PERSONAL INFORMATION   Guido Rianna

✉ guido.rianna@cmcc.it

Sex M | Birth 26 December 1980 | Nationality Italian

POSITION   SENIOR SCIENTIST

Work Experience

01/04/2012–up to now

Fondazione CMCC Centro Euromediterraneo sui Cambiamenti Climatici

He currently acts as **Director** for the Research Division "**Soil and Water Systems**" within the **Institute for Climate Resilience** in Fondazione CMCC. SOWAS aims to enhance our understanding of the dynamics within the lower portion of the Earth's Critical Zone, which represents the interface among the atmosphere, hydrosphere, biosphere, and upper geosphere. This zone is particularly and increasingly subject to both anthropogenic changes (e.g., land-use changes) and modifications in atmospheric patterns induced by climate change.

Earlier, he led the **research unit** "ADAPTATION ENGINEERING" within the Regional Models and geo-hydrological Impacts Division and Institute for Climate Resilience. The Unit's goal is to increase knowledge and develop approaches to adapt civil engineering tools in light of climate change (climate adaptation engineering) [geotechnical, hydraulics, structures].

Furthermore, he has been involved in several European and national projects

- **GEMINA** Project 2012-2015 [Special Integrative Fund for Research-Consolidation Plan, Improvement technological expansion and development of the Euro-Mediterranean Centre for Climate Change]. The Project is aimed at i) investigating the potential effect of climate change on landslide phenomena in key areas of the Mediterranean area (pyroclastic cover of the Campania Region, Orvieto), ii) developing approaches for coupling the results of climate simulations with impact models (bias-correction approaches, stochastic methods) and iii) evaluating the variations of the main components of the hydrological balance in China under current and future climate conditions.

- **NEXTDATA** Italian project 2014-2016 [A national system for the collection, preservation, accessibility and dissemination of environmental and climate data in mountain and marine areas]. The Project is aimed to develop rapid approaches to evaluate possible climate change induced variations in sub-daily precipitation mainly for orographically complex areas.

- **FP7-security-606799 INTACT** [On the Impact of Extreme Weather on Critical Infrastructures] The project brings together existing knowledge on extreme weather events, climate change, and critical infrastructure in Europe to provide a set of guidelines, the INTACT Reference Guide, to help policy and decision makers in creating durable and lasting infrastructure. He was involved in WP5 concerning case studies; specifically, he was the pilot case coordinator for rapid landslide phenomena occurring in pyroclastic covers in the Campania Region. To this aim, he was involved in modeling activities for landslide dynamics from initiation to propagation, as well as stakeholder engagement and knowledge co-production assessments.

- **INTERREG CENTRAL EUROPE PROLINE** (2016-2019) PROLINE-CE Efficient Practices of Land Use Management Integrating Water Resources Protection and Non-structural Flood Mitigation Experiences] He is cluster leader for the study of best management practices in Central European riparian areas; pilot cases: Po River Basin and Danube Bend; he was national lead for WP T1 "Capitalization: Capacity building and stakeholder engagement". He led the WT2.3.3.3 report aimed at assessing the potential impacts of climate change on the quantity and quality of drinking water resources in the Central Europe region. Since June 2018, he has been the leader of WP T3 "Synopsis: Vision and guidance" which developed the GOWARE Decision Support Tool "Transnational EC guidance towards optimal use of the drinking water resource. (http://proline-

ce.fgg.uni-lj.si/goware/goware-webtool/).

-INTERREG CENTRAL EUROPE TEACHER-CE (2020-2022) joinT Efforts to increase water management Adaptation to climate CHanges in central EuRope]. The Project aims to capitalize the tools designed within previous European initiatives by fostering the release of an integrated and climate-resilient platform. Acting as scientific coordinator for the CMCC Foundation and co-leader of WP T2.

