Dr. Assia **Arouf**

Postdoctoral Researcher Scientist | Columbia University | NASA–GISS

About me

I am currently a Postdoctoral Researcher Scientist at the Center for Climate Systems Research (CCSR), Columbia University and NASA Goddard Institute for Space Studies (GISS) in the city of *New York*.

I am broadly interested in Earth's climate system, with a focus on clouds. My research aims to better understand the cloud radiative effect and cloud feedback. I typically work with satellite observations, in combination with radiative transfer codes and climate models, aiming to improve climate projections.

Contact

Born on 9^{th} March 1995

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Languages

English - Fluent

French - Native Language

Berber - Native Language

Arabic (Algerian)- Fluent

Spanish - Learning

Education

2019-2023 — Paris, France

PhD Degree
Sorbonne Université
Laboratoire de Météorologie Dynamique (LMD)
Surface longwave cloud radiative effect derived from space lidar observations: application in the Arctic (link): Instrumentation, remote sensing, observation and space techniques for the atmosphere, ocean and climate, radiative transfer, Earth radiation budget, data processing.

2017-2019 — Paris, France

Master Degree
Université Paris Cité
Institut de Physique du Globe de Paris (IPGP)
Fundamentals of Remote Sensing (link): Electromagnetic radiation, atmosphere and climate system, radiative transfer, satellite observations, spatial techniques.

2013-2017 — Blida, Algeria

Bachelor Degree
Blida University
Institut d'Aéronautique et des Etudes Spatiales (IAES)
Bachelor Degree and first year of Master; Physics, Mathematics, Electromagnetic, Navigation.

Work Experiences

10/2023–today — New York, USA

Postdoctoral Researcher Scientist
Columbia Climate School
CCSR, NASA-GISS
Determine the impact of an improved representation of low-cloud feedbacks on ECS in the NASA Goddard Institute for Space Studies Earth System Model (NASA-GISS ESM), obtained via observational constraints on moist atmospheric physical processes.

06/2023–08/2023 — Paris, France

Postdoctoral Researcher
Centre national de la recherche scientifiqu
LMD–IPSL, Ecole Polytechnique
Comparison of the longwave cloud radiative effect derived from CALIPSO observations with the longwave cloud radiative effect simulated by CMIP6 climate models over the last 17 years in the polar regions.

09/2019–04/2023 — Paris, France

PhD Research
Laboratoire de Météorologie Dynamique
IPSL, Ecole Polytechnique
Development of surface longwave cloud radiative effect from theoretical parameterizations derived from radiative transfer simulations that involve different humidity and temperature profiles from reanalysis, and five cloud properties derived from space lidar observations. Validation of the surface longwave cloud radiative effect by comparing it to existing satellite-derived products globally on instantaneous collocated data at footprint scale and on global averages as well as to ground-based observations at specific locations.

Awards

- **Second place for a poster presentation at the 102^{nd} American Meteorological Society Annual Meeting,** January 2022.

Skills and Strengths

Passion for Learning New Things
Curiosity
Ability to Plan and Organize
Autonomy
Adaptability
Flexibility
Problem Solving
Team Working
Leadership
Good Communication
Good Listener

Other Interests

- Sewing
- Embroidery
- Cooking
- Chess
- Travels
- Movies
- Badminton

Check my website

Check my website via the QR below.

Publications

Journal Article 2024
Polar Low Circulation Enhances Greenland's West Coast Cloud Surface Warming, Lac, J., Chepfer, H., **Arouf, A.**, Shupe, M. D., Gallagher, M. R., *Journal of Geophysical Research: Atmospheres, 129, e2023JD040450,* doi.org/10.1029/2023JD040450

Journal Article 2024
Surface cloud warming increases as late Fall Arctic sea ice cover decreases, **Arouf, A.**, Chepfer, H., Kay, J. E., L'Ecuyer, T. S., Lac, J., *Geophysical Research Letters, 51, e2023GL105805,* 10.1029/2023GL105805

PhD thesis 2023
Surface longwave cloud radiative effect derived from space lidar observations : application in the Arctic., **Arouf, A.**, , *Atmospheric and Oceanic Physics, Sorbonne Université,* www.theses.fr/2023SORUS173

Journal Article 2022
The Surface Longwave Cloud Radiative Effect derived from Space Lidar Observations, **Arouf, A.**, Chepfer, H., Vaillant de Guélis, T., Chiriaco, M., Shupe, M. D., Guzman, R., Feofilov, A., Raberanto, P., L'Ecuyer, T. S., Kato, S., and Gallagher, M. R., *Atmos. Meas. Tech., 15, 3893–3923,* 10.5194/amt-15-3893-2022

