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PhD STUDENT in Soil Science (2015-2019) PhD defense June 21st, 2019

«Consequences of clear-cutting on the production of fine roots, CO₂, CH₄ and N₂O down to the water table in coppice-managed *Eucalyptus grandis* stands in a throughfall-exclusion experiment»



Research Unit - Functional Ecology and Soil Biogeochemistry

Supervised by **Christophe Jourdan** et **Jean-Paul Laclau**



SupAgro Montpellier - Ecosystems and Agronomic Sciences - **Doctoral School GAIA**
São Paulo State University UNESP - School of Agricultural Sciences - Botucatu, Brazil

LANGUAGES SKILLS

- French: Mother tongue
- Spanish: Bilingual (6 years in Dominican Republic)
- English: Good level both written and oral
- Portuguese: Fluent (3 years in Brazil)

EDUCATION AND QUALIFICATIONS

2013 - 2014



Last year of Engineering University at AgroParisTech - Ex ENGREF – FRANCE

Dominant Deepening in Environmental management of Tropical ecosystems and Forests
Institute awarding a 5-year degree equivalent to a Master of Science

& Master STVE specialization "Management of Tropical Ecosystems"

Obtention of the double diplôme on October 2014

Agricultural Engineer & Master's Degree

2010 – 2012



2 Years at a French Engineering University of Agronomics and Food Industries – ENSAIA - FRANCE

Institute awarding a 5-year degree equivalent to a Master of Science

Pre-Specialization: Science and Environmental Engineering

2007 – 2010

Lycée (Post High-school) Jean Baptiste Say – Paris

Preparatory classes for University entrance examinations
"Prépa BCPST" - Biology, Chemistry, Physics and Earth Sciences

2007

4 'A' Levels in scientific subject obtained with Honors in the French High-school in Santo Domingo – Dominican Republic.

COMPUTING SKILLS

- R, RStudio
- Root Typ, Dig R
- Hydrus
- Min3P
- Pack Office
- Macintosh & PC
- WinRhizotron
- Image J, XnView

MY ASSETS

- Adaptability
- Autonomy
- Determination
- Efficiency
- Reliability
- Organization
- Teamwork

SKILLS

- Management of a scientist multidisciplinary project
- Ability to work with different research teams
- Ability to conduct field sampling work
- Statistical processing and analyses
- Team managing technicians and interns

EMPLOYMENT AND INTERNSHIPS

2014

[6 months]



End-of-studies internship on a research project of UMR Eco&Sols and UMR System Montpellier – France

Tutors: **Christophe Jourdan** & **Christian Dupraz**

- Root Dynamics in Agroforestry systems and impact on the carbon cycle
- Acquisition and processing root images & Bibliographic studies

Publication of a scientific article

2013

[4 months]



Gap-year internship on a research project of IRD, CNRS/CEFE and UFLA

Lavras – **Brazil**- Tutor: **Joao Paulo R. A. Delfino Barbosa**

- Impacts of global changes in the fire regime, functioning and structure of tropical landscapes
- Bibliographic studies & Analysis of cerrado's plant ecophysiology

2012 – 2013

[7 months]



Gap-year internship with the Agricultural Research for Development

CIRAD, CATIE Turrialba – Costa Rica- Tutor: **Jacques Avelino**

- Phytopathologic observations and analysis for the study of ecosystem services from cocoa agroecosystem
- Management of an experimental team & Bibliographic studies & Establishment of data bases, statistical analysis and a model

Publication of a scientific article

BANAMART –Martinique Martinique's banana agricultural group – Internship

- Field & Conditioning area work
- Team management & Management of irrigation system

2011

[6 weeks]



SCIENTIFIC COMMUNICATIONS

Published scientific articles :

Germon, A., Jourdan, C., Bordron, B., Robin, A., Nouvellon, Y., Chapuis-Lardy, L., Gonçalves, JLM., Pradier, C., Guerrini, I.A., Laclau, J-P. (2019). Consequences of clear-cutting and drought on fine root dynamics down to 17 m in coppice-managed eucalypt plantations. **Forest Ecology and Management**, 445, 48-59.