- **Copernicus Climate Change Service Sectoral Information System "Disaster Risk Reduction"** (2019-2021). He acts as Service Manager. The Contract is aimed at developing datasets and applications that exploit the Climate Data Store (CDS) database on risk reduction issues associated with rain-induced phenomena (landslides, pluvial and fluvial floods) https://teacher.apps.vokas.si/home

- **Copernicus Climate Change Service Demo Case "Soil erosion"** (2019-2020). He acted as Service Manager. The Contract is aimed at developing applications and datasets that demonstrate the potential of the Climate Data Store in the study of soil erosion phenomena. The case study is the Italian territory

- **Principal Investigator for RESTORE (Ridurre l'erosione del suolo tramite buone pratiche di gestione)** Project funded by Rural Development Plan (2020-2024) for Campania Region. The Project was targeted to increase the awareness about the soil erosion in a climate change perspective and the associated adaptation measures (https://www.progettorestore.cloud/)

-**ACQUAOUNT PRIMA PROJECT (2021-2024). Adapting to Climate change by QUantifying optimal Allocation of water resOUrces and socio-ecoNomic inTerlinkages.** The ACQUAOUNT project aims to improve IWRM and sustainable irrigation through the deployment of innovative tools, smart water services and solutions, for public and private use, while contributing to climate resilience. He acts as Leader for Work Package "Decision Support Tool"

- **SCIENTIFIC COORDINATOR Fondazione IFAB (International Foundation Big Data and Artificial Intelligence for Human Development ; https://www.ifabfoundation.org/it/).** The Contract aims to develop an integrated index for the characterization of weather-induced events hazard; it acts as Scientific Coordinator for CMCC Foundation. European Extreme Events Climate Index (E³CI) is an "index of indices", i.e. it is the synthesis of five components related to different atmospheric dynamics: heat waves, cold waves, drought phenomena, extreme precipitation, extreme winds. The Index can be first consulted on the IFAB website - www.ifabfoundation.org/e3ci/, which hosts a dashboard for the visualization of the various components through synthetic maps and graphs. For expert users the raw data can be easily downloaded as text files from the platform developed by CMCC: Dataclime - e3ci.dataclime.com.

Horizon Europe "The HuT" The Human-Tech Nexus - Building a Safe Haven to cope with Climate Extremes . He acts as Deputy Coordinator, Demonstration Leader for Monti Lattari and Work Package Leader for "Science and Technology" (2022-2026)

Life Integrated Project "ClimaxPo" (started in February 2023). He acts as Leader for Work Package on Water Infrastructure where non-structural protection measures to deal with heavy rainfall events and coastal floodings

HaMMon (Hazard Mapping and vulnerability Monitoring) Project funded by exploiting Innovation Funds available in ICSC Centro Nazionale di Ricerca in HPC, Big data and Quantum Computing; he acts as Work Package Leader for WP3 "Seasonal prediction and weather generator" and Task Leader for T4.3 "Development of specific vulnerability curves" (2023-2025)

He has been involved in **H2020 OPERANDUM** (https://www.operandum-project.eu/). Specifically, he collaborates on pilot areas (OAL Open Air Laboratories) concerning slope stability in the Austrian Tyrol area and river banks of the Panaro river. In both cases, the effect of climate change and the potential implementation of Nature Based Solutions is evaluated.

Co-leader of Factsheet on Built Environment in European Climate Risk Assessment (EUCRA)

Scientific advisor on geo-hydrological risk fand urban settlements for National Adaptation Plan

He obtained National Scientific Qualification as Assistant Professor for ICAR/07 08/B1 scientific sector (Geotechnical engineering)

Panel Expert for EU-Level Technical Guidance on adapting buildings to climate change

Scientific advisor on geo-hydrological risk for SNACC - Elements for the development of the National Strategy for Adaptation to Climate Change

Scientific advisor for EEA for the report "Climate change adaptation and disaster risk reduction in Europe Synergies for the knowledge base and policies" (2017)

Tutor at the University of Campania for the courses "Geotechnical Engineering Basics" and "Slope Stability" (Prof. Picarelli and Comegna, respectively).

Invited speaker for several international conferences (International Probabilistic Workshop [Guimaraes May 2024], Multiscale analysis of slope under climate change [Barcelona 2019 http://congress.cimne.com/musloc2019/frontal/default.asp], ISOC2019 https://isoc2019.com/ [Figueira da Foz September 2019], JTC-1 JTC1 Workshop. Advances in Landslide Understanding https://issmge.org/events/jtc1-workshop2017 [Barcelona, 2017])

Since 2018, he has been a convener in the EGU General Assembly and World Landslide Forum for session on the topics of slope stability, soil erosion, and climate change

Foreign Expert at CRAES Chinese Research Academy of Environmental Sciences (Beijing, China November 2013) sui temi della stabilità dei pendii e misure di protezione (grey, green, soft)

