ERIC MARCON

Currently lecturer and researcher with AgroParisTech, PhD.

I am a researcher in Tropical Ecology with Amap lab, a professor at AgroParisTech and a coordinator of the BioGET course of the Biodiversity, Ecology and Evolution master's degree at AgroParisTech and Montpellier University.

I'm the director of training with Ceba Excellence Laboratory (Centre d'Etudes de la Biodiversité Amazonienne) and a member of the Scientific Council of the French Office for Biodiversity.

I am 56 years old and I live in Montpellier, France.

PROFESSIONAL EXPERIENCE

Présent | 2020 — **Lecturer-researcher in charge of a master's programme**
AgroParisTech, Amap lab. — Montpellier, France

2020 | 2006 — **Campus director with AgroParisTech**
AgroParisTech — Kourou, French Guiana

2006 | 2002 — **Educational engineer**
Ecole Nationale du Génie Rural, des Eaux et des Forêts (post-graduate, environment engineering and public administration school, now merged with AgroParisTech)
Kourou, French Guiana

2002 | 1999 — **Head of IT at Cemagref General Management**
Research Institute for Agricultural and Environmental Engineering (now merged with Inrae: National Research Institute for Agriculture, Food and Environment)
Antony, France

1997 | 1995 — **Head of IT at Engref General Management**
Ecole Nationale du Génie Rural, des Eaux et des Forêts
Paris, France

1995 | 1991 — **Forest engineer**
Head of Division with the National Forest Office
Charleville-Mézières, France

EDUCATION

2016 — **University of French Guiana**
Habilitation à Diriger des Recherches (French qualification to supervise research) in Ecology
Kourou, French Guiana

Thesis: Measuring biodiversity and spatial structures (in French)

2010 — **AgroParisTech**
PhD in Ecology — Paris, France

Thesis: Spatial statistics with applications to ecology and economics (in French)

CONTACT INFO

eric.marcon@agroparistech.fr
Home Page
Github
Google Scholar
+33 7 87 05 70 55

SKILLS

Experienced in management, research, teaching, forestry and IT.

Skilled in ecology, economics, forest science, statistics, data analysis and modelling.

Highly skilled in R.

LANGUAGE

French: mother tongue (C2)
English: fluent (C1)
Italian: advanced (B2)
Portuguese: advanced (B1)
Spanish: operational (A2)

Last updated on February 23 2024.

1999 — **Ecole Nationale du Génie Rural, des Eaux et des Forêts**
Post-Graduate Engineering School of Public Administration
Paris, France

1999 — **University of Paris, Panthéon Sorbonne**
MSc in International Economic — Paris, france

Thesis: The international timber trade (in French)

1990 — **Ecole Nationale des Ingénieurs des Travaux des Eaux et Forêts**
Graduate Engineering School of Forestry
Nogent sur Vernisson, France

RESEARCH EXPERIENCE

Present | 2020 — **Researcher in Tropical Ecology** — Amap Lab
Associate researcher at AMAP lab. — Montpellier, France

2020 | 2006 — **Head of Research Unit Ecology of Guiana Forests** — EcoFoG Lab
AgroParisTech — Kourou, French Guiana
• Deputy director from 2006 to 2009 and director from 2010.

TEACHING EXPERIENCE

Present | 2020 — **Biodiversity, Ecology and Evolution, BioGET master's programme** — Master BioGET
AgroParisTech and University of Montpellier — Montpellier, France
I coordinate the Plant Biodiversity and Management of Tropical Ecosystems (BioGET) programme, which is co-organised by the University of Montpellier and AgroParisTech.

Present | 2022 — **AgroParisTech final year** — Geeft MSc
AgroParisTech — Montpellier, France
I teach tropical forest ecology, epistemology in ecology and statistics with R to final-year, graduate engineering students in the Environmental Management of Tropical Ecosystems and Forests major.

Present | 2010 — **Biodiversity, Ecology and Evolution, EFT master's programme** — EFT MSc — Tropimundo MSc
AgroParisTech and University of French Guiana
Kourou, French Guiana
I teach biodiversity measurement and species abundance distributions to Master 2 students in the Ecology of Tropical Forests programme. This course receives students from the Erasmus Mundus Tropimundo Master's, coordinated by the Free University of Brussels.

Present | 2022 — **Erasmus Mundus Global Forestry master's programme** — Global Forestry MSc
University of Copenhagen — Copenhagen, Denmark
I teach tropical forest ecology and sustainable forest management in the Erasmus Mundus Global Forestry Master 1 programme, coordinated by the University of Copenhagen.

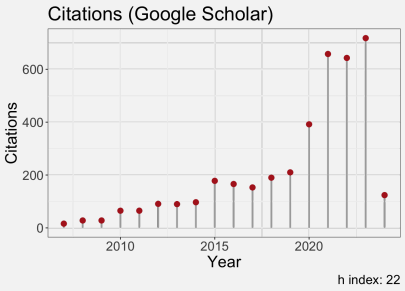
PUBLICATIONS

2017 | 2012

Measurement of Biodiversity

I wrote a series of papers to contribute to the development of methods to measure diversity rigorously, including an R package and a book.