Germon, A., Guerrini, I. A., Bordron, B., Bouillet, J. P., Nouvellon, Y., de Moraes Gonçalves, J. L., Jourdan, C. Laclau, J. P. (2017). Consequences of mixing *Acacia mangium* and *Eucalyptus grandis* trees on soil exploration by fine-roots down to a depth of 17 m. **Plant and Soil**, 424 (1-2), 203-220.

Lambais, G. R., Jourdan, C., de Cássia Piccolo, M., **Germon, A.,** Pinheiro, R. C., Nouvellon, Y., Stape, J.L., Camargo, O., Le Maire, G., Laclau, J.P. (2017). Contrasting phenology of *Eucalyptus grandis* fine roots in upper and very deep soil layers in Brazil. **Plant and Soil**, 421(1-2), 301-318.

Leandro-Muñoz, M. E., Tixier, P., **Germon, A.,** Rakotobe, V., Phillips-Mora, W., Maximova, S., Avelino, J. (2017). Effects of microclimatic variables on the symptoms and signs onset of *Moniliophthora roreri*, causal agent of Moniliophthora pod rot in cacao. **PloS one**, 12(10), e0184638.

Germon, A., Cardinael, R., Prieto, I., Mao, Z., Kim, J., Stokes, A., Dupraz, C., Laclau, J.P., Jourdan, C. (2016). Unexpected phenology and lifespan of shallow and deep fine roots of walnut trees grown in a silvoarable Mediterranean agroforestry system. **Plant and soil**, 401(1-2), 409-426.

Scientific articles under review or in prep.:

Robin, A., Pradier, C., Sanguin, H., Mahé, F., Lambais, G.R., Prudêncio de Araujo Pereira, A., **Germon, A.,** Cintra, M., Tisseyre, P., Pablo, A.L., Heuillard, P., Saudavet, M., Bouillet, J.P., Dini Androte, F., Plassard, C., Jurandy Bran Nogueira Cardoso, E., Laclau, J.P., Hinsinger, P., Jourdan, C. How deep can ectomycorrhizae go? A case study down to 4-meter depth in a Brazilian eucalyptus plantation under rainfall reduction. **Under review Mycorrhiza**

Germon, A., Chapuis-Lardy, L., Nouvellon, Y., Jourdan, C., Robin, A., Guillemot, J., Rosolem, C.A., Gonçalves, JLM., Guerrini, I.A., Laclau, J-P. Consequences of clear-cutting and drought on CO₂, CH₄ and N₂O productions throughout deep soil profiles in coppice-managed eucalypt plantations. **In prep.**

Bordron, B., **Germon, A.,** Laclau, J-P., Rosada, I., Robin, A., Jourdan, C., Paula, R.R., Pinheiro, R.C., Guillemot, J., Gonçalves, JLM., Bouillet, J-P. Eucalyptus fine roots development in mixed species plantation shows higher Acacia N facilitation under the stress gradient hypothesis. **In prep.**

Asensio, V., Laclau, J-P., Bordron, B., Le Maire, G., Abreu-Junior, C., Battie-Laclau, P., Bouillet, J-P, Domec, J-C., **Germon, A.,** Gonçalves, JLM., de Deus Junior, J.C., Nouvellon, Y., Robin, A., Delgado-Rojas, J.S., Guillemot, J. Potassium supply enhances hydraulic constraints on water use in eucalyptus trees. **In prep.**

Oral Communication / poster:

Germon, A., Jourdan, C., Chapuis-Lardy, L., Nouvellon, Y., Robin, A., Rosolem, C.A., Gonçalves, J.L.M., Guerrini, I.A., Laclau, J-P. Dynamics of CO₂, CH₄ and N₂O concentrations throughout deep soil profiles in Eucalypt plantations subjected to contrasted rainfall regimes : consequences on soil effluxes. **EUCALYPTUS 2018** Managing Eucalyptus plantations under global changes, 17-21 September 2018, Montpellier, France (oral presentation)

Germon, A., Jourdan, C., Bordron B., Robin, A., Guerrini, I.A., Gonçalves, J.L.M., Laclau, J-P. Consequences of clear-cutting and drought on fine root production and mortality down to 17 m in Brazilian eucalypt plantations, **ISRR10** International Society of Root Research conference, 8-12 July 2018, Yearim Hotel, Israel (oral presentation)

