Rémi Vezy

Researcher

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Professional Summary

I am a researcher working for CIRAD at the UMR AMAP lab in Montpellier, France. I am specialized on Functional-Structural Plant Modelling (FSPM), and my research interests include ecophysiology, environmental physics, tree architecture, computer models and agronomy.

Experience

CIRAD — *Montpellier, France*

Researcher — *01/10/2018 - Present*

- Functional-structural plant modelling for agronomy, agroforestry and forestry

INRAE — *Montpellier, France*

Post-doctorate — *03/2018 - 30/09/2018*

- Modelling intercrops with the STICS soil-crop model: model adaptation for simulating intercrop management scenarios within the framework of the H2020 European project ReMIX

UMR ISPA - INRAE — *Bordeaux, France*

PhD in environmental physics — *01/10/2014 - 31/12/2017*

- Simulation of alternative management practices for the adaptation of perennial plantations to global changes

Education

INRAE Centre de Recherche de Bordeaux-Aquitaine — *Bordeaux*

PhD in environmental physics: Simulation of alternative management practices for the adaptation of perennial plantations to global changes — *2014 - 2017*

AgroParisTech — *Kourou*

Master: Tropical ecosystem management, mathematics and modelling — *2012 - 2013*

Université Paul Sabatier — *Toulouse*

First year Master's degree: Ecology — *2011 - 2012*

Université Paul Sabatier — *Toulouse*

Licence: Organisms, populations and ecosystems biology — *2007 - 2011*

Publications

Scientific articles (A-rank)

Noémie Gaudio, Gaëtan Louarn, Romain Barillot, Clémentine Meunier, Rémi Vezy... — *in silico Plants*

Exploring complementarities between modelling approaches that enable upscaling from plant community functioning to ecosystem services as a way to support agroecological transition — *2022*

- Cites: 8

Raphaël PA Perez, Rémi Vezy, Loïc Brancheriau, Frédéric Boudon, François Gran... — *in silico Plants*

When architectural plasticity fails to counter the light competition imposed by planting design: an in silico approach using a functional–structural model of oil palm — *2022*

- Cites: 1

Grégoire Leclerc, Pierre Bommel, Natacha Motisi, Rémi Vezy, Edwin Treminio, J... — *Agronomie, Environnement \& Soci{\'e}t{\'e}s*

Coffee leaf rust (Hemeleia vastatrix) risk management in Central America: contribution of remote interactive simulations — *2021*

- Cites: 0

Rémi Vezy, Guerric le Maire, Mathias Christina, Selena Georgiou, Pablo Imbach... *Environmental Modelling & Software*

DynACof: A Process-Based Model to Study Growth, Yield and Ecosystem Services of Coffee Agroforestry Systems *2020*

- Cites: 0

Virginie Moreaux, Simon Martel, Alexandre Bosc, Delphine Picart, David Achat,... *Geoscientific Model Development*

Energy, Water and Carbon Exchanges in Managed Forest Ecosystems: Description, Sensitivity Analysis and Evaluation of the {{INRAE GO}}+ Model, Version 3.0 *2020*

- Cites: 3

M. Christina, G. le Maire, Y. Nouvellon, R. Vezy, B. Bordon, P. Battie-Laclau... *Forest Ecology and Management*

Simulating the effects of different potassium and water supply regimes on soil water content and water table depth over a rotation of a tropical Eucalyptus grandis plantation *2018*

- Cites: 36

Remi Vezy, Mathias Christina, Olivier Roupsard, Yann Nouvellon, Remko Duursma... *Agricultural and Forest Meteorology*

Measuring and modelling energy partitioning in canopies of varying complexity using MAESPA model *2018*

- Cites: 24

C. Gaucherel, R. Vezy, F. Gontrand, D. Bouchet, B. R. Ramesh *Journal for Nature Conservation*

Spatial analysis of endemism to redefine conservation areas in Western Ghats (India) *2016*

- Cites: 8

In preparation

In preparation, submitted or under review

F. Charbonnier, O. Roupsard, E. Dreyer, R. Vezy, M. Christina, J. M. Bonnefon...

Modeling the intra-plot variability of Light and Water Use efficiencies in a 2-layered heterogeneous coffee (Coffea arabica L.) agroforestry system *in prep.*

Maxime; Soma, Remi; Vezy, Lydie; Guilioni, Guerric; le Maire, Elias; de Melo ...

