

PhD position in Tropical paleoecology and paleoclimatology

University of Montpellier, Institute of Evolutionary Science of Montpellier,
France, Ecole Doctorale GAIA

Context

Understanding the earliest chronology and settlement patterns of the Americas cannot be achieved without studying human-environment past relations. Adapting, moving or even disappearing in response to climate fluctuations are the expected reactions. In order to characterize these different scenarios, the ANR-funded SESAME project proposes to focus on North-East Brazil, where the human presence has been documented for at least 40,000 years. By reconstructing past variations in NE Brazil climate and environment and revealing the cultural and technological identity of past societies, the project aims to reveal the evolution of the relationship between people and their environment through the Pleistocene and the Holocene. This human paleoecological reconstruction will allow, in a comprehensive way, to formulate hypotheses on the potential routes of intracontinental diffusion and implantation. They will be derived from the NE Brazil model and the recontextualization of literature archaeological data into a paleoclimatic scheme on a continental scale.

Logistics

The work will be conducted at the Institute of Evolutionary Science of Montpellier (ISEM), in Montpellier, France (<https://isem-evolution.fr>), and at the Laboratoire des Sciences du Climat et de l'Environnement (LSCE), in Gif sur Yvette, France (<https://www.lsce.ipsl.fr/>) under the supervision of Dr Marie-Pierre Ledru and Dr Aline Govin.

The appointment is for three years. The remuneration is € 2,890 Gross Charged Monthly. The first year (2023) will be held at LSCE. The next years (2024, 2025) at ISEM Montpellier.

Description

The PhD project is funded by the French National Agency for Research (ANR) and aims to reconstruct past climatic and environmental variations in Northeastern (NE) Brazil over the last 40,000 years (where the human presence has been documented) and to reveal the evolution of the relationship between people and their environment through Pleistocene and Holocene.

The study will be based on a marine sediment core that will be collected on the NE Brazil margin close to the Parnaíba River mouth during the AMARYLLIS-AMAGAS oceanographic cruise (planned in June-July 2023). This core will provide information on past continental climate and environment changes over the Parnaíba catchment. A comprehensive pollen-vegetation survey of the different regional biomes will be used to reconstruct the

paleoenvironment. A biomisation technique will be adopted to convert pollen data into vegetation landscape units.

Methodologically, the PhD project will depend on pollen, charcoal analyses and X-ray Fluorescence core scanning. The obtained results will be integrated with other paleoclimatic tracers (radiocarbon dating, stable isotopes of foraminifera, biomarkers, environmental magnetism) that will be produced in parallel within the SESAME project, ultimately providing both qualitative and quantitative information on climate and ecosystem dynamics during the last 40,000 years.

Requirements

Requirements for applicants are:

- completion of a MSc degree in Biological Sciences, Earth Sciences, Ecology, or related field prior to appointment
- written and spoken fluency in English
- autonomy and organizational capacities
- ability to master a multidisciplinary approach and to collaborate as a team.

The successful candidate should further have a strong background in micropaleontology (preferably pollen) and paleoclimatology. Competency with Excel and programming in R will be a strong advantage.

Applications

Applications (CV, cover letter including a statement of research interests, and contact information of three referees familiar with the applicant's research) should be emailed as a single pdf file to Dr. Marie-Pierre Ledru (marie-pierre.ledru@ird.fr) and Dr. Aline Govin (aline.govin@lsce.ipsl.fr).

The closing date for applications is 15 August 2022. We will invite potential candidates for interviews (by videoconference) in September 2022. The PhD will start (at latest) on January 1st, 2023.

For additional information, please contact:

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