PERSONAL INFORMATION   Giulia Mengoli   CV Updated **31 March 2025**

✉ giulia.mengoli@gmail.com (primary email address)

✉ g.mengoli@imperial.ac.uk (secondary email address)

💬 Skype: giulia.mengoli_1

iD ORCID https://orcid.org/0000-0003-1894-4942

EDUCATION

September 2024

Ph.D. programme at the Department of Life Sciences, Imperial College London,

Thesis title: "*Modelling the influence of environmental conditions on gross primary production and land-atmosphere carbon exchange*".
in collaboration with the European Centre for Medium-Range Weather Forecasting (ECMWF) and the University of Reading.

Main supervisor: Prof. Iain Colin Prentice (Imperial College London)
Co-supervisors: Prof. Sandy Harrison (University of Reading), Drs Anna Agustí-Panareda and Souhail Boussetta (ECMWF).

Courses attended: Data Science: Data Processing with R; Data Science: R Programming; Ensuring integrity: Plagiarism; Doctoral Academic Communication Requirement (DACR assessment 1); Maximising Your Management Skills: Time Management for your Doctorate; Perfecting Presentations: Conferences and Seminars; Understanding Yourself and Others: Enhancing Wellbeing for Doctoral Researchers; Developing and Producing your Research: Thesis; attending international conferences; writing blog posts, reports and scientific papers; presenting project advancements; brainstorming meetings.

October 2015

Master's Degree (MSc Ecobiology), University of Rome "La Sapienza", **110/110 *cum laude*.**

Thesis title: "*Modelling of monoterpene emissions and stomatal ozone fluxes. Assessment of the impact on primary productivity as a result of their chemical-physical dynamics*".

Supervisor: Dr. Marcello Vitale. Department of Environmental Biology.

Master's degree focused on the study of animal taxonomy, vegetation diversity, plant physiology and spatial distribution, and marine ecology, with an emphasis on employing statistical analysis, remote sensing and GIS applications for the conservation of natural systems. The program also involved modelling the ecophysiological processes and their interactions with environmental abiotic drivers.

My thesis work encompassed a wide range of skills, including proficiency in mathematics, modelling, and both uni- and multivariate statistical analysis for data interpretation. I utilised STELLA, a visual programming software, along with RStudio, to code, conduct analyses and generate results.

December 2012

Bachelor's degree (BSc Biological Sciences), University of Rome "La Sapienza", **100/110.**

Thesis title: "*A threatened ecosystem: Mangroves*".
An economic evaluation of ecosystem services of mangrove forests.

Supervisor: Dr. Maria Letizia Costantini. Department of Environmental Biology.

OTHER TRAINING

February - October 2017

Training activity Funded by the Erasmus + Programme of the European Union.
Participation in transnational training activity "Education for Climate Change" within the project "Competencies for education for climate change in vulnerable communities".
This work implied working in a multicultural team, making presentations at meetings, public speaking and teaching to different target audiences.

January 2017

Super Intensive & Full Immersion course of English at the Islington Centre for English (ICE).
3 weeks, 9th -27thJanuary, of general English course, 34 hours per week, London, UK. Level achieved: **Upper intermediated CEFR B2**.

July 2017

GIS Open Source Base (QGIS) course, at the Istituto Spallucci in Rome.
Three days of training (18 hours) on Geographical Information Systems (GIS) concepts via a series of lectures and practical exercises.

(2013 - 2014)

Excellence course in Ecohydrology, University of Rome "La Sapienza", Italy. **30/30**

(2013 - 2014)

Excellence course in Remote Sensing and GIS (Geographic Information System), University of Rome "La Sapienza", Italy. **30/30**

WORK EXPERIENCE

October 2024– 31 March 2025

Postdoctoral Research Assistant Sub-Daily P model at the Department of Geography and Environmental Science, school of Archaeology Geography & Environmental Science, Reading University, Reading, UK.
Research Assistant on the Sub-Daily P model, drafting and writing scientific papers.
Line manager: Sandy P. Harrison and co-manager: Iain Colin Prentice.

September 2019 – September 2024

Full-time Ph.D. project at the Department of Life Sciences, Imperial College London, funded by ERC Advanced Grant "Re-inventing Ecosystem And Land-surface Models" (REALM).

Thesis title: "*Modelling the influence of environmental conditions on gross primary production and land-atmosphere carbon exchange*".
in collaboration with the European Centre for Medium-Range Weather Forecasting (ECMWF) and the University of Reading.

Main supervisor: Prof. Iain Colin Prentice (Imperial College London)
Co-supervisors: Prof. Sandy Harrison (University of Reading), Drs Anna Agustí-Panareda and Souhail Boussetta (ECMWF).

The PhD project involved the development of an approach to simulate the different timescales of plants' responses to environmental changes – the instantaneous, acclimated and adapted responses – in order to simulate plants' assimilation at a half-hourly timestep, both at site and global scales. I derived a new model that does not require to specify parameters for different types of vegetation and that is able to account for the past environmental conditions without having to store them, with the aim of integrating it into a land surface modelling framework. I derived a semi-empirical soil moisture stress function and evaluated the model's performance in sites with varying water availability, from well-watered to water-stressed conditions, as well as at global scale. To test the model, I used in situ flux-tower measurements and global satellite inversion products.

