

**ALLEGATO B**

Curriculum Vitae

Margherita Righini

## INFORMAZIONI PERSONALI

**Margherita Righini**

Sesso | Data di nascita 1986 | Nazionalità

POSIZIONE PER LA QUALE SI  
CONCORRE

Incarico individuale di lavoro autonomo occasionale avente per oggetto "sviluppo e testing di prodotti e servizi geospaziali attraverso l'elaborazione di dati di osservazione della terra a supporto del sistema end-to-end IRIDE in tre domini applicativi: monitoraggio marino costiero, copertura del suolo ed emergenze"

Cod. 08-2024\_2

ESPERIENZA  
PROFESSIONALE

01/10/2023 – CURRENT

**Contract Professor**  
**University of Pavia**

Pavia, Italy

Lecturer in Hydromorphology course as part of the Civil Engineering for Mitigation of Risk from Natural Hazards, Hydrogeological Risk Assessment and Mitigation curricula (HYRIS).

**29 hours, 3 CFU**

Department Department of Civil Engineering and Architecture

Website <https://dicar.dip.unipv.it/en/department/organization>

19/07/2022 – 01/01/2024

**Task Leader**  
**University School for Advanced Studies IUSS Pavia**

Pavia, Italy

**OVERSEE Project: Global essential climate variable multisensor mapping for coastal ecosystem services protection**

- test methods based on studies of essential climate variables (land cover) as proxies for quantifying the bio-geophysical properties of surface processes through EO data (multispectral, hyperspectral, SAR) in regions exposed to different climatic and anthropogenic conditions;
- develop a new approach to define environmental exposure/vulnerability of coastal areas and related ecosystem services;
- define the technical specification of the "coastal vulnerability" service
- field work activities for spectral measurements collection, vegetation characterization through the Photosynthetically Active Radiation (PAR) and the Leaf Area Index (LAI) measurements and soil characterization

**Department** Department of Science, Technology and Society**Website** <https://www.iusspavia.it/en>

02/08/2022 – 01/01/2024

**Post doc**  
**University School for Advanced Studies IUSS Pavia**

Pavia, Italy

**Pro3 joint programme: Scientific computing, socialsciences,methodological and applications: and technological development**

Development and testing of geospatial products and services through the processing of Earth Observation data (multispectral and hyperspectral satellite and SAR images) in support of pilot projects in three domains applications: coastal marine monitoring, land cover and emergencies.

**Department** Department of Science, Technology and Society

**Website** <https://www.iusspavia.it/en>

01/10/2021 – 30/09/2022

**Contract Professor**  
**University of Pavia**

Pavia, Italy

Lecturer in Hydromorphology course as part of the Civil Engineering for Mitigation of Risk from Natural Hazards, Hydrogeological Risk Assessment and Mitigation curricula (HYRIS).

**29 hours, 3 CFU**

**Department** Department of Civil Engineering and Architecture

**Website** <https://dicar.dip.unipv.it/en/department/organization>

01/08/2021 – 02/08/2022

**Post doc**  
**University School for Advanced Studies IUSS Pavia**

Pavia, Italy

**NOCTUA Project: Landscape Monitoring. For Everyone. From Space.**

Implementation of flood risk/vulnerability models using SAR data in synergies with optical data for the development of pre-operational commercial service for the collection, processing, analysis and distribution of satellite data designed for Lombardy region.

**Department** Department of Science, Technology and Society

**Website** <https://www.iusspavia.it/en>

02/02/2020 – 02/07/2021

**Post doc**  
**University School for Advanced Studies IUSS Pavia**

Pavia, Italy

**EFLIP project: Economic impacts of flood risk in Lombardy and innovative risk mitigation policy**

Study on urban flooding exposure and vulnerability through the use of Earth Observation and Copernicus products and the application of remote sensing techniques.

**Department** Department of Science, Technology and Society

**Website** <https://www.iusspavia.it/en>

20/02/2020 – 30/09/2020

**Contract Professor**  
**University of Pavia**

Pavia, Italy

Lecturer in Hydromorphology course as part of the Civil Engineering for Mitigation of Risk from Natural Hazards, Hydrogeological Risk Assessment and Mitigation curricula (HYRIS).

