Call for Post-Doc in applied Statistics

Nouveaux outils statistiques pour la datation OSL

A new statistical tool for OSL dating

Subject and scientific context

The objective is to develop a statistical tool based on a bayesian approach allowing the analysis of OSL measurements performed on poorly-bleached sediment samples.

During the last years, the OSL method became a tool extensively used for dating the last exposure to sunlight of grains (quartz or feldspars) extracted from sediments or mortars. The dating of these materials offers the possibility to answer a series of archaeological questions studied by the scholars of the IRAMAT-CRP2A luminescence group.

The analysis of the luminescence data remains however problematic, especially when a part of the grains have not been sufficiently exposed to light before their burial. Today, the classic approach aims at identifying these poorly-bleached grains in order to discard them during the final treatment, but this process is highly criticable.

The post-doctoral candidate will develop, in collaboration with the researchers of the luminescence group and the Bayesian specialists, a Bayesian approach for analysing these data which will be an alternative to the classic one.

The objectives are the followings :

1) define, test and validate a Bayesian model allowing the analysis of non-normal (skewed) distributions of paleodoses;

2) integrate this approach in a Bayesian model including external chronological information.

The candidate will have a backgroung in Bayesian statistics and developed skills in R language programming (using JAGS for Bayesian coding).

Duration

- 12 months starting July 1st, 2015.

Job status

Full time position financially supported by the Labex Sciences Archéologiques de Bordeaux (LaScArBx). Social cover by the employer (Université Bordeaux Montaigne) is included in the contract.

Salary

The monthly net income is 2210 Euros.

Work supervision

LANOS Philippe (DR CNRS), Université Bordeaux Montaigne, Ecole Doctorale « Montaigne-Humanités »
UMR CNRS 5060 IRAMAT (Institut de Recherche sur les Archéomatériaux), CRPAA (Centre de Recherche en Physique Appliquée à l'Archéologie) and UMR CNRS 6118 Géosciences-Rennes, Université Rennes 1.

PHILIPPE Anne (Professeur), Université de Nantes, Ecole Doctorale STIM « Sciences et Technologies de l'Information et Mathématiques ».
UMR CNRS 6629 Laboratoire de Mathématiques Jean-Leray

Location

Université de Nantes (Laboratoire de Mathématiques Jean-Leray) or Université Rennes 1 (Laboratoire Géosciences-Rennes, groupe Modélisation chronologique et Archéomagnétisme) with visits to Centre de Recherche en Physique Appliquée à l'Archéologie (Université Bordeaux-Montaigne).

Candidate profile

We look for a candidate specialized in applied mathematics, more specifically in statistics with skills in programming and stochastic numerical calculus.

Moreover, the candidate will be interested in applications to archaeology and natural sciences involving questions about chronology.

qualities/skills needed

- ➢ PhD Thesis in statistics and probability
- ➢ Autonomy, open mind, capacity to work in a team
- ➢ Knowledge of programming (C++, R)
- ➢ Marked interest in Human sciences, in particular in archaeology and archaeometry.

Application : Please send us a CV and a research statement to

LANOS Philippe :		philippe.lanos@univ-rennes1.fr

PHILIPPE Anne :		anne.philippe@univ-nantes.fr

Recommendation letters should be send to us directly in electronic form.

Application deadline : **31 May 2015**