

Clouds and precipitation in Antarctica: ICOLMDZ model evaluation

The ERC Synergy funded project AWACA aims to understand the atmospheric branch of the water cycle over Antarctica. It will rely on innovative observations of the tropospheric meteorological conditions and the isotopic composition of water vapor and hydrometeors along a 1100-km transect between the Dumont d'Urville station at the coast and the Concordia station on the high inner Antarctic plateau. The interpretation of those observations will benefit from dedicated modelling developments, and the gain in process understanding will in turn allow to improve global and regional climate and weather models over Antarctica. The interactions between cloud and precipitation microphysical processes and isotopic composition are of particular interest.

A Postdoc position is opening related to the evaluation of the cloud and precipitation properties simulated by the ICOLMDZ model (global and regional) developed in the framework of the AWACA project leveraging existing data sets as well as the observations collected along the transect mentioned above. The main objectives are:

1. Evaluation of features directly comparable between model and observations (ex: cloud fraction, depth and altitude, precipitation occurrence...).
2. Implementation/development of a forward radar operator to project model variables into radar space.
3. Evaluation of the simulated microphysical processes using multifrequency or polarimetric radar measurements thanks to the radar operator.

We are looking for a creative and energetic postdoc to achieve the objectives listed above, ideally with a start in summer 2025. There could be field work in Antarctica. Funding is available for 3 years through the AWACA ERC Synergy grant, with a competitive salary (starting at 88 kCHF/year). Review of the applications will continue until the position is filled.

The postdoc project will be supervised by Prof. Alexis Berne at EPFL as well as by Dr. Christophe Genthon and Dr. Étienne Vignon at LMD in Paris, so regular visits at LMD will be organized. It will be conducted in close collaboration with PhDs and Postdocs working for AWACA but also for other thematically-related projects.

Applicants should have a PhD in atmospheric modelling/meteorology/remote sensing. The project will involve running models and data handling, hence strong programming skills are expected. Proficiency in spoken/written English is mandatory, knowledge of French would be an advantage. Applications should be sent to alexis.berne@epfl.ch and should include a CV, a statement of research interests and qualifications, academic transcripts (BSc and MSc) and contact details of three academic referees, all in pdf format.

Contact

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