

Ecole Normale Supérieure (ENS), situated in the heart of Paris, is the leading institution of higher learning and research in France. The ENS, while quite small in size, has 15 departments in the sciences, humanities and social sciences that provide instruction at the advanced undergraduate and graduate level. In partnership with the major national research organizations (CNRS, Inserm, INRIA, INRA) and several top Parisian academic institutions, the ENS hosts 35 joint research units, including four Laboratories of national excellence (“Labex”). According to several international rankings, the ENS is either first or in the top two or three French institutions, with the closest competitors being many times larger. Within the Geosciences department, the **Laboratoire de Météorologie Dynamique (LMD)** investigates climate variability, pollution, and planetary atmospheres by linking theoretical approaches, instrumental design and construction, and numerical modeling. Over the last decade, LMD has increasingly developed other areas of interest, such as paleoclimate and paleoenvironments. Therefore LMD invites applications for

1 Postdoc in the field of “Abrupt Climate transitions in the past”

The successful candidate will be part of the **EU-funded H2020 project** “[Tipping Points of the Earth System](#)” (**TiPES**), and will develop the methodology of bifurcation theory and its applications to climate change on several time scales within the TiPES framework.

The TiPES Project

Several subsystems of the Earth may respond abruptly at critical future levels of anthropogenic forcing, which have been associated with tipping points (TPs). It is paramount to identify safe operating spaces in terms of these critical forcing levels, in order to prevent harmful transitions to alternative, undesirable states of the Earth and its subsystems. The mechanisms leading to abrupt climate transitions are only partly understood, and reliable warning signals for forthcoming transitions are urgently needed. TiPES addresses these questions in a joint effort of 18 European institutions, combining paleoclimatology, time series analysis, Earth system modelling of past and future climates, applied mathematics and dynamical system theory, as well as decision theory.

Expected qualifications

- Ph.D. in physics, applied mathematics, climate sciences, geosciences or a related field.
- Experience in paleoclimatology and time series analysis is required.
- Basic knowledge of continental paleoclimatology is an asset.
- Excellent skills in programming and numerical &/or statistical analysis of simulated and observed data

Detailed task description

The successful candidate will be part of work package WP1 of the TiPES project, which focusses on the synthesis and synchronization of paleoclimate records that include abrupt transitions. Specifically, the candidate will be expected to lead to a better understanding of the most recent glacial period, which is characterized by the occurrence of Dansgaard-Oeschger events, as well as of the longer time interval covered by loess records of aeolian deposits worldwide. A crucial contribution will consist in the synchronization of various paleo-records to determine the temporal succession of transitions at different locations, in order to test different hypotheses of underlying mechanisms.

Conditions of employment

- Starting date and duration: September 1st, 2019 for a 2-year contract.
- Salary: To be agreed upon in accordance with ENS rules and regulations.
- The selection will be exclusively based on the candidate's qualifications without regard to gender, religion, and origin
- Disabled applicants with comparable qualifications will be given preference

How to apply

Please send the following documents in a single PDF until **June 28** to denis-didier.rousseau@lmd.ens.fr:

- Cover Letter
- Detailed CV and list of publications
- Two or more confidential letters of evaluation
- Master and PhD diplomas

Further information

For further details, please contact **Denis-Didier Rousseau**, denis-didier.rousseau@lmd.ens.fr