

NIELS DUTRIEVOZ

PHD 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:

- 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](https://doi.org/10.1029/2024JD042073).
- Water vapour isotope anomalies during an atmospheric river event at Dome C, East Antarctica. *The Cryosphere*. doi: [10.5194/tc-20-1025-2026](https://doi.org/10.5194/tc-20-1025-2026).
- Improving isotopic surface fluxes over snow in LMDZ6iso: evaluation at Dome C, East Antarctica. *Journal of Advances in Modeling Earth Systems* (submitted).

Co-authored articles:

- Combined and autonomous online measurement of water isotopes in precipitating snowflakes and atmospheric water vapor in East Antarctica. *Atmospheric Measurement Techniques* (preprint). doi : [10.5194/egusphere-2026-256](https://doi.org/10.5194/egusphere-2026-256).
- Caveats of the isotopic paleothermometer: spatial and temporal isotope-temperature relationships. *Nature Geoscience* (under review). doi: [10.21203/rs.3.rs-4630109/v1](https://doi.org/10.21203/rs.3.rs-4630109/v1).

- Water isotope model intercomparison project (WisoMIP): Present-day climate. *Journal of Geophysical Research: Atmospheres*. doi: [10.1029/2025JD044985](https://doi.org/10.1029/2025JD044985).
- Air Mass Origin Effects on Antarctic Snow Isotopic Composition. *The Cryosphere (preprint)*. doi: [10.5194/egusphere-2025-3188](https://doi.org/10.5194/egusphere-2025-3188).
- Time series of the summertime atmospheric water vapour isotopic composition at Concordia station, East Antarctica. *Earth System Science Data*, 17, 5655–5674. doi: [10.5194/essd-17-5655-2025](https://doi.org/10.5194/essd-17-5655-2025).
- Abrupt excursions in water vapor isotopic variability at the Pointe Bénédicte observatory on Amsterdam Island. *Atmospheric Chemistry and Physics*, 24, 4611–4634. doi: [10.5194/acp-24-4611-2024](https://doi.org/10.5194/acp-24-4611-2024).
- Multiproxy analyses of multiple firn cores from coastal Adélie Land covering the last 40 years. *The Cryosphere*. doi: [10.5194/tc-20-1599-2026](https://doi.org/10.5194/tc-20-1599-2026).

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](https://doi.org/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:

- Extreme temperature trends in Antarctica exacerbated by explosive atmospheric rivers. *Communications Earth & Environment (under review)*. doi: [10.21203/rs.3.rs-7706789/v1](https://doi.org/10.21203/rs.3.rs-7706789/v1).
- Relationship between weather regimes and atmospheric rivers in East Antarctica. *Journal of Geophysical Research: Atmospheres*. doi: [10.1029/2021JD035294](https://doi.org/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

2026

- **Dutrievoz, N.**, Agosta, C., Vignon, É., Wahl, S., Casado, M., Ooms, A., Nguyen, S., Landais, A., Fourré, E., Minster, B., & Prié, F. (2026). Improving isotopic surface fluxes over snow in LMDZ6iso: Evaluation at Dome C, East Antarctica. *Journal of Advances in Modeling Earth Systems* (submitted).
- **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. *The Cryosphere*. doi: [10.5194/tc-20-1025-2026](https://doi.org/10.5194/tc-20-1025-2026).
- Lauwers, T., Fourré, E., **Dutrievoz, N.**, Agosta, C., Jossoud, O., Minster, B., Prié, F., Cattani, O., Masson-Delmotte, V., Casado, M., Genthon, C., & Landais, A. (2026). Combined and autonomous online measurement of water isotopes in precipitating snowflakes and atmospheric water vapor in East Antarctica. *Atmospheric Measurement Techniques* (preprint). doi : [10.5194/egusphere-2026-256](https://doi.org/10.5194/egusphere-2026-256).
- 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. *The Cryosphere*. doi: [10.5194/tc-20-1599-2026](https://doi.org/10.5194/tc-20-1599-2026).

2025

- Casado, M., Bailey, A., Leroy-Dos Santos, C., Fourré, E., Favier, V., Agosta, C., **Dutrievoz, N.**, Kittel, C., Arnaud, L., Prié, F., Akers, P. D., Cauquoin, A., Werner, M., Janssen, L., Stenni, B., Dreossi, G., Spolaor, A., Petteni, A., Savarino, J., & Landais, A. (2025). Caveats of the isotopic paleothermometer: spatial and temporal isotope-temperature relationships. *Nature Geoscience* (under review). doi: [10.21203/rs.3.rs-4630109/v1](https://doi.org/10.21203/rs.3.rs-4630109/v1).

