



PERSONAL INFORMATION

Marco Dionigi



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Date of birth 28/09/1977 | Nationality Italian

Current Position: Post Doc Research Grant Holder

RESEARCH INTERESTS

Summary

My research activity mainly regards streamflow measurements, also with innovative methodologies, for eco – hydrological and hydraulic applications.

I am training in the use of specific instrumentation with ADV (Acoustic Doppler Velocimeter) technology for river flow measurements.

I've been involved in numerous research projects: aiming to unravel the interactions between carbon and water cycles as to understand the modulating effect of the vegetation on water-supply deficit and to predict flood wave and hydraulic risk assessment.

To this end I carry out several experimental outdoor activities aimed at acquiring samples for water isotope analysis in different hydrological compartments (streams, groundwater, runoff, rainwater); disturbed and undisturbed soil samples for the determination of physical and hydraulic parameters (sieved fraction, hydraulic conductivity) and the installation of instruments for the determination of soil moisture and rainfall in agroecosystems forests.

WORK EXPERIENCE

From July 2024 to date

Researcher (Ricercatore III Livello)

Non-permanent position as Researcher (III level) at Consiglio Nazionale delle Ricerche (CNR) - Istituto di Ricerca per la Protezione Idrogeologica (IRPI).

Scientific research activity in the development of operational systems for hydrological monitoring and forecasting of flood events using hydrological models and data on key hydrometeorological variables collected from ground-based sensors and satellite observations".

From 17/01/2022 to June 2024

Research Fellow at CNR – IRPI

National Research Council (CNR) - Institute for Geo-Hydrological Protection (IRPI).

Research activity in the topic related to "Estimation and monitoring of river flow, including with innovative methodologies, in support of hydrological and hydraulic applications; monitoring and analysis of vulnerability of embankments, monitoring and estimation of under-canopy interception and soil moisture soil at forest sites, monitoring by remote techniques using drones".

From 2012 to 2021

Employed for the company Anseme spa, Cesena, Italy

- Crop specialist and technical for the production of hybrid vegetable seeds

2011

Company CRE fotovoltaico Srl – Foligno, Umbria, Italy

- Data processing - organizing and cataloging regulations - Drafting informational materials

From October 2008 to January 2009

Studio Agronomi Associati Perugia. Via Cesare Balbo 3 Perugia, Italy

- On-screen photo interpretation of agricultural areas of the different land uses and assignment of the corresponding use codes

From May 2007 to September 2007

University of TUSCIA – Department of Geology and Mechanical, Naturalistic and Hydraulic Engineering, Viterbo, Lazio, Italy

- Survey and risk assessment for workers' health, environment and product safety among companies in Umbria

EDUCATION AND TRAINING

- 25/05/2022 **Unmanned Aircraft System (UAS) pilot certificate in open categories A1 - A3**
ENAC (Italian Civil Aviation Authority)
- 17/01/2011 **PhD degree Agricultural Mechanization**
University of TUSCIA, Viterbo, Italy – Faculty of Agriculture
▪ Thesis: Evaluation of the main risk factors and proposal for action for workers' safety in oil mills
- 23/01/2007 **Qualification to practice the profession of Agronomist and Forester**
Federation of agronomists and foresters of Umbria – Order of Perugia
- 07/07/2006 **MA Crop and Environmental Sciences Agricultural Systems (Hons)**
University of Perugia – Faculty of Agriculture
▪ Thesis: Technical and economic analysis for poplar short rotation forestry cultivation.
▪ Mark 110/110 cum laude
- 05/11/2004 **BA Science and Technology of Crops**
University of Perugia – Faculty of Agriculture
▪ Thesis: The role of genetic improvement in organic farming
▪ Mark 107/110

PERSONAL SKILLS

Mother tongue(s)
Other language(s)

Italian					
	UNDERSTANDING		SPOKEN		WRITING
	Listening	Reading	Interaction	Speech	
English	B2	B2	B2	B2	B2

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

NATIONAL AND INTERNATIONAL PROJECTS

Research projects and activity:

FLO-CAMP – CNR IRPI Perugia – from 01/2022 to today (participation)

- River flow measurement using specific instrumentation with ADV (Acoustic Doppler velocimeter) and ADCP (Acoustic Doppler Current Profiler) technologies.
- Acquisition, control, processing and storage of collected data and development of functional relationships between water level and river flow (rating curves)

- Use of geographic information systems (GIS)

WATERSTEM – CNR IRPI Perugia – from 05/2022 to today (participation)

