



## Profile for Doctoral Position

### Research framework

**Work-Package: "Environmental changes and societies in the past"**

**Heads: Catherine KUZUCUOGLU and Zoï TSIRTSONI**

### Position description

#### **"Anthropic Impact, Environmental Change and Agrarian Systems from the Neolithic to the Year 1000 in the Caen Plain"**

The research done over the past fifteen years has provided better knowledge of landscape dynamics in the Caen Plain. This plain contains remarkable sedimentary and archeological archives across the Parisian basin; it is a "laboratory" with proven but not yet exploited potential. Nevertheless, fundamental questions remain as to the landscape dynamic in response to the development of agro-pastoral societies from the Neolithic Era to the historical period. **The objective is therefore to build a history of agrarian landscapes from the Neolithic Era to the Medieval period by identifying the pace and modalities of their construction and the interactions between environmental changes and the development of agrarian practices by societies.**

The project relies first on new investigations into identified **sedimentary archives** outside of archaeological sites (alluvial flats, coastal flats, peat bogs, large wetland sites). They are known but have not all been investigated yet, or have been investigated but with insufficient scientific means to answer the questions asked. These archives will be exploited using core samples, the sediment in which shall be dated using radiocarbon dating (AMS) and the most promising will be chosen to develop the envisaged high resolution time series analyses. As the survey covers exploitation of the plant resources produced by populations since the Neolithic Era, the main analytic method shall be the **analysis of pollen and non-pollen micro-remains**. Additional analyses shall also be used: fire signal (quantitative analysis of carbon particles present in the sediment), which is a very good indicator of fire use; organic matter chemistry to determine the degree to which organic sediment has evolved and therefore obtain information on soil development and groundwater fluctuations; and the search for molecular markers characteristic of grain production could be tested. The data acquired off-site will be completed by a comparison with other paleo-ecologic data produced on-site (archaeobotany and archaeozoology). The doctoral student shall interpret all of this data in close collaboration with archeologists to produce a true landscape archeology.

The expected results are therefore threefold:

(1) Produce a **history of agrarian clearing**. The challenge is important because the Caen Plain has been located on a pioneer front since the ancient Neolithic period (c. 5200 BCE) and the density of archaeological sites for the Neolithic period is strongest on the regional scale whereas the construction of large burial monuments suggests the magnitude of cleared spaces necessary for their visibility and affirmation in the landscape. However, the pollen studies conducted to date indicate low levels of clearing...



(2) Elaborate a **landscape archeology** by showing the weight and timeline of anthropic impacts before historical archives are truly utilizable to build an agrarian history. The envisaged off-site analyses using sedimentary archives in wetlands as supporting materials should make it possible to characterize agrosystems combining the pasturing of cattle herds and grain growing, and clarify their limits and operation since the Neolithic Era. This is expected to reveal the consequences of agricultural intensification and the spread of agrarian land since the Middle Bronze Age. It will above all be a matter of attempting to show the influence of the construction of farm plots seen in the region since the Middle Bronze Age on landscape transformation.

(3) Finally, it will be a matter of **re-constructing paleo-environmental evolutions** based on the sedimentary and paleoecological data collected. Paleoclimatic fluctuations and in particular the transition during the Middle Holocene period (6-4 ka cal. BP) and the rapid climate changes seen on the global scale will be looked for in particular. Indeed, knowledge of them remain embryonic in western France where the information used is based mainly on research done elsewhere. The aim will be to analyze their consequences on environmental transformations and envisage their impact on agrarian societies since the Neolithic Era.

## Planned collaborations

The collaborations planned in the framework of this doctoral contract mobilize several laboratories both inside and outside LabEx and the Ministry of Culture (DRAC Normandy). In order to finance the analytic portion of the project (laboratory study and radiocarbon dating), the project could rely on several research programs that also ensure the interdisciplinary context necessary to achieve the doctoral project.

### 1. Supporting Laboratories for the Doctoral Research

#### - **Laboratoire de Géographie Physique (LGP) - UMR 8591 CNRS, Paris 1 Panthéon-Sorbonne University and UPEC**

Most of the equipment necessary for the field investigations and doctoral laboratory work is available at the LGP: corer (LGP and LabEx funding), pollen analysis and analysis of non-pollen micro-remains, fire signal analysis, and organic matter analysis.

- Laurent LESPEZ, Professor of Geography at the University of Paris-Est-Créteil, Geoarchaeologist (co-director for the proposed doctoral position);
- Agnès GAUTHIER, Study Engineer at the UMR LGP: Palynologist, specialized in the reconstruction of paleo-environments of the Pleistocene and Holocene periods (Devès, Anatolie, Parisian Basin);
- Yann LE DREZEN, Lecturer at the Paris 1 Panthéon-Sorbonne University, specialist in fire signals;
- Fatima MOKADEM, (IE), Geochemist.

