NIELS DUTRIEVOZ

PHD CANDIDATE IN ATMOSPHERIC SCIENCES

Born on 2 September 1997
French nationality

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PROFILE

Scientific interests: Antarctica, climate and polar meteorology, atmosphere modelling and water isotopes.

ACADEMIC CURSUS

2022 - 2025: PhD thesis at the Laboratoire des Sciences du Climat et de l'Environnement, Université Paris-Saclay

2021 - 2022 : Pre-doctoral research year

Expedition Antarctique 2.0°C (https://www.j2d.org/antarctique2d)

2020 - 2021 : École Normale Supérieure de Paris - Master 2 in Geosciences

2018 - 2022 : École Normale Supérieure Paris-Saclay, Biology department

2017 - 2018 : Preparatory class in biology, chemistry, physics and earth sciences (BCPST), Lycée Saint-Louis, Paris

2015 - 2017 : Preparatory classes BCPST, Ginette, Lycée Saint-Geneviève, Versailles

RESEARCH EXPERIENCES

2022 - 2025: PhD thesis at the Laboratoire des Sciences du Climat et de l'Environnement, Université Paris-Saclay

Thesis supervised by Cécile Agosta. Thesis title: Water vapour isotopes in Antarctica as tracers of boundary layer processes and large-scale dynamics.

First author articles:

- Dutrievoz et al., Antarctic Water Stable Isotopes in the Global Atmospheric Model LMDZ6: From Climatology to Boundary Layer Processes. *Journal of Geophysical Research: Atmospheres*. doi: 10.1029/2024JD042073.
- Water vapour isotope anomalies during an atmospheric river event at Dome C, East Antarctica. Submitted to *The Cryosphere*.

Co-authored articles:

- Time series of the summertime diurnal variability in the atmospheric water vapour isotopic composition at Concordia station, East Antarctica. *The Cryosphere*. doi: 10.5194/essd-2025-35.
- Abrupt excursions in water vapor isotopic variability at the Pointe Benedicte observatory on Amsterdam Island. *Atmospheric Chemistry and Physics*. doi: 10.5194/acp-24-4611-2024.
- Multiproxy analyses of multiple firn cores from coastal Adélie Land covering the last 40 years. Submitted to *The Cryosphere*.

2022 - Internship at the Centre for Environmental and Marine Studies (CESAM), University of Aveiro, 4 months.

Internship supervised by Irina Gorodetskaya and Claudio Durán-Alarcón. Study of the functioning and impacts of warm moisture intrusions associated with extra-tropical cyclones on the Antarctic Peninsula.

Co-authored article:

- Record-high Antarctic Peninsula temperatures and surface melt in February 2022: a compound event with an intense atmospheric river. *npj climate and atmospheric science*. doi:10.1038/s41612-023-00529-6.

2022 - Internship at the Institute of Environmental Geosciences (IGE), Grenoble-Alpes University, 6 months.

Internship supervised by Jonathan Wille. Development of an algorithm to predict atmospheric rivers in Antarctica.

2021 - Internship at the Institute of Environmental Geosciences (IGE), Grenoble-Alpes University, 5 months.

Internship supervised by Vincent Favier and Juliette Blanchet. Climatology of Antarctic atmospheric rivers and statistical analyses of extremes.

Co-authored article:

- Relationship between weather regimes and atmospheric rivers in East Antarctica. *Journal of Geophysical Research: Atmospheres*. doi:10.1029/2021JD035294

2021 - 2022: Organisation of a research mission to Antarctica - Antarctica 2.0°C

Interdisciplinary study of climate change and the human footprint on the environment. This project, at the heart of the science-research-society relationship, is based on three axes: Research - Education - Awareness-raising.

2020 - Internship at the Laboratoire des Sciences du Climat et de l'Environnement (LSCE), Université Paris-Saclay, 5 weeks.

Internship supervised by Masa Kageyama and Sebastien Fromang. Study of mid- and high-latitude westerlies in the Southern Hemisphere at the Last Glacial Maximum: analysis of PMIP4-CMIP6 simulations.

