seoul, 17-22 September.
7. Pieczyńska-Kozłowska J.M., Puła W. and **Vessia G.** (2017). *A Collection of Fluctuation Scale Values and Autocorrelation Functions of Fine Deposits in Emilia Romagna Plain, Italy*. *Geo-Risk 2017 GSP 284*, pp. 290-299, ASCE, Proc. 6<sup>th</sup> International Symposium on Geotechnical Safety and Risk (Geo-Risk), Denver.
8. Pisano L., Dragone V., Vennari C., **Vessia G.**, Parise M. (2016). The influence of slope instability processes in demographic dynamics of landslide-prone rural areas. In: *Landslides and Engineered Slopes. Experience, Theory and Practice*. Aversa et al. (Eds). ISBN 978-1-138-02988-0. **Proceedings** of XII International Symposium on Landslides, Associazione Geotecnica Italiana, 12-19 giugno, Naples, Italy, pp. 1655-1660.
9. Amoroso S., Boncio P., Famiani D., Hailemikael S., Manuel M., Milana G., Monaco P., Vassallo M., **Vessia G.** (2015) ~ "Preliminary liquefaction studies for seismic microzonation of Avezzano, Italy" (Submitted to the 3<sup>rd</sup> International Conference on the Flat Dilatometer, 14-16 June 2015, Rome).
10. **Vessia G.** (2014) ~ "Statistical properties of two empirical rainfall thresholds for shallow landslide initiation in Italy" ~ *Proceedings of the 3<sup>rd</sup> International Symposium on Reliability Engineering and Risk Management*, Taipei, Taiwan, 20-24 May.

11. Rainone M.L., **Vessia G.**, Weaver C., Signanini P. ~ "The 2009 L'Aquila earthquake: a wasted opportunity to improve the seismic risk management from Italian strong earthquakes" ~ The European Scientific CONFERENCE on best practices and lessons learned from natural disasters ELITE, 25-26 June 2014, Warsaw, Poland.
12. Rainone M.L., Signanini P., **Vessia G.**, Greco P., Di Benedetto S. ~ "L'Aquila seismic event on 6th April 2009: site effects and critical points in microzonation activity within the Aterno Valley Municipalities" ~, Proc. 7th Int. Conf. on Case Histories in Geotechnical Engineering (ICCHGE), April 29 - May 4, Chicago, N.4.03a, pp.1-12, 2013.
13. Rainone M.L., **Vessia G.**, Signanini P. ~ "Local seismic response assessment for the safeguard of Italian historical architectural monuments: the site of San Clemente al Vomano church (Teramo - Abruzzo)" ~ 6th International Congress "Science and Technology for the Safeguard of Cultural Heritage in the Mediterranean Basin", Athens, Greece, 22-25 October, Vol.II, 148-155, 2013. ISBN: 978-88-97987-04-8.
14. Rossi M., Peruccacci S., Brunetti M.T., Marchesini I., Luciani S., Ardizzone F., Balducci V., Bianchi C., Cardinali M., Fiorucci F., Mondini A.C., Reichenbach P., Salvati P., Santangelo M., Bartolini D., Gariano S.L., Palladino M., **Vessia G.**, Viero A., Antronico L., Borselli L., Deganutti A.M., Iovine G., Luino F., Parise M., Polemio M., Guzzetti F. & Tonelli G. (2012) ~ "SANF: National warning system for rainfall-induced landslides in Italy. In: Eberhardt E., Froese C., Turner A.K. & Lerouil S. (Eds.), Landslides and Engineered Slopes. Protecting Society through Improved Understanding" ~ Proceedings 11th Int. Symp. Landslides, Banff (Canada), 3-8 June 2012, vol. 2, p. 1895-1899, 2012. ISBN: 978-0-415-62123-6.
15. **Vessia G.**, Casini F., Springman S. (2011) ~ "Mechanical characterisation of lacustrine clay by interpreting spatial variability in CPTU measurements" ~ Proceedings of the 11th International Conference on applications of statistics and probability in civil engineering (ICASP11), CRC Press ~ ETH Zurich, Switzerland, 1÷4 August, N. 358, pp. 2965-2973, 2011, ISBN: 9780415669863.
16. Cherubini C., **Vessia G.** (2009) ~ "Probabilistic charts of shallow foundation settlements on granular soil" ~ Proceedings of 2nd International Symposium on Geotechnical Safety and Risk, Y. Honjo, M. Suzuki, T. Hara & F. Zhang editors, CRC Press ~ Gifu, Japan, 11-12 June, pp. 165-172, ISBN: 9780415498746.
17. Cherubini C., **Vessia G.** (2009) ~ "Reliability analyses of rock slope stability" ~ Proceedings of 2nd International Symposium on Geotechnical Safety and Risk. Special Session in Reliability Benchmarking Y. Honjo, M. Suzuki, T. Hara & F. Zhang editors, CRC Press ~ Gifu, Japan, 11-12 June, pp. 83-88, ISBN: 9780415498746.
18. **Vessia G.**, Arias Truillo J., Lopez-Querol S., Cherubini C., Blazquez R., Foti D. (2008) ~ "A numerical approach for liquefaction potential definition" ~ Proceedings of XIV World Conference on Earthquake Engineering ~ Beijing, China, 12÷17 October, N. 04-02-0018, pp. 1-8.
19. Cherubini C., **Vessia G.**, Veronico M. (2008) ~ "Shallow foundation reliability design" ~ 2nd International Civil Engineering Conference on Civil Engineering and Sustainable Development. Modernizing our Infrastructure (CE2008) ~ Mombasa, 23÷25 September, pp. 939-948, ISBN: 996692342X.
20. Russo S., **Vessia G.**, Cherubini C. (2008) ~ "Considerations on different features of local seismic effects numerical simulations: the case studied of Castelnuovo Garfagnana" ~ VI International Conference on Case Histories in Geotechnical Engineering ~ Arlington, 11÷16 August, Paper No. 3.12, pp. 1-12.
21. **Vessia G.**, Cherubini C., Ferrini M., Daprile V. (2008) ~ "Amplification factors to measure local seismic effects in urban areas" ~ Proceedings of the IV International Conference on Earthquake Geotechnical Engineering (ICEGE), K.P. Ptilakis editor, Springer edition ~ Thessaloniki, Greece, 25÷28 June, N. 1347, pp. 1-12, ISBN: 9781402058929.
22. **Vessia G.**, Cherubini C. (2007) ~ "Penetration test measures for mechanical characterization of sandy deposits at Scanzano Jonico: geostatistical methods for reliability interpretation" ~ Proceedings of First International Symposium on Geotechnical Safety and Risk (ISGSR) ~ Shanghai, 18-19 October, Vol. 1, pp. 227-238, 2007.
23. **Vessia G.**, Cherubini C., Nardelli M., Mandolini A. (2007) ~ "From statistical interpretation of CPTs to reliability-based design of CFA piles" ~ Proceedings of the 10th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP10), Taylor and Francis editions ~ Tokyo, 31 July- 3 August, pp. 303-305, ISBN: 0415452112.

