Gina Marano

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Residence: Trüllikon, Canton of Zurich, Switzerland | *driving licence:* B

EDUCATION AND TRAINING

01/01/2021 – **ongoing** ETH Zurich, Universitätstrasse 16, 8092 Zürich, Switzerland
PhD in Forest Ecology, Forest Modelling — ETH Zurich

Poject: Analysis of structural uncertainty in soil water balance formulations to assess effects of drought on temperate forest dynamics: a forest modeling perspective". Funding scheme: Swiss National Science Foundation (SNSF), Division I-III, number 188882, title: "Embracing structural uncertainty in models of forest dynamics". Project under the supervision of Prof. Dr. Harald Bugmann

My research focuses on developing and testing formulations of drought stress to better capture the effects of drought on tree growth and mortality in stand-scale model **ForClim** developed by prof. Harald Bugmann.

26/02/2018 – University of Padova, Via Università, 16, Legnaro (PD), Italy
MSC. FORESTRY AND ENVIRONMENTAL SCIENCES — University of Padova

110/110 cum laude |*Thesis:* Physico-chemical characterization of woody by-products for energetical purposes

This thesis work aimed at characterizing woody by-products, among which also residual biomasses such as hazelnut, almond walnut and pistachio shells, olive kernells, peach and apricot pits in order to investigate their main physical and chemical characteristics for energetical purposes and therefore for their valorisation and reuse for domestic use in Center-Southern Italy. The research project was the result of a collaboration between ENAMA (Italian National Agency for Agricultural Mechanization) and the Laboratory of Biofuels of the University of Padova.

27/10/2014 – University of Napoli Federico II, Via Università 100, Portici (NA), Italy
BSC. FORESTRY AND ENVIRONMENTAL SCIENCES — University of Napoli Federico II

110/110 cum laude |*Thesis:* Characterization of forestry soils: a multiscale approach

The thesis work encompassed both literature review and field campaign. Soil sampling was conducted in chestnut coppices and beech high forest stands in selected plots in Telesina Valley (Campania Region, Italy). Soil analysis and site index assessment between soil properties and forest stand parameters (e.g. soil depth vs stand height) have been conducted in the framework of the SoilConsWeb Life + project (LIFE08 ENV/IT/000408).

WORK EXPERIENCE

10/06/2018 – 01/12/2020 – University of Napoli Federico II, Via Università 100, Portici (NA), Italy
Research Fellow — University of Napoli Federico II

The research work mainly focused on the implementation and testing of tools for supporting sustainable forest management (SFM) in the framework of the LANDSUPPORT H2020 project (GA: 774234).
The research activities also included:
-testing of the 3D-CMCC-FEM model in Mediterranean and Alpine forest sites;
-testing of 3D-CMCC-FEM soil module derived from BIOME-BGC with a sensitivity analysis on soil physical properties and their effects on stand responses to drought (Gross Primary Productivity, Net Primary Productivity, Carbon reserves);
-first attempt of soil module implementation (BIOME BGC to CENTURY).

DIGITAL SKILLS

Software skills

- Good knowledge of C# programming language
- Basic knowledge of C and Python programming languages
- GIT (GitHub, GitLab)
- Miscrosoft Visual Studio, Eclipse Integrated Development Environment (IDE)
- Climate Data Operators (CDO) tools for *netcdf* data handling
- Open Data Kit (ODK) for fieldwork applications (data collection for forest and soil surveys)

Databases
- postgreSQL basic, Microsoft Access

GIS analysis
- GIS software: QGIS, ArcGIS Google Earth Engine (GEE)

Statistics
- R and Rstudio

Operating Systems
- Windows, Linux

LANGUAGE SKILLS

Mother tongue: ITALIAN

Languages	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	B2	B2	B2
GERMAN	B1	B1	B1	B1	B1
SPANISH	B2	B2	B1	B1	B1
FRENCH	A1	A2	A1	A2	A1
JAPANESE	A1	A1	A1	A1	A1

POSITIONS OF TRUST

14 October 2020-CURRENT
Chief Communications Officer of the Forest Modelling Working Group - Italian Society of Silviculture and Forest Ecology (SISEF, Società Italiana di Selvicoltura ed Ecologia Forestale)
The activities involve (i) the organization and delivery of scientific information related to forest modelling working group through web channels, WordPress official page and SISEF journals (e.g. Forest@, iForest); the (ii) facilitation of teamwork activities among modelling researchers and the different working groups of SISEF (e.g. Climate Change Mitigations, Forest Geomatics) ; (iii) the relationship building with international forest modelling groups.

