

Curriculum Vitae

Personal information

First name / Surname	Ophelie FOVET
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E-mail	Ophelie.fovet@rennes.inra.fr
Nationality	French
Date of birth	January, the 13 th , 1985.
Gender	female

<p>Personal statement and statement of intent</p>	<p>I am a Junior researcher in Water Sciences recently recruited as permanent researcher at French National Institute for Agricultural Research (INRA). I am looking for an international mobility to experience a foreign research institution organization and to develop new collaborations within my scientific community. I am interested on understanding and modelling the processes controlling water chemistry in headwater catchments. My mobility research project aims at focusing on the linkage of macronutrient cycles (C-N).</p> <p>I would define myself as a “water quality modeller”, and rather than developing a specific model, I am more interested in comparing different modelling approaches, either for testing different hypothesis of processes (physical or conceptual modelling) or for answering specific environmental issues at specific time and spatial scales, and in consistence with available data.</p>
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Education and training

Location and dates	2007-2010 , Montpellier, France
Title of qualification awarded	PhD thesis in Integrated Systems in Biology, Agronomy, Geosciences, Hydrosociences and Environment
Principal subjects/occupational skills covered	Management of benthic algal developments in open-channel networks: models for hydraulic regulation strategies.
Name of Institute	UMR G-EAU, Cemagref Montpellier/ Montpellier SupAgro-International Center for Higher Education in Agriculture Sciences

Location and dates	2004-2007, Montpellier, France
Title of qualification awarded	Master degree in Agronomy – International Center for Higher Education in Agriculture Sciences
Principal subjects/occupational skills covered	Specialization in water and environmental resources management.
Name of Institute	Montpellier SupAgro-International Center for Higher Education in Agriculture Sciences

Location and dates	2002-2004, Toulouse, France
Title of qualification awarded	Preparatory Class for the “Grandes Ecoles”
Principal subjects/occupational skills covered	Biology-Mathematics-Physics
Name of Institute	Lycee Fermat, Toulouse

Location and dates	2002, Lens, France
Title of qualification awarded	A level
Principal subjects/occupational skills covered	Sciences: Mathematics, chemistry-physics and biology
Name of Institute	Lycee Saint Paul, Lens

Work experience

Location and dates	February to December 2014, Bangor, Gwynedd, UK
Occupation or position held	Visiting Scientist
Main activities and responsibilities	<ul style="list-style-type: none"> • Research topics: DOC fate in headwater streams and response to mixing processes of different headwater streams composition downstream, interaction between the different chemical signatures of the different headwater catchments regarding the potential in-stream/estuarine/marine processes, and impact of the hydrological conditions on these interactions.
Name of hosting Laboratory	Centre for Ecology and Hydrology, Environmental Centre of Wales

Location and dates	Since September 2011, Rennes, France
Occupation or position held	Researcher (permanent position)
Main activities and responsibilities	<ul style="list-style-type: none"> • Research topics: water and solutes transport in agricultural catchments, with a focus on Nitrogen and Dissolved Organic Carbon. Monitoring and modelling • co-chairman of the Environmental Research Observatory AgrHys for long-term environmental monitoring, part of the French network of catchments RBV on critical zone • Teaching: practical works on hydrology, lectures on hydrology and water quality • co-supervision of the PhD thesis of G. Humbert on the role of soils organization and properties on dissolved organic carbon transfer in agricultural catchments.
Name of employer	French National Institute for Agricultural Research, UMR SAS

Location and dates	November 2010 to May 2011, Montpellier, France
Occupation or position held	Researcher
Main activities and responsibilities	<ul style="list-style-type: none"> • Research, publications and conferences on Control of water quality parameters during flushing flows for fixed algae removal in regulated rivers and canals • Application on the canal de Provence regulation system
Name of employer	Cemagref (Irstea since 2012) Montpellier, UMR G-EAU (joint research unit for water management issues)

Location and dates	2007-2010, Montpellier, France
Occupation or position held	PhD student on the “modelling for hydraulic management of benthic algae developments in open-channel networks”
Main activities and responsibilities	<ul style="list-style-type: none"> • Research, publications and conferences on <ul style="list-style-type: none"> ○ Modelling water quality, hydrobiology and hydraulics ○ Linear modelling for automatic control ○ Experiments in situ and in semi-real conditions • Teaching : practical works and tutorials on open-flow hydraulics • Supervision of 3 placements (from 2 to 4 months)
Name of employer	UMR G-EAU, Cemagref Montpellier