My responsibilities included managing meteorological and satellite data, processing files (Excel, CSV, netCDf) with RStudio and Panoply, computer coding (RStudio), utilising the GitHub platform, conducting statistical analyses, drafting academic papers, writing blog posts, and presenting project updates at conferences using software like Open Office and Microsoft Office (Word, PowerPoint).

August 2019	**30 days of fieldwork**, part of the project spearheaded by Wang Han – a collaboration between Tsinghua University, Imperial College London and Reading University. Fieldwork campaign on the western side of **Mount Gongga, China**. The overarching goal was to assess relationships among some key functional traits and their responses to the environment. Plant traits data were collected and measured in different sampling locations distributed on a long altitudinal gradient from 1600 to 4500 m a.s.l. covering more than 150 different species. https://prenticeclimategroup.wordpress.com/2019/11/18/once-upon-a-time-in-sichuan-province-colins-adventures-of-summer-2019/
May – November 2018	**Research intern at the Euro-Mediterranean Center on Climate Changes CMCC** - 2nd phase of *Torno Subito* Work experience carried out at the IAFES - Impacts on Agriculture, Forests and Ecosystem Services (CMCC) in Viterbo, Italy. A continuation of the project started in the first phase. Supervisor: Alessio Collalti.
November 2017 – April 2018	**Research assistant at Imperial College London** - 1st phase of *Torno Subito* Research project carried out at the Department of Life Sciences of Imperial College, London, UK. Contribution to improving the performance of the P model at sub-daily scale, and aiming at including the isoprene model in it. This research involved a theoretical improvement of ecosystem dynamics, math modelling, statistics, programming with RStudio, eddy covariance data processing and some elaboration of satellite data, such as fAPAR. Supervisor: Iain Colin Prentice
November 2017-2018	**One-year-long work experience** (divided in two phases), funded with a grant from the Italian **"Torno Subito 2017"** Programme for university students and graduates. Funded project's title: "*Tools for the analysis of natural and semi-natural systems: developing and testing a robust algorithm for regional to global scale emissions of BVOCs*".
2014 - 2016	Scientific assistant at **the Environmental Modelling laboratory** of the Environmental Biology Department of "La Sapienza" University of Rome. Experimental field and laboratory activities to evaluate the effects of ozone fumigations on litter decomposition and plant growth, focusing on three species of oak (*Q. robur*, *Q. ilex*, *Q. pubescens*), held at the CNR of Sesto Fiorentino (FI).
April 2015	Global Forest Survey Project Contribution to the global land cover assessment of drylands at *Food and Agriculture Organization of the United Nations (FAO), Rome headquarter*. Visual interpretation of remote sensed images on sample plots using Collect Earth. Business or sector Research

OTHER EXPERIENCE

October 2016	Public Engagement in the NERC's Into The Blue showcase event in Manchester Promote and share ecology and its issues to the public as a British Ecological Society member.
August 2009	Voluntary field work at Ecological Research Society (EKAD) Participation in the sea turtle conservation and research studies held by EKAD, in the nesting area of Belek, Turkey. ▪ Field work: monitoring sea turtle populations by sightings, nests and hatchling sampling. ▪ Education of both local people and tourists about sea turtles and their threats.

INVITED SEMINARS WORKSHOPS and achievement

July 2024

Mengoli G *et al.* 2022 paper has been recognized by Wiley as one of the top 10 most-cited papers published in 2022-2023. https://research.reading.ac.uk/lemontree/double-celebration-for-lemontrees-giulia-mengoli/

October 2023

Mengoli G.: "*Accounting for soil moisture stress on carbon assimilation*".
LEMONTREE Midterm Review, Reading, United Kingdom, 5th-6th October 2023.

June 2023

Mengoli G.: "*A global function of climatic aridity accounts for soil moisture stress on carbon assimilation*".
LEMONTREE meeting, University of Reading, United Kingdom, https://research.reading.ac.uk/lemontree/a-global-function-of-climatic-aridity-accounts-for-soil-moisture-stress-on-carbon-assimilation-by-giulia-mengoli/

May 2023

Mengoli G.: "*A global function of climatic aridity accounts for soil moisture stress on carbon assimilation*".
REALM Team Meeting on "Seasonal Cycles", Reading, United Kingdom, 3rd-5th May 2023, https://prenticeclimategroup.wordpress.com/2023/07/

January 2022

Mengoli G.: "*Using the P model to represent fast and slow responses of plants*".
REALM Team Meeting, Silwood Park, Ascot, United Kingdom, 13th January 2022, https://prenticeclimategroup.wordpress.com/2022/01/13/using-the-p-model-to-represent-fast-and-slow-responses-of-plants/

CONFERENCE CONTRIBUTIONS

2024

Ren, Y., Wang, H., Harrison, S., Prentice, C., **Mengoli**, G., Zhao, L., and Yang, K.: Incorporating the acclimation of photosynthesis and leaf respiration in the Noah-MP land surface model: model development and evaluation, AGU24, Abstract ID#: 1576597, Abstract Viewer Link: https://agu.confex.com/agu/agu24/meetingapp.cgi/Paper/1576597

2024

Ren, Y., Wang, H., Harrison, S., Prentice, C., **Mengoli**, G., Zhao, L., and Yang, K.: Incorporating the acclimation of photosynthesis and leaf respiration in the Noah-MP land surface model: model development and evaluation, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-8705, https://doi.org/10.5194/egusphere-egu24-8705, 2024.