On the potential of agroforestry to buffer crop canopy temperature: a simple empirical model tested on coffee *in prep.*

R. Vezy, O. Roupsard, S. Georgiou, P. Imbach, B. Rapidel, F. Charbonnier, C. ...

Modelling Coffea arabica adaptation to future climate change: neither CO_2 nor shade remediate projected yield losses at low elevations *in prep.*

Conferences

Eric Justes, Rémi Vezy, Sebastian Munz, Kirsten Paff, Laurent Bedoussac, Noé... *Conference on Intercropping for sustainability. Research developments and their application*

Recent advances in intercropping modelling: the new version of the STICS soil-crop model simulates consistently a wide range of bi-specific annual intercrops. *2021*

Rémi Vezy, Sebastian Munz, Noémie Gaudio, Marie Launay, Kirsten Paff, Patrice... *STICS Model Workshop*

Improving the Intercropping Version of the STICS Model for Simulating Inter-Specific Competition *2020*

Rémi Vezy, Sebastian Munz, Noémie Gaudio, Marie Launay, Kirsten Paff, Patrice... *ICROPM*

Implementation of New Formalisms in STICS for Intercropping Modeling *2020*

Kirsten Paff, Sebastian Munz, Rémi Vezy, Noémie Gaudio, Laurent Bedoussac, Er... *STICS Model Workshop*

Calibration and Evaluation of the STICS Intercrop Model for Two Cereal-Legume Mixtures *2020*

Rémi Vezy, Raphaël P.A. Perez, Francois Grand, Jean Dauzat *Fspm2020*

Light Exchanges in Discrete Directions as an Alternative to Raytracing and Radiosity *2020*

Raphael P.A. Perez, Remi Vezy, Loic Brancheriau, Frederic Boudon, Francois Gr... *Fspm2020*

Toward a Functional-Structural Model of Oil Palm Accounting for Architectural Plasticity in Response to Planting Density *2020*

Remi Vezy, Raphael P.A. Perez, Francois Grand, Jean Dauzat *Fspm2020*

Light Exchanges in Discrete Directions as an Alternative to Raytracing and Radiosity *2020*

Olivier Roupsard, Cathy Clermont-Dauphin, Alain Audebert, Jacob Sanou, J. Koa... *World Congress on Agroforestry*

Faidherbia-Flux: Adapting Crops to Climate Changes in a Semi-Arid Agro-Sylvo-Pastoral Open Observatory (Senegal) *2019*

Olivier Roupsard, Laurent Cournac, Christophe Jourdan, Laure Tall, Maxime Dut... *World Congress on Agroforestry*

Faidherbia-Flux, an Open Observatory for GHG Balance and C Stocks in a Semi-Arid Agro-Sylvo-Pastoral System (Senegal) *2019*

Rémi Vezy, Guerric le Maire, Fabien Charbonnier, Mathias Christina, Selena Ge... *World Congress on Agroforestry*

DynACof, a Model for Growth, Yield, Carbon, Water, Energy Balances and Ecosystem Services of Coffea in Agroforestry *2019*

Mathias Christina, Guerric Le Maire, Yann Nouvellon, Remi Vezy, Bruno Bordron... *Eucalyptus 2018*

Eucalyptus plantations and deep groundwater: the effects of different potassium and water supply regimes on soil water uptake and water table depth *2018*

Olivier Roupsard, Karel Van Den Meersche, Clementine Allinne, Philippe Vaast,... *World Coffee Summit*