Location and dates	April to September 2007, Montpellier, France
Occupation or position held	Trainee Research & Development Engineer
Main activities and responsibilities	<ul style="list-style-type: none"> • Review of literature on modelling non-point source pollution by phytosanitary products at the scale of headwater catchments • Coordination of steering committee to define specifications of the modeling tool • Application of the MHYDAS model to a small Mediterranean catchment to assess the impacts of land-use of the groundwater pollution risk
Name of employer	Envilys, Villeneuve-Les-Maguelones, France

Location and dates	2006-2007, Montpellier, France
Occupation or position held	Trainee Engineer
Main activities and responsibilities	Application of the hydrological model SWAT on the Vistre river-Vistrenques groundwater- Vidourle river catchment in the perspective of nitrates non-point source pollution management
Name of employer	Syndicat mixte d'étude et de gestion de la nappe de la Vistrenque (Manager of the Vistrenque water resource)

Location and dates	May to July 2006, Québec City, Québec, Canada
Occupation or position held	Trainee in the Wood Research Center of Laval University
Main activities and responsibilities	<ul style="list-style-type: none"> • Analysis of the agronomic valorization of ligneous light slash of Forestry • Chemical characterization of the ligneous cuttings of vineyards woods
Name of employer	Laval University, Québec, Canada

Location and dates	2004-2005, Bergerac, France
Occupation or position held	Trainee Engineer
Main activities and responsibilities	<ul style="list-style-type: none"> • Study of technical and economical feasibility of heating system using the wine crushed cuttings
Name of employer	B. Pourtaud, vine grower

Languages

Mother tongue(s)	French
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Other language(s) <i>European level (*)</i> <i>English</i> <i>German</i>	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
	B2	B2	B2-C1	C1	B2
	A2-B1	B1	A2	B1	A2
(*) Common European Framework of Reference for Languages http://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr					

Academic Record

Publications	<p>Fovet, O., Ruiz, L., Fauchoux, M., Molenat, J., Sekhar M., Vertes, F., Aquilina, L., Gascuel-Oudou, C., Durand P. Using long time series of agricultural-derived nitrates pollutions for estimating catchment transit times. submitted to <i>Journal of Hydrology</i> (in March 2014).</p> <p>Hrachowitz, M., Fovet, O., Ruiz, L., Euser, T., Gharari, S., Freer, J., Savenije, H.H.G., Gascuel-Oudou, C. Process Consistency in Models: the Importance of System Signatures, Expert Knowledge and Process Complexity. submitted to <i>Water Resources Research</i> (in Feb. 2014).</p> <p>de Montety V., Aquilina L., Labasque T., Fovet O., Ruiz L., Fourré E. Recharge processes investigated through long-term monitoring of dissolved gases in shallow groundwater. submitted to <i>Applied Geochemistry</i> (in revision)</p> <p>Fovet O., Litrico X., Belaud G., and Genthon O. Adaptive control of algae detachment in regulated canal networks. <i>Journal of Hydroinformatics</i>, 15 (2), 321-334, 2013.</p> <p>Fovet O., Litrico X., and Belaud G. Turbidity management during flushing-flows: a model for open-loop control. <i>Advances in Water Resources</i>, 39, 7-17, 2012.</p> <p>Fovet O., Belaud G., Litrico, X., Charpentier S., Bertrand C., Dollet P., and Hugodot C. A model for fixed algae removal using flushing-flow in Open-channels., <i>River Research and Applications</i>, 28 (7), 960-972, 2012.</p> <p>Fovet O., Belaud G., Litrico X., Charpentier S., Lancar L., Bertrand C., Dauta A., and Hugodot C. Modeling Periphyton in irrigation canals. <i>Ecological Modelling</i>, 221 (8), 1153-1161, 2010.</p>
Communications in International conferences	<p>Fovet O., Hrachowitz M., Ruiz L., Gascuel-Oudou C., Savenije H. Using combined hydrological variables for extracting functional signatures of catchments to better assess the acceptability of model structures in conceptual catchment modeling. Submitted to AGU, San Francisco, USA, Dec. 2013.</p> <p>Ruiz L., Fovet O., Fauchoux M., Molenat J., Sekhar M., Aquilina L., Gascuel-Oudou C. Using lumped modelling for providing simple metrics and associated uncertainties of catchment response to agricultural-derived nitrates pollutions. Submitted to AGU, San Francisco, USA, Dec. 2013.</p> <p>Fovet O., Jaffrezic A., Gruau G., Durand P., Pierson-Wickmann A-C., Walter C. Soil control on the spatial variability of DOC concentration in headwater catchments: a comprehensive modeling approach to the annual dynamics of stream DOC concentration. HydroEco May, 2013, Rennes, France.</p> <p>Fovet O., Hrachowitz M., Ruiz L., Fauchoux M., Aquilina L., Molenat J., Durand P. and Gascuel-Oudou C. Monitoring and modeling of long-term effect of changing agriculture on nitrate concentrations in groundwater and streams in small experimental subsurface dominant watersheds, Vol 15. EGU 2013- 8989, Poster in European Geosciences Union General Assembly, April 2013, Vienna, Austria.</p>

