

1. Curriculum Vitae

First/Last name : Christelle HÉLY

Married name : ALLEAUME

Birthday: May 9, 1971

Place of birth: Villeneuve St- Georges (94)

Nationality: French

Family status: Married, 2 children



Business address :

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2. Degrees

2011 **Habilitation à Diriger des Recherches** – Ecole Pratique des Hautes Etudes, France. *Specialty*: Life and Earth Sciences.

2000 **Ph.D. in Sciences** – University of Quebec in Montréal, Canada. *Specialty*: Environmental Sciences.

1994 **DEA** (2nd year of Master Degree in Biology) – Univ. Rennes I, France.

1993 **Maîtrise** (1st year of Master Degree in Biology) – Univ. Rennes I, France.

1992 **Licence** (3rd year of Bachelor degree in Biology) – Univ. Rennes I, France.

1991 **DEUG** (1st - 2nd years of Bachelor degree in Biology) – Univ. Perpignan, France.

3. Employment

2012 - present : Director of Studies (Professor) 2nd class, EPHE, UMR 5554 ISEM (<http://www.isem.univ-montp2.fr/>) – Paléoenvironnements et Chronoécologie (PALECO), Montpellier

2005 – 2011: Conference Lecturer (Chargée de Conférences), EPHE.

2004 – 2011: Research Scientist (CR1), CNRS, UMR 6635 CEREGE (<https://www.cerege.fr/>), Aix-en-Provence

2002 – 2004: Post-doctoral fellow (24 months) Temporary Scientist CNRS, UMR CEREGE, Aix-en-Provence

2000 – 2002: Post-doctoral fellow (26 months), Research Associate, Department of Environmental Sciences (<http://www.uvacres.org/about.php>), University of Virginia, Virginia, USA

2000 – 2000: Post-doctoral fellow (4 months), Research Associate, School of Resources and Environmental Management, Simon Fraser University, British Columbia, Canada.

4. Scientific production

For details see the scientific production file

Publications

Peer-reviewed papers (Ranked A).....	52
Peer-reviewed papers (Ranked B).....	4
Invited book chapters.....	3
Peer-reviewed proceeding abstracts.....	29

Communications:

Invited conferences or seminars.....	4
Peer-reviewed International conferences.....	29
International Symposia and Workshops.....	13
National Symposia and Workshops.....	1

5. Titles and services

5.1. Professional affiliations and activities

2015 – present: **Directeur d'Etudes (Professor) at EPHE**. UMR5554 Institut des Sciences de l'Evolution de Montpellier (ISEM), **Assistant Director** and **Paleoenvironnements Department leader**.

2014 - present: **Associate Professor** at the University of Quebec in Abitibi-Témiscamingue (UQAT), Canada

2013 – present: **Directeur d'Etudes (Professor) at EPHE**. **EPHE Director** of the Paleoenvironments and Chronoecology (PALECO) lab.

2012 – 2014: **Directeur d'Etudes (Professor) at EPHE**. UMR5059 Centre en Bio-Archéologie et Ecologie (CBAE) in Montpellier. **Team leader**: Paleoecology, global change and disturbances.

5.2. People management

5.2.1 Postdoctoral fellows

2012 : Abdou Karim Gueye, CNRS, topic "Analysis of African climate variability at pre-industrial, 4kyr and 6kyr BP using IPSL simulations in the framework of the C3A ANR project. **Direction** (10%) with P. Braconnot (30%) and S. Janicot (60%)

2010 – 2012 : Judicael Lebamba, CNRS, topic « Comparison of methods to reconstruct late Holocene vegetation changes in Cameroun : pollen rain versus DGVM ». **direction** (30%) with A. Vincens (CNRS) and MJ Gaillard (U. Kalmar, Sweden).

2003 – 2004 : Gwoshueng Wang, CNRS, topic « Analysis of burned areas at the African Forest/Savanna boundary since 1980 using remote-sensing ». **direction** 100%.