- Grabchak, M., Marcon, E., Lang, G., & Zhang, Z. (2017). The generalized Simpson's entropy is a measure of biodiversity. Plos One, 12, e0173305.
- Buckland, S. T., Yuan, Y., & Marcon, E. (2017). Measuring temporal trends in biodiversity. AStA Advances in Statistical Analysis, 101, 461–474.
- Pavoine, S., Marcon, E., & Ricotta, C. (2016). 'Equivalent numbers' for species, phylogenetic or functional diversity in a nested hierarchy of multiple scales. Methods in Ecology and Evolution, 7(10), 1152–1163.
- Marcon, E., & Hérault, B. (2015). Decomposing phylodiversity. Methods in Ecology and Evolution, 6, 333–339.
- Marcon, E., & Hérault, B. (2015). *entropart*, an R package to measure and partition diversity. Journal of Statistical Software, 67, 1–26.
- Marcon, E., Scotti, I., Hérault, B., Rossi, V., & Lang, G. (2014). Generalization of the partitioning of Shannon diversity. Plos One, 9, e90289.
- Marcon, E., Hérault, B., Baraloto, C., & Lang, G. (2012). The decomposition of Shannon's entropy and a confidence interval for beta diversity. Oikos, 121, 516–522.



2023
|
2003

Characterization of spatial patterns

I co-authored with Florence Puech a series of papers in the field of spatial microeconometrics. An R package is available.

- Marcon, E., & Puech, F. (2023). Mapping distributions in non-homogeneous space with distance-based methods. Journal of Spatial Econometrics, 4, 13.
- Lang, G., Marcon, E., & Puech, F. (2020). Distance-based measures of spatial concentration: Introducing a relative density function. The Annals of Regional Science, 64, 243–265.
- Marcon, E. (2019). Mesure de la biodiversité et de la structuration spatiale de l'activité économique par l'entropie. Revue Économique, 70(3), 305–326. English translation.
- Floch, J.-M., Marcon, E., & Puech, F. (2018). Spatial distribution of points. In V. Loonis & M.-P. (de) Bellefon (Eds.), Handbook of spatial analysis (pp. 71–111). Insee-Eurostat.
- Marcon, E., & Puech, F. (2017). A typology of distance-based measures of spatial concentration. Regional Science and Urban Economics, 62, 56–67.
- Marcon, E., Traissac, S., Puech, F., & Lang, G. (2015). Tools to characterize point patterns: *dbmss* for R. Journal of Statistical Software, 67, 1–15.
- Marcon, E., Traissac, S., & Lang, G. (2013). A statistical test for Ripley's function rejection of poisson null hypothesis. ISRN Ecology, Article ID 753475.
- Lang, G., & Marcon, E. (2013). Testing randomness of spatial point patterns with the Ripley statistic. ESAIM: Probability and Statistics, 17, 767–788.
- Marcon, E., Puech, F., & Traissac, S. (2012). Characterizing the relative spatial structure of point patterns. International Journal of Ecology, Article ID 619281.
- Marcon, E., & Puech, F. (2010). Measures of the geographic concentration of industries: Improving distance-based methods. Journal of Economic Geography, 10, 745–762.
- Marcon, E., & Puech, F. (2003). Evaluating the geographic concentration of industries using distance-based methods. Journal of Economic Geography, 3, 409–428.

2020 | 2007

Tropical Forest Ecology

I contributed to several research programmes in French Guiana.

Kourou, Guyane française

- Schmitt, S. *et al.* (2020). Topography consistently drives intra- and inter-specific leaf trait variation within tree species complexes in a Neotropical forest. Oikos, 129, 1521–1530.
- Richard-Hansen *et al.* (2015). Landscape patterns influence communities of medium- to large-bodied vertebrate in undisturbed terra firme forests of French Guiana. Journal of Tropical Ecology, 31, 423–436.
- Coste, S. *et al.* (2010). Assessing foliar chlorophyll contents with the SPAD-502 chlorophyll meter: A calibration test with thirteen tree species of tropical rainforest in French Guiana. Annals of Forest Science, 67, 607.
- Baraloto, C., Marcon, E., Morneau, F., Pavoine, S., & Roggy, J.-C. (2010). Integrating functional diversity into tropical forest plantation designs to study ecosystem processes. Annals of Forest Science, 67, 303.
- Blanc, L. *et al.* (2009). Dynamics of aboveground carbon stocks in a selectively logged tropical forest. Ecological Applications, 19, 1397–1404.
- Bonal, D. *et al.* (2007). The successional status of tropical rainforest tree species is associated with differences in leaf carbon isotope discrimination and functional traits. Annals of Forest Science, 64, 169–176.

2023 | 2019

Ecology

I contributed to synthesis and large-scale studies papers in ecology.

