

Dr. Assia Arouf

Postdoctoral Research Scientist | Columbia University | NASA-GISS



About me

I am currently a Postdoctoral Research 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 9th March 1995

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[ResearchGate/Assia-Arouf](https://www.researchgate.net/profile/Assia-Arouf)

[ORCID/Assia-Arouf](https://orcid.org/Assia-Arouf)

Languages

English - Fluent

French - Native Language

Berber - Native Language

Arabic (Algerian)- Fluent

Spanish - Learning

Education

2019-2023



PhD Degree

Paris, France

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



Master Degree

Paris, France

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



Bachelor Degree

Blida, Algeria

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



Postdoctoral Research Scientist

New York, USA

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



Postdoctoral Researcher

Paris, France

Centre national de la recherche scientifique

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



PhD Research

Paris, France

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 102nd 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

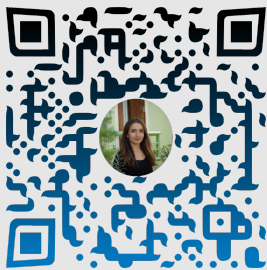
Good Listener

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, [doi 10.1029/2023GL105805](https://doi.org/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, [doi 10.5194/amt-15-3893-2022](https://doi.org/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*, [doi](https://doi.org/10.5194/amt-15-3893-2022)

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.*, [doi](https://doi.org/10.5194/amt-15-3893-2022)

Conferences, Workshops and Symposiums

Oral Presentations	<i>AGU: American Geophysical Union</i> ; Dec. 2024; Washington, D.C., USA Constraining Low-Level Cloud Feedback and Cloud Dependency to Environmental Factors in CMIP Models
	<i>EGU: European Geosciences Union</i> ; April 2023; Vienna Quantifying surface cloud warming increase as Fall Arctic sea ice cover decreases , doi 10.5194/egusphere-egu23-2377
	<i>EECLAT: Expecting Earth-Care, Learning from A-train</i> ; Jan. 2023; Banyuls, France Quantifying surface cloud warming increase as Fall Arctic sea ice cover decreases
	<i>EECLAT</i> ; Jan. 2022; Remote Cloud warming effect: A-Train Observations Vs CMIP6 Models
	<i>EECLAT</i> ; Jan. 2021; Remote Effect of clouds on surface temperature from space lidar observations
Invited Seminars	<i>EECLAT</i> ; Jan. 2020; Avignon, France Clouds influence on surface heating in the infrared range on a global scale
	<i>NASA-GISS</i> ; Jan. 2024; New York, USA Surface longwave cloud radiative effect derived from space lidar observations: An application to the Arctic. Youtube video .
	<i>Max-Planck-Institut für Meteorologie</i> ; Jul. 2021; Remote The Surface Longwave Cloud Radiative Effect from Space Lidar Observations
Poster Presentations	<i>CFMIP: Cloud Feedback Model Intercomparison Project</i> ; Jun. 2024; Boston, USA Constraining low-level cloud feedback and cloud dependency to environmental factors in CMIP models

Poster
Presentations

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


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; May 2021; Remote
The Surface Longwave Cloud Radiative Effect from Space Lidar Observations,  [10.5194/egusphere-egu21-2064](https://doi.org/10.5194/egusphere-egu21-2064)

</> Professional Skills

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

✿ Potential Recommendation Writers

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