Journal Article
Variability and trends in cloud properties over 17 years from CALIPSO space lidar observations, Chepfer, H., Chomette, O., **Arouf, A.**, Noel, V., Winker, D., Feofilov, A., *To be submitted soon,*

Journal Article
Constraining low-level cloud feedback and cloud dependency to environmental factors in CMIP models., **Arouf, A.**, Cesana, G. V., Pilewskie, J. A., Ackerman, A., Fridlind, A., Elsaesser, G., *In prep.,*

Conferences, Workshops and Symposiums

Oral Presentations

EGU; April 2023; Vienna
Quantifying surface cloud warming increase as Fall Arctic sea ice cover decreases, 10.5194/egusphere-egu23-2377

***EECLAT**: Expecting Earth-Care, Learning from A-train*; Jan. 2023; Banyuls, France
Quantifying surface cloud warming increase as Fall Arctic sea ice cover decreases

EECLAT; Jan. 2022; Remote
Cloud warming effect: A-Train Observations Vs CMIP6 Models

EECLAT; Jan. 2021; Remote
Effect of clouds on surface temperature from space lidar observations

EECLAT; Jan. 2020; Avignon, France
Clouds influence on surface heating in the infrared range on a global scale

Invited Seminars

NASA-GISS; Jan. 2024; New York, USA
Surface longwave cloud radiative effect derived from space lidar observations: An application to the Arctic. Youtube video.

Max-Planck-Institut für Meteorologie; Jul. 2021; Remote
The Surface Longwave Cloud Radiative Effect from Space Lidar Observations

Poster Presentations

***CFMIP**: Cloud Feedback Model Intercomparison Project*; Jun. 2024; Boston, USA
Constraining low-level cloud feedback and cloud dependency to environmental factors in CMIP models

NASA–GSFC Poster Party; Jan. 2024; Greenbelt, USA
Constraining low-level cloud feedback in NASA–GISS model–E using satellite observations

Poster Presentations

***IRS**: International Radiation Symposium*; Jul. 2022; Thessalonique, Greece
The Surface Longwave Cloud Radiative Effect derived from Space Lidar Observations

***LPS**: Living Planet Symposium;* May 2022; Bonn, Germany
The Surface Longwave Cloud Radiative Effect derived from Space Lidar Observations

***AMS**: American Meteorological Society*; Jan 2022; Remote
Analysis of Decadal Variations of Global Surface Longwave Cloud Radiative Effect derived from Space Lidar Observations

***WCRP**: World Climate Research Programme*; Sept. 2021; Remote
Analysis of Time Series of Global Surface Longwave Cloud Radiative Effect from Space Lidar Observations

***EGU**: Eropen Geoscience Union*; May 2021; Remote
The Surface Longwave Cloud Radiative Effect from Space Lidar Observations, 10.5194/egusphere-egu21-2064 ***CFMIP**; Jul. 2023; Paris, France*
Surface cloud warming increases as late Fall Arctic sea ice cover decreases

***IRS**: International Radiation Symposium; Jul. 2022; Thessalonique, Greece*
The Surface Longwave Cloud Radiative Effect derived from Space Lidar Observations

***LPS**: Living Planet Symposium; May 2022; Bonn, Germany*
The Surface Longwave Cloud Radiative Effect derived from Space Lidar Observations

***AMS**: American Meteorological Society; Jan 2022; Remote*
Analysis of Decadal Variations of Global Surface Longwave Cloud Radiative Effect derived from Space Lidar Observations

***WCRP**: World Climate Research Programme; Sept. 2021; Remote*
Analysis of Time Series of Global Surface Longwave Cloud Radiative Effect from Space Lidar Observations

***EGU**: Eropen Geoscience Union; May 2021; Remote*
***The Surface Longwave Cloud Radiative Effect from Space Lidar Observations**,*
10.5194/egusphere-egu21-2064

</> Professional Skills

- **Python**: Advanced
- **Unix**: Basic
- **Space observation processing**: Advanced
- **C/C++**: Basic
- **Radiative transfer simulations**: Advanced
- **Fortran**: Basic
- **Matlab**: Intermediate
- **GitHub**: Basic

Potential Recommendation Writers

- **Prof. Hélène Chepfer**: PhD supervisor; chepfer@lmd.ipsl.fr
- **Dr. Grégory V. Cesana**: Postdoc supervisor; gc2748@columbia.edu