- Estimation of throughfall and soil moisture variability in mountainous Mediterranean catchments and installation of tools for the data acquisition
- samplings for stable isotope analysis of water in different hydrological compartments (streams, groundwater, runoff, rainwater)
- Collection of (disturbed and undisturbed) soil samples for determination of physical and hydraulic parameters (grain composition, hydraulic conductivity)
- Monitoring by remote techniques using drones (UAS – Unmanned Aircraft Systems)

FLOris-MAN – CNR IRPI Perugia – from 06/2022 to today (participation)

- Data acquisition of hydraulic structures in relation to embankment vulnerability

WAFER – CNR IRPI Perugia – from 01/2022 to 01/2023 (participation)

- Data acquisition, sampling and data analysis

Hydro4C – CNR IRPI Perugia – from 09/2023 to today (participation)

- Data acquisition, sampling and data analysis

ACQUACENTRO – CNR IRPI Perugia – from 11/2022 to today (participation)

- Estimating water needs in relation to climate change, with special reference to irrigation needs

St3TART – CNR IRPI Perugia – from 01/2022 to 07/2023 (participation)

- Data acquisition aiming on the validation of satellite measurements and their use as a monitoring tool of the flow

FURTHER INFORMATION**Participation in training courses**

- June 2024 – Theoretical training course: First steps with R: introduction to the language for statistical analysis
- December 2023 – educational workshop: description of forest ecosystems, classification and description of seeds. Più liberi più libri, national exposition of small and medium-sized editors in Rome, Lazio, Italy.
- May 2023 – Theoretical training course. Methods and instruments for environmental sampling. Ecosearch, Montone, Umbria, Italy.
- March 2023 – Training course. Use of thermal camera drones, surveying and image restitution. Droinwork Srl, Perugia, Umbria, Italy.
- June 2022 – practical individual UAS (Unmanned Aircraft System) flight training course held at the Italdron training facility in Terni, Umbria, Italy.
- May 2022 Theoretical training course for UAS (Unmanned Aircraft System) pilot qualification in open categories A1 - A3.
- May 2022 – Theoretical training course for UAS (Unmanned Aircraft System) pilot qualification in open categories A2.
- May 2022 – Training course in the computer lab activity inherent in Information Systems and use of GIS. Course of Ecology and Fundamentals of Ecological Systems. University of Salento, Lecce, Italy.

Memberships

- Italian Hydrological Society since 2022
- European Geoscience Union since 2023

Personal data

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

List of ISI publications

1. Sofia Orteni, Christian Massari, Luca Ciabatta, Corrado Cencetti, **Marco Dionigi**, Ivan Marchesini, Marco Stelluti, Lucio Di Matteo. (2024), Leveraging SMAP soil moisture to identify runoff thresholds on flash flood-prone basins in the Mediterranean Region. *Journal of Hydrometeorology*. (Under revision).
2. Marco Donnini, Augusto Benigni, **Marco Dionigi**, Christian Massari, David, Cappelletti, Roberta Selvaggi, Corrado Cencetti, and Ivan Marchesini. (2024), Hydrology and Atmospheric CO₂ Consumption by Chemical Weathering in a Mediterranean Watershed. *Catena journal of soil science and geomorphology*. (Under revision).
3. Bahmanpouri F., Termini D., Barbetta S., **Dionigi M.**, Moramarco T. (2024), Investigating hydrodynamics and turbulent effects for different flow conditions using spatial complexity metrics. *Journal of Hydrology* 2024. <https://doi.org/10.1016/j.jhydrol.2024.131790>
4. Bahmanpouri F., Termini D., Barbetta S., **Dionigi M.**, Moramarco T. (2023), Significance of hydraulic complexity parameters M1 and M2 based on laboratory and field data. *Hydrology Research* 2023; nh2023089. <https://doi.org/10.2166/nh.2023.089>
5. Porceddu P.R., Rosati L., **Dionigi M.** (2010), Evaluation of temporal variations in moisture and calorific value of vine and olive pruning, – *J. of Ag. Eng. - Riv. di Ing. Agr.*, 4, 9-13.

List of non-ISI publications

1. Porceddu P. R., **Dionigi M.** (2006) – Analisi tecnica ed economica del pioppo S.R.F. *Estimo e Territorio* n. 12, pp 36 – 41.