5.2.2 Temporary Teaching and Research Assistants (ATER)

2006 – 2007 : **Ouassila Merdaci**, ATER EPHE project « IMPACTHOS : Incendies, Modèles et Paléo-ClimaT Holocène en Europe du Sud » (CNRS | INSU – ECLIPSE2). **direction** 80% (C Carcaillet, 20%).

5.2.3 HDR supervisions

2015 : Odile Peyron : « Quantification des paléoclimats de l'Europe et du bassin méditerranéen au cours du Quaternaire ». Direction. EPHE thesis. Defense scheduled December 10th 2015.

5.2.4 Ph.D. students (5 ongoing supervisions and 5 completed)

2015 – present : Carole Bastianelli : « Changements globaux et dynamiques forestières des pessières du Québec au cours des 8000 dernières années ». Supervision (30%) with Adam Ali (Lecturer Montpellier University), Yves Bergeron (Professor at UQAT, Canada), and David Paré (Ressources Naturelles Canada). EPHE-UQAT cotutelle.

2015 – present : Evrard Kouadio : « Impacts des perturbations et changements globaux sur la dynamique des écosystèmes forestiers ». Supervision (30%) with Adam Ali, Yves Bergeron, and Olivier Blarquez (Université de Montréal, Canada). Montpellier University -UQAT cotutelle.

2013 (jan) – present: Emeline Chaste, « Risques passés et futurs d'incendies et épidémies d'insectes, et leur incidence sur la résilience de la forêt boréale Nord Américaine » Supervision (50%) with Martin Girardin (Ressources Naturelles Canada) and Yves Bergeron. EPHE-UQAT cotutelle.

2013 (jan) –present : Cécile Rémy, « Interactions entre le climat, les feux et la dynamique végétale au cours de l'Holocène et dans le futur sur la Côte-Nord (Québec-Labrador) » Supervision (30%) with

Adam Ali, Yves Bergeron, and Marin Lavoie (Professor at University Laval, Canada). Montpellier University – UQAT cotutelle

2012 – present : Sébastien Lahaye, «Analyse des contours d'incendies et du comportement du feu dans les forêts méditerranéennes : vers une gestion intégrée pour la lutte » Supervision (50%) with Thomas Curt (Director of Research, IRSTEA). EPHE thesis

2012 – 2015 : Marc Coudel, «Dynamique des écosystèmes forestiers de cèdres dans le moyen Atlas Marocain: trajectoires écologiques et rôle des demandes sociétales ». Supervision (50%) with Mohamed Aderghal (Rabat University, Maroc). Montpellier University – Mohamed V University cotutelle. Defense in October.

2011-2015 Marine Pasturel, «Phytolithes et modèle de végétation (LPJ-GUESS) : pour une meilleure représentation de la diversité des formations herbacées inter-tropicales». Supervision (50%) with Anne Alexandre (Director of research, CNRS) Defense in March.

2009 – 2013. Samira Ouarmin, « Le cas des îlots forestiers de Thuja occidentalis en forêt boréale mixte Canadienne : paléoécologie, structure et composition des combustibles, susceptibilité au feu, et biodiversité ». » Supervision (30%) with Adam Ali, Yves Bergeron, and Hugo Asselin (Professor at UQAT, Canada). Montpellier University – UQAT cotutelle. Defense in December.

2008-2012. Thomas Ibanez, « Dynamique des lisères Forêt-Savanes face aux incendies en Nouvelle-Calédonie » Supervision (50%) with Thomas Curt. Defense in January.

2006-2010. Vincent Garreta, « Reconstruction des paléoclimats et paléovégétations à partir d'enregistrements polliniques et de l'inversion du modèle dynamique de végétation LPJ-GUESS ». Supervision (50%) with Joel Guiot (Director of Research, CNRS). Defense in April.

5.2.5 Master students

2014-2015 : Evrard Kouadio. "Reconstitution des paléo-incendies au cours des derniers millénaires en Afrique centrale à partir d'une carotte prélevée dans le lac Bambili au Cameroun"; Master "Biologie Végétale Tropicale" from Montpellier University. Cosupervision (50%) with Adam Ali.

