



# MICKAËL LALANDE

## RESEARCH INTERESTS

Snow - Models - Parameterizations - General Circulation Models - CMIP6 - Mountain Areas - Arctic Regions - Deep Learning

## CURRENT POSITION

**Postdoc** | Oct 2023 - Sep 2025 | UQTR (Trois-Rivières, Canada)

Snow cover heterogeneity and its impact on the Climate and Carbon cycle of Arctic regions (ESA CCI Fellowship)  
(supervised by Christophe Kinnard and Alexandre Roy)

↳ Snow Model Development - CLASSIC - Arctic regions

## PROFESSIONAL EXPERIENCE

**PhD Student** | Oct 2019 - Feb 2023 | IGE (Grenoble, France)

Modeling climate trends and variability in High Mountain Asia to understand cryosphere changes

(supervised by Martin Ménégoz and Gerhard Krinner)

↳ CMIP6 - LMDZ/ORCHIDEE (IPSL GCM) - Snow Cover Parameterization

**Master thesis** | Feb 2019 - Jul 2019 | IGE (Grenoble, France)

Identification and filtering of oceanic chaos by Machine Learning  
(supervised by Thierry Penduff and Redouane Lguensat)

↳ Oceanography - Chaos - Deep Learning - Spatial Altimetry

**MSc internship** | May 2018 - Jul 2018 | IGE (Grenoble, France)

Impact of Arctic sea ice variability on the northern latitude  
(supervised by Olga Zolina and María Santolaria-Otín)

↳ Hydrological cycle - Models - Reanalyses

## EDUCATION

**PhD** | 2019-2023 | Université Grenoble Alpes (Grenoble, France)

Earth and Environmental Sciences

**MSc** | 2017-2019 | Université Grenoble Alpes (Grenoble, France)

Majors in Atmosphere, Climate, and Continental Surfaces  
(with highest honors)

**BSc** | 2013-2014 | Université Joseph Fourier (Grenoble, France)

Majors in Physics (with high honors)

**BSc** | 2012-2013 | Université Joseph Fourier (Grenoble, France)

Majors in Earth and Environmental Sciences (with honors)

## CONTACT



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Canada



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+33 6 62 22 52 18 (WhatsApp)



Driving licence



French nationality

## SOCIAL NETWORKS



@LalandeMickael



@mickaellalande



@mickaellalande



mickaellalande.github.io

## COMPUTER SKILLS

- Python (xarray, proplot, dask, pandas, scipy, xesmf, keras, etc.), FORTRAN
- Jupyter Lab/Notebook
- Linux
- GitHub / GitLab
- Latex (Overleaf)
- Climate models: LMDZ/ORCHIDEE (IPSL), CLASSIC (ECCC)
- Supercomputer: IDRIS, TGCC

## LANGUAGES

- French (native speaker)
- English (fluent)

## SCIENCE POPULARIZATION



### Science et Climat

YouTube channel created in 2019  
[www.youtube.com/c/ScienceetClimat](https://www.youtube.com/c/ScienceetClimat)



Thès' en Images | T'fais une thèse ?  
Modéliser la neige en Himalaya



### FLASH | OSUG

Is the current global warming due  
to human activity?



### Allodocs Podcast

#21: How can we make climate  
projections until 2100, when we  
can't predict the weather in 10  
days?



### HMA | OSUG

Exacerbated warming in the High  
Mountain Asia

## HOBBIES

- Hiking
- Snowboard
- Guitar

## TRAVELS

- Japan (1 year Working Holiday  
Visa in Kyoto | 2014 - 2015)
- New Zealand (3 months  
backpacking | 2012)

## PUBLICATIONS

### In preparation

Lalande, M., Kinnard, C., Roy, A. (in prep). **Improving the CLASSIC Snow Model to Better Simulate Arctic Snowpacks**. To be submitted in Geoscientific Model Development (GMD)

