UNIVERSITÉ DE LA RÉUNION

PhD Position at Laboratoire de l'Atmosphère et des Cyclones (LACy) University of La Reunion, Saint-Denis, France

We invite you to apply for a PhD position on exploring aerosol properties and transport through ground-based and satellite observations in the South West Indian Ocean.

Job description

Atmospheric aerosols interact with solar radiation and the life cycle of clouds, inducing radiative forcing that impacts climate on a global scale. To date, there are still many unknowns about the effect of atmospheric aerosols on the radiative balance of the coupled Earth/atmosphere system at regional scale, especially in the southern hemisphere where water covers 81% of the surface and where atmospheric observatories are more seldom (w.r.t. the northern hemisphere). In this sense, the site of LACy/OPAR (Laboratoire de l'Atmosphère et des Cyclones / Observatoire de Physique de l'Atmosphère de la Réunion) is unique and ideally located in the South West of the Indian Ocean (SWIO).

The objective of this thesis project is a characterization of aerosols in the troposphere of La Reunion: origin and sources, aerosol load, size distribution, shape, and vertical distributions of these parameters. This work should help to answer the following scientific questions:

- What are the contributions of the different sources to the aerosol load in La Reunion and in the SWIO? What is the share of Asian pollution? What is the share of aerosols from biomass burning origin?
- How to explain the inter-annual variability of the aerosol load in La Reunion and in the SWIO?
- What are the optical and physical characteristics of the aerosols in La Reunion and in the SWIO? What is the vertical distribution of these properties?

The thesis will be divided into 3 distinct parts:

- Characterization of the vertical distributions of the optical and physical aerosol properties
- Development of climatologies of these parameters; trend studies
- Comparison with CALIPSO and EarthCARE satellite data, and extension of the study to the SWIO.

Particular interest will be focused on aerosols from biomass burning origin.

The thesis is funded by the European project REALISTIC (centre of Excellence in AerosoL remote rensIng technology and Science in The Indian oCean, GA 101086690) of the Horizon Europe program (https://lacy.univ-reunion.fr/activites/programmes-de-recherche /realistic). It will be supervised by Michaël Sicard (ERA Chair of REALISTIC) and Valentin Duflot (PI of REALISTIC).

Requirements

Knowledge:

- Possess a scientific master's degree (or equivalent)
- Proficiency in research English (oral and written)
- Knowledge on atmospheric sciences, geophysics
- Previous professional experience in one of these fields would be a plus

Expertise:

- Practical experience of programming language such as Matlab, Python, etc.
- Autonomous and independent work
- Able to work in small teams
- Short and concise reports

Know-how:

- Intellectual rigor

- Self-criticism of his/her results
- Strong taste for thinking and research
- Responsivity to react under strong time constraints
- Oral and writing ease
- Sense of initiative

Conditions of employment
Doctoral candidates will be offered a 3-year period of employment.
Salary and benefits are in accordance with the conditions of the REALISTIC project. The salary will be 2500 € gross per month. As a PhD candidate you will be enrolled in the University of La Reunion Graduate School. The University of La Reunion Graduate School provides an inspiring research environment with an excellent team of supervisors, academic staff and a mentor. The Doctoral Education Programme is aimed at developing your transferable, discipline-related and research skills.
The recruitment of the candidate will strictly follow the European Charter for Researchers - The Code of Conduct for the Recruitment of Researchers (ISBN 92-894-9311-9). In particular the precruitment process and the contractual employment will be carried out taking into account all aspects related to recognition of the profession, non-discrimination, research environment, working conditions, stability and permanence of employment, funding and salaries, gender balance, career development, access to mobility, and research training, intellectual property rights, co-authorship, supervision and teaching.

The University of La Reunion
The University of Reunion Island (Université de la Réunion) is a French university in the Academy of Réunion. It is the first and only European university in the Indian Ocean. Established in 1982, it has grown steadily over the years in terms of student population, geographical sites occupied, courses offered and partnerships forged with local, national and international institutions. The school's ambition is to be the reference university in Indianoceania.
The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimization. The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimization. The University values diversity because it recognizes that the differences in people’s age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to its work environment.

Laboratoire de l’Atmosphphère et des Cyclones (LACy)
The LACy is a joint research unit between CNRS, Meteo-France and University de La Réunion dedicated to the study of physical processes governing the tropical atmosphere. LACy has notably initiated the creation of the Maido atmospheric observatory, part of the Observatory of Atmospheric Physics of La Réunion (OPAR), which hosts various instruments for atmospheric measurements, including lidar systems, cloud radar, spectro-radiometers and in situ gas and aerosol measurements, among others. The lab currently has 22 permanent staff (researchers, engineers, faculty members) and about 10 students.

Additional information
For additional information on the position and the application process, please contact Michaël Sicard (michael.sicard@univ-reunion.fr) and Valentin Duflot (valentin.duflot@univ-reunion.fr).

Application procedure
Are you interested in this vacancy? Please apply as soon as possible by sending your application to Michaël Sicard (michael.sicard@univ-reunion.fr) and Valentin Duflot (valentin.duflot@univ-reunion.fr). The

application should contain:

- Letter of motivation
- Detailed CV
- List of grades/transcripts (bachelor and master)
- Contact information of 2 references
- If already available: your master thesis.

Please note:

- Please do not contact us for unsolicited services.