- Favier, V., Blanchet, J., **Dutrievoz, N.**, Pohl, B., Clem, K., Barthelemy, L., Buffet, V., Wille, J., Codron, F., Bozkurt, D., Baiman, R., Winters, A., Gorodetskaya, I. V., Vance, T., & Udy, D. (2025). Extreme temperature trends in Antarctica exacerbated by explosive atmospheric rivers. *Communications Earth & Environment (under review)*. doi: [10.21203/rs.3.rs-7706789/v1](https://doi.org/10.21203/rs.3.rs-7706789/v1).
- Bong, H., LeGrande, A. N., Dee, S., Zhu, J., Cauquoin, A., Fiorella, R. P., Ding, Q., **Dutrievoz, N.**, Tanoue, M., Frazer, M., Sarkar, M., Agosta, C., Yoshimura, K., Werner, M., Okazaki, A., Risi, C., Steen-Larsen, H. C., Casado, M., Wahl, S., Nusbaumer, J., Worden, J., Good, S., Bailey, A., Schneider, M., Noël, S., Mandal, S., Bowman, K., Li, Y., & Schmidt, G. A. (2026). Water isotope model intercomparison project (WisoMIP): Present-day climate. *Journal of Geophysical Research: Atmospheres*. doi: [10.1029/2025JD044985](https://doi.org/10.1029/2025JD044985).
- Petteni, A., Casado, M., Leroy-Dos Santos, C., Landais, A., **Dutrievoz, N.**, Agosta, C., Akers, P. D., Savarino, J., Spolaor, A., Frezzotti, M., & Stenni, B. (2025). Air Mass Origin Effects on Antarctic Snow Isotopic Composition. *The Cryosphere (preprint)*. doi: [10.5194/egusphere-2025-3188](https://doi.org/10.5194/egusphere-2025-3188).
- **Dutrievoz, N.**, Agosta, C., Risi, C., Vignon, É., Nguyen, S., Landais, A., Fourré, E., Leroy-Dos Santos, C., Casado, M., Masson-Delmotte, V., Jouzel, J., Dubos, T., Ollivier, I., Stenni, B., Dreossi, G., Masiol, M., Minster, B., & Prié, F. (2025). 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](https://doi.org/10.1029/2024JD042073).
- Ollivier, I., Lauwers, T., **Dutrievoz, N.**, Agosta, C., Casado, M., Fourré, E., Genthon, C., Jossoud, O., Prié, F., Steen-Larsen, H. C., & Landais, A. (2025). Time series of the summertime atmospheric water vapour isotopic composition at Concordia station, East Antarctica. *Earth System Science Data*, 17, 5655-5674. doi: [10.5194/essd-17-5655-2025](https://doi.org/10.5194/essd-17-5655-2025).

2024

- Landais, A., Agosta, C., Vimeux, F., Magand, O., Solis, C., Cauquoin, A., **Dutrievoz, N.**, Risi, C., Leroy-Dos Santos, C., Fourré, E., Cattani, O., Jossoud, O., Minster, B., Prié, F., Casado, M., Dommergue, A., Bertrand, Y., & Werner, M. (2024). Abrupt excursions in water vapor isotopic variability at the Pointe Bénédicte observatory on Amsterdam Island. *Atmospheric Chemistry and Physics*, 24, 4611-4634. doi: [10.5194/acp-24-4611-2024](https://doi.org/10.5194/acp-24-4611-2024).

2023

- Gorodetskaya, I. V., Durán-Alarcón, C., González-Herrero, S., Clem, K. R., Zou, X., Rowe, P., Rodríguez Imazio, P., Campos, D., Leroy-Dos Santos, C., **Dutrievoz, N.**, Wille, J. D., Chyhareva, A., Favier, V., Blanchet, J., Pohl, B., Cordero, R. R., Park, S.-J., Colwell, S., Lazzara, M. A., Carrasco, J., Gulisano, A. M., Krakowska, S., Ralph, F. M., Dethinne, T., & 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*. doi: [10.1038/s41612-023-00529-6](https://doi.org/10.1038/s41612-023-00529-6).

2021

- Pohl, B., Favier, V., Wille, J., Udy, D. G., Vance, T. R., Pergaud, J., **Dutrievoz, N.**, Blanchet, J., Kittel, C., Amory, C., Krinner, G., & Codron, F. (2021). Relationship between weather regimes and atmospheric rivers in East Antarctica. *Journal of Geophysical Research: Atmospheres*. doi: 10.1029/2021JD035294.

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