Conference contributions

1. **Marco Dionigi**, Silvia Barbetta, Augusto Benigni, Domenico De Santis, Lucio Di Matteo, Marco Donnini, Paolo Filippucci, Davide Fronzi, Fabio Guadagnano, Ivan Marchesini, Daniele Penna, Elisabetta Preziosi, Daniela Valigi, Matteo Verdone, and Christian Massari.: SINCZONE: an open-air laboratory for eco-physiological and geo-hydrological monitoring processes in the Sibillini National Park. III° Workshop CNR IRPI, 25 – 27 November, Torino, Italy.
2. **Marco Dionigi**, Bianca Bonaccorsi, Enzo Rizzo, Paola Boldrin, Valeria Giampaolo, Gregory De Martino, Augusto Benigni, Giulia Bossi, Luca Ciabatta, Tommaso Moramarco, and Silvia Barbetta.: Using different monitoring techniques to assess earthen levees' status and vulnerability: preliminary results from the experimental site along the Tatarena stream. III° Workshop CNR IRPI, 25 – 27 November, Torino, Italy.
3. Domenico De Santis, Silvia Barbetta, Stefania Camici, **Marco Dionigi**, Sara Modanesi, Tommaso Moramarco, and Christian Massari.: Toward a multi-model real-time flood forecasting system on the Crati river basin. III° Workshop CNR IRPI, 25 – 27 November, Torino, Italy.
4. **Marco Dionigi**, Paolo Filippucci, Silvia Barbetta, Daniele Penna, Matteo Verdone, Domenico De Santis & Christian Massari.: Comparing Throughfall Variability in Mediterranean Oak and Beech Forests., IEEE MetroAgriFor 2024, Padova, 29-31 Ottobre 2024.
5. **Marco Dionigi**, Paolo Filippucci, Silvia Barbetta, Daniele Penna, Matteo Verdone, Domenico De Santis & Christian Massari.: Variability of throughfall in mediterranean mountain stands: a comparison between oak and beech trees., XXXIX Convegno Nazionale di Idraulica e Costruzioni Idrauliche, Parma, 15-18 Settembre 2024.
6. **Marco Dionigi**, Bianca Bonaccorsi, Enzo Rizzo, Paola Boldrin, Valeria Giampaolo, Gregory De Martino, Augusto Benigni, Giuseppe Tito Aronica, Tommaso Moramarco and Silvia Barbetta.: Assessing the earthen levees' vulnerability through practical procedure and different monitoring techniques: first results for the experimental site along the Tatarena stream., XXXIX Convegno Nazionale di Idraulica e Costruzioni Idrauliche, Parma, 15-18 Settembre 2024. (Submitted).
7. Bianca Bonaccorsi, Tommaso Moramarco, Giuseppe Tito Aronica, **Marco Dionigi** & Silvia Barbetta.: DANTE, database nazionale delle arginature in terra., XXXIX Convegno Nazionale di Idraulica e Costruzioni Idrauliche, Parma, 15-18 Settembre 2024.
8. Farhad Bahmanpouri, Vittoria Dragone, Silvia Barbetta, **Marco Dionigi**, Tommaso Moramarco.: Application of the entropy concept to estimate precipitation rate., XXXIX Convegno Nazionale di Idraulica e Costruzioni Idrauliche, Parma, 15-18 Settembre 2024.
9. Di Matteo Lucio, Donnini Marco, **Dionigi Marco**, Benigni Augusto, Massari Christian, Fronzi Davide, Valigi Daniela, Manucci Alex, Orteni Sofia, Penna Daniele, Margaritelli Giulia, Monte Nunzia, Marchesini Ivan.: Investigating groundwater-surface water interactions to understand hydrogeochemical processes in a carbonate mountain basin in Central Italy., World Groundwater Congress IAH 2024, Davos, Switzerland 8 – 13 Sept 2024.
10. **Dionigi, M.**, Bonaccorsi, B., Rizzo, E., Boldrin, P., Giampaolo, V., De Martino, G., Benigni, A., and Barbetta, S.: Assessing the earthen levees' vulnerability through practical procedure and different monitoring techniques: the experimental site along the Tatarena stream, central Italy., EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-5884, <https://doi.org/10.5194/egusphere-egu24-5884>, 2024.
11. Donnini, M., Marchesini, I., Benigni, A., **Dionigi, M.**, Cappelletti, D. M., Selvaggi, R., and Cencetti, C.: First experiences of correlation between erosion and chemical weathering at basin scale. The case study of Niccone stream (Central Apennines, Italy), EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-5118, <https://doi.org/10.5194/egusphere-egu24-5118>, 2024.
12. **Marco Dionigi**, Matteo Verdone, Daniele Penna, Silvia Barbetta, Christian Massari – Variabilità nei livelli di throughfall tra alberi di quercia e faggio in un bacino montano dell'Appennino centrale. *Le Giornate dell'Idrologia 2023 della Società Idrologica Italiana*. 13 – 15 september 2023, Matera, Italy.
13. **Marco Dionigi**, Marco Stelluti, Christian Massari, Sandro Costantini, Stefano Nodessi Proietti, Silvia Barbetta – Servizio Idrografico della Regione Umbria: strumenti interattivi per la diffusione di dati idro-meteorologici, studi ed analisi a supporto della gestione della risorsa idrica e della valutazione del rischio idraulico. *Le Giornate dell'Idrologia 2023 della Società Idrologica Italiana*. 13 – 15 september 2023, Matera, Italy.
14. **Marco Dionigi**, Silvia Barbetta, Tommaso Moramarco – Distribuzione della velocità e fenomeno del Dip in canali naturali. *Le Giornate dell'Idrologia 2023 della Società Idrologica Italiana*. 13 – 15 september 2023, Matera, Italy.
15. **Marco Dionigi**, Matteo Verdone, Daniele Penna, Silvia Barbetta, Christian Massari – Throughfall variability between oak and beech trees in a mountainous Mediterranean catchment. Workshop CNR IRPI, 3 – 5 July, Rome, Italy.
16. Manca di Villahermosa, F., **Dionigi, M.**, Donnini, M., Fronzi, D., Tazioli, A., Spoloar, A., Turetta, C., Cappelletti, D., Petroselli, C., Bruschi, F., Selvaggi, R., Penna, D., and Massari, C.: Geology controls hydrological regime and spatio-temporal origin of surface and subsurface water in two adjacent mountain catchments in Central Italy, EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023, EGU23-9057, <https://doi.org/10.5194/egusphere-egu23-9057>, 2023.
17. **Dionigi, M.**, Verdone, M., Penna, D., Barbetta, S., and Massari, C.: Throughfall variability between oak and beech trees in a mountainous Mediterranean catchment, EGU General Assembly 2023, Vienna, Austria, 24–28 Apr 2023, EGU23-2433, <https://doi.org/10.5194/egusphere-egu23-2433>, 2023.
18. Marco Stelluti, **Marco Dionigi**, Silvia Barbetta, Christian Massari, Sandro Costantini, Stefano Nodessi Proietti (2022) – Nuovo sistema di diffusione di massa dei dati di monitoraggio idro – pluvio – termometrici della Regione Umbria e Cruscotto operativo del Servizio Idrografico della Regione Umbria. *Le Giornate dell'Idrologia 2022 della Società Idrologica Italiana*. 9 – 11 november 2022, Genova, Italy.

