Doctoral profile - 2019 campaign

Research framework

Work-Packages: "Biodiversity – Territories – Societies" "Modeling, simulation and decision support"
Heads: "Biodiversity – Territories – Societies" • **Christine RAIMOND** (Director of research, CNRS, UMR 8586 Prodig) • **Anne SOURDRIL** (Research fellow, CNRS, UMR 7533 Ladyss)   "Modeling, simulation and decision support" • **Brice ANSELME** (Assoc. Prof. P1, UMR 8585 Prodig) • **Arnaud BANOS** (Director of research, CNRS, UMR 8504 Geography-cities) • **Nicolas BÉCU** (Research fellow, CNRS, UMR 7266 LIENSs)

Position description

"Environmental big data governance."

Research proposal:

The establishment of the IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) and international calls for more effective management of the dynamics of living systems underpin the creation of Big Databases on biodiversity and its dynamics. Growing numbers of scientific teams have embarked on a global competition to create tools with performances on a par with those of the Intergovernmental Panel on Climate Change (IPCC) database. In doing so, they hope to cover increasingly extensive areas and increase the frequency of replication of inventories in order to overcome the limitations of conventional methods (small areas of coverage, spatial heterogeneity in the level of knowledge, slow pace of naturalist field inventories, etc.).

Against this backdrop, we are seeing the emergence of Big Data-driven technical solutions. On one hand, they cater for the rapid expansion of multidate land-cover mapping of vast areas by using Big Data processing of satellite images by consortia of public and private stakeholders with the required data processing capability. On the other hand, there are also so-called "environmental DNA" technologies (genome sequencing of soil or water samples): the dwindling costs of these technologies make it feasible to perform frequent replication of biodiversity inventories across increasingly extensive areas. Lastly, combinations of these two groups of technologies are currently

being tested, using models that link vegetation structures and various aspects of biodiversity.

The thesis should endeavor to understand the territorial and political implications of these Big Data developments at several levels. It should try to understand what changes in an area's environmental governance when it suddenly becomes possible to map the area's biodiversity exhaustively and frequently. Does its value in terms of conservation change? Does it alter the balance of power between local, national and international stakeholders with regard to environmental management? The thesis should aim to map the areas concerned by these projects, state the reasons for which these areas were chosen by the teams working on these methods, the sources of funding and the scientific partnerships formed by the teams. A set of localized case studies should be selected for investigation in order to understand the implications of deploying Big Data for local and national environmental governance. These local investigations should be linked to an investigation of national and international biodiversity management bodies in order to analyze the stakes identified by these stakeholders in relation to environmental Big Data.

The areas selected for the local studies should be situated in Latin America (French Guiana and Brazilian Guyana) and possibly Africa (the Congo basin), in tropical rainforest zones, which are particularly sought after for developing these methods (for example for understanding the dynamics linking deforestation and specific biodiversity dynamics). The investigation shall be carried out with scientific and administrative stakeholders from France, Brazil and the African country chosen by the doctoral student, along with international stakeholders (such as the GBIF or the IPBES). The approaches should be those used in the fields of political geography, political ecology and social studies of science and technology, and make substantial use of spatial analysis.

Planned collaborations

The project will lie within the scope of the "Biodiversity – Territories – Societies" and "Modeling, simulation and decision support" Work-Packages, which it will help to lead through its research at the crossroads of biodiversity and the modeling of geographic processes. It will contribute to the social sciences' reflection on the political dimension of the new tools used to understand the dynamics of living systems, more specifically through a territorialized approach to the latter. The doctoral student will enjoy a dynamic research environment as he/she interacts with the WP's members and takes part in the research seminar and the planned projects and publications.

Participation in the Modeling WP will be through Hadrien Commenges, who will sit on the thesis committee and provide input on the topic of Big Data processing and spatial analysis in the chosen areas, which represents a novel opening of the WP's research to include modeling.

The thesis will, in part, lie within the ANR's Guyint project (on the governance of natural open spaces and environmental stakes on the Guiana Shield), in which one of the tasks is to investigate remote environmental governance techniques using geospatial technologies and the construction of geographic databases. The doctoral contract awardee will have his/her field trip financed by the project. The awardee will also be able to work with the network of researchers already on site in both French Guiana and the Brazilian state of Amapá. For the research fields in Africa, the organizers are planning a collaboration with the IRD delegation in Cameroon, which is specialized in the Congo forest massif and with whom the UMR Prodig has a long-standing partnership.

Within the UMR Prodig, the doctoral student will join the "Informality, standards and public action"

focus area of the topic "Production processes and trade, regulations and territorial dynamics".

It would be possible to arrange joint supervision with a Brazilian university partner.

Required skills and abilities
- A Master's degree in geography, political science or sociology. Interdisciplinary profiles, in particular coming from the natural sciences, will be examined with interest insofar as a substantial part of the course was completed in the human and social sciences. An awareness of social studies of science and technology would be a plus;   - experience in interviewing;   - experience of field work in the social sciences, especially outside France;   - proficiency in geomatics and spatial analysis is desirable but not mandatory. A basic grounding in the analysis of satellite images would be a plus; - proficiency in English is mandatory.

Additional information	
Contract start date	Choice of 02/09/2019 or 01/10/2019
Length of contract	3 years
Host laboratory	**Laboratory name:** Prodig: Research Unit for the Organization and Dissemination of Geographic Information (UMR 8586) **Address:** 2 rue Valette - 75005 Paris **Thesis supervisors:** **Pierre GAUTREAU** – UMR 8586 Prodig **Christine RAIMOND** – UMR 8586 Prodig
Net monthly remuneration	Approx. €1,421 (additional teaching assignments possible)[1] **Thesis registration fees are covered by the LabEx DynamiTe.**
Contact	contact@labex-dynamite.com

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[1] Depending on the host/assigned establishment

Recommendations for the candidates:

Recruitment procedure and schedule:

- **The application must be submitted electronically by application form** (http://www.form-labex-dynamite.com/doc/en/). It must demonstrate that the candidate fulfils the requirements indicated in the position profile (specified tasks and skills).
  The application will include:
  - a description of the doctoral project (2 to 5 pages maximum, if more the application will be refused) indicating the theoretical basis of the research, the research-related issues, the methodology to be used, a feasibility report with a 3-years period and project schedule;
  - curriculum vitae;
  - transcript of higher education record for first year of masters studies (*Master 1*) and the first semester of research masters (*Master 2*);
  - a letter of recommendation from the supervisor of the research master's thesis;
  - a letter confirming the forthcoming defence of the candidate's master's thesis (prior to **31 August 2019**).

It is recommended for the candidate to establish contact with the thesis supervisor in advance.

- **The deadline for the submission of applications is 8 May 2019 (inclusive)**.

For your information: When the deadline for applications has passed, the LabEx DynamiTe will contact the director(s) of the potential host unit(s) to add an agreement certificate to the application.

- The candidates appointed following the evaluation of the applications and interviews (which will take place during the week of 24 June 2019) will be informed of the results of the application process from 28 June 2019.