#### - **Trajectoires UMR 8215 CNRS, Paris 1 Panthéon-Sorbonne University**

- François GILIGNY, Professor of Archeology at Paris 1 Panthéon-Sorbonne: specialized in the analysis of Neolithic territories in the Parisian Basin and in charge of scientific steering for the PCR "*Le Néolithique moyen en Basse-Normandie*" [Middle Neolithic Period in Lower Normandy] (co-director for the proposed doctoral position)



## 2. Research programs: interdisciplinary working framework and financial support

### - PCR Ministry of Culture, DRAC Normandy: *"Le Néolithique moyen en Basse-Normandie et les îles anglo-normandes"* [the Middle Neolithic in Lower Normandy and the Channel Islands]

This project began in 2015 and will continue for a period of 4 years with four main objectives:

- establish a detailed chronostratigraphic framework for the Middle Neolithic period in Lower Normandy (4700-3500 BCE) based on an exhaustive and detailed inventory of the available documentation;
- evaluate the anthropic and agricultural impact during the first centuries of the Neolithization process;
- understand how the territory was organized, between large central areas with multiple functions, ordinary habitats and burial sites, and how essential raw materials were exploited; and
- explore the conquest of the maritime environment and clarify how the Channel Islands and British Islands underwent Neolithization starting in this period.

The doctoral project is fully a part of this dynamic, in particular as regards agrarian practices and the impact of livestock and their relation to the environment. It could receive material aid for analyses.

- A specific funding request centered around the analysis of sedimentary archives off-site in the form of **thematic prospecting from the Ministry of Culture, DRAC Normandy: *"Restitution des paysages agraires depuis le Néolithique à partir des archives sédimentaires"*** [restitution of agrarian landscapes since the Neolithic Era based on sedimentary archives].

## 3. Other Partners

### - DRAC Normandy, Ministry of Culture

- François CHARRAUD, Archaeologist, head of the PCR *"Le Néolithique moyen en Basse-Normandie et les îles anglo-normandes"* [the Middle Neolithic period in Lower Normandy and the Channel Islands]
- Cyrille BILLARD, Heritage Curator: specialist in the Neolithic Era, specific guidance for the PCR project

### - Calvados Departmental Office of Archeology, CG14

- Cécile GERMAIN-VALLÉE, Archeologist and Geoarcheologist, specialist in the Caen Plain and its immediate surroundings

### - CSIC-Madrid

- José-ANTONIO LOPEZ-SAEZ, Researcher, HDR, palynologist specialized in non-pollen micro-remains and the anthropization of plant cover

## Required skills and abilities

### Disciplines and Tools:

The candidate must have mastery of archaeobotanical analysis procedures and preferably pollen and non-pollen micro-remains.

He/she will need to participate in field work (prospecting, core sampling), define sampling strategies, prepare samples and analyze them.

He/she must also have good knowledge of mapping tools using Geographic Information Systems.

### Desired Research Experience:

Knowledge of environmental archeology and the geosciences (Master's degree in geography or



# Laboratoire d'Excellence Dynamiques Territoriales et Spatiales

Cluster of Excellence *Territorial and Spatial Dynamics*

+33 (0)1 49 54 84 21

contact@labex-dynamite.com

<p>archeology). Experience working in a multidisciplinary field and experience collaborating in the framework of a research project or research laboratory.</p>	
<b>Additional information</b>	
<b>Contract start date</b>	01/Sept/2016
<b>Length of contract</b>	3 years
<b>Host laboratory</b>	<p><b>Laboratory Name:</b> LGP (<i>Laboratoire de Géographie Physique - UMR 8591</i>) and <i>Trajectoires (UMR 8215)</i></p> <p><b>Address:</b> UMR 8591 LGP 1 place Aristide Briand FR-92195 MEUDON CEDEX</p> <p><b>Supervisor: Laurent Lespez</b></p> <p><b>Address:</b> UMR 8215 <i>Trajectoires</i> 21 allée de l'Université 92023 NANTERRE Cedex</p> <p><b>Supervisor: François Giligny</b></p>
<b>Assigned University</b>	<p>Paris 1 Panthéon-Sorbonne University</p> <p>Paris School of Geography – Environment, Society, Development (Doctoral School ED 434)</p>
<b>Net monthly remuneration</b>	approximately € 1 350 (additional teaching assignments possible) <sup>1</sup>
<b>Contact</b>	<p>contact@labex-dynamite.com laurent.lespez@u-pec.fr francois.giligny@univ-paris1.fr</p>

## Recommendations for the candidate(s):

### 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:

<sup>1</sup> depending on the host establishment.



# Laboratoire d'Excellence Dynamiques Territoriales et Spatiales

Cluster of Excellence *Territorial and Spatial Dynamics*

+33 (0)1 49 54 84 21

contact@labex-dynamite.com

- a description of the doctoral project (2 to 5 pages maximum) indicating the theoretical basis of the research, the tests to be carried out on empirical materials, the methodology to be used, a feasibility report 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 2016**).

It is recommended (but not mandatory) for the candidate to establish contact with the potential thesis supervisor in advance.

- **The deadline for the submission of applications is 4 May 2016 (inclusive).**

*For your information: When the deadline for applications has passed, the LabEx DynamiTe will contact the potential director(s) of the potential host unit(s) and will add one letter of invitation to the application.*

- The candidate(s) appointed following the evaluation of the applications and interviews (which will take place during the week of 13 June 2016) will be informed of the results of the application process from 20 June 2016.