Editor for Landslides Journal (Springer)

Guest Editor for WATER and GEOSCIENCES MDPI

Adjunct Professor up to 2017 for the course "*Climate Change and related impacts*" at the Università della Campania "L.Vanvitelli"

He supported the development of thesis works on Geotechnics and soil-atmosphere interaction at different Italian universities: Università "Federico II" (Pagano), Campania (Prof.Comegna), Politecnico di Bari (Prof. Cotecchia), Roma Tre (Prof.Cutini)

01/11/2011–31/03/2012	**Researcher**

Università di Napoli "Federico II", Napoli

research grant on "Stability of artificial and natural slopes under static and seismic conditions".

The activities carried out are essentially based on the study of soil-atmosphere interaction for the evaluation of the conditions for the triggering of landslides in pyroclastic soils both through the physical model developed during the three years of PhD and through numerical modeling of the case history of Nocera Inferiore (March 4, 2005). Specifically, the activities have focused on the back-analysis of the event using tools and modeling approaches of different complexity. In particular, the effect of the approach implemented for the estimation of the evapotranspiration component (decoupled, thermo-hydraulic coupled) has been evaluated. Analyses were conducted using the GeoSlope modeling suite (Seep/W, Vadose/W, Slope/W).

01/05/2011–30/06/2011	**Researcher**

Università di Napoli "Federico II", Napoli

The collaboration took place within the project SAFELAND funded by the European Community (Seventh Framework Programme).

A contribution has been prepared on two topics:

review about physically based models for the prediction of landslide phenomena, the calibration of these and the evaluation of some characteristic elements such as the dependence of the response of these on the DEM resolution or the implemented algorithm for the direction of runoff flows;

commercial models or models developed for research purposes only for slope-scale prediction of landslide phenomena.

15/05/2007–01/11/2007	**Researcher**	

Centro Euromediterraneo per i Cambiamenti Climatici
via Maiorise, 81043 Capua (CE) (Italy)

project contract

 The main topics of the research: - study of simulation models of interaction between soil and atmosphere used in meteorology - numerical analysis for the determination of conditions at the soil-atmosphere interface using the finite difference code TERRA-LM (Fortran 90); the code is currently used by the COSMO consortium (Consortium for Small-Scale Modeling) in the operational prediction of weather conditions; the consortium is composed of the national weather services of Italy, Germany, Russia, Romania, Switzerland and Greece.

EDUCATION

01/11/2007–31/10/2010	**PhD**	EQF level 6

Università di Napoli "Federico II"
Piazzale Tecchio, 80, 80125 Napoli (Italy)

scholarship winner

Sistemi di allarme per colate rapide in terreni piroclastici: elaborazione di modelli previsionali

Supervisor: Prof.Ing.Luca Pagano

This thesis develops some original approaches for the early prediction of landslides, to be used within warning systems aimed at risk reduction. The work first frames the problem, describing the main case-histories that the literature delivers on the topic. Then it illustrates the mathematical approaches suitable to simulate the interaction between soil and atmosphere. It then describes an experimental apparatus designed and built to study under sufficiently controlled conditions the interaction between soil and atmosphere and to derive the parameters of the chosen models. Finally, two approaches for early prediction of warning systems are proposed. Both are verified through the interpretation of the best documented case-history, the Nocera Inferiore 2005 case-history.

   Main courses attended during the three-year period :

- Constitutive modeling tenuto byProf. Miur Wood
- Foundations by Prof. Alessandro Mandolini
- Plaxis code by Dr.Ing.Martino Leoni.
- Vaisala Weather Stations: installation and mantainaince (Dr. Mariano) at CIRA offices
- Fundamentals of Atmospheric Modeling provided by ARPA-EMR researchers at ARPAC (Agenzia Regionale per la Protezione Ambientale-Campania) seat
- Slope stability by Prof.Urciuoli
- Numerical modelling by Prof.D'Acunto

During the three years, in the framework of an agreement between the University of Naples "Federico II" and Autostrade Meridionali, he worked on the development of early warning approaches and methods for the interpretation of the effects of precipitation on the stability of the slope facing the A3 Napoli-Salerno freeway;

He supported the teaching activities within the course "Operation and Management of Geotechnical Works".