Eight years studying ecosystem services in a coffee agroforestry observatory. Practical applications for the stakeholders *2017*

R. Vezy, M Christina, O. Roupsard, Y Nouvellon, F. Charbonnier, J. P. Laclau,... *Functional Ecology Conference*

Modelling plant to plot energy balance after improving the MAESPA model in simple to complex forests and agroforests *2017*

R. Vezy, D. Picart, M Christina, M. Soma, S. Georgiou, F. Charbonnier, D Lous... *European Agroforestry Conference*

Effect of shade on temperature mitigation and canopy assimilation of coffee agroforestry systems: a modelling approach *2016*

R. Vezy, D. Picart, M. Christina, M. Soma, S. Georgiou, F. Charbonnier, D. Lo... *Conference on Agricultural and Forest Meteorology*

Coupling a 3D Light Interception With a Growth and Yield Model to Adjust Shade Level in Coffee Agroforestry Systems Simulated under Climate Change *2016*

Manuscripts

R. Vezy

Simulation de pratiques de gestion alternatives pour l adaptation des plantations perennes aux changements globaux *2017*

R. Vezy

Understand and protect endemism: application to the case of the (semi-) evergreen forests of the western ghats. *2013*

Books

Rémi Vezy

Le Compagnon de l'utilisateur R *in progress*

Olivier Roupsard, Clémentine Allinne, Karel Van Den Meersche, Philippe Vaast,...

Suivi des services ecosystemiques dans un observatoire de cafeiers agroforestiers. Applications pour la filiere du cafe *2019*

Projects

PALMSTUDIO-2 *Link*

R. Vezy (CIRAD) *2020-2022*

- Modelling performances of oil palm plantation by identification of architectural and functionnal traits, second phase

PALMSTUDIO *Link*

J. Dauzat (CIRAD) *2017-2019*

- Modelling performances of oil palm plantation by identification of architectural and functionnal traits

ARBRATATOUILLE II *Link*

AGROOF *2014-*

- Improvement of agroforestry technical itineraries in vegetable production

ReMIX *Link*

E. Justes (INRAE) *2017-2021*

- Redesigning European cropping systems based on species MIXtures

EUCFLUX *Link*

G. Le Maire (CIRAD), Y. Nouvellon (CIRAD), A. Robin (CIRAD), J-P. Laclau (CIRAD), J. Guillemot (CIRAD) *2008-2017*

- Quantification of the Carbon, Water and Nutrient Balances at Ecosystem Scale, for a Rotation of the Eucalyptus using Flux tower

ANR MACCAC *Link*

O. Roupsard (CIRAD) *2014-2017*

- Modélisation pour l'accompagnement des ACteurs, vers l'Adaptation des Couverts pérennes ou agroforestiers aux Changements globaux

COFFEEFLUX *Link*

O. Roupsard (CIRAD) *2009-2018*

- Measuring and modelling carbon, nutrients, water and sediment Ecosystem Services in an agroforestry coffee watershed (Costa Rica)

Software development

DynACof *Link*

R language *2016 - today*

- The Dynamic Agroforestry Coffee Crop Model

MAESPA *Link*

FORTRAN *2014 - today*

- Maespa is a model of forest canopy radiation absorption, photosynthesis and water balance

sticRs *Link*

R language *2018*

- The R package for the STICS model

STICS-intercrop *Link*

FORTRAN *2018-today*

- Simulateur mulTIdisciplinaire pour les Cultures Standard.

sticsRpacks *Link*

R language *2018-today*

- Suite of R packages for STICS

VPALM-IDE *Link*

R language *2018-today*

- A shiny application bundled in an Electron application to compute virtual palm scenes from architectural data

VPALMr *Link*

R language *2018-today*

- R package to build palm tree mockups from field data

archimedR *Link*

R language *2018-today*

- A Package To Manage ARCHIMED Simulations

Languages

French	*native*
English	*good*
Portuguese	*basic conversation*
Spanish	*very basic*