2013-2014 : Grégoire Blanchard. "Caractérisation des réponses de la Forêt Atlantique du Brésil à la variabilité climatique"; Master 1 "Biologie Végétale Tropicale" from Montpellier University. Cosupervision (50%) with Marie-Pierre Ledru (Director of Research, IRD).

2012 – 2013 : Eve Durocher « «blabla », Master 2 EPHE mention Biodiversité et gestion de l'Environnement. Cosupervision with Giovanna Battipaglia (Lecturer, EPHE)

2010 – 2011 : Marine Pasturel « Mousson et forêts tropicales: apport de la modélisation à l'étude des changements climatiques et de leurs impacts sur la végétation du Sud de l'Inde » Master 2 Biostatistics and Modeling, Toulouse University (Paul Sabatier). Cosupervision (50%) with Doris Barboni (Research Scientist, CNRS).

2009 – 2010 : Fabien Tinquaut « Analyse des combustibles et modélisation du comportement du feu dans les principaux écosystèmes en Nouvelle-Calédonie » Master 2 Master statistiques et traitement des données, Clermont-ferrand.

2008 - 2009 : Frédéric Vidal "Caractérisation par télédétection des feux de savanes en Afrique de l'Ouest » Master 1 Natural and Cultivated Ecosystem functioning from University Montpellier 2, cosupervision (30%) with C. Favier (CNRS).

2007-2010 : Mathieu Paquette : Master from the University of Quebec in Montreal, Canada, cosupervision (30%) with Sylvie Gauthier (Ressources Naturelles Canada) and Y.Bergeron.

2004 – 2005 : Thomas Thibaud « Etude de la pluie pollinique au Serengeti comparée aux résultats d'un modèle dynamique de végétation » Master 2 SET, Aix-Marseille University. Cosupervision (75%) with Raymonde Bonnefille (Director of Research, CNRS)

5.2.6 Temporary workers

2012 : Emeline Chaste, Study Engineer (IE) 3 months in the French ANR project ANR C3A: Causes et Conséquences de la dernière Crise environnementale en Afrique centrale.

2010 – 2011 : Fabien Tinquaut, Study Engineer (IE) 10 months in the French ANR project ANR 07-BDIV-008 Biodiversity and Fires in New-Caledonia.

2008 – 2009 : Christina Barriol, Study Engineer (IE) 6 months in the French ANR project ANR 07-BDIV-008 Biodiversity and Fires in New-Caledonia.

5.3. Teaching activities

I teach in Universities since the end of my PhD to graduated students (master and Ph.D. students) mainly in the following disciplines: Ecology, Dynamics of present and past vegetation and biodiversity, Fire fire ecology. These courses involve theoretical modeling and practical tutorials in fire ecology and paleoclimate. Moreover, I also locally organize and participate in training students for communication in English (how to write papers, revisions and cover letter to editors). The main organizations using my teaching skills are: EPHE, the Aix-Marseille University [Master SET (Sciences de l'Environnement Terrestre) in 3 specialties MAEVA, SYSTER, and GERINAT], the Montpellier University [Master BEE (Biologie Ecologie Evolution) for the CEPAGE specialty and the UE HMBE 364]

5.4. Research Animation and Administration

5.4.1 Organizer of field campaigns

I organize and participate to regular field missions in boreal and tropical environments to collect data related to ecology (including fire ecology), botany, meteorology, and palynology.

-2010 (October) : New-Caledonia : Validation of fuels and vegetation structure samplings over the island to validate the results obtained from pilot regions and to allow the component spatialization.

-2010 (January) : Cameroun Volcanic Line. Lacustrine sediment coring on mountainous lakeshores with botanical and surface pollen samples in savannas and forests collected in lowlands and mountain regions.

-2009 (October) : New-Caledonia : in situ fire behavior measurements in human ignited fires under the authority of fire fighters and Civil Security.