15/09/1999–21/03/2007	**Degree Civil Engineering for Sustainable Development**	5A

Università di Napoli "Federico II"
Piazzale Tecchio, 80, 80125 Napoli (Italy)

110/110 cum laude

Thesis on "Modeling of infiltration processes in partially saturated soils following storm events"

Supervisor: Prof.Ing.Luca Pagano

the three areas of competence are

- structural

(fundamentals of the discipline, Eurocodes 1-2-3-4-8)

- hydraulics

(fundamentals of the discipline, aqueducts, urban drainage network, drinking water systems and wastewater disposal)

- geotechnics

(fundamentals of the discipline, site and laboratory tests, retaining structures, constitutive modeling of the behavior of coarse and fine grained soils)

| 15/09/1994–07/1999 | Liceo Classico | 4A |

Liceo "Antonio Genovesi"
Piazza del Gesù, 1, 80100 Napoli (Italy)

100/100 cum laude

study of the humanities:

Latin and Greek language and literature

history and philosophy

Italian literature

SKILLS

Mother tongue Italian

Other

understanding		speaking		written
Listening	Reading	Spoken interaction	Spoken production	
B2	C1	B2	B2	C1

English row: English

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication

excellent ability to work in a team;

good ability to work under complex conditions

Organizational and management

excellent ability to organize work:

adherence to established deadlines

respect for authority

ability to share commitments with colleagues and employees ☐

Professional skills

excellent skills :

in FEM and FDM numerical modeling;

in programming and management of data acquisition systems (e.g. Campbell datalogger, VAISALA);

sensors for the determination of the hydraulic and thermal balance between soil and atmosphere

(tensiometers, TDR probes, soil temperature sensors, heat plate, radiometers, traditional meteorological sensors)

good competence in the use and maintenance of load cell weighing systems

various laboratory experiences (e.g. calibration of TDR instruments, hydraulic behavior of capillary barriers)

Computer skills

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excellent knowledge of :

Office suite

Geo-studio suite (SEEP, SLOPE, VADOSE)

Comsol

Autocad

R

good knowledge of

Fortran 90

Unix

Matlab

Additional information

Peer reviewed articles

- L. Coppola, A. Reder, G. Rianna, A. Tarantino, L. Pagano (2024) Effects of Wooden Embers Cover on thermo-hydrological response of silty volcanic cover and implications to post-wildfire slope stability, Engineering Geology, Volume 341,2024, 107724, ISSN 0013-7952, https://doi.org/10.1016/j.enggeo.2024.107724
- Bonfante, A., Monaco, E., Vitale, A., Barbato, G., Villani, V., Mercogliano, P., Rianna, G., Mileti, F. A., Manna, P., & Terribile, F. (2024). A geospatial decision support system to support policy implementation on climate change in EU. Land Degradation & Development, 35(6), 2046–2057. https://doi.org/10.1002/ldr.5042
- Comegna, L., Mandolini, A., Manna, D. et al. Weather induced post failure kinematics of a highway embankment founded on a marly sandstone slope. Sci Rep 13, 21808 (2023). https://doi.org/10.1038/s41598-023-49181-3
- Rianna G., Reder A., Sousa M.L., Dimova S.2023, Climate Services, Volume 30, April 2023, 100391, DOI: https://doi.org/10.1016/j.cliser.2023.100391
- Rianna, G., Reder, A. & Pagano, L. From empirically to physically based early warning predictions of rainfall-induced landslides in silty volcanic soils: the Lattari Mountains case study. Bull Eng Geol Environ 82, 223 (2023). https://doi.org/10.1007/s10064-023-03228-x
- R. Padulano, M. Santini, M. Mancini, M. Stojiljkovic, G. Rianna, Monthly to seasonal rainfall erosivity over Italy: Current assessment by empirical model and future projections by EURO-CORDEX ensemble, CATENA, Volume 223, 2023,106943,ISSN 0341-8162, https://doi.org/10.1016/j.catena.2023.106943.
- E. Bastidas-Arteaga, G. Rianna, H. Gervasio, M. Nogal, Multi-region lifetime assessment of reinforced concrete structures subjected to carbonation and climate change, Structures, Volume 45, 2022, Pages 886-899, ISSN 2352-0124, https://doi.org/10.1016/j.istruc.2022.09.061.
- Rianna G., Comegna L., Picarelli L., Urciuoli G., Reder A. A simplified procedure to assess the effects of climate change on landslide hazard in a small area of the Southern Apennines, in Italy. Accepted for Natural Hazards DOI :10.1007/s11069-022-05656-6.

