Open position: Post-doc / Research engineer (M/F) in atmospheric chemistry modelling at Météo-France Research Center (CNRM), Toulouse (France)

Research topic:

Modelling study of the impact of emissions from megafires on the stratosphere in frame of the ANR project PyroStrat

Position: *Researcher (post-doc) / Research engineer*

Location: *Centre National de Recherches Météorologiques (CNRM), Toulouse, France*

Application deadline: February 13th 2023

Duration of contract: *either 20 or 26 months depending on qualification*

Start date: *March 15th 2023 or the sooner after*

Context and Objectives

The position is proposed in the frame of the PyroStrat project funded by the ANR (French research council) from January 2022 to December 2025. The general objective of this project is to quantify the impact of the emissions from megafires reaching the stratosphere (i.e. pyrocumulonimbus) on the composition and radiative balance of the stratosphere from seasonal to interannual timescales. PyroStrat research studies rely on the analysis of various types of observations and models outputs. In this project, the contribution of the CNRM laboratory is to study the effect of pyrocumulonimbus on stratospheric ozone depletion. For this purpose, we will use the MOCAGE-CTM global chemistry-transport model developed at CNRM to study the composition of the troposphere and the stratosphere. MOCAGE-CTM numerical experiments will be run to simulate case studies of megafires and also a much longer period covering the last decade when most of the megafires took place. The research work at CNRM will be done in collaboration with the partners of the project, in particular LATMOS in Paris (for the fire emission estimates and in link with climate studies) and LOA in Lille (in link with radiative budget studies).

In this framework, the successful candidate will be in charge of the studies based on MOCAGE-CTM model consisting of:
- setting up, running and evaluating MOCAGE-CTM simulations
- analysing and communicating the results (presentations, publications).

Required qualification

We will recruit an early career researcher or a research engineer according to the quality of the received applications. The ideal candidate should have less than 3 years of experience after his/her degree. Applicants should hold a PhD degree in atmospheric chemistry / environmental science, or a Master degree in IT / computer science / atmospheric science or similar discipline.
- ✔ Strong numerical (Linux, Fortran, Python) skills are required.
- ✔ Some experience with atmospheric numerical modelling and/or with complex codes on high performance computers (HPC) would be a clear asset.
- ✔ At least a CEFR B2 level in English language (speaking, understanding and writting) or an equivalent level is required.

Practical aspects

The work will be carried out in the CNRM laboratory in Toulouse (France). The successful candidate will join the COMETS team (http://www.umr-cnrm.fr/spip.php?article371&lang=en) which is the Météo-France research team in charge of the study of the chemical composition (reactive gases, aerosols and green-house gases) of the troposphere and of the stratosphere from the global scale to the regional scale. This team is composed of 8-9 people working on the tracer transport, the chemical processes, the air composition tendency from multi-annual to multi-decadal time range, and the impact of climate change on air composition.

Depending on the experience and profile of the successful candidate, the proposed contract will be between 26 and 20 months with a gross monthly salary between 2805 € and 3963 €, respectively.

Application procedure

Applicants should submit their application including
- ✔ a curriculum vitae with research experience, scientific publications and proceedings, computing skills and language level in particular in English, ..., as well as the names and contact details (email) of two academic referees
- ✔ a brief statement of research or engineer interests and motivations for the job

no later than **February 13th 2023** to:

https://emploi.cnrs.fr/Offres/CDD/UMR3589-SOPBEL-001/Default.aspx?lang=EN

Consideration of applications will begin immediately after this date and interviews will be planned from February 15th 2023.

Expected starting date is March 15th 2023 or the sooner after.

Hosting institution

The Centre National de Recherches Météorologiques (CNRM) is the research department of Météo-France (http://www.umr-cnrm.fr/spip.php?rubrique1&lang=en). It is responsible for conducting the largest part of the research activities in weather forecasting, climate modelling, atmospheric chemistry, oceanography and land-surface processes. Within CNRM, the climate research group hosting the COMETS team is in charge of understanding scale interactions, interactions between the various components of the climate system including air composition, the response of the climate system to anthropogenic forcing, and sources of variability and long-term predictability. These activities are carried out in particular through the modelling of climate, atmospheric composition and air quality at global and regional scales, participation in model intercomparison exercises such as CMIP and their analysis, impact studies and the detection-attribution of observed climate change.