-2009 (May) : Senegal : Trip sampling on vegetation structure from Sahelian arid savannas near Saint-Louis to moist Sudanian woodlands near Tambacounda passing by Equatorial forest in the vicinity of Niayes.

-2008 (October) : New-Caledonia : fuels and vegetation structure samplings over the pilot regions to characterize tropical forests, savannas, and maquis minier ecosystems

-2008 (March) : Canada, Quebec and Ontario : Winter lacustrine coring.

5.4.2 Project Coordination (PI) and Work package Leader (WPL)

2015-2017: Canadian MITACS Project for graduate student trainings. Title « Relations entre le climat, les feux, la végétation et la dynamique du carbone organique du sol (COS) dans un contexte des changements climatiques de la pessière à mousses du Québec » (520000\$Can). Duties : CO-PI supervising Ph.D. students

2010-2013: ANR Project C3A: What if the 6th extinction has already taken place? Causes and consequences of the last great environmental "crisis" 3000 years ago in forests of Atlantic equatorial

Africa (2009 Biodiversity Call). 54 months (48+6). Total budget 778500€ Duties: CEREGE Partner Leader (183500€), and Fire WPL

2009: CNRS/ECOREV Program. Title «Incendies et vulnérabilité des forêts denses humides : Etude de la mosaïque savane/forêt en Nouvelle-Calédonie ». 12 months. Total budget 10000€ Duties : PI.

2008-2012: ANR Project INC: Incendies et biodiversité en Nouvelle-Calédonie (2007 Biodiversity Call). 54 months (48+6). Total budget 995000€ Duties: Project PI, CEREGE Partner Leader (177600€), and Climate & Vegetation Modelling WPL.

2007-2009: ANR Project SAHELP: Sahara and Sahel vulnerability: lessons from the past (2006 Climate & Ecosystem Vulnerability Call). 36 months. Total budget 235000€ Duties: CEREGE Partner Leader (37500€), and Vegetation Modelling WPL.

5.4.3 Other Project participations

-- International Projects --

2015-2017: Quebec FQRNT Equipe Project Title « Changements climatiques, séquestration du carbone, feux et composition forestière de la forêt boréale durant l'Holocène : projet CLIMAT-COS » (350000\$Can).

2015-2017: Canadian MITACS Project Title « Relations entre le climat, les feux, la végétation et la dynamique du carbone organique du sol (COS) dans un contexte des changements climatiques de la pessière à mousses du Québec » (520000\$Can).

2012-2015: CRSNG Canadian Program (PI Y.Bergeron Prof.). Title « Limite nordique: Risque de feux, résilience des forêts et aménagement forestier: le cas de la limite nordique d'attribution des forêts au Québec dans un contexte de changement climatique », (764000\$Can).

2010-2013: MDEIE Canadian Project Title BOREALP (PI Y.Bergeron Prof. 150000\$Can).

2008-2010: CRSNG Canadian Program (PI Y.Bergeron Prof.). Title « RESILIENCE : Risque de feux, résilience des forêts et aménagement forestier: le cas de la limite nordique d'attribution des forêts au Québec dans un contexte de changement climatique », (196000\$Can).

2007-2008: Programme 61^{ème} COMMISSION PERMANENTE DE COOPÉRATION FRANCO-QUÉBÉCOISE. (PI. C.Carcaillet, DE EPHE) Title «CLIMAFEU : Conséquences du changement CLIMAtique en cours sur le régime des FEUX au sud de la Baie James (Québec-Ontario) », (~40 000€).

-- National Projects --

2011-2014: ANR White Open Program (PI. P.Braconnot, DR CNRS) Title « EIPaso : El-Niño : lessons from the past using simulations and observations » (922844 €).

2009-2012: CNRS/INSU Program (PI. A.Ali MdC Univ.Montpellier 2). Title « BOREOFIRE : Long-term wildFIRE regimes in Central-western Canada: SPOTlight on interactions between atmosphere, oceans and vegetation ». (50000 €)

2007-2009: CNRS/ECLIPSE Program. (PI. C.Carcaillet). Title « IMPACTHOS : Incendies, Modèles et Paléo-ClimaT Holocène en Europe du Sud ». (50 4702€).