PUBLICATIONS

2025

- Dutrievoz, N., Agosta, C., Davrinche, C., Landais, A., Nguyen, S., Risi, C., Vignon, É., Ollivier, I., Leroy-Dos Santos, C., Fourré, E., Casado, M., Berchet, A., Wille, J., Favier, V., Minster, B., & Prié, F. (2025). Water vapour isotope anomalies during an atmospheric river event at Dome C, East Antarctica. *Manuscript submitted for publication*, *The Cryosphere*.

- Dutrievoz, N., Agosta, C., Risi, C., Vignon, É., Nguyen, S., Landais, A., ... & Prié, F. (2025). Antarctic water stable isotopes in the global atmospheric model LMDZ6: From climatology to boundary layer processes. *Journal of Geophysical Research: Atmospheres*, *130*(5), e2024JD042073.

- Tcheng, T., Fourré, E., Leroy-Dos-Santos, C., Parrenin, F., Le Meur, E., Prié, F., Jossoud, O., Jacob, R., Minster, B., Magand, O., Agosta, C., Dutrievoz, N., Favier, V., Baubant, L., Lassalle-Bernard, C., Casado, M., Werner, M., Cauquoin, A., Arnaud, L., Jourdain, B., Picard, G., Bouchet, M., & Landais, A. (2025). Multiproxy analyses of multiple firn cores from coastal Adélie Land covering the last 40 years. *Manuscript submitted for publication*, *The Cryosphere*.

- Ollivier, I., Lauwers, T., Dutrievoz, N., Agosta, C., Casado, M., Fourré, E., ... & Landais, A. (2025). Time series of the summertime diurnal variability in the atmospheric water vapour isotopic composition at Concordia station, East Antarctica. *Earth System Science Data Discussions*, *2025*, 1-28. (Preprint)

2024

- Landais, A., Agosta, C., Vimeux, F., Magand, O., Solis, C., Cauquoin, A., ... & Werner, M. (2024). Abrupt excursions in water vapor isotopic variability at the Pointe Benedicte observatory on Amsterdam Island. *Atmospheric Chemistry and Physics*, *24*(8), 4611-4634

2023

- Gorodetskaya, I. V., Durán-Alarcón, C., González-Herrero, S., Clem, K. R., Zou, X., Rowe, P., ... & Picard, G. (2023). Record-high Antarctic Peninsula temperatures and surface melt in February 2022: a compound event with an intense atmospheric river. *npj climate and atmospheric science*, *6*(1), 202.

2021

- Pohl, B., Favier, V., Wille, J., Udy, D. G., Vance, T. R., Pergaud, J., ... & Codron, F. (2021). Relationship between weather regimes and atmospheric rivers in East Antarctica. *Journal of Geophysical Research: Atmospheres*, *126*(24), e2021JD035294.

COMPUTER SCIENCE

Language: Python, Fortran, R, LateX, shell, versioning (git), workjob manager (slurm)

Software: Word, Powerpoint, Excel, Final Cut Pro, Première Pro

LANGUAGES (CEFR)

French (mother tongue), English B2 (IELTS: 6,5)

TEACHING

https://nielsdutrievoz.github.io/teaching

2023 - present: Climate Physics.

2023 - present: Systemic Analysis of the Anthropocene

Teaching assistant at ENSTA Paris, guiding students on climate science and systemic analysis of the Anthropocene.

OUTREACH

https://nielsdutrievoz.github.io/outreach

2022 - present : Popularising science on social networks

Creation of a popularisation channel on social networks *Ordres de grandeur* (100,000+ followers, 26+ million views).

2021 - present : Popularisation of science

Creation of a series of popular science films as part of the Antarctica 2.0°C project produced by ENS Paris-Saclay and the association Juste 2.0°C (7 x 15 minute videos).

2021 - Present: Educational mission

Participation in the pedagogical project of the Antarctic 2.0°C project: hundreds of classes.

2018: Creation of the association *Juste 2.0°C (*https://www.j2d.org/*)*

Juste 2.0°C is an association whose objective is to support and promote projects combining scientific research, awareness raising and citizen initiatives on the effects of climate change and anthropisation.

ACADEMIC REFERENCES

- Dr Cécile Agosta - cecile.agosta@lsce.ipsl.fr
- Dr Etienne Vignon - etienne.vignon@lmd.ipsl.fr
- Dr Vincent Favier - vincent.favier@univ-grenoble-alpes.fr