19. Porceddu P. R., **Dionigi M.** (2010) – Evaluation of noise levels in olive mills. International conference: “Work safety and risk prevention in agro – food and forest systems”. 16 – 18 september 2010, Ragusa, Italy
20. Porceddu P. R., Rosati L., **Dionigi M.** (2008) – Risk profiles for workers involved in meat transformation processes. International conference: “Innovation technology to empower safety, health and welfare in agriculture and agro – food systems”. 15 – 17 september 2008, Ragusa, Italy.
21. Porceddu P. R., **Dionigi M.** (2007) – La meccanizzazione per l'utilizzo energetico delle biomasse. Atti del Workshop: “Residui e sottoprodotti organici una risorsa da valorizzare”. 25 october 2007, Foligno, Italy.
22. **Dionigi M.** (2007) – Aspetti tecnici sulla coltivazione del pioppo S.R.F. Atti del Convegno: “Sviluppo Rurale e Agroenergie”. 9 June 2007, Città di Castello, Italy.
23. **Dionigi M.**, Porceddu P. R. (2007) – Il pioppo S.R.F., aspetti tecnici ed economici. Atti del Convegno: “Lo stato della conoscenza sulle biomasse in Umbria” – Impegno formativo della Facoltà di agraria nel settore delle Biomasse. 21 february 2007, Perugia, Italy.
24. Porceddu P. R., Babucci V., **Dionigi M.** (2006) – Confronto tecnico ed economico su diverse possibilità di raccolta delle potature di vite ed olivo. Atti del Convegno: “Esperienze Italiane, Risultati del Progetto COFIN – Filiera Biomassa – Energia in Italia – Politiche locali in atto”. 20 – 21 december 2006, Ancona, Italy.

PERUGIA, 08/11/2024

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