**29 hours, 3 CFU**

**Department** Department of Civil Engineering and Architecture

**Website** <https://dicar.dip.unipv.it/en/department/organization>

01/07/2019 – 31/10/2019

**Research Fellowship**  
**University School for Advanced Studies IUSS Pavia**

Pavia, Italy

• Vulnerability assessment model in a deltaic environment considering ecological and morphological

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variables using EO products (e.g., products derived from the European Copernicus Earth Observation Program);

- Defining exposed land cover (i.e., sediment and vegetation) and their spatial and temporal variability applying Linear Spectral Mixture Analysis (LSMA) and time series analysis (Empirical Orthogonal Function) classification techniques;
- Generation of different vulnerability scenarios in response to sea level rise through the development of a Bayesian Belief Network (BBN) approach;

**Department** Department of Science, Technology and Society

**Website** <https://www.iusspavia.it/en>

04/04/2016 – 11/06/2016

**Teaching Assistant****University of Padova**

Padova, Italy

Teaching assistant in Cartography Laboratory in the Physical Geography and Geomorphology course.

**Department** Natural Sciences Department

**8CFU, 18 hours.**

06/02/2014 – 05/06/2014

**External Collaborator****University of Modena and Reggio Emilia**

Modena, Italy

**'Monitor Project 2':**

- Census, analysis and synthesis of existing data related to the lithostratigraphic, lithotechnical characterization and instability and hazard conditions of the Pietra di Bismantova (National Park of the Appennino Tosco-Emiliano, Northern Italy)
- Mapping of the main lithofacies and cracks at the macro- and meso-scale through the analysis of aerial laser-scanner surveys of zenithal and oblique photos.

**Department:** Department of Chemical and Geological Science

**ISTRUZIONE E FORMAZIONE**

01/01/2014 – 17/03/2017

**PhD in Earth Science****University of Padova,**

Padova, Italy

**Field of study:** Fluvial Geomorphology

**Thesis:** Geomorphic response to extreme flood events in alluvial and semi-alluvial rivers

**Final grade:** Very Good

**Attendance to courses:**

- R. ANGEL: "Scientific Communication", Geosciences Department, University of Padova. October-November 2014; 12 hours.
- L. GULICK: "Scientific English", Geosciences Department, University of Padova. May 2014, 10 hours.
- M. BORG: "Consolidating skills in English: A Multimedial Approach", Università degli Studi di Padova. April 2014, 14 hours.
- L. CARNIELLO: "Fluvial Hydraulics", Civil Engineering Department, University of Padova. March-June 2014, 72 hours.
- L. SALMASO, L. WU: "Statistics for Engineers", Industrial Engineering Department, University of Padova. January-February 2014, 45 hours.
- F. FERRARESE, N. SURIAN: "Advance GIS course", Geosciences Department, University of Padova. February-March 2015; 18 hours.

**Website** <https://www.geoscienze.unipd.it/en>

25/07/2016 – 29/07/2016

**Summer School COST Action ES1306: Connecting European Connectivity Research**

Lasa, Italy

- Acquisition of practical tools for evaluating connectivity in mountain environments in the context of

hazard and risk assessment

- Use of SedInConnect application for the characterization of sediment dynamics for landscape management
- Field work

**36 hours**

**Website** <https://www.cost.eu/>

01/06/2015 – 31/12/2015

### Visiting PhD

Colorado State University, Geosciences Department

Fort Collins, United States

**Field of study** Fluvial Geomorphology

**Main activities:**

- Remote sensing
- Flume experiments
- Field works

**Attendance to courses:**

• K. THIELEN: "English as a 2nd Language-Academic ESL 6-2", FRCC Center for Adult Learning, Fort Collins (Colorado, USA). August-December 2015; 64 hours.

• J. ANDERSON: "STAT 511-Design and Data Analysis for Researchers I", Clark Building, Colorado State

University, Fort Collins (Colorado, USA). August-December 2015; 85 hours.

• E. WOHL: "G-652 Fluvial Geomorphology", Department of Geosciences, Colorado State University, Fort Collins (Colorado, USA). August-December 2015; 45 hours.

