Chiara Lepore

PERSONAL INFORMATION

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The Ralph M. Parsons Laboratory
Massachusetts Institute of Technology
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Cambridge, MA 02139

RESEARCH AND WORK EXPERIENCE

May 2008 to Present
Postdoctoral Associate, **Massachusetts Institute of Technology - The Ralph M. Parsons Laboratory – USA.**
Landslide hazard assessment of Puerto Rico; analysis of methods for the definition of landslides hazard assessment, hydrological study of the area, rainfall climate study and modeling.
Supervisor - Rafael L. Bras, Dean of The Henry Samueli School of Engineering University of California, Irvine, rlbras@uci.edu

December 2007 - March 2008
Research Fellow, Instituto do Mar - Portugal.
Characterization of temporal and spatial variability of rainfall for the Madeira and Azores Islands; extended and detailed analysis of extremes of precipitation for Portugal mainland and islands for the definition of the rainfall hazard in the area.
Supervisor - Prof. Isabel Pedroso Lima, University of Coimbra, Portugal, iplima@mail.esac.pt

February - May 2006
Consultant, C.U.G.R.I. (Centro Universitario per la Previsione e Prevenzione Grandi Rischi) - Italy.
Definition of the hydrological study of the basin of the Occhito Dam, Molise – Italy. Water management, hydrological analyses, extreme precipitation and discharge analyses, flood hazard assessment of the area.

2005 - 2006
Teaching Assistant
Tutoring for the classes of Hydraulic structures I, Water and drainage systems.
Supervisor - Prof. Paolo Villani, University of Salerno, Italy, p.villani@unisa.it

Novembre 2004
Italian registration to the profession of civil engineer, Final evaluation: 54/60

EDUCATION

2004 - 2007
Ph.D. University of Salerno, Salerno - Italy
Area - Civil and Environmental Engineering - Hydrology
Dissertation - Probabilistic modeling of rainfall extremes
Advisor - Prof. Pierluigi Furcolo, p.furcolo@unisa.it

Analysis and modeling of the upper extremes of the rainfall process. development of new tools for IDF (intensity duration frequency) curve modeling.

2006 - 2007
Ph.D Visiting Student and Visiting Scientist at MIT, Boston - USA
Area - Civil and Environmental Engineering - Hydrology
Advisor - Prof. Daniele Veneziano, venezian@mit.edu

1998 - 2004
5 year Degree - Laurea in Ingegneria Civile per l'Ambiente ed il Territorio - indirizzo Difesa del Suolo, University of Salerno, Salerno - Italy
Area - Civil and Environmental Engineering
Final evaluation - 110/110 cum laude
Dissertation - Scaling analysis of hydrological processes (Analisi di Scala di alcuni fenomeni idrologici)
Advisors - Prof. Paolo Villani, p.villani@unisa.it ; Prof. Pierluigi Furcolo, p.furcolo@unisa.it

Introduction to the scaling approach and its use in the description of hydrological processes; analysis, modeling and definition of scaling laws for rainfall and runoff.

PUBLICATIONS

D. Veneziano, A. Langousis, **C. Lepore** (2009). *New Asymptotic and Non-asymptotic Results on Rainfall Maxima from Multifractal Theory*, Water Resour. Res, *in press*.

D. Veneziano, **C. Lepore**, A. Langousis, P. Furcolo (2007). *Marginal Methods of IDF Estimation in Scaling and Non-Scaling Rainfall*, Water Resour. Res., 43, W10418, doi:10.1029/2007WR006040.

A. Langousis, D. Veneziano, **C. Lepore**, P. Furcolo (2007). *Multifractal Rainfall Extremes: Theoretical Analysis and Practical Estimation*, Chaos, Solitons & Fractals, doi:10.1016/j.chaos.2007.06.004.

C. Lepore, L. Procaccini, P. Villani (2006). *Ricostruzione delle portate naturali liquide e solide e loro uso ai fini della gestione di un invas* . Proceedings of XXX Convegno di Idraulica e Costruzioni Idrauliche, Rome, 11-16 September 2006.

Probabilistic modelling of rainfall extremes - PhD thesis, November 2007.

Scaling analysis of Hydrological processes (Analisi di Scala di alcuni fenomeni idrologici)- 5 year degree Thesis, May 2004.

C. Lepore, S. Kamal, E. Arnone, L.V. Noto, P. Shanahan, R.L. Bras (2009), *Rainfall Induced Landslides in Puerto Rico*. Eos Trans. AGU, Fall Meet. Suppl., Abstract NH44A-06. (ORAL SOLICITED).

D. Veneziano, A. Langousis, **C. Lepore** (2009), *Annual Rainfall Maxima: Theoretical Estimation of the GEV Shape Parameter k Using Multifractal Models.* Eos Trans. AGU, Fall Meet. Suppl., Abstract H31D-0818. (POSTER).