5.4.4 Organizer of International Symposia and Workshops

-- International Conferences --

2016 –Ecosummit 2016 (Ecological Sustainability: Engineering Change, Montpellier, 29 August – 1 September 2016). Co-organizer (with C. Gaucherel and R.J. Swap) of a session on semi-arid tropical ecosystems: title “Socio-ecological sustainability in fragile tropical environments: from humid to arid

ecosystems, what can we do?"

2016 - Ecosummit 2016 (Ecological Sustainability: Engineering Change, Montpellier, 29 August – 1 September 2016). Co-organizer (with A Ali and I. Drobyshv) of a session on boreal ecosystems: title "Improving predictability of circumboreal forest fire activity and its ecological and socio-economic impacts through multi-proxy data comparisons and monitoring"

2009 - Wildfires in the Boreal Forests : Past, Present and Future Fire Regimes hold at Rapide-Danseur, Québec, March – Co-organizer

2002 - SAFARI2000. Final SAFARI2000 project workshop hold at the University of Charlottesville, VA, USA September - – Co-organizer.

5.4.5 Invited participation at workshops

2011 – South Africa (Rustenburg). May 13-15 GOF-C-GOLD meeting organized by G. van der Werf (Netherlands) on "Factors driving variability in fuel consumption (fuel loads, combustion completeness) in the major biomes impacted by fires".

2011 – India (Pondicherry) January 27-29. IGBP-PAGES-PHAROS meeting organized by M.J. Gaillard (Sweden) on portant "Land-cover reconstructions in the monsoon affected Tropical world - pollen modeling approach and data synthesis"

2005 – United Kingdom (Exceter) October 27-28. Réunion IGBP-QUEST organized by S. Harrison & C. Prentice on "Fast Track Initiative Fire Workshop".

5.4.6 HDR and Ph.D. theses juries

Student Name	Year	University	Thesis type	Duties
Peyron, Odile	Scheduled	Ecole Pratique des Hautes Etudes	HDR	Supervisor
Coudel, Marc	2015	Montpellier	Ph.D.	Co-supervisor
Pasturel, Marine	2015	Aix-Marseille	Ph.D.	Co-supervisor
Vannière, Boris	2014	Besançon	HDR	Reviewer
Ouarmin, Samira	2013	UAQT, Quebec	Ph.D.	Co-supervisor
Ibanez, Thomas	2012	Aix-Marseille	Ph.D.	Co-supervisor
Watrín, Julie	2010	Paris 6	Ph.D.	Examinator
Garreta, Vincent	2010	Aix-Marseille 3	Ph.D.	Co-supervisor
Schaffauser, Alice	2009	Aix-Marseille 3	Ph.D.	Examinator and Jury president

5.4.7 Administrative services

2015 – present: ISEM Assistant Director; leader of the Paleoenvironnements Department.

2013 – present: Director of the PALECO EPHE Lab.

2013 – present: Member of the Scientific Commission of the SVT Section at EPHE

2012 –2014. Leader of the "Paleoecology, global change and disturbances" Team at CBAE.

Christelle Hély CV (janvier 2015)

2009 - 2011. Board member (Research scientist group representative) at CEREGE

2009 - 2011. Commissioner Budget at CEREGE.

5.4.8 Editorial services

-- Invited Editor --

For the International Journal of Wildland Fire Special Issue on “Boreal Forest fire regimes: past, present, and Future” published in December 2010.

-- Others --

Every year I review in average 5 manuscripts among the following peer-reviewed journals: Canadian Journal of Forest Research, Forest Ecology and Management, Forest Science, Earth and Planetary Science Letters, International Journal of Wildland Fire, IEEE Geoscience and Remote Sensing Letters, Geophysical Research Letters, Austral Ecology.