**Website** <https://wamercnr.colostate.edu/geosciences/>

01/10/2010 – 13/12/2012

### M.A. Geological Sciences and Technologies

Department of Chemical and Geological Science, University of  
Modena and Reggio Emilia

Modena, Italy

**Field of study:** Geosciences, Georisks and Georesources

**Thesis:** Forward simulation of groundwater level changes induced by deep drainage wells in Succiso earth slide (Northern Apennines, Italy)

**Final grade:** 110/110 cum laude

**Website** <https://international.unimore.it/DCG.html>

30/07/2012 – 31/08/2012

### Internship

GEODES S.r.l.

Castel Nuovo Rangone , Italy

- Acquisition of the main notions regarding current national environmental legislation
- Acquisition of the fundamental methods aimed at writing geological reports.
- Acquisition of techniques for the analysis and characterization of contaminated sites reclamations approaches.

**156 hours.**

11/09/2011 – 12/03/2012

### European Union program (ERASMUS)

University of Malta

Msida, Malta

**Attendance to courses:**

- Geology
- Environmental Impact Assessment
- Geographic Information Systems
- Mediterranean Sustainability and Development

**Website** <https://www.um.edu.mt/>

Sostituire con date (da - a)

### B.A. Geological Sciences

**Field of study:** Geomorphological and Geological Techniques

Application for The Study of The Natural Hazard and the Environmental Impact

**Thesis** Geological Study On The abandoned Varicoloured Shale Quarry 'Il Casolare', Pavullo District (Northern Apennines, Italy)**Final grade** 105/110**Website** <https://international.unimore.it/DCG.html>

01/06/2009 – 30/08/2009

**Internship****Regulation of mining activities Office, Province of Modena**

Modena, Italy

- Quarry data cataloguing and digitalization;
- Use of software and GIS to identify topographic, geological and geometric parameters of quarry areas.
- Acquisition of basic regulations for planning, management of quarry areas;
- Acquisition of computer techniques for managing data on quarrying activities and related environmental impacts;
- Acquisition of main methods and techniques for quarry environmental recovery.

**COMPETENZE PERSONALI**

Lingua madre Italiana

Altre lingue

	COMPRESIONE		PARLATO		PRODUZIONE SCRITTA
	Ascolto	Lettura	Interazione	Produzione orale	
Inglese	C1	C1	B2	B2	B2

 Livelli: A1/2 Livello base - B1/2 Livello intermedio - C1/2 Livello avanzato  
 Quadro Comune Europeo di Riferimento delle Lingue

Competenze comunicative

- Scientific Presentations
- Writing and drafting scientific articles

Competenze organizzative e gestionali

- Problem Solving Skills,
- Ability to work in a team and autonomously,
- Orientation of teamwork
- Very good planning and organising skills

Competenze professionali

- High experience in processing high resolution remotely sensed data (i.e., DEM, multispectral and hyperspectral satellite or aerial images) used for mapping and geospatial analysis;
- Rich experience in collection, processing, analysis, modelling and validation of geospatial data and in large database administrator;
- Experience in statistical analysis (scenarios, models, trend analysis);
- Experience in integrated hydrogeological risk assessment, especially in flood hazard and vulnerability assessment in coastal and urban areas;
- Experience in using the European Earth Observation Program (Copernicus) products;
- Experience in field work and samples collection;

Competenze informatiche

**Scripting/Programming**

R, Python Language - Basic knowledge

**Data Handling Software**

MINITAB software GIS Software such as ArcGIS, QGIS, Swat extension, ArcHydro, NETICA Microsoft Excel

**Remote Sensing**

Advanced knowledge of SNAP toolbox software for Copernicus satellite data analysis, Google Earth Engine, ENVI

**Graphic Design**

Proficiency in Canva application and graphic design (Adobe Photoshop, Adobe Illustrator)

