

# 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), a member of the [Scientific Council](#) of the French Office for Biodiversity and a member of the [domain committee Sustainable management of Natural Resources - Biodiversity](#) of the French Ministry of Ecology.

I am 57 years old and I live in Montpellier, France.








## PROFESSIONAL EXPERIENCE

- Présent  
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2020  
● **Lecturer-researcher in charge of a master's programme**  
AgroParisTech, Amap lab.  Montpellier, France
- 2020  
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2006  
● **Campus director with AgroParisTech**  
AgroParisTech  Kourou, French Guiana
- 2006  
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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  
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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  
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1995  
● **Head of IT at Engref General Management**  
Ecole Nationale du Génie Rural, des Eaux et des Forêts  
 Paris, France
- 1995  
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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)

## CONTACT INFO

-  [eric.marcon@agroparistech.fr](mailto: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)

- 2010 ● **AgroParisTech**  
PhD in Ecology 📍 Paris, France  
  
*Thesis:* Spatial statistics with applications to ecology and economics (in French)
- 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**  
Associate researcher at AMAP lab. 📍 Montpellier, France
- 2020 | 2006 ● **Head of Research Unit Ecology of Guiana Forests**  
AgroParisTech 📍 Kourou, French Guiana  
• Deputy director from 2006 to 2009 and director from 2010.

 [Amap Lab](#)

 [EcoFoG Lab](#)

## TEACHING EXPERIENCE

- Present | 2020 ● **Biodiversity, Ecology and Evolution, BioGET master's programme**  
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**  
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**  
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.

 [Master BioGET](#)

 [Geeft MSc](#)

 [EFT MSc](#)

 [Tropimundo MSc](#)

Present  
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2022

## Erasmus Mundus Global Forestry master's programme

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.

🏛️ Global Forestry MSc



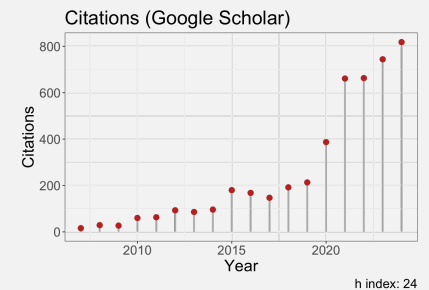
## PUBLICATIONS

Present  
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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.

- Marcon, E., Mirabel, A., Molino, J.-F., Sabatier, D. (2024). Estimation of the number of tree species in French Guiana by extrapolation of permanent plots richness. *Journal of Tropical Ecology*, **40**, e11.
- 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.



Present  
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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](#).
- 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  
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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.

## ● Ecology

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

- Mo, L. *et al.* (2024). The global distribution and drivers of wood density and their impact on forest carbon stocks. *Nature Ecology & Evolution*, *in press*.
- Hordijk, I. *et al.* (2024). Dominance and rarity in tree communities across the globe: Patterns, predictors and threats. *Global Ecology and Biogeography* **33**, [e13889](#).
- Zou, Y. *et al.* (2024). Positive Feedbacks and Alternative Stable States in Forest Leaf Types. *Nature Communications* **15**, [4658](#).
- 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., Fortunel, C., Marcon, E., Auer, J., Badouard, V., Baraloto, C., Boisseaux, M., Bonal, D., Coste, S., Dardevette, E., Heuret, P., Hietz, P., Levionnois, S., Maréchaux, I., Stahl, C., Vleminckx, J., Wanek, W., Ziegler, C., Derroire, G. (2024). Love Thy Neighbour? Tropical Tree Growth and Its Response to Climate Anomalies Is Mediated by Neighbourhood Hierarchy and Dissimilarity in Carbon and Water Related Traits. *Ecology Letters*, [accepted](#)
- 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*, [112](#), 590-612
- Penel, B., Freycon, V., Marcon, E., Rossi, V., Cornu, G., Bénédet, F., Forni, E., & Goulet-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  
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2003

## Reviewing

I've been a reviewer for many scientific journals.

- Acta Biotheoretica
- Agricultural and Forest Meteorology
- Annals of Forest Science
- AStA Advances in Statistical Analysis
- Biodiversity and Conservation
- Bois et Forêts des Tropiques
- Cybergeog
- Diversity
- Diversity and Distributions
- Ecography
- Ecological Indicators
- Ecology and Evolution
- Économie et Prévision
- Économie et Statistique
- Empirical Economics
- Entropy
- Environmental and Ecological Statistics
- Environmetrics
- Forest Ecosystems
- Forests
- 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
- Land
- Mathematics
- Methods in Ecology and Evolution
- Microorganisms
- Nitrogen
- Molecular Ecology Resources
- Oecologia
- One Earth
- 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
- Sustainability
- 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](#)