	<p>Faucheux M., Fovet O., Gruau G., Jaffrezic A., Petitjean P., Gascuel-Oudou C. and Ruiz L. Real Time high frequency monitoring of water quality in river streams using a UV-visible spectrometer: interests, limits and consequences for monitoring strategies. Vol 15. EGU 2013-9425, Poster in European Geosciences Union General Assembly, April 2013, Vienna, Austria.</p> <p>Fovet O., Ruiz L., Faucheux M., Aquilina L., Gascuel-Oudou C. & Durand P. Contrasted long-term evolutions of Nitrate concentrations in soils, groundwater and streams in a network of small experimental watersheds in Western Europe. Poster in American Geophysical Union's Fall Meeting, AGU, San Francisco, USA, Dec. 2012.</p> <p>Ruiz L., Fovet O., Sekhar M., Riotte J., Braun J-J., Gascuel-Oudou C. & Durand P. Imbalances of Water and solutes in experimental watersheds : spatial or temporal origin? Poster in American Geophysical Union's Fall Meeting, San Francisco AGU, San Francisco, USA, Dec. 2012.</p> <p>Jaffrezic A., Gruau G., Fovet O., Rouxel M., Durand P., Pierson-Wickmann A.C., Walter C. Soil control on the spatial variability of Dissolved Organic Carbon concentration in headwater catchments, Poster in 4th International Congress Eurosoil, Bari, Italy, July 2012.</p> <p>Fovet O., Genthon, O., Litrico, X., and Belaud, G. Managing invasive algae with flushing flows: new perspectives for canal control. World Environmental and Water Resources Congress (EWRI), Albuquerque, New Mexico, May 2012.</p> <p>Fovet O., Gascuel C., Faucheux M., Ruiz L., Aquilina L., and Molénat J. Temporal trends and relationships between groundwater and surface nitrate concentrations in headwater agricultural catchments: what can we learn from a monitoring over 20 years? Poster in European Geosciences Union General Assembly, Vienna, Austria, April 2012.</p> <p>Litrico, X., Belaud, G. and Fovet O. Adaptive Control of Algae Detachment in Regulated Canal Networks IEEE International Conference on Networking, Sensing and Control, April 2011, Delft, the Netherlands.</p> <p>Fovet O., Litrico X. and Belaud G. Modeling and Control of algae detachment in regulated canal networks., in Proc. of IEEE MultiConference on System and Control, Yokohama, Japan, sept. 2010, 1881-1886.</p> <p>Fovet O., Belaud G., Litrico X., Charpentier S., Dollet P., Hugodot C., Charpy-Roubaud C. and Bertrand C. Flushing-flow in Open-Channels for benthic algae removal. International Symposium on Environmental Hydraulics, Athens, Greece, June 2010.</p> <p>Charpentier S., Lancar L., Fovet O., Belaud G., Hugodot C., Charpy-Roubaud C., Franquet E., and Bertrand C. Effets d'une chasse hydraulique sur la communauté diatomique en dispositif expérimental, 28^{ème} colloque de l'Association des Diatomistes de Langue Française (ADlaf), Banyuls, France, Sept.2009. (in French)</p> <p>Fovet O., Belaud G., Lancar, L., Litrico X., Baume J-P., Malaterre P-O. and Genthon O. Hydraulic management of filamentous algae in open-channel networks: case study in Southern France. 8th Hydroinformatics International Conference, Concepcion, Chile, Jan. 2009.</p>
<p>Participation in open calls for proposals as contributor or leader</p>	<p>The ANR is the French National Research Agency which organizes the funding of projects whose end-purpose is to give impetus to the research sector and part of the European Strategic Agenda. The ANR teams finance and monitor and assist these projects.</p> <p>I was an active participant of one of this programme during my PhD. Thesis, as well for the scientific work related to the project as for the animation, and reports redactions at the end of the project:</p> <p>ANR PRECODD – ALGEQUEAU (Management strategy for water quality on open-</p>