Altre competenze Flexibility, goal oriented

Patente di guida Patente B

## ULTERIORI INFORMAZIONI

## Presentazioni/ Conferenze

Taramelli A., **Righini M.**, Valentini E., Sapio S., Liburdi S. (2024). Dynamic Land Cover mapping exploiting satellite images: insights on large raster datasets processing. 2 Workshop Pro3 joint project "Scientific computing for natural sciences, social sciences, and applications: methodological and technological development". January 18-19, 2024, Sissa, Via Bonomea 265, Trieste, Big Meeting Room, 7<sup>th</sup> Floor.  
<https://www.youtube.com/playlist?list=PLQS3MTGYR5bQ50br60n1zBWhUhKEBI8Dj>

Gatti I., Taramelli A., **Righini M.**, Arosio M., Schiavon E., Valentini E., Sapio S., Marinelli C., Nguyen Xuan A. (2023). Integrated Ecological, Physical and Social Vulnerability Assessment for Promoting New Constellations of Multisensory Satellites. Session: NH31B Harmonized and Interdisciplinary Approaches to Disaster Risk Reduction and Resilience. American geophysical Union (AGU) Fall Meeting 2022, San Francisco (USA) 13/12/2023.

**Righini M.** (2023). Downstream services and application domains. JOTTO FAIR 2023, La Ricerca Incontra le Imprese. 23/02/2023, Lucca, Italy.

**Righini M.**, Valentini E., Sapio S., Marinelli C., Gatti I., Jimenez M.J., Piedelobo L., Bresciani M., Claudia G., Pinardi M., Taramelli A. (2022). Synergic Application of Synthetic Aperture Radar, Multispectral and Hyperspectral Data, Using a Multi TempTalk Approach for Land Cover Mapping. Session: B32A - Advances in Characterizing and Monitoring Land Cover/Use and Associated Ecosystem Changes Using Remote Sensing Data. American geophysical Union (AGU) Fall Meeting 2022, Chicago (USA) 14/12/2022.

E. Valentini, **M. Righini**, S.V. Nghiem, C. E. Miller, B.Poulter, S. Liburdi, S. Sapio, C. Marinelli, M. J. Jimenez, I. Gatti, A. Taramelli, A. Nguyen Xuan, L. D. Nguyen, P. T. Mai Thy, C. Le Trung (2022). An integrated remote sensing model in the C n Gi r Mangrove Biosphere Reserve (Vietnam) to estimate ecosystem services. Session: GC36E - Utilizing Earth Observations to Address Complex Environmental Challenges in South and Southeast Asia. American geophysical Union (AGU) Fall Meeting 2022, Chicago (USA) 14/12/2022.

Taramelli A., **Righini M.**, Valentini E., Gatti I., Jimenez Alvarado M.J., Marinelli C., Sapio S. (2022). Retrieval of bio-physical parameters from EO data to develop pre-operational products to improve downstream application services. 1st Workshop Pro3 joint project "Scientific computing for natural sciences, social sciences, and applications: methodological and technological development". December 2, 2022, Lucca.  
[https://youtube.com/playlist?list=PLQS3MTGYR5bRTwynCt6qnu6k9D00zZhXi&si=S9VqgZ1Q\\_lw74Pby](https://youtube.com/playlist?list=PLQS3MTGYR5bRTwynCt6qnu6k9D00zZhXi&si=S9VqgZ1Q_lw74Pby)

Gatti, I., Taramelli, A., Martina, M., Sapio, S., Jimenez, M., Arosio, M., Schiavon, E., Monteleone, B., and **Righini, M.** (2022): Flood detection products to support emergency management services in the Lombardy region, EGU General Assembly 2022, Vienna,

Austria, 23–27 May 2022, EGU22-12942, <https://doi.org/10.5194/egusphere-egu22-12942>, 2022.

Taramelli, E. Valentini, **M. Righini**, S. V. Nghiem, M.j. Jimenez, L. Piedadlobo, C.E. Miller, K. D. Ngo, A. M. Lechner, T. T. Vu., (2021). Fractional cover composition as proxy for essential variables mapping with multi-sensor remote sensing. Session: B11A - Advances in Remote Sensing for Monitoring Biodiversity Change: Integrating Data and Models Across Scales and Technologies. American geophysical Union (AGU) Fall Meeting 2020, New Orleans (USA) 13/12/2021.

