Bordeaux students on the move!

A co-directed thesis in Tokyo

Camille Geffroy is a PhD student at the LCPO in Bordeaux and is currently carrying out a co-directed thesis. She spent 3 months this spring at the RCAST (Research Center for Advanced Science and Technology) at the University of Tokyo, and will return in 2017 for another stay of 4 to 6 months. She tells us about her international experience!

What is the topic of your studies?

My PhD project focuses on the development of original systems for perovskite solar cells including new semiconducting polymers. Working in collaboration with the RCAST, one of the top research centers in photovoltaic technologies, has really boosted my project. During my initial stay in Tokyo, I learnt a great deal about perovskite solar cells and now, back in Bordeaux, I am able to make high efficiency solar cells at the LCPO (Laboratoire de Chimie des Polymères Organique – Chemistry of Organic Polymers Laboratory).

Previous to this PhD project, I carried out a research internship within the domain of hybrid solar cells at LCPO and ISM (Institut des Sciences Moléculaires – Institute of Molecular Science). Both laboratories are renowned for their expertise in solar cells and also offer partnership opportunities with industries which is interesting for the development of possible applications. It was therefore a logical decision to continue my doctoral studies with these institutions.

Why carry out a co-directed PhD?

As a graduate, I carried out an internship in the photovoltaic field in the Netherlands. It was a very enjoyable experience as well as being beneficial for my research subject. I thus needed no further convincing to choose a co-directed PhD. It’s a great way to work on a hot research topic, taking advantage of the skills and knowledge offered by excellent laboratories in different domains, while simultaneously making the most of a professional experience abroad. The added-value includes improving my English, my communication skills and discovering a new culture. Such an experience can be a real advantage when searching for a job.
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How is your co-directed PhD organized?
I spent 3 months in Tokyo, from the end of February to the end of May 2016. I plan to go back late 2017 for a period between 4 and 6 months, depending on the progress and requirements of my project. Both Tokyo and Bordeaux represent advantages for certain aspects of my studies; at RCAST, the specific equipment allows me to analyze the physical and electronic properties of my devices whereas at LCPO the focus is more on the chemical aspects and the materials design.

During my stay in Japan, monthly web meetings with the Bordeaux team were organized. The workload was dense with many experiments scheduled over short periods of time and intense collaboration between the French and Japanese sides was essential. Back in France, our meetings with Japan are less regular but I know that I can count on my Japanese supervisors if I have specific questions or issues.

What are the main differences between research in France and Japan?
The research itself is quite similar. Concerning the organization of the lab, I noticed that in Japan, they are quite task-specific with designated employees for each task whereas in France we are more multitask, sharing responsibilities between coworkers (device maintenance, consumable, chemicals and waste management...). In Tokyo, the lab was open 24h a day, so it wasn’t rare to find a colleague having a nap on his/her desk!

What have you learned from this international experience?
In addition to the scientific benefits explained previously, I have really appreciated discovering Tokyo and Japan. It’s been a complete discovery as I wasn’t at all familiar with the Japanese culture beforehand. My English has improved and I’ve even started learning Japanese! In addition to the warm welcome, I’ve met researchers in similar fields and have thus enlarged my network. Discussions with these researchers about their professional lives have proved particularly useful and interesting as they’ve enlightened me on which direction I want my young researcher career to go in the future.

Life in Tokyo is unique; I am looking forward to my second stay next year!
Bordeaux researchers on the move!

A sabbatical in Sweden

Olivier Maire is a researcher within the mixed research unit (UMR) EPOC* (Oceanic and Continental Environments and Paleo-Environments). Currently researching in Sweden, he tells us about the work he is carrying out within the field of marine ecology.

Why did you choose to apply for a research/thematic conversion sabbatical?
Since I started at the University of Bordeaux in 2009, a lot of my time has been spent lecturing. This CRCT** sabbatical year represents a great opportunity to revive my research activity, broaden my set of skills and to start new and long-lasting international collaborations – that will last I hope after my return to Bordeaux.

Tell us about your host institution
Since October 2015, and for a period of 6 months, I am at the Sven Loven Center (Marine station of Kristinebery, Sweden). This center is part of the University of Goteborg. During my PhD studies, I spent a month at the Sven Loven Center to study the benthic fauna of Gullmarsfjord. When I was there, I discovered a unique and special place – with cutting-edge experimental structures, numerous thermo-regulated rooms supplied by running sea-water (surface and deep) and a range of automatic devices that enable for instance the precise control of the physical-chemical properties of the sea-water (e.g. the concentration of dissolved oxygen) inside the mesocosms. All in all, the perfect place to carry out off-site experiments within the domain of marine ecology.

