



## PhD position on modelling climate change induced by cropland cultivation

### Background:

The Laboratoire des Sciences du Climat et de l'Environnement (LSCE) is seeking a motivated 3-years PhD student to study the relationships between agricultural production and greenhouse gas emission and sinks during the late 20<sup>th</sup> Century and for future scenarios. The project will be based on the process-oriented global crop model (ORCHIDEE-crop) that will be improved to include 1) tillage and soil carbon losses through erosion, 2) oil and bioenergy crops, such as rapeseed and sugarcane, and 3) parameterization for N<sub>2</sub>O emission. Near term projections of cropland areas and greenhouse gas mitigation objectives in cropland cultivation to ≈ 2030 will be assessed in collaboration with the Centre International de Recherche en Environnement et Développement (CIRED) starting from Nationally Determined Contributions and food demand scenarios and/or International Institute for Applied Systems Analysis (IIASA). The long-term goal of the project is to estimate consistently changes in radiative forcing and climate contributed by crop cultivation and their uncertainties, in the past and for the near future (≈ 2030) including greenhouse gas emissions and sinks through which cropland cultivation modify the energy balance of the surface. This work will be performed in collaboration with the Laboratoire de Météorologie Dynamique (LMD) for the coupling of ORCHIDEE-crop with the LMDZ climate model.

### Qualifications and skills:

- The applicant should be enthusiastic and highly-qualified (expected) master graduate in a related field, such as crop sciences, statistics, ecology, climate sciences or any related field to the mentioned areas. Strong background on statistics and/or agriculture is desirable.
- Interest and experience with statistical analysis using one of the mainstream tools (including but not limited to Matlab, Python, R and SAS); Interest or experience with programming in Fortran.
- Applicants should be comfortable working in English (oral and written). Team-work spirits are appreciated.

### Other information:

Work location: Laboratoire des Sciences du Climat et de l'Environnement (LSCE) with potential extended visits and stay at Centre International de Recherche sur l'Environnement et le Développement (CIRED) and/or International Institute for Applied Systems Analysis (IIASA).

Application Process: We look forward to receiving your application package – including a motivation letter, a statement of research interests, a CV, and the names and contact addresses of 2-3 academic referees – Please send your application to [philippe.ciais@lsce.ipsl.fr](mailto:philippe.ciais@lsce.ipsl.fr), [nathalie.de-noblet@lsce.ipsl.fr](mailto:nathalie.de-noblet@lsce.ipsl.fr) and [Laurent.Li@lmd.jussieu.fr](mailto:Laurent.Li@lmd.jussieu.fr)

The deadline for applications is 1/09/2016; Start of the PhD expected at autumn 2016.