May 2022

Mengoli, G., Harrison, S. P., and Prentice, I. C.: Towards a land surface model based on optimality principles, EGU General Assembly 2022, Vienna, Austria, 23–27 May 2022, EGU22-1331, https://doi.org/10.5194/egusphere-egu22-1331, 2022.

April 2021

Mengoli, G., Agustí-Panareda, A., Boussetta, S., Harrison, S. P., Trotta, C., and Prentice, I. C.: Application of an optimality-based model to operate at half-hourly timestep to implement plant acclimation within a land-surface modelling framework, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-2801, https://doi.org/10.5194/egusphere-egu21-2801, 2021.

May 2020

Mengoli, G., Prentice, I. C., and Harrison, S. P.: Adapting an optimality-based model to predict half-hourly carbon uptake by ecosystems, EGU General Assembly 2020, Online, 4–8 May 2020, EGU2020-4154, https://doi.org/10.5194/egusphere-egu2020-4154, 2020.

PUBLICATIONS IN PEER-REVIEWED SCIENTIFIC JOURNALS

2025

Ren, Y., Wang, H., Harrison, S.P., Prentice, I.C., **Mengoli, G.**, Zhao, L., Reich, P.B., Yang, K.. (2025). Incorporating the acclimation of photosynthesis and leaf respiration in the Noah2-MP land surface model: model development and evaluation. *Journal of Advances in Modeling Earth Systems*, 17, e2024MS004599. https://doi.org/10.1029/2024MS004599

2025

Mengoli, G., Harrison, S. P., and Prentice, I. C. (2025). The Response of Carbon Uptake to Soil Moisture Stress: Adaptation to Climatic Aridity. *Global Change Biology*, , 31: e70098. https://doi.org/10.1111/gcb.70098

2024/2023

Ren, Y., Wang, H., Harrison, S.P., Prentice, I.C., Atkin, O.K., Smith, N.G., **Mengoli, G.**, Stefanski, A. and Reich, P.B. (2024). Reduced global plant respiration due to the acclimation of leaf dark respiration coupled with photosynthesis. *New Phytol*, 241: 578-591. https://doi.org/10.1111/nph.19355

2022

Wang, H.,Harrison, S.P., Li, M., Prentice, I.C., Qiao, S.; Wang, R. Xu, H., **Mengoli, G**. Peng, Y., Yang, Y. (2022). The China plant trait database version 2. *Sci Data* 9, 769. https://doi.org/10.1038/s41597-022-01884-4

2022/2021

Mengoli, G., Agustí-Panareda, A., Boussetta, S., Harrison, S. P., Trotta, C., & Prentice, I. C. (2022). Ecosystem photosynthesis in land-surface models: A first-principles approach incorporating acclimation. *Journal of Advances in Modeling Earth Systems*, 14, e2021MS002767. https://doi.org/10.1029/2021MS002767

2021

Harrison, S.P., Cramer, W., Franklin, O., Prentice, I.C., Wang, H., Brännström, Å., de Boer, H., Dieckmann, U., Joshi, J., Keenan, T.F., Lavergne, A., Manzoni, S., **Mengoli, G.**, Morfopoulos, C., Peñuelas, J., Pietsch, S., Rebel, K.T., Ryu, Y., Smith, N.G., Stocker, B.D. and Wright, I.J. (2021). Eco-evolutionary optimality as a means to improve vegetation and land-surface models. *New Phytol*, 231: 2125-2141. https://doi.org/10.1111/nph.17558

PREPRINT PAPER

2023

Mengoli, G., Harrison, S. P., and Prentice, I. C.: A global function of climatic aridity accounts for soil moisture stress on carbon assimilation, EGUsphere [preprint], https://doi.org/10.5194/egusphere-2023-1261, 2023.

2021

Mengoli, G., Agustí-Panareda, A., Boussetta, S., Harrison, S. P., Trotta, C., & Prentice, I. C.: Ecosystem photosynthesis in land-surface models: a first-principles approach, bioRxiv [preprint], doi: https://doi.org/10.1101/2021.05.07.442894, 2021

PAPER in preparation

2025/2024

Mengoli, G., Harrison, S. P., Trotta, C, and Prentice, I. C.: Application of an eco-evolutionary optimality model to predict global patterns in the seasonal cycle of net ecosystem exchange. (This work has been conceptualized and written with the intent of its future submission to *Global Biogeochemical Cycles* and further analyses have been now devised for its future submission to *Global Change Biology*)