C. Lepore, S. Kamal, E. Arnone, L.V. Noto, P. Shanahan, R.L. Bras (2009), *Towards the application of a distributed hydrology model as a tool for rainfall induced landslides modeling in Puerto Rico*. NASA PMM Science meeting, October 2009. (POSTER).

E. Arnone, L.V. Noto, **C. Lepore**, R.L. Bras (2009), *A spatially distributed and physically based tool to modelling the rainfall-triggered landslides*, 11th Plinius Conference on Mediterranean Storms - EGU Topical Conference Series, Barcelona, Spain (2009). (POSTER).

D. Veneziano, **C. Lepore**, A. Langousis (2009), *Annual Rainfall Maxima: Practical Estimation based on Large Deviation results*, European Geosciences Union, Vienna, Austria, April 2009. (POSTER).

D. Veneziano, A. Langousis, **C. Lepore** (2009), *Annual Rainfall Maxima: Large-Deviation Alternative to Extreme-Value and Extreme-Excess Methods*, European Geosciences Union, Vienna, Austria, April 2009. (ORAL-SOLICITED).

C. Lepore, S. Kamal, E. Bono, L.V. Noto, P. Shanahan, R.L. Bras (2008), *Data Resolution Effects on Landslides Hazard and Susceptibility Assessment of Puerto Rico*. Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract H51F-0882. (POSTER).

C. Lepore, E. Bono, V. Noto and R.L. Bras (2008). *Rainfall Induced Landslides Susceptibility and Hazard Assessment in Puerto Rico*. NASA PMM Science meeting, August 2008. (POSTER).

D. Veneziano, **C. Lepore**, M.I.P. de Lima, A. Langousis, J.L.M.P. de Lima (2008), *Comparison of IDF estimation methods at selected locations of mainland Portugal*. Geophysical Research Abstracts, EGU General Assembly Proceedings, Abstract EGU2008-A-05708. (POSTER).

C. Lepore, M.I.P. de Lima, D. Veneziano, A. Langousis and J.L.M.P. de Lima (2008), *Statistical characterization of extreme rainfall climate along the future high-speed rail track in Portugal.* Geophysical Research Abstracts, EGU General Assembly Proceedings, Abstract EGU2008-A-05703. (POSTER).

C. Lepore, D. Veneziano, A. Langousis (2008), *Lognormal Upper Tail of Rainfall Intensity and PoT Values: Implications on the IDF Curves*. Geophysical Research Abstracts, EGU General Assembly Proceedings, Abstract EGU2008-A-04962. (POSTER)

D. Veneziano, **C. Lepore**, A. Langousis and P. Furcolo (2007), *Comparison of IDF Methods*,9th International precipitation Conference. 12-14 November 2007, Paris. (ORAL).

D. Veneziano, **C. Lepore**, A. Langousis and P. Furcolo (2007), *Scaling, Partial-Scaling and Classical Methods of IDF Curve Estimation*. Geophysical Research Abstracts, EGU General Assembly Proceedings, Abstract EGU2007-A-04686. (POSTER).

A. Langousis, D. Veneziano, **C. Lepore**, P. Furcolo (2007), *Simple IDF Estimation Under Multifractality*. Geophysical Research Abstracts, EGU General Assembly Proceedings, Abstract EGU2008-A-05708. (POSTER).

C. Lepore, P. Furcolo (2006), *Scaling Properties of the IDF curves and characteristics of the Rainfall Process: Investigation and Modelling*. Geophysical Research Abstracts, EGU General Assembly Proceedings, Abstract EGU2006-A-09316. (POSTER).

LANGUAGE SKILLS

Mother tongue: Italian
Fluency: English [First Certificate of English Examination (British Council), 2006: TOEFL examination, 1998]

COMPUTER LITERACY

Office tools: excellent knowledge of Windows XP, Vista, Office, web search
Programming: excellent knowledge of MatLAB, good knowledge of R and GIS scripting (aml), basic FORTRAN and C++.
Other Software: ArcGIS, Autocad, Surfer, Macromedia, Dreamweaver, Adobe, Photoshop.

FURTHER EDUCATION

May 2006: *Forecast in dynamic phenomena: methodological aspects and applications*, Short course, Società Italiana di Statistica, University of Salerno, Italy.
September 2005: *Soil Hydrology – Advanced Course*, .University of Napoli Federico II, Italy.
July 2005: *Recent Advances in Hydrologic Sciences*, lectures by Prof. R.L. Bras, University of Palermo, Italy.

OTHER ATTITUDES, HOBBIES AND ACTIVITIES

My southern Italian origins speak out in my character: socially open and always interested in engaging and making new connections. The more I travel for work, the more I come to appreciate the importance of travels and moving around for my personal growth. Immersing myself in different countries' cultures is also essential to acquire a more complete understanding of what my work can "practically" do. The European Career Fair at MIT (https://www.euro-career.com), allowed me to work with a variety of people with different cultural and educational backgrounds, character and age, balancing leadership and teamwork, and to combine professionalism and friendship

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