

Postdoctoral Scholar in Arctic Climate Dynamics and Climate Intervention

University of California – Los Angeles

The Aerosol–Climate Interactions group at UCLA seeks a postdoctoral scholar to lead climate-dynamics analyses of whether targeted wintertime polar cooling could meaningfully slow Arctic warming and sea-ice loss, while identifying the potential benefits, risks, and physical limits of such an intervention.

The position is part of a Simons Foundation–supported project investigating mixed-phase cloud thinning (MCT), a proposed climate-intervention concept in which wintertime low-level mixed-phase clouds are glaciated and thinned, reducing their longwave warming effect during the polar night. The project does not assume that MCT is technically feasible, desirable, or deployable. The central scientific question for this position is how the climate system would respond to such an intervention, and whether that response is large, robust, and benign enough to justify further research.

Why this position is exciting

This is an opportunity to lead visible, high-impact research at the intersection of Arctic climate dynamics, aerosol-cloud interactions, and climate intervention assessment. The project is designed to produce useful results regardless of whether MCT proves effective. Even a negative result would clarify the physical limits of targeted wintertime polar cooling and help determine whether future research should prioritize or move away from this approach. More broadly, the work will improve understanding of how the Arctic climate system responds to spatially and seasonally targeted radiative forcing.

The exact research portfolio will be co-developed with the candidate based on their expertise and interests and may include the following:

- Quantify Arctic and global climate responses to imposed MCT-like cloud-radiative perturbations using CESM and complementary idealized models
- Diagnose the mechanisms linking seasonal polar cooling to changes in sea-ice area and thickness, surface energy balance, and AMOC-relevant ocean stratification
- Estimate time of emergence for temperature, sea-ice, hydrological, and circulation responses
- Contribute to the development of response “Green’s functions” relating cloud-radiative perturbations to sea-ice and other outcomes
- Assess benefits and risks of MCT, including changes to the hydrological cycle and other Arctic-community-relevant climate indicators
- Evaluate permafrost-relevant surface-climate indicators, such as changes in near-surface temperature, thaw-season length, and cold-season extremes
- Work closely with collaborators using active-satellite observations that constrain the magnitude and spatial distribution of MCT-relevant cloud radiative effects
- Compare the effects of MCT-like forcing with other polar or global climate-intervention scenarios, such as stratospheric aerosol injection.

- Contribute to mentoring graduate and undergraduate researchers in a collaborative research environment
- Lead peer-reviewed publications and present results at major scientific meetings

Required qualifications

Applicants should have:

- A Ph.D. in atmospheric science, climate science, geoscience, meteorology, or a related field by appointment start date
- Strong quantitative and programming skills, as well as experience analyzing large geophysical data sets
- Ability to communicate results clearly in writing and presentations
- Ability to work collaboratively across disciplines

Desirable qualifications

Expertise in any of the following areas would be valuable but is not required:

- Arctic climate dynamics
- Running CESM, E3SM, or other global climate models
- Diagnosing climate-model responses to imposed forcing or perturbation experiments
- Polar amplification mechanisms, feedback analysis, or time-of-emergence analysis methods
- Sea-ice processes, AMOC diagnostics, or polar hydrology
- Aerosol-cloud-climate interactions
- Ocean heat transport or coupled ocean-sea-ice dynamics
- Climate-risk analysis or community-relevant climate-impact diagnostics

Research Environment

You will join Prof. Jasper Kok's Aerosol-Climate Interactions group at UCLA (<http://jasperkok.com>), which studies aerosol-cloud-radiation interactions, desert dust, and climate intervention strategies. You will work closely with collaborators at UCLA (Prof. Yue Dong), the Scripps Institution of Oceanography (Profs. Ian Eisenman and Amato Evan), and the University of Maryland (Dr. Lauren Zamora). The project will use existing and new climate-model simulations, with access to UCLA and NCAR high-performance computing resources. The successful candidate will be encouraged to develop an independent research profile, lead first-author papers, mentor junior researchers, attend various conferences, and build open and reproducible analysis workflows.

We are committed to fostering a supportive and inclusive research environment and welcome applicants from diverse backgrounds and perspectives. We particularly encourage applications from individuals with lived or scholarly connections to Arctic regions and Peoples.

Position details:

- Location: UCLA
- Salary: Competitive and experience-based, in the range of \$70k to \$76k per year
- Benefits: Medical, dental and vision coverage.

- Eligibility: U.S. citizenship or residency not required
- Appointment: two-year initial appointment, renewable based on performance and funding availability
- Start date: preferably summer 2026, with flexibility

Application Process:

Please submit the following documents in a single PDF to Prof. Jasper Kok (jfkok@ucla.edu), using the email subject line “postdoc application”.

1. Cover letter describing your research interests, relevant experience, and why you are interested in the position
2. Curriculum vitae
3. Names and contact information for at least three references. References will be contacted only after consultation with the applicant
4. A brief (≤ 1 page) summary of recent and ongoing research

Applications received before May 20th, 2026 will receive full consideration, but applications will be considered until the position is filled.

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<http://policy.ucop.edu/doc/4000376/NondiscrimAffirmAct>.