Postdoc in Atmospheric Modelling of Wildfire Impacts on the Stratosphere and Climate

The Department of Environmental Science at Aarhus University (AU-ENVS), Roskilde, invites applications for a 3-year position as postdoc in atmospheric modelling to carry out research on large wildfires and their impacts on both the stratosphere and climate combining different model systems. The position is to be filled by 1 May 2026 or as soon as possible thereafter.

Application Deadline:
02 February 2026

Institute/Faculty:
Department of Environmental Science

Faculty:
Faculty of Technical Sciences

Academic contact person:
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Vacant positions:
1

Number of months:
36

Hours per week:
37

Expected date of accession:
01/05/2026

Expected start date and duration of employment

The position is available from 1 May 2026 and is a 3-year (36-month) appointment.

Description of the position

The position is part of the FireStrat project that aims to quantify the influence of wildfire aerosols on stratospheric chemistry, ozone, and climate using advanced atmospheric modeling funded by the Novo Nordisk Foundation. In the project, new aerosol and chemistry modules will be developed and implemented in the GEOS-Chem chemical transport model, coupled to the Community Earth System Model. Standardized large wildfire events will be simulated based on historical data and future climate scenarios. Model outputs will be validated against satellite observations and used to assess ozone depletion and possible climate feedback. International collaborators will advise on model development; therefore, some travel is to be expected.

The postdoc's research focuses on determining the changes to stratospheric aerosols, gas phase and heterogeneous chemistry, and possible ozone depletion following large wildfires events that reach the stratosphere, also assessing the impacts they have on ozone layer recovery in different climate scenarios. The postdoc will:

- Couple GEOS-Chem with the Community Earth System Model (CESM) to allow for direct climate scenario modelling using GEOS-Chem as the chemistry module in CESM and develop modules to include wildfire aerosols and heterogeneous chemistry.
- Design and conduct model experiments using the coupled models, run simulations to test different wildfire scenarios in different climate scenarios, perform sensitivity tests of the updated chemistry and aerosol modules, and assess the importance of different processes with a comparison to available observations.
- Analyse large model output and observational datasets to determine the impacts and main drivers of changes to stratospheric ozone from wildfires.
- Collaborate closely with FireStrat international collaborators in the UK and USA.

Publish findings in international journals and present results at conferences.

Qualifications

We are looking for a highly motivated researcher with a background in atmospheric chemistry, physics, mathematical modelling, climate science, or related fields. The ideal candidate should have:

- Experience with numerical climate models and/or chemical transport models such as CESM and/or GEOS-Chem.
- Advanced programming skills in Python, Fortran, or other relevant languages.
- Experience in wildfire research.
- Experience with high-performance computing (HPC) environments.
- A strong publication record relative to career stage.
- Ability to organize tasks and work in an interdisciplinary team.

Further requirements are English fluency, good writing and verbal communication skills. Ability to work independently and in an international academic environment.

Applicants should hold scientific qualifications at the PhD graduate level.

Application

Please see below for guidance and formalities regarding the application procedure. Per default, the application system requires upload of

- Cover letter – please state your reasons for applying and your relevant qualifications
- Curriculum vitae
- Degree certificate
- Complete list of publications
- Statement of research plans and research activities – please indicate your previous research and your intentions and visions with regard to carrying out the work involved in the position
- Teaching portfolio – please be aware, however, that apart from possible supervision and outreach activities, teaching is not planned for this position.

Place of work

The place of work is Frederiksborgvej 399, 4000 Roskilde.

Contact person

If you have any questions, please contact Associate Professor Freja Chabert Østerstrøm, +4587150623, freja@envs.au.dk.

Department of Environmental Science

The Department of Environmental Science is an interdisciplinary unit within the Faculty of Technical Sciences at Aarhus University. Our research covers physics, chemistry, microbiology, social sciences, geography, and environmental economics, addressing global challenges such as pollution control, land and water management, biodiversity protection, and climate change. The department also provides expert advisory services to ministries and authorities. While we do not run a master's program in environmental science, there are some opportunities for teaching and supervision. We value equality, diversity, and a balanced work-life approach. Currently, about 140 staff, postdocs, and PhD students work in the department.

The selected candidate will join the Section for Atmospheric Emissions and Modelling, working with a variety of research topics related to both climate and air pollution. The Climate Modeling Group works with issues related to climate dynamics, climate change and climate feedback on both large and small scales. The Group for Atmospheric Modelling conducts research that focuses on the fundamental processes involved in atmospheric transport, chemical transformation and deposition of air pollution.

Application procedure

Shortlisting is used. This means that after the deadline for applications – and with the assistance from the assessment committee chairman, and the appointment committee if necessary, – the head of department selects the candidates to be evaluated. All applicants will be notified whether or not their applications have been sent to an expert assessment committee for evaluation. The selected applicants will be informed about the composition of the committee, and each applicant is given the opportunity to comment on the part of the assessment that concerns him/her self. Once the recruitment process is completed a final letter of rejection is sent to the deselected applicants.

Letter of reference

If you want a referee to upload a letter of reference on your behalf, please state the referee's contact information when you submit your application. We strongly recommend that you make an agreement with the person in question before you enter the referee's contact information, and that you ensure that the referee has enough time to write the letter of reference before the application deadline.
Unfortunately, it is not possible to ensure that letters of reference received after the application deadline will be taken into consideration.

If you wish to add a referee **after** you have submitted your application, you must send this person's details (name, job title, place of work, and email address) as well as the name of the position you have applied for to: HR.Nattech@au.dk

Formalities and salary range

Technical Sciences refers to the Ministerial Order on the Appointment of Academic Staff at Danish Universities under the Danish Ministry of Science, Technology and Innovation.

The application must be in English and include a curriculum vitae, degree certificate, a complete list of publications, a statement of future research plans and information about research activities, teaching portfolio and verified information on previous teaching experience (if any). Guidelines for applicants can be found here.

Appointment shall be in accordance with the collective labour agreement between the Danish Ministry of Taxation and the Danish Confederation of Professional Associations. Further information on qualification requirements and job content may be found in the Memorandum on Job Structure for Academic Staff at Danish Universities.

Salary depends on seniority as agreed between the Danish Ministry of Taxation and the Confederation of Professional Associations.

Aarhus University's ambition is to be an attractive and inspiring workplace for all and to foster a culture in which each individual has opportunities to thrive, achieve and develop. We view equality and diversity as assets, and we welcome all applicants.

Research activities will be evaluated in relation to actual research time. Thus, we encourage applicants to specify periods of leave without research activities, in order to be able to subtract these periods from the span of the scientific career during the evaluation of scientific productivity.

Aarhus University offers a broad variety of services for international researchers and accompanying families, including relocation service and career counselling to expat partners. Read more here. Please find more information about entering and working in Denmark here.

Aarhus University also offers a Junior Researcher Development Programme targeted at career development for postdocs at AU. You can read more about it here.

The application must be submitted via Aarhus University's recruitment system, which can be accessed under the job advertisement on Aarhus University's website.

Aarhus University

Aarhus University is an academically diverse and research-intensive university with a strong commitment to high-quality research and education and the development of society nationally and globally. The university offers an inspiring research and teaching environment to its 38,000 students (FTEs) and 8,300 employees, and has an annual revenues of EUR 935 million. Learn more at www.international.au.dk/