

Zurich, March 11th 2024ETH Zürich
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[PhD position at ETH Zurich on climate modelling of aerosol-cloud interactions](#)

The Atmospheric Physics Group at the Institute for Atmospheric and Climate Sciences at ETH Zurich (IAC-ETH) invites applications for a 3 – 3.5-year PhD position within the project "Glaciogenic seeding on mixed-phase clouds for radiation management (GLANCE)", funded by the Solar Radiation Management (SRM) programme of the Simons Foundation.

Project background: Solar and terrestrial radiation management is a climate intervention approach to modify the Earth's radiation budget by cooling the planet and mitigating some of the negative impacts from global warming. As a new alternative to solar radiation management proposals such as stratospheric aerosol injection, terrestrial radiation management has the potential to also mitigate polar warming during winter. In particular, a new method of mixed-phase cloud thinning (MCT) has recently been proposed, based on seeding supercooled liquid clouds with ice-nucleating particles (INPs). This causes these clouds to glaciate and precipitate, allowing more longwave radiation emitted to space. However, cloud glaciation is still poorly represented in climate models, so the risks and potential of this and other INP-based climate solutions remain uncertain. GLANCE aims to improve our understanding of cloud glaciation and MCT in order to increase our range of options in the event of a climate emergency and to minimise their potential risks.

Our group has long-standing experience in the representation of cloud glaciation and cloud ice in climate models. In addition, a wide range of computational resources for regional and climate modelling are available in our group and at ETH Zurich.

The main objectives of the PhD position will be:

- 1) Assess the cloud phase and radiative forcing in the mixed-phase regime with the global climate models ICON and CESM2.
- 2) Investigate MCT with ICON and CESM2.

The successful candidate should hold an MSc (or equivalent) in chemistry, physics, engineering, atmospheric/environmental sciences, or a related field. Knowledge of oral and written English is required. A good background in thermodynamics and microphysics, and knowledge of programming languages such as Bash (Linux), Python and FORTRAN is expected. We are looking for a highly motivated, committed, and creative person.

We look forward to receiving your online application that includes a CV, academic transcripts, work certificates (if any) and a 1-page motivation letter stating research experiences and interests. Please provide the contact information of at least two referees. Note that we exclusively accept applications submitted through our [online application portal](#). Applications via email or postal services will not be considered.

The project is due to start in May. Applications will be reviewed from 25th March until the position is filled.

For further information please contact diego.villanueva@env.ethz.ch and visit our [website](#).