Geraldini S., Taramelli A., Valentini E., **Righini M.**, Nguyen Xuan A., Filipponi F., Zucca F. (2019). Po River Deltaic Vulnerability Assessment Using Bayesian Belief Network Approach. EP31A-07, American Geophysical Union (AGU) Fall Meeting 2019, San Francisco (USA) 09-13/12/2019.

Scorpio V., **Righini M.**, Amponsah W., Crema S., Ciccarese G., Nardi L., Zoccatelli D., Borga M., Cavalli M., Comiti F., Corsini A., Marchi L., Rinaldi M., and Surian N. Effects of large floods on channel width: recent insights from Italian rivers. EGU2017-9183, 2017 EGU General Assembly 2017, Wien, Austria.

Comiti F., **Righini M.**, Nardi L., Lucia A., Amposah W., Borga M., Cavalli M., Marchi L., Rinaldi M., Surian N., 2016. Channel widening during extreme floods: how to integrate it within river corridor planning? 13<sup>th</sup> Congress Interpraevent 2016. 30 May-2 June 2016, Lucerne, Switzerland.

**Righini M.**, 2016. Channel geomorphic response to extreme floods: the event of November 2013 in NE Sardinia and the role of geomorphic and hydraulic controlling factors, Symposium "Fluvial System" 4 Edition, CNR-IRPI Area della Ricerca, 20 May 2016, Padova, Italy.

Brenna A., Comiti F., **Righini M.**, Scorpio V., Surian N., 2016. Risposta geomorfologica degli alvei fluviali alla piena del 14 settembre 2015, Giornata di studio "L'evento alluvionale del 14 settembre 2015 nel Piacentino". Autorità di Bacino, Parma, 12 May 2016.

**Righini M.**, 2015. Geomorphic response to extreme flood events in alluvial and semi-alluvial rivers. Colorado State University, Geosciences Department. 2 December 2015.

**Righini M.**, 2014. Geomorphic response to extreme flood events in alluvial rivers, Symposium "Fluvial System" 2 Edition, Dipartimento di Ingegneria Civile, Ambientale e Meccanica, 11 June 2014, Trento, Italy.

#### Publicazioni

**Righini M.**, Bonì R., Sapio S., Gatti I., Salvatore M., Taramelli A. (2024) Development of a proof-of-concept ADInSAR-based monitoring service for land subsidence. Remote Sensing. Under review.

Valentini, E.; Sapio, S.; Schiavon, E.; **Righini, M.**; Monteleone, B.; Taramelli, A. (2024). Development of a Pre-Automated Processing Chain for Agricultural Monitoring Using a Multi-Sensor and Multi-Temporal Approach. Land 2024, 13, 91. <https://doi.org/10.3390/land13010091>

**Righini, M.**; Gatti, I.; Taramelli, A.; Arosio, M.; Valentini, E.; Sapio, S.; Schiavon, E. (2024) Integrated Flood Impact and Vulnerability Assessment Using a Multi-Sensor Earth Observation Mission with the Perspective of an Operational Service in Lombardy, Italy. Land 2024, 13, 140. <https://doi.org/10.3390/land13020140>

**Righini M.**, Valentini E., Sapio S., Marinelli C., Gatti I., Jimenez M.J., Bresciani M., Giardino C., Pinaridi M., Boschetti M., S. Mangano, Daraio M. G., Battagliere M. L., Taramelli A.

(2023) "Dynamic land cover mapping exploiting hyperspectral PRISMA", 2023 IEEE International Geoscience and Remote Sensing Symposium IGARSS, Pasadena, California, 2023, under submission.

Valentini E., **Righini M.**, Sapio S., Liburdi S., Cima V., Nghiem S.V., Taramelli A. (2023) "SAR data for monitoring rapidly changing ecosystems: aquaculture and urbanization in the Càn Giò mangrove biosphere reserve, South Vietnam", 2023 IEEE International Geoscience and Remote Sensing Symposium IGARSS, Pasadena, California, 2023, under submission.