Academic year 2016/2017 – University of Padova, Italy
President of the Association of Forestry Students of Padova (AUSF Padova, IFSA Local Committee) – University of Padova
Legal representative of the Association of Forestry Students of the University of Padua, IFSA Local Committee for Northern Italy. Main responsibilities included (i) the organization of the numerous training courses for both forestry students and forest practitioners, (ii) educational offer like seminars, workshops and conferences in collaboration with Professors of the University of Padova. Lastly, activities also included (iii) the writing of proposals of the projects "Expression of Interest by AUSF Padova for Villa Reverdin Bolasco" and "PRO.PRO.FOR"(Promotion of Forestry Professions, Promozione Professione Forestale). This experience strongly enhanced communication skills, teamwork and creative thinking.

10/02/2016-10/02/2018 – University of Padova, Italy
Student Representative for MSc and BSc courses in Forestry – University of Padova Student Representative of the Master of Science Degree Course in Forestry and Environmental Sciences and the Bachelor course in Forestry and Environmental Technologies elected as a member of the Council of the TeSAF Department (Decree of indiction Rep. N. 1558 - Prot. N. 175476).

PUBLICATION LIST

- **Weshalb sind die Buchen in Mittelland-Wäldern gestorben?**.
  Schweizerische Zeitschrift für Forstwesen. Volume 175, Issue 1. 2024 | Journal-article.
  Role: Leading-author| Link: **Schweizerische Zeitschrift für Forstwesen**
- **Stand age diversity (and more than climate change) affects forests' resilience and stability, although unevenly**.
  Journal of Environmental Management. 2024 | Journal-article.
  Role: Co-author| Link: Journal of Environmental Management
- **Regional estimates of gross primary production applying the Process-Based Model 3D-CMCC-FEM vs. Remote-Sensing multiple datasets**.
  European Journal of Remote Sensing. 2023 | Journal-article.
  Role: Co-author| Link: European Journal of Remote Sensing
- **The LANDSUPPORT geospatial decision support system (S-DSS) vision: Operational tools to implement sustainability policies in land planning and management**.
  Land Degradation & Development. 2023 | Journal-article.
  Role: Co-Author| Link: Land Degradation & Development
- **Accuracy, realism and general applicability of European forest models**.
  Global Change Biology. 2022 | Journal-article.
  Role: Co-Author| Link: Global Change Biology
- **Feasibility of enhancing carbon sequestration and stock capacity in temperate and boreal European forests via changes to management regimes**.
  Agricultural and Forest Meteorology. 2022 | Journal-article.
  Role: Leading-author | Link: Agricultural and Forest Meteorology
- **Simulating diverse forest management options in a changing climate on a Pinus nigra subsp. laricio plantation in Southern Italy**.
  Science of The Total Environment. 2022 | Journal-article.
  Role: Co-author | Link: Science of The Total Environment
- **Model-Based Estimation of Amazonian Forests Recovery Time after Drought and Fire Events**.
  Forests. 2020 | Journal-article.
  Role: Co-author | Link: Forests
- Models of tree and stand dynamics": a differential journey through forest modelling**.
  iForest - Biogeosciences and Forestry. 2020 | Book Review.
  Role: Leading-author | Link: Forests**
- A Geospatial Decision Support System Tool for Supporting Integrated Forest Knowledge at the Landscape Scale**.
  Forests. 2019 | Journal-article.
  Role: Leading-author | Link: Forests**

MANUSCRIPTS SUBMITTED/ IN SUBMISSION/ IN PREPARATION

1. **Predisposing and Inciting stress factors improve the prediction of drought-induced mortality in Swiss beech forests**
   Marano G., Hiltner H., Meusburger K., Bugmann, H. (in submission to Agricultural and Forest Meteorology)