- Pota, M., Pecoraro, G., Rianna, G. et al. Machine learning for the definition of landslide alert models: a case study in Campania region, Italy. Discov Artif Intell 2, 15 (2022). https://doi.org/10.1007/s44163-022-00033-5

- Padulano, R.; Costabile, P.; Rianna, G.; Costanzo, C.; Mercogliano, P.; Del Giudice, G. Comparing Different Modelling Strategies for the Estimation of Climate Change Effects on Urban Pluvial Flooding. Environ. Sci. Proc. 2022, 21, 5. https://doi.org/10.3390/environsciproc202202100

- Arthur H. Essenfelder, Stefano Bagli, Jaroslav Mysiak, Jeremy S. Pal, Paola Mercogliano, Alfredo Reder, Guido Rianna, Paolo Mazzoli, Davide Broccoli, and Valerio Luzzi Probabilistic Assessment of Pluvial Flood Risk across 20 European Cities: A Demonstrator of the Copernicus Disaster Risk Reduction Service for Pluvial Flood Risk in Urban Areas Water Economics and Policy https://doi.org/10.1142/S2382624X22400070

- Zieher, T., Gallotti, G., Rianna, G. et al. Exploring the effects of climate change on the water balance of a continuously moving deep-seated landslide. Nat Hazards (2022). https://doi.org/10.1007/s11069-022-05558-7

- A. Reder, M. Raffa, R. Padulano, G. Rianna, P. Mercogliano, Characterizing extreme values of precipitation at very high resolution: An experiment over twenty European cities, Weather and Climate Extremes, Volume 35,2022, 100407,ISSN 2212-0947, https://doi.org/10.1016/j.wace.2022.100407.

- Padulano R., Rianna G., Costabile, P., Costanzo, C., Del Giudice, G., Mercogliano P. Propagation of variability in climate projections within urban flood modelling: A multi-purpose impact analysis 2021, Journal of Hydrology, 602, 126756, DOI: https://doi.org/10.1016/j.jhydrol.2021.126756,

- Safwan M, Hussien M, Alsafadi K, Mokhtar A, Rianna G, Kbibo I, Barkat M, Talukdar M, Szabó S, Harsanyi E, Assessing the WEPP model performance for predicting daily runoff in three terrestrial ecosystems in western Syria, Heliyon,Volume 7, Issue 42021, https://doi.org/10.1016/j.heliyon.2021.e06764.

- Cutini, M., Marzialetti, F., Barbato, G. et al. Bioclimatic pattern in a Mediterranean mountain area: assessment from a classification approach on a regional scale. Int J Biometeorol (2021). https://doi.org/10.1007/s00484-021-02089-x

- Padulano R, Rianna G., Santini M., Datasets and approaches for the estimation of rainfall erosivity over Italy: A comprehensive comparison study and a new method, Journal of Hydrology: Regional Studies,Volume 34,2021,100788,ISSN 2214-5818, https://doi.org/10.1016/j.ejrh.2021.100788.

- Reder, A.; Rianna, G. Exploring ERA5 reanalysis potentialities for supporting landslide investigations: A test case from Campania Region (Southern Italy). Landslides 2021, DOI: 10.1007/s10346-020-01610-4

- Padulano, R., Lama, G. F. C., Rianna, G., Santini, M., Mancini, M., & Stojiljkovic, M. (2020) "Future rainfall scenarios for the assessment of water availability in Italy". In 2020 IEEE International Workshop on Metrology for Agriculture and Forestry (MetroAgriFor) (pp. 241-246). DOI:10.1109/MetroAgriFor50201.2020.9277599

- Coppola, L.; Reder, A.; Rianna, G.; Pagano, L. The Role of Cover Thickness in the Rainfall-Induced Landslides of Nocera Inferiore 2005. *Geosciences* 2020, *10*, 228.

- Pirone, M.; Reder, A.; Rianna, G.; Pagano, L.; Nicotera, M.V.; Urciuoli, G. Laboratory and Physical Prototype Tests for the Investigation of Hydraulic Hysteresis of Pyroclastic Soils. Geosciences 2020, 10, 320.