- Bouchard, E. *et al.* (2024). Global patterns and environmental drivers of forest functional composition. Global Ecology and Biogeography, 33, 303-324.
- Mo, L. *et al.* (2023). Integrated global assessment of the natural forest carbon potential. Nature, 624, 92–101.
- Ma, H. *et al.* (2023). The global biogeography of tree leaf form and habit. Nature Plants, 9, 1795–1809.
- Hordijk, I. *et al.* (2023). Evenness mediates the global relationship between forest productivity and richness. Journal of Ecology, 111, 1308–1326.
- Delavaux, C. S. *et al.* (2023). Native diversity buffers against severity of non-native tree invasions. Nature, 621, 773–781.
- Liang, J. *et al.* (2022). Co-limitation towards lower latitudes shapes global forest diversity gradients. Nature Ecology & Evolution, 6, 1423–1437.
- Kattge, J. *et al.* (2020). TRY plant trait database – enhanced coverage and open access. Global Change Biology, 26, 119–188.
- Steidinger, B. S. *et al.* (2019). Climatic controls of decomposition drive the global biogeography of forest tree symbioses. Nature, 569, 404–408.

Present | 2007

Student supervision

I contributed to the publications of students I supervised.

- Nemetschek, D., Derroire, G., Marcon, E., Aubry-Kientz, M., Auer, J., Badouard, V., Baraloto, C., Bauman, D., Le Blaye, Q., Boisseaux, M., Bonal, D., Coste, S., Dardevet, E., Heuret, P., Hietz, P., Levionnois, S., Maréchaux, I., McMahon, S. M., Stahl, C., Vleminckx, J., Wanek, W., Ziegler, C., & Fortunel, C. (2024). Climate anomalies and neighbourhood crowding interact in shaping tree growth in old-growth and selectively logged tropical forests. Journal of Ecology,in press
- Penel, B., Freycon, V., Marcon, E., Rossi, V., Cornu, G., Bénédet, F., Forni, E., & Gourlet-Fleury, S. (2022). Macrotermes termite mounds influence the spatial pattern of tree species in two African rainforest sites, in northern Congo. But were they really forests in the past? Journal of Tropical Ecology, 38, 267–274.
- Mirabel, A., Marcon, E., & Hérault, B. (2021). 30 Years of postdisturbance recruitment in a Neotropical forest. Ecology and Evolution, 11, 14448–14458.
- Mirabel, A., Hérault, B., & Marcon, E. (2020). Diverging taxonomic and functional trajectories following disturbance in a Neotropical forest. Science of The Total Environment, 720, 137397.
- Ollivier, M., Baraloto, C., & Marcon, E. (2007). A trait database for Guianan rain forest trees permits intra- and inter-specific contrasts. Annals of Forest Science, 64, 781–786.

Present | 2015

Books

I wrote two scientific books which are available in open access on HAL and are kept up to date on GitHub.

- Marcon, E. (2021). Working R. UMR Amap. Montpellier, France. https://doi.org/10.5281/zenodo.5778902.
- Marcon, E. (2018). Mesures de la Biodiversité. UMR EcoFoG Kourou, France. https://agroparistech.hal.science/cel-01205813v5.

Working with R

Travailler avec R (in French)

Mesures de la Biodiversité (in French)

Present | 2003

Reviewing

I've been a reviewer for many scientific journals.

- Acta Biotheoretica
- Annals of Forest Science
- AStA Advances in Statistical Analysis
- Biodiversity and Conservation
- Bois et Forêts des Tropiques
- Cybergeo
- Diversity
- Ecography
- Ecological Indicators
- Ecology and Evolution
- Économie et Prévision
- Économie et Statistique
- Empirical Economics
- Entropy
- Environmental and Ecological Statistics
- Environmetrics
- Forest Ecosystems
- Geographical Analysis
- Hacettepe Journal of Mathematics and Statistics
- Indian Journal of Science & Technology
- Journal of Classification
- Journal of Economic Geography
- Journal of Geographical Systems
- Journal of the Royal Statistical Society
- Journal of Theoretical Biology
- Journal of Vegetation Science
- Mathematics
- Methods in Ecology and Evolution
- Microorganisms
- Molecular Ecology Resources
- Oecologia
- Papers in Regional Science
- PeerJ
- Planning Practice and Research
- Plants
- Plos ONE
- Regional Science and Urban Economics
- Regional Studies
- Science of the Total Environment
- Spatial Economic Analysis
- Stochastic Environmental Research and Risk Assessment
- The R Journal
- Theoretical Ecology
- Theory in Biosciences
- Urban Geography
- Urban Studies
- Web Ecology

SOFTWARE DEVELOPMENT

2015 **entropart**
entropart is an R package that provides functions to calculate alpha, beta and gamma diversity of communities, including phylogenetic and functional diversity. Estimation-bias corrections are available.

Package entropart

2015 **dbmss**
dbmss is an R package for simple computation of spatial statistic functions of distance to characterize the spatial structures of mapped objects, including classical ones (Ripley's K and others) and more recent ones used by spatial economists (Duranton and Overman's K_d, Marcon and Puech's M). It relies on spatstat for some core calculation.

Package dbmss

2021 **memoiR**
Templates to publish well-formatted and reproducible documents both in HTML and PDF formats.

Package memoiR