Extract of metabarcoding.org

http://metabarcoding.org/spip.php?article86

PhD position on DNA and pollen analyses at EDYTEM and LECA laboratories

- Position opportunities -

Publication date: Wednesday 10 May 2017

Laboratory's name: EDYTEM & LECA

Contact details: C. Giguet-Covex (EDYTEM, charline.giguet-covex at univ-smb.fr), E. Messager (EDYTEM, erwan.messager at univ-smb.fr) and F. Ficetola (LECA, francesco.ficetola at gmail.com)

SUBJECT DESCRIPTION

Pollen preserved in lake sediments is traditionally used as the basic tool to reconstruct palaeoenvironmental dynamics. On the basis of taxa proportions recorded in pollen assemblages, the composition of a regional vegetation cover (i.e. % of meadow/ forest/ cultivated area...) can be estimated. Pollen data also permit to reconstruct the past farming activities (such as cereal growing or, indirectly, pastoral activities) and their impacts on vegetation dynamics. However, the low taxonomic resolution for many herbaceous families limits the precision of palaeo-community reconstructions and their possibility to measure biodiversity. Such information is of high importance to determine past dynamics of socio-ecosystems and is a key to provide palaeoecosystem services reconstructions.

DNA preserved in lake sediments is an emerging and a promising tool to overpass the limits described above. Today, the biodiversity of an ancient environmental sample like lake sediments can be analyzed using the metabarcoding technique. This improves reconstructions of past plant cover provided by pollen, not only in terms of taxonomic resolution but also in terms of spatial distribution, as DNA better represents the plant cover within the lake catchment area. However, obtaining quantifications of plant cover by this technique remains challenging and needs developments like "calibration tests" on modern systems.

The design of this PhD thesis is based on the application of both methods on modern systems (referential) to assess 1) the accuracy of each method regarding their capacity to reflect the current landscape, 2) how they are complementary and 3) how these two methods are affected by the characteristics of lake-catchments systems (lake and catchment size, geology, ecological zones,...).
Both methods will be also applied to lake sediment archives spanning several millennia in different areas in the French Alps. The final objective is to provide more accurate reconstitutions of past plant cover dynamics, in particular regarding their ecological functions. This point is crucial in order to move toward the modeling of palaeoecosystem services over time. This thesis is integrated in the larger project "Trajectories" (
https://trajectories.univ-grenoble-alpes.fr).

Applicants:

- must hold a Master's degree (or be about to earn one) or have a university degree equivalent to a European Master's (5-year duration),

Applicants will have to send their cv, last diploma, and a short presentation of their scientific project (2 to 3 pages max) to:

cdp.trajectories at univ-grenoble-alpes.fr
Letters of recommendation are welcome.

Selection process

PhD position on DNA and pollen analyses at EDYTEM and LECA laboratories

Application deadline: 20/05/2017 at 17:00 (CET)

Applications will be evaluated through a three-step process:

Eligibility check of applications in 20/05/2017

1st round of selection: the applications will be evaluated by a Review Board in end of Mai 2017. Results will be given in 31/05/2017.

2nd round of selection: shortlisted candidates will be invited for an interview session in Le Bourget du Lac, on 15-20th of June 2017.