



Profile for Post-Doctoral Position

Research Framework

Work-Package: *Dynamiques environnementales et sociales des risques* (Environmental and social dynamics of risk)

Leaders: Franck Lavigne, Gérard Beltrando, Julie Vallée

Description of the Position

Profile title: The health risks associated with air pollution: evaluation of the individual exposure of children in different social and health contexts.

Research proposal:

This post-doctoral research study forms part of a project being carried out by two LabEx partner laboratories, UMR *Géographie-cités* and the UMR PRODIG, and, specifically, Sophie Baudet-Michel, Gérard Beltrando and Malika Madelin. This joint contribution and comparison of (socio-economic/environmental, quantitative/qualitative etc.) approaches provides a basis for the methodological consideration of the questions of pollution and health and environmental and social inequalities in the context of this risk.

This post-doctoral research will contribute to the ongoing consideration of different facets of the risks associated with pollution, specifically the environmental and social determinants (Laurent *et al.* 2008a and b) of health inequalities. While the temporal links between pollutant concentrations and health risks are well established in the short and medium term and at aggregated geographical levels (neighbourhoods, cities) (Anderson *et al.* 2001, Annesi-Mazsano *et al.* 2004, Havard *et al.* 2009, Smoyer *et al.* 2000), far less work has been done on individual exposure (Gauvin *et al.* 2002). The main reason for this is the nature of the available data (i.e. both the private nature of the health data and the measurement of pollutant levels at dispersed regional stations). We would like to develop two ideas: the first is that individual exposure should be measured while also taking the temporal and spatial diversity of the pollution contexts, to which the individuals in question are exposed, into account. The second is that this documentation would benefit from being included in a comparative process based on the examination of 'cases' in contexts characterized by contrasting socio-sanitary conditions.

The post-doctoral researcher's task will consist in proposing a protocol that will enable the definition of social and health determinants for the local exploration of the spatial variability of individual exposure to atmospheric pollution. In order to validate the methodology and obtain the results required within the timeframe of the post-doctoral study, it will be necessary to limit the spatial scope of the investigation: in this instance, the examination of a sensitive population with reduced mobility, i.e. primary-school children (Corburn *et al.* 2004, Kihal-Talantikite *et al.* 2013a and b).



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Several possible avenues exist for the development of the protocol. One possible perspective is presented below.

The first exploratory phase of the protocol will involve the identification of several survey sites in the Île-de-France region with contrasting socio-sanitary situations. To do this, the candidate will avail of health data relating to medication consumption and hospitalization for asthma (PMSI and SNIIRAM data), and social data relating to household characteristics (INSEE data). A number of primary schools within the selected areas will then be chosen.

The second phase of the study will focus on the environmental aspect of the selected schools. Hence we will define the environmental contexts of the educational establishments based on a geomatics analysis: What is the concentration of major roads, proportion of green spaces etc.? Campaigns for the measurement of pollutant concentrations will be carried out in and near the schools and for varying types of atmospheric circulation so that the levels of exposure to particulate matter and nitrogen dioxide (and possibly also ozone) can be defined, 1) in winter and 2) in spring.

During the third phase of the study, the (domestic) activities and mobility of several families will be surveyed with a view to incorporating individual exposure into the analysis on the basis of a qualitative survey. Finally, this aspect will be rounded off with participative pollution measurement campaigns using portable and individual sensors.

Planned Collaboration

- UMR *Géographie-cités*, UMR PRODIG (*Pôle de Recherche pour l'Organisation et la Diffusion de l'Information Géographique*) and UMR EVS (*Environnement Ville et Société*).
- This project will contribute to the analyses currently being carried out as part of the response to a call for project applications by the French National Research Agency (ANR) in October 2013, and one by the French Institute for Public Health Research (IRESP) in 2013: i.e. the DISTURB project (*Déterminants des Inégalités de Santé inter-URBaines*). The project was not selected for funding. It involved major contributions by the UMR EVS, UMR *Géographie-cités* and UMR PRODIG. These units are revising the structure of the project and currently broadening the debate through discussions with two epidemiologists from the EHESP (French School of Public Health) and a researcher from the UMR *Espace*.
- We are also considering establishing links with the APPA (*Association pour la Prévention de la Pollution Atmosphérique*).





Required Qualifications, Skills and Aptitudes

The candidate must:

- hold a doctorate, preferably in geography (or other disciplines in the humanities and environmental sciences);
- have a knowledge of topics relating to air pollution and health;
- have skills in geomatics, data analysis, surveying and the organization of a protocol of field measures;
- be fluent in English, both written and spoken.

Additional Information

Commencement of the contract	Between 01/09/2015 and 01/12/2015 (according to preference)
Duration of the contract	1 year
Host laboratory	Name: Géographie-cités Address: 13 rue du Four, 75006, Paris Supervisors: Sophie Baudet-Michel, Gérard Beltrando and Malika Madelin.
Net monthly salary	Approximately EUR 2324
Contact	contact@labex-dynamite.com or +33 1 49 54 84 21

Recommendations for the candidate(s):

Recruitment procedure and schedule:

- **The application must be submitted electronically by application form** (<http://www.form-labex-dynamite.com/postdoc/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 proposed research project (3 to 5 pages) and an abstract (2,000 characters including spaces) 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;





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- a covering letter;
 - curriculum vitae;
 - list of publications with internet links (if available);
 - doctoral thesis defence report (not required for foreign candidates);
 - copy of doctoral degree (or certificate)¹.
- The **deadline for the submission of applications is 26 April 2015 (inclusive)**.
 - **The application summary sheet which will be transmitted automatically by e-mail** on completion of the electronic application must be sent by post (date as per postmark) or presented in person to the office of the LabEx DynamiTe (190-198 avenue de France, bureau 008 or 004 Aile A, 75013 Paris) before the applications deadline.

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

- The candidate(s) appointed following the assessment of the applications and interviews (which will take place during the week of 15 June 2015) will be informed of the results of the application process from 22 June 2015.

¹ The thesis must have been defended fewer than five years ago.