Germon A., Jourdan, C., Chapuis-Lardy, L., Nouvellon, Y., Robin, A., Rosolem, C.A., Gonçalves, J.L.M., Guerrini, I.A., Laclau, J.P. Consequence of clear-cutting and drought on deep soil CO₂ and N₂O profile concentrations and surface fluxes in Brazilian eucalypt plantations. **IUFRO 2017** Interconnecting Forests, Science and People, 19-22 september 2017, Freiburg, Germany (poster)

Germon A., Ferreira D.S., Guerrini I.A., Bouillet J.P., Nouvellon Y., Gonçalves J.L.M., Moreira R.M., Jourdan C., Laclau J.P. Consequences of mixing *Acacia mangium* and *Eucalyptus grandis* trees on soil exploration by fine roots down to a depth of 17 m in a tropical planted forest, **EcoSummit 2016** - Ecological Sustainability: Engineering Change, 29 August - 1 September 2016, Le Corum, Montpellier, France (Lightning talk and poster)

PROJECT AND COLLABORATIONS

Project: Impact of water regime on root and gaseous profiles of deep tropical soil under eucalyptus conducted in coppice (ProfiSol)

Contributors: Jean-Paul Laclau (CIRAD, UMR Eco&Sols), Lydie Chapuis-Lardy (IRD, UMR Eco&Sols), Christophe Jourdan (CIRAD, UMR Eco&Sols), Tiphaine Chevallier (IRD, UMR Eco&Sols), Yann Nouvellon (CIRAD, UMR Eco&Sols), Agnes Robin (CIRAD, UMR Eco&Sols), Ciro Antonio Rosolem (UNESP), Jose Leonardo Gonçalves (ESALQ, USP), Irae Amaral Guerrini (UNESP)

Project: EUCFLUX « Quantification of the Carbon, Water and Nutrient Balances, in the Ecosystem Scale, for a Rotation of the *Eucalyptus* using Flux tower »

Contributors: Christophe Jourdan (CIRAD, UMR Eco&Sols), Yann Nouvellon (CIRAD, UMR Eco&Sols), Agnes Robin (CIRAD, UMR Eco&Sols), Gueric Le Maire (CIRAD, UMR Eco&Sols), Jean-Paul Laclau (CIRAD, UMR Eco&Sols)

Project: Agripsol « Agroforestry for soil protection », ANR ECOSFIX « Roots ecosystem services - water redistribution, carbon sequestration and soil fixation », ANR-2010-STRA-003-01.

Contributors: Rémi Cardinael (CIRAD, UPR AIDA), Christophe Jourdan (CIRAD, UMR Eco&Sols), Christian Dupraz (INRA, UMR System), Alexia Stokes (INRA, UMR AMAP), Ivan Preto (CNRS. CEF, Montpellier), Zhun Mao (IRSTEA, Grenoble), John Kim (Max Planck Institute for Biogeochemistry)

Project « Effect of the pod production dynamic of the cocoa tree and inoculum sources on the Frosty Pod Rot (*Moniliophthora roreri*) development »

Contributors: Leandro-Muñoz Mariela (CATIE), Jacques Avelino (CIRAD, UPR Bioagresseurs)

LONG STAY:

- Martinique (French West Indies) 11 years
- Dominican Republic 6 years
- Brazil 3 years
- Costa Rica 7 months
- Spanish-speaking South America 3 months
- USA 2 months
- Central America 2 months
- French Guyana 1 month

OTHER INTERESTS AND ACTIVITIES

Member of the organization team of:

- **24h de Stan 2012** (40 000 persons, budget 78 000€)
- **Inter-Agros 2011** (2 000 students, budget 200 000€)

Volunteer for the association
"Abriendo-Caminos"
(Dominican Republic)

CAPACITIES AND SPORTS

- Clean driving license
- Bridge - 7th at French Junior championship
- Swimming (Sports study program and competitions)

REVIEWING:

- Forest Ecology and Management
- Plant and Soil