	<p>channel networks – The case of algae management) 2006-2010.</p> <p>Since my arrival in my current research unit I participated in the submission of 2 others ANR programmes which have both been selected:</p> <p>ANR Agrobiosphère – MOSAIC (Landscape approach of soil organic matter dynamics in intensive mixed agrosystems, in the context of global change) 2013-2017. Where I am Co-leader for WP 3: Modeling and prospective simulation of impacts of SOM dynamics on production and environmental functions of cropping systems at the landscape scale</p> <p>ANR Agrobiosphère – ESCAPADE (Assessing scenarios on the nitrogen cascade in rural landscapes and territorial modeling) 2013-2017, where I am Contributor for WP 2: Modeling the nitrogen cascading in landscape</p> <p>I was also involved in the submission to International ANR Open Call for bilateral project between France and Romania:</p> <p>International ANR - NOROC (NitrOgen RemOval in Catchments). The project has not been selected because of formal issues. I was Contributor for WP 4: Modeling nitrogen fluxes as a function of Landscape structures</p> <p>I am also involved in a “Investments for the future” programme, also managed by the ANR, and which is a major programme part of the French government initiative and covers 21.9 billion Euros for its research and higher education component.</p> <p>Equipex, Investments for the Future - CRITEX (Challenging equipments for the temporal and spatial exploration of the Critical Zone at the catchment scale) 2012-2019, where the observatory I am co-coordinator has been selected as instrumental site for the WP1 to 4 on high-frequency instrumentation for soil-atmosphere exchange, soils, temperature and river high-frequency measurements.</p>
Graduate teaching as lecturer or training coordinator	<p>Supervision of Master 1 degree trainings: M. Suaire (Université Paul Verlaine, Metz, France), A. Guyon (Polytech’Montpellier, France)</p> <p>Supervision of High Level Technician training: L. Tertois (Lycée Nîmes Rodihlan, France)</p> <p>Participation in the supervision of PhD thesis : G. Humbert (AgroCampus Ouest, France)</p> <p>Supervision of practical works on hydraulics: Master degree in Montpellier SupAgro (Specialization Water management “GEME”), ENGREF “Eau” AgroParis Tech</p> <p>Supervision of practical works on hydrology and water quality: Master degree “H3” Université Rennes 1, AgroCampus Ouest Rennes (Specialization Water management “SEH”), Master degree “Water and Environment Sciences” University of Tours.</p> <p>Lecturer on “Hydrology and water quality monitoring” for Licence degree PARTAGER, Université Rennes 1- AgroCampus Ouest.</p>

Collaboration and Networking

Participation in collaborative projects funded by competitive programmes	The ANR projects in which I was participator are all collaborative projects. The selection is conducted though about 14,500 peer reviews written each year by French and foreign scientists outside the Agency, ensuring fair treatment and competitive selection to meet international standards.
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	<p>ANR PRECODD – ALGEQUEAU (Management strategy for water quality on open-channel networks – The case of algae management) 2006-2010 the scientific consortium was involving the UMR G-EAU (Montpellier, France) especially hydraulicians, automaticians, and myself as PhD. Student, and the UMR IMEP (Aix-Marseille, France) especially hydrobiologists.</p> <p>ANR Systerra – ACASSYA (Reconciling agriculture and littoral: Nitrogen cycle, agroecological transition of breeding systems in coastal watersheds) 2009-2013. I integrated this project my I arrived in the SAS research unit in 2011 and contributes to the first WP on “Evaluating compartments, fluxes, N cycle dynamics in breeding areas” though data analysis and long-term modelling work on the ORE AgrHys.</p> <p>ANR Agrobiosphère – MOSAIC (Landscape approach of soil organic matter dynamics in intensive mixed agrosystems, in the context of global change) 2013-2017. The scientific consortium involves the UMR SAS (Rennes, France), the UMR Agroecologie (Dijon, France), the UMR Biogeosciences (Dijon, France), the UMR BIOEMCO (Paris, France), the UMR Geosciences Rennes (Rennes, France) to allow an interdisciplinary collaboration between soil sciences, agricultural sciences, biogeochemistry, soil biology, and hydrologists.</p> <p>ANR Agrobiosphère – ESCAPADE (Assessing scenarios on the nitrogen cascade in rural landscapes and territorial modeling) 2013-2017. The consortium associates 8 research units: UMR EGC (Grignon, France), UMR SAS (Rennes, France), UR ASTER (Mirecourt, France), UR SOLS (Orléans, France), UR MIA (Jouy, France), UMR PEGASE (St Gilles, France), FIRE (Paris, France), UMR EcoLab (Toulouse, France). The scientists of theses research units have therefore complementary skills and field of interests related to N cycle in Landscape. The project is also an opportunity to formalize the collaboration between almost all the French research groups interested in this topic, and this way to cross approaches and knowledge over a range of pedo-climatic and land use/cover contexts.</p> <p>The Equipex, Investments for the Future - CRITEX (Challenging equipments for the temporal and spatial exploration of the Critical Zone at the catchment scale) 2012-2019 is leading by 2 structures labeled as Systems for Observation and Experimentation in Research on Environment :</p> <ul style="list-style-type: none"> • The RBV network which focuses on critical zone, and associates 18 elementary observatories, where I am participating through my implication in the ORE AgrHys part of this network. • The national monitoring H+ service, a research infrastructure dedicated to the study of groundwater.
Partnerships or experience with industry	<p>Part of the projects founded by ANR are Public private partnerships programmes, as it was the case of the ANR PRECODD – ALGEQUEAU project where I was highly involved in the relationship and collaboration with our private partners: Société du Canal de Provence (Aix en Provence, France) and ASA du canal de Gignac (Gignac, France)</p> <p>The ANR Agrobiosphère – ESCAPADE also associates 3 private partners to the 8 research units which are Arvalis (Paris, France), a technical institute for agriculture, and 2 French agricultural marketing cooperatives: Terrena (Ancenis, France) and</p>

	Triskalia (Landernau, France).
Membership of professional bodies and committees	<p>Since 2011: Co-coordinator and Member of Scientific and operations committees of the Observatory for Research on Environment AgrHys (http://www6.inra.fr/ore_agrhys_eng/). I am an active member in the management and scientific coordination of the Observatory and in the related international network as the observatory is part of the French catchment networks on the critical zone RBV (http://rnbv.ipgp.fr/)</p> <p>2008-2010: Member of the research unit G-EAU Council. As PhD student delegate, I was in contact with all the PhD students of the research unit. Due to the variety of Institutes partners in the unit (Irstea, IRD, CIRAD, AgroParis Tech, Montpellier SupAgro, IAAM) the students were based in Montpellier, Aix en Provence, Lyon, Tunisia, Equator, Spain, Vietnam, Mali and South of Africa.</p>

Research management, Technology transfer and Communication

Technological platform management	<p>As Co-coordinator and Member of Scientific and operations committees of the Observatory for Research on Environment AgrHys, I am involved in the animation (general assembly, technical meetings, networks relationship) of the observatory and in the coordination of the scientific activities conducted on the site (field campaigns, equipments, working groups on data base management and innovative metrology). I am in charge of the organisation of the field visits for external and foreigner scientists and for Master degree students.</p>
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Scientific References

Full name	Gilles BELAUD
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Full name	Xavier LITRICO
Position	Research Director – Director of Research & Development Center
Institution	Research & Development Center of la Lyonnaise des Eaux, Bordeaux
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