Ruiz-Villanueva, V., Piégay, H., Scorpio, V., Bachmann, A., Brousse, G., Cavalli, M., Comiti, F., Crema, S., Fernández, E., Furdada, G., Hajdukiewicz, H., Hunzinger, L., Lucía, A., Marchi, L., Moraru, A., Piton, G., Rickenmann, D., **Righini, M.**, Surian, N., Yassine, R., and Wyzga, B.: River widening in mountain and foothill areas during floods: Insights from a meta-analysis of 51 European Rivers, 903, 166103, <https://doi.org/https://doi.org/10.1016/j.scitotenv.2023.166103>, 2023.

Taramelli, A., **Righini, M.**, Valentini, E., Alfieri, L., Gatti, I., and Gabellani, S. (2022). Building-scale flood loss estimation through vulnerability pattern characterization: application to an urban flood in Milan, Italy, *Nat. Hazards Earth Syst. Sci.*, 22, 3543–3569, <https://doi.org/10.5194/nhess-22-3543-2022>, 2022.

Taramelli A., Valentini E., Piedadlobo L., **Righini M.**, Cappucci S. Assessment of State Transition Dynamics of Coastal Wetlands in Northern Venice Lagoon, Italy. *Sustainability*. 2021; 13(8):4102. <https://doi.org/10.3390/su13084102>

Taramelli A., Valentini E., **Righini M.**, Filipponi F., Geraldini S., Nguyen Xuan A. Assessing Po River Deltaic Vulnerability Using Earth Observation and a Bayesian Belief Network Model. *Water*. 2020; 12(10):2830. <https://doi.org/10.3390/w12102830>

Scorpio V., Crema S., Marra F., **Righini M.**, Ciccacese G., Borga M., Cavalli M., Corsini A., Marchi L., Surian N., Comiti F., 2018. Basin-scale analysis of the geomorphic effectiveness of flash floods: A study in the northern Apennines (Italy). *Science of The Total Environment*, Volumes 640–641, Pages 337-351. <https://doi.org/10.1016/j.scitotenv.2018.05.252>

**Righini M.**, Surian N., 2017. Remote sensing as a tool for channel dynamics and geomorphic response to flood analysis detection: overview and applications. *Flood Monitoring through Remote Sensing*, Springer Remote Sensing/Photogrammetry Ed., Refice A., D'Addabbo A., Capolongo D., pp 27-59. DOI:10.1007/978-3-319-63959-8.

**Righini M.**, Surian N., Wohl E., Marchi L., Comiti F., Amponsah W., Borga M., 2017. Geomorphic response to an extreme flood in two Mediterranean rivers (northeastern Sardinia, Italy): Analysis of controlling factors, *Geomorphology*, Volume 290, pp. 184-199. <http://dx.doi.org/10.1016/j.geomorph.2017.04.014>

Comiti F., **Righini M.**, Nardi, L., Lucia A., Amposah W., Borga M., Cavalli M., Marchi L., Rinaldi M., Surian N. 2016. Channel widening during extreme floods: how to integrate it within river corridor planning? *Proceedings of the 13th Congress Interpraevent 2016*. 30th-May 2nd June 2016, Lucerne, Switzerland, 477-486.

Surian N., **Righini M.**, Lucia A., Nardi L., Amponsah M., Benvenuti, Borga M., M., Cavalli M., Comiti F., Marchi L., Rinaldi M., Viero A., 2016. Channel response to extreme floods: insights on controlling factors from six mountain rivers in northern Apennines, Italy. *Geomorphology* 272, 78-91. doi: 10.1016/j.geomorph.2016.02.002

Rinaldi M., Amponsah W., Benvenuti M., Borga M., Comiti F., Lucia A., Marchi L., Nardi L., **Righini M.**, Surian N., 2016. An integrated approach for investigating geomorphic response to extreme events: methodological framework and application to the October 2011 flood in the Magra River catchment, Italy. *Earth Surface Processes and Landforms*,



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41, 835-846. doi: 10.1002/esp.3902

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**Righini M.**, G. Caputo, F. Cervi, A. Corsini, F. Ronchetti, 2013. Forward simulation of groundwater level changes induced by deep drainage wells in Succiso earth slide (Northern Apennines, Italy). Rend. Online Soc. Geol. It., Vol. 24, pp. 269-272. doi: 10.3301/Rol.2012.

24/04/2024

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