- Adinolfi M., Rianna G., Mercogliano P., Maiorano R.M.S., and Aversa S. Behaviour of energy piles under climate-change scenarios: a case study in Southern Italy Environmental Geotechnics https://doi.org/10.1680/jenge.19.00093

- Rizzo, A.; Banovec, P.; Cilenšek, A.; Rianna, G.; Santini, M. An Innovative Tool for the Management of the Surface Drinking Water Resources at European Level: GOWARE—Transnational Guide Towards an Optimal WAter REgime. Water 2020, 12, 370.

- G.Rianna, L.Comegna, L.Pagano, L.Picarelli, A.Reder The Role of Hydraulic Hysteresis on the Hydrological Response of Pyroclastic Silty Covers March 2019 Water 11(3):628 DOI: 10.3390/w11030628

- ▪ R.Padulano, A.Reder G.Rianna An ensemble approach for the analysis of extreme rainfall under

climate change in Naples (Italy) March 2019 Hydrological Processes DOI: 10.1002/hyp.13449

- ▪ L.Pagano, A. Reder, G. Rianna "The effects of vegetation on the hydrological response of silty volcanic covers" Canadian Geotechnical Journal https://doi.org/10.1139/cgj-2017-0625

- ▪ G. Rianna, and L. Pagano, Reder, A.. 2018 Estimating actual and potential bare soil evaporation from silty pyroclastic soils: Towards improved landslide prediction Journal of Hydrology Volume 562, July 2018, Pages 193-209 10.1016/j.jhydrol.2018.05.005

- ▪ A. Reder, M. Iturbide, S. Herrera, G. Rianna, P. Mercogliano, J.M. Gutiérrez (2018). Assessing variations of extreme indices inducing weather-hazards on critical infrastructures over Europe—the INTACT framework. Climatic Change. DOI: 10.1007/s10584-018-2184-4

- ▪ A. Reder, G. Rianna, P. Mercogliano, S. Castellari (2018). Parametric investigation of Urban Heat Island dynamics through TEB 1D model for a case study: assessment of adaptation measures. Sustainable Cities and Society 10.1016/j.scs.2018.03.023

- ▪ Reder, A., G. Rianna, and L. Pagano. 2018. "Physically Based Approaches Incorporating Evaporation for Early Warning Predictions of Rainfall-Induced Landslides." Natural Hazards and Earth System Sciences 18(2) doi.org/10.5194/nhess-18-613-2018 .

- ▪ Gariano, S.L., G. Rianna, O. Petrucci, and F. Guzzetti. 2017. "Assessing Future Changes in the Occurrence of Rainfall-Induced Landslides at a Regional Scale." Science of the Total Environment 596–597 (2017) 417–426 10.1016/j.scitotenv.2017.03.103

- ▪ Gariano, S.L., Petrucci O., Rianna G., Santini M., Guzzetti F. 2017. "Impacts of Past and Future Land Changes on Landslides in Southern Italy." Regional Environmental Change DOI 10.1007/s10113-017-1210-9

- ▪ Reder, A., Pagano, L., Picarelli, L., & Rianna, G. (2016). The role of the lowermost boundary conditions in the hydrological response of shallow sloping covers. Landslides. http://doi.org/10.1007/s10346-016-0753-z

- ▪ Reder A., Rianna G., Vezzoli R., Mercogliano P., Assessment of possible impacts of climate change on the hydrological regimes of different regions in China Advances in Climate Change Research doi:10.1016/j.accre.2016.09.002

- ▪ Rianna G., Comegna L., Mercogliano P., Picarelli L. Potential Effects of Climate Changes on soil-atmosphere interaction and landslide hazard; Natural Hazards (DOI :10.1007/s11069-016-2481-z)

- ▪ Ciervo , F., Rianna, G., Papa, M. Mercogliano, P. Effects of climate change on shallow-landslides in a small coastal catchment in Southern Italy; Landslides (DOI: 10.1007/s10346-016-0743-1)

- ▪ Reder A., Rianna G., Pagano L. Some aspects of water and energy budget of a pyroclastic cover accepted for publication in Environmental Geotechnics http://dx.doi.org/10.1680/jenge.15.00076

- ▪ Comegna, L.; Rianna, G; Su-Gon Lee; Picarelli, (2016)"Influence of the wetting path on the mechanical response of shallow unsaturated sloping covers," Comput. Geotech., 73(3):164-169.