24. Cherubini C., **Vessia G.** (2007) ~ "Reliability-based design in sandy soils by CPT measurements" ~ Proceedings of First International Symposium on Geotechnical Safety and Risk (ISGSR) ~ Shanghai, 18-19 October, Vol. 2, pp. 485-496, 2007.

### Book chapters

Cherubini C., **Vessia G.**, Pula W. (2007) ~ «Statistical soil characterization of Italian sites for reliability analysis» Characterization & Engineering Properties of Natural Soils (Invited Paper). Vol. 4, pp. 2681-2706, 2006. ISBN: 041542691X

D'Intinosante V., **Vessia G.** (2014) ~ Chapter 11: «Microzonazione sismica di livello 3» (Book title: "La pericolosità sismica della Regione Toscana" – issued on the web) (Weblink: [http://www.rete.toscana.it/sett/pta/sismica/01informazione/formazione/pubblicazioni/microzonazione/02\\_ps\\_locale/02\\_ps\\_locale.htm](http://www.rete.toscana.it/sett/pta/sismica/01informazione/formazione/pubblicazioni/microzonazione/02_ps_locale/02_ps_locale.htm)) (in italian)

**Vessia G.**, Rainone M.L., Signanini P. (2014) ~ Springer Special Series. Engineering Geology for Society and Territory; Volume 5 Titled: "Urban Geology, Sustainable Planning and Landscape Exploitation", Chapter 218: " $V_S$  and  $N_{SPT}$  measures for seismic characterization of soils". DOI:10.1007/978-3-319-09048-1\_218. ISBN:978-3-319-09047-4.

Brunetti M.T., S. Peruccacci, L. Antronico, D. Bartolini, A.M. Deganutti, S.L. Gariano, G. Iovine, S. Luciani, F. Luino, M. Melillo, M.R. Palladino, M. Parise, M. Rossi, L. Turconi, C. Vennari, **G. Vessia**, A. Viero, F. Guzzetti (2014) ~ Springer Special Series. Engineering Geology for Society and Territory; Volume 2 titled: "Landslide Processes". Chapter 280: "Catalogue of Rainfall Events with Shallow Landslides and New Rainfall Thresholds in Italy". DOI: 10.1007/978-3-319-09057-3\_280. ISBN: 978-3-319-09056-6.

**Vessia G.**, Rainone M.L., Signanini P. (2016). Working Strategies for Addressing Microzoning Studies in Urban Areas: Lessons from the 2009 L'Aquila Earthquake. In: Earthquakes and Their Impact on Society, S. D'Amico (ed.), 233-290. Springer Natural Hazards, International Publishing Switzerland. DOI 10.1007/978-3-319-21753-6\_9.

**Vessia G.**, Di Curzio D. (2018) ~ «Lacustrine Deposits» (Book title: "Encyclopedia of Engineering Geology", P. T. Bobrowsky, B. Marker (eds.), Springer International Publishing AG.) Doi.org/10.1007/978-3-319-12127-7\_179-1.

Pagliaroli A., **Vessia G.** (2019) ~ «Cap. 6: modellazioni numeriche» (Book title: "Microzonazione sismica di livello 3: il caso del centro abitato di Fivizzano (MS), D'Intinosante Vittorio e Gruppo di Lavoro di Fivizzano (eds.), CNR Edizioni").

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