

## Postdoctoral research scientist to develop and apply new methods to quantify greenhouse gas emissions from industrial facilities based on in-situ atmospheric measurements

LSCE : Laboratoire des Science du Climat et de l'Environnement (<https://www.lsce.ipsl.fr>)

### **Context:**

Climate change is having a profound impact on our planet and without immediate and significant reductions in global greenhouse gas emissions, this impact will become increasingly severe. It is thus essential that we are able to locate, quantify and reduce greenhouse gas emissions from different sectors and that we focus on those sectors where relatively large emissions are known to occur. In this context, the TRACE project (<http://trace.lsce.ipsl.fr>) aims to develop and apply new research methods to locate and quantify CH<sub>4</sub> emissions from industrial sites using state-of-the-art in-situ greenhouse gas analyzers, prototype low-cost sensors and other newly developed technologies deployed on fixed and mobile measurement platforms. The research involves field campaigns at industrial facilities and other sites where dedicated, controlled gas release experiments are carried out, along with laboratory testing of a wide variety of greenhouse gas analyzers, prototype low cost sensors and other scientific instrumentation. Measurements of atmospheric CH<sub>4</sub> concentration and meteorology are incorporated into an atmospheric transport inverse modelling approach that has been developed within the TRACE project and customized for different industrial sites and environments. The TRACE project is a collaboration between engineers and scientists working at the LSCE as well as partner companies SUEZ, TOTAL and Thales Alenia space.

### **Job Description – Key Responsibilities and Tasks:**

- Organize and participate in field campaigns at industrial facilities using in-situ greenhouse gas analyzers, low-cost sensors and other scientific instrumentation
- Calibrate, process and analyze atmospheric concentration measurements along with meteorological data from different platforms and sensors
- Synthesize the results and work with modelers to provide best estimates of emission rates and locations including their uncertainties
- Lead and / or contribute to the writing of peer-reviewed publications
- Communicate research to a wide variety of stakeholders including industrial partners and fellow scientists at international conferences

### **Essential Criteria**

- PhD in atmospheric science or another relevant field
- Demonstrated fieldwork experience working with trace gas or aerosol measurements
- Able to think critically to design effective field campaigns and to optimize measurement systems
- Ability to handle, manipulate and analyze data sets from a variety of sensors using software such as R, Python and/or MATLAB
- Highly developed project and time management skills with a proven ability to meet deadlines
- Experience communicating research through scientific publications, technical reports and at international conferences

**Desired Criteria:**

- Experience working with a range of scientific instrumentation such as greenhouse gas analyzers or 3-D sonic anemometers
- Experienced in multidisciplinary team-based research with the ability to communicate effectively with colleagues and staff including industrial partners.
- Knowledge of atmospheric dispersion processes including the application of atmospheric transport inverse models

**What the LSCE can offer you:**

The LSCE is a world-class research laboratory established as a collaboration between the Commissariat à l'Energie Atomique et aux Énergies Alternatives (CEA), the Centre National de la Recherche Scientifique (CNRS) and the University of Versailles Saint-Quentin (UVSQ). LSCE hosts approximately 300 researchers, engineers and administrative staff including many PhD and master's students. It is also part of the Institute Pierre Simon Laplace (IPSL; <https://www.ipsl.fr/>) which is comprised of nine laboratories (CEREA, GEOPS, LATMOS, a team of LERMA, LISA, LMD, LOCEAN, LSCE and METIS) that conduct research into earth system science.

This project will provide the employee with the opportunity to work directly with leading researchers from the LSCE along with other scientific research institutes and industrial partners to develop their skills as a researcher within an intellectually stimulating, friendly environment. It offers integration into a larger research team enabling the employee to expand their professional network and gain insight from a diverse array of scientists specializing in different fields of research.

The LSCE is an equal opportunity and diverse workplace and applications will be reviewed based on qualifications and merit. We therefore encourage all people who believe they meet the essential selection criteria to apply.

**Location:** The LSCE is located on the Orme des Merisiers site about 20 km SW from the center of Paris, France.

**Contract duration:** Up to 24 months

**Starting date:** The position is available from March 2020 and will remain open until filled.

**Salary:** A competitive salary will be offered based on work experience and the package includes full health coverage and social benefits.

**Language:** The working language of the TRACE project is English although knowledge of French is encouraged but not essential.

**How to apply:** Applicants should submit a complete application package by email to: [christopher.caldow@lsce.ipsl.fr](mailto:christopher.caldow@lsce.ipsl.fr). The application package should include (1) a curriculum vitae including most important recent publications, (2) a statement of motivation (3) answers to the selection criteria (4) names, addresses, phone numbers, and email addresses of at least two references.

**Further information:** Any specific questions about the position may be directed to Dr. Christopher Caldow via email ([christopher.caldow@lsce.ipsl.fr](mailto:christopher.caldow@lsce.ipsl.fr)) or phone (+33 (0) 1 69 08 95 72).