2. **Simulating the observed drought-induced mortality of beech (Fagus sylvatica) and spruce (Picea abies) in German forests**
   Marano G., Hiltner H., Knapp N., Bugmann, H. (in preparation)

3. **Simulating the observed drought-induced mortality of beech (Fagus sylvatica) and spruce (Picea abies) in German forests**
   Marano G., Hiltner H., Knapp N., Bugmann, H. (in preparation)

4. **Potential use of a dynamic forest model as decision support in mountain protection forests in Switzerland**
   Marano G., Hiltner H., Frehner M., Bugmann, H. (in preparation)

5. **Simulating the impacts of browsing and climate change in low-elevation mountain protection forests in Switzerland**
   Marano G., Moos K., Bugmann, H. (in preparation)

6. **rforclim: Supporting forest ecology and management in the context of climate change – An R package for accessible ForClim simulations**
   Hiltner H., **Marano G**. (in preparation)

POSTERS

1. **G. Marano**, H. Bugmann. The potential use of a dynamic forest model as decision support in mountain protection forests of Switzerland Session: From dynamic forest models to decision support for forest transformation - How can synergies be achieved?, European Conference of Ecological Modeling, Leipzig, September 2023.
2. **G. Marano**, G. Matteucci, A. Collalti, M. Ferlan, E. Kozamernik, K. Noumonvi, F.Vuolo, M. Vitullo, F. Terribile, Development, implications and application for sustainable forest management and best forest practices of the LANDSUPPORT forestry tool., XII National Congress of the Italian Society of Silviculture and Forest Ecology (Congresso Nazionale SISEF: La Scienza Utile Per Le Foreste: Ricerca e trasferimento), Palermo, 12-15 November 2019. **Awarded** as **best presentation and poster**, winner of the Umberto Bagnaresi prize;
3. **G. Marano**, E. Kozamernik, UNDER FOREST COVER: A soil erosion tool to assess sustainable forest management practices. Alpine Soil Forum, Innsbruck, 14-16 October 2019;
4. **G. Marano**, A. Collalti, G. Langella, G. Matteucci, F. Vuolo, F. Terribile, The operational implementation of soil functions and sustainable forest management through LANDSUPPORT Web-Based Land Decision Support System. Wageningen Soil Conference, 24-27 August 2019.

COURSES AND SUMMER SCHOOLS

1. **Numerical methods for data analysis with Python**, Dr. Rosanna Campagna, Dept.of Agriculture University of Naples Federico II;
2. **Data Science**, Dr. Edoardo Pasolli, Dept. of Agriculture University of Naples Federico II;
3. **Software Carpentry Workshop**, Consiglio Nazionale delle Ricerche Napoli, Italy, 11-12 February 2019;
4. **Cable crane course**, Bundesforschungs- und Ausbildungszentrum für Wald, Naturgefahren und Landschaft – Ossiach, January 2017;
5. **Forest operations course**, Bundesforschungs- und Ausbildungszentrum für Wald, Naturgefahren und Landschaft – Ossiach, April 2016;
6. **Forest Road Network planning**, Bundesforschungs- und Ausbildungszentrum für Wald, Naturgefahren und Landschaft – Ossiach, June 2016;
7. **COPERNICUS Sentinels, Remote sensing techniques in forestry**, Italian Society of Remote Sensing, 16 -20 September 2019;
8. **Applied statistics and use of R for Environmental Applications (Statistica ambientale con R)**, Italian Society of Pedology (Sipe), Sestola (IM), 1-5 July 2019;
9. **Land monitoring and ecosystem services mapping and assessment**, Italian Institute for Environmental Protection and Research, ISPRA (Istituto Superiore per la Protezione e la Ricerca Ambientale), University of Napoli Federico II, Italy, 10-14 June 2019;
10. **Methods in Forest Ecology Summer School**, University of Pavia, Italy, 9-16 September 2018;
11. **Modelling Sustainable Farming Systems under climate change**, University of Nuoro, Italy, 23-27 July 2018.