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`70D5 7116 37B2 9335 9088`
`F124 D0FE 114E BFFD ED7F`

Romain Caneill

Academic experience – employement

2024 – 2027 **Postdoc**, *Institute of Environmental Geosciences*, Grenoble, France, working with Pierre Rampal, SASIP project
Physical oceanography, see ice

2018 – 2024 **PhD studies**, *Department of Marine Sciences, University of Gothenburg*, Gothenburg, Sweden, supervised by Fabien Roquet
Physical oceanography. **From alpha to beta ocean: Exploring the role of surface buoyancy fluxes and seawater thermal expansion in setting the upper ocean stratification**

2017 **Master's internship**, *Institute for Geosciences and Environmental research*, Grenoble, France, supervised by Ghislain Picard, 5 months
Analysis of Elevation Maps Measured by Laser Scannering at Dome C, Antarctica. Investigation of Snow Accumulation Processes.

2016 **Master's internship**, *Meteorological Institute of Stockholm University*, Stockholm, Sweden, supervised by Fabien Roquet, 3 months
Assessing the fine-scale structure of the ocean circulation above the Kerguelen Plateau from instrumented seals.

2015 **Bachelor's internship**, *CEN: Snow Research Centre*, Grenoble, France, supervised by Frédéric Flin, 2 months
Calibration of a Cryogenic Cell for the Study of Snow.

Education

2015 – 2017 **Master's degree in geophysics**, *École Normale Supérieure de Lyon (ENSL) and Lyon 1 University*, Lyon, France
Physics and chemistry of the Earth and Planets

2014 – 2015 **Bachelor's degree in fundamental physics**, *École Normale Supérieure de Lyon and Lyon 1 University*, Lyon, France

2012 – 2014 **Two-year university degree in physics and mathematics**, *Paris-Sud University*, Orsay, France

Teaching experience

2022 **CodeRefinery workshop**, *Hosted by coderefinery.org*, 6 half days online – Git version control, testing code, produce reproducible science, Exercise leader, coderefinery.github.io/2022-03-22-workshop

2020 – 2022 **Physical oceanography II (OCM210), Master course**, *Department of Marine Sciences, University of Gothenburg*, Gothenburg, Sweden, Teacher assistant

2019 **Ocean modelling (OC6310), Master course**, *Department of Marine Sciences, University of Gothenburg*, Gothenburg, Sweden, Teacher assistant

2018 – 2022 **Physical oceanography I (OCM100), Master course**, *Department of Marine Sciences, University of Gothenburg*, Gothenburg, Sweden, Teacher assistant

Publications

R. Caneill, F. Roquet, and J. Nycander, "The southern ocean deep mixing band emerges from a competition between winter buoyancy loss and upper stratification strength," *Ocean Science*, vol. 20, no. 2, pp. 601–619, 2024. [Online]. Available: https://os.copernicus.org/articles/20/601/2024/

F. Roquet, D. Ferreira, **R. Caneill**, D. Schlesinger, and G. Madec, "Unique thermal expansion properties of water key to the formation of sea ice on Earth," *Science Advances*, vol. 8, no. 46, Nov. 2022. [Online]. Available: https://www.science.org/doi/10.1126/sciadv.abq0793

R. Caneill, F. Roquet, G. Madec, and J. Nycander, "The Polar Transition from Alpha to Beta Regions Set by a Surface Buoyancy Flux Inversion," *Journal of Physical Oceanography*, vol. 52, no. 8, pp. 1887–1902, Aug. 2022. [Online]. Available: https://journals.ametsoc.org/view/journals/phoc/52/8/JPO-D-21-0295.1.xml

G. Picard, L. Arnaud, **R. Caneill**, E. Lefebvre, and M. Lamare, "Observation of the process of snow accumulation on the Antarctic Plateau by time lapse laser scanning," *The Cryosphere*, vol. 13, no. 7, pp. 1983–1999, 2019. [Online]. Available: https://tc.copernicus.org/articles/13/1983/2019/

Conferences – workshops

2023 **IUGG 2023 Berlin**, *Poster*, Investigating surface buoyancy flux and Ekman transport influence on the Southern Ocean's upper ocean pycnocline stratification, **R. Caneill**, F. Roquet, G. Madec, J. Nycander
https://romaincaneill.fr/news/2023/07/12/iugg23.html

2023 **EGU 23**, *Presentation*, The Influence of Surface Buoyancy Flux and Ekman Transport on Upper Ocean Pycnocline Stratification in the Southern Ocean, **R. Caneill**, F. Roquet, G. Madec, J. Nycander
https://doi.org/10.5194/egusphere-egu23-11655

2022 **Workshop in Bornö (Sweden)**, *Title of the workshop: Drivers of the global overturning circulation: wind versus buoyancy*, Organized by Fabien Roquet

2021 **virtual EGU 21**, *vPICO*, What determines the position of the transition zone between alpha and beta regions in the ocean? A model study, **R. Caneill**, F. Roquet, G. Madec, J. Nycander
https://doi.org/10.5194/egusphere-egu21-14331

2020 **DRAKKAR meeting**, *Poster*, Sensitivity of Oceanic Fronts to Nonlinearities of Equation of State Investigated Using Numerical Experiments, **