- ▪ Bucchignani, E., Mercogliano, P., Rianna, G. and Panitz, H.-J. (2016), Analysis of ERA-Interim-driven COSMO-CLM simulations over Middle East – North Africa domain at different spatial resolutions. Int. J. Climatol., 36: 3346–3369. doi:10.1002/joc.4559

- ▪ Rianna G., Iodice L., Fariello L.,Guarino F., Mercogliano P. (2016) Stima del potenziale effetto dei Cambiamenti Climatici sui fenomeni di dissesto idro-geologici: il caso studio della Campania Centrale -Assessment about the potential effect of Climate Changes on geo-hydrological phenomena: Central Campania case study; Ingegneria dell'Ambiente volume 3 (n°1)

- ▪ V. Villani, G. Rianna, P. Mercogliano, A. L. Zollo, and P. Schiano, "Statistical approaches versus weather generator to downscale RCM outputs to point scale: A comparison of performances," J. Urban Environ. Eng., vol. 8, no. 2, pp. 142–154, 2014.

- ▪ Reder A., Rianna G. and Pagano L. (2014) - Prediction of suction evolution of silty pyroclastic covers in flume tests and field monitoring – Procedia Earth and Planetary Science vol 9, pp 214-221, DOI: 10.1016/j.proeps.2014.06.024

- ▪ Reder A., Rianna G. and Pagano L. (2014) - Calibration of TDRs and heat dissipation probes in pyroclastic soils - ProcediaEarth and Planetary Science vol 9, pp 171-179, DOI:10.1016/j.proeps.2014.06.016

- ▪ Rianna G., Zollo A.L., Tommasi P, Paciucci M., Comegna L. and Mercogliano P. *(2014)* - Evaluation

of the effects of climate changes on landslide activity ofOrvieto clayey slope - Procedia Earthand Planetary Science vol 9, pp 54-63, DOI: 10.1016/j.proeps.2014.06.017

▪ Pagano L., Reder A. and Rianna G. (2014) - Experiments to investigate the hydrological behaviour of volcanic covers - Procedia Earth and Planetary Science vol 9,pp 14-22, DOI:10.1016/j.proeps.2014.06.013

▪ RiannaG., Pagano L. and Urciuoli G. (2014) - Rainfall patterns triggering shallow flowslides in pyroclastic soils - Engineering Geology Volume 174:22-35 http://dx.doi.org/10.1016/j.enggeo.2014.03.004

▪ RiannaG., Pagano L., Urciuoli G. (2014) - Investigation of soil-atmosphere interaction in pyroclastic soils - Journalof Hydrology Volume 510:480-492 http://dx.doi.org/10.1016/j.jhydrol.2013.12.042

▪ Boldini D., Comegna L., Rianna G., Tommasi P. (2014) - Evapotranspiration estimate in a clayey slope affected by landslidephenomena - Rivista Italiana diGeotecnica, Special Issue on Slope-Atmosphere Interaction – Anno XLVIII – n.1,pp.21-33

▪ Pagano L., Reder A., Rianna G. (2014) -Infiltration and evaporation processes in pyroclastic soils illustrated throughthe selection of rappresentative events - Rivista Italiana di Geotecnica, Special Issue on Slope- AtmosphereInteraction Anno XLVIII – n.1 pp.62-76

▪ Rianna G., Pagano L., Urciuoli G. (2012). A Physical Model to Investigate the Influence of Atmospheric Variables on Soil Suction in Pyroclastic Soils Unsaturated Soils. Research and Applications vol.2 pp 221-227

▪ Pagano L., Picarelli L., Rianna G., Urciuoli G. (2010) - A simple numerical procedure for timely prediction of precipitation induced landslides in unsaturated pyroclastic soils - Landslides vol.7, pp. 273-289

Conference Proceedings

▪ Rianna G., Reder A., Villani V., Mercogliano P. (2017) Variations in landslide frequency due to climate changes through high resolution Euro-CORDEX Ensemble World Landslide Forum 4 M.Milkos et al. (eds.) Advancing Culture of Living with Landslides DOI 10.1007/978-3-319-53485_5_27

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