### Submitted

Wang, L., Mudryk, L., Melton, J. R., Mortimer, C., Cole, J., Meyer, G., Bartlett, P., and Lalande, M. (2025). **Impact of topography and meteorological forcing on snow simulation in the Canadian Land Surface Scheme Including Biogeochemical Cycles (CLASSIC)**. EGU sphere [preprint], <https://doi.org/10.5194/egusphere-2025-1264>

### Published

Lalande, M., Ménégoz, M., Krinner, G., Ottlé, C., and Cheruy, F. (2023). **Improving climate model skill over High Mountain Asia by adapting snow cover parameterization to complex-topography areas**. The Cryosphere, 17, 5095–5130, <https://doi.org/10.5194/tc-17-5095-2023>

Lalande, M., Ménégoz, M., Krinner, G., Naegeli, K., and Wunderle, S. (2021). **Climate change in the High Mountain Asia in CMIP6**. Earth System Dynamics, 12(4), 1061–1098. <https://doi.org/10.5194/esd-12-1061-2021>

## CONFERENCES

Lalande, M., Kinnard, C., Roy, A.: **Improving the CLASSIC Snow Model to Better Simulate Arctic Snowpacks**, AGU24, Colloque CEN 2025, EGU25, IGE lab seminar

Lalande, M., Kinnard, C., Roy, A.: **Snow cover heterogeneity and its impact on the Climate and Carbon cycle of Arctic regions**, Colloque CEN 2024, CGU 2024, COHERENT-C/CLASSIC workshop 2024, CCI Colocation 2024

Lalande, M., Ménégoz, M., Krinner, G., and Ottlé, C: **Adaptation of a snow cover scheme for complex topography areas: regional calibration over High Mountain Asia and application in global models**, JMASC2022, International Symposium on Snow 2022, International Mountain Conference 2022, EGU2022, SnowHydro2022

Lalande, M., Ménégoz, M., and Krinner, G.: **Climate change in the High Mountain Asia simulated with CMIP6 models**, EGU2021

Penduff, T., Lalande, M., Lguensat, R., Close, S., and Speich, S.: **Attenuating the ocean chaotic variability in altimetric observations: from band-pass filtering to machine learning**, AGU2019, OST/ST2019

## COMMUNITY INVOLVEMENT



Club Grenoble Rando Université  
(member 2019-2023)

Zarah (member 2023-now)

Club de marche moi mes souliers  
(member 2023-now)



Mobilisation climat Trois-Rivières  
(member 2023-now)



The Canadian Association of  
Postdoctoral Scholars (member  
2024-now)

Support Our Science (member  
2024-now)

## UNION ENGAGEMENT

Creation of the postdocs' unit in  
the ASTRE UQTR-AFPC union (2024)

Elected Vice-President to ASTRE  
UQTR-AFPC postdoctoral  
researchers (2024-now)

## GRANTS

**ESA CCI Research Fellowship** | 2023-2025 | UQTR / RIVE /  
GLACIOLAB (Trois-Rivières, Canada)

Snow cover heterogeneity and its impact on the Climate and  
Carbon cycle of Arctic regions (SnowC<sup>2</sup>)

Supervised by Christophe Kinnard and Alexandre Roy

## TEACHING

**ERCA school** | Jan 2022 | UGA (Grenoble, France)

Practical works (4h), <https://github.com/mickaellalande/ERCA>  
(referent Didier Voisin)

**Climatic and Environmental Variability** | 2020 - 2021 | UGA

Tutored project (~ 6h), Python (3h), Practical works (6h)  
(referent Théo Vischel)

## MISCELLANEOUS & REVIEWING ACTIVITIES

**MC-Toolkit** | 2019 - 2022 | IGE (Grenoble, France)

Organizer of numerical tools meetings for research (Python, etc.)

**Mountain Research School** | Jun - Jul 2021 | French Alps

Interdisciplinary school to address issues in mountain territories

**Lautaret Field Course** | Feb - Mar 2018 | French Alps

Snow-Atmosphere interface (mass and energy balance of the  
surface, nivology, thermics, chemistry; referent Ghislain Picard)

**Reviewing activities journals**

Journal of Advances in Modeling Earth Systems (JAMES)

Journal of Geophysical Research (JGR): atmospheres