What is your research project?
My research project aims to better understand the influence of benthic macrofauna through its bioturbation activity (i.e. the biogenic mixing of sediment particles and dissolved compounds), on the vertical distribution of benthic foraminifera. It was recently proven that some species of benthic foraminifera are capable, without oxygen, of using nitrates for respiration. Their influence on the biogeochemical dynamics of benthic ecosystems therefore depends strongly on their vertical distribution within the sediment matrix. While it is recognized that bioturbation is one of the main factors that controls the burying depth of the foraminifera, the exact mechanisms of this control still remain unclear.
A sabbatical in Sweden

The main differences between research in France and Sweden?

There are many differences with strong and weak points on both sides. For example, the teaching load is heavy in France which limits the time that may be dedicated to research. On the other hand, many researchers and lecturer-researchers in Sweden must supplement their salary with their own projects. This obviously favors short-term research as funding depends and is granted according to the number of publications produced each year.

In terms of organizing a CRCT, just a head’s-up – it is sometimes necessary to obtain specific funding in order to go abroad. This cost may be covered by the hosting institution via the allocation of grants. However, the CRCT award calendar in France is published mid-June leaving very little time to coordinate with the grant applications calendar abroad and start research less than two months later in another country. Be prepared!

What have you learned from this international experience?

This type of international experience is always incredibly rewarding – discovering a different approach to scientific research, perfecting your English, etc. It also represents the opportunity to exchange with fellow researchers concerning new techniques and methods. The Swedish scientists that I have met excel particularly in the creation and animation of large research projects, managing to unite international, multi-disciplinary teams around important scientific questions.


** Congé pour Recherches ou Conversions Thématiques (CRCT)
Thomas Leclerc, 26yrs old, is a PhD student who tells us about his international co-tutelle experience!

Thomas obtained his master’s degree in International Law from the University of Bordeaux in 2012 and spent two “academic” years (2013 to 2015) in Leiden University, the Netherlands, as part of his co-tutelle agreement between the “Centre de Recherche et de Documentation Européennes et Internationales” (CRDEI - University of Bordeaux) and the International Institute of Air and Space Law (IIASL - Leiden University, The Netherlands). The focus of his academic research is the connection between environmental law and international air law, specifically on sustainable solutions for reducing aircraft greenhouse emissions.

Why did you choose to carry out a co-tutelle?

During my previous studies, I took every opportunity to live and study abroad. During the third year of my law degree I went on a one-year exchange program to the University of Law of Granada (Spain). Inspired by this first “living abroad” experience, I then went on another exchange program during the second year of my master’s degree, this time outside Europe, to the University of San Andrés, in Buenos Aires (Argentina), where I spent thirteen months.

It was after this second experience that my current French supervisor, Prof. Grard, suggested that I carry on with my academic research via a specific contract, including a co-tutelle agreement. This has proven to be the ideal project for me, combining a PhD research contract and a new life experience abroad in a completely different academic system.

Why did you choose Leiden University?

The IIASL, part of Leiden University, is one of the world’s leading international academic research and teaching institutes, specialising in legal and policy issues regarding aviation and space activities. Integrating the PhD program of the IIASL was therefore a unique opportunity for me. I received advice and support from Prof. Grard and a previous PhD candidate in Bordeaux, Prof. Correia. They helped me establish contact with my supervisor in Leiden, Prof. Mendes de Leon, who made the entire co-tutelle project a reality.
What have you learned from this international experience?

Fortunately (or unfortunately!), I did not have to learn Dutch, as almost everyone in the Netherlands speaks English. It is foremost unfortunate because after two years in this great country, getting to know the Dutch, learning about their culture, traditions, customs etc., I never learnt their language. At the same time, I was fortunate because it allowed me to focus on improving my English, both in an academic and in an everyday sense. As a result, I return to France without any regrets, but with the hope to return to the Netherlands one day to close this “language gap”.

Beyond the language, and the very real cultural exploration during this kind of international experience, I will add one general comment. Living abroad, with its ups and downs, gives you the luxury of time: time to visit, enjoy, work, celebrate, and have time to fill! This time provides you with the unique opportunity to develop your own “daily routine” and life experience in a foreign country.

What are the main differences you have identified between research in France and the Netherlands?

The IIASL, as part of the Netherland’s academic system, and the CRDEI, as part of the French system, are two different worlds and each have their strengths and weaknesses. In that sense, they are difficult to compare. Nevertheless, I have remarked the following: the IIASL is built on an impressive network of professionals who are passionate about air and space law. It provides researchers with very useful contacts and makes them feel part of a worldwide family. The CRDEI has a wider program, as it focuses not only on air and space law, but also on international and European legal research in a broad sense. Considering this, the CRDEI’s body of teaching and administrative staff is larger than the IIASL’s, which helps researchers to form academic and personal links with experts of other legal and international disciplines.

At the end of the day, combining such different academic environments provides a PhD student with a unique research experience and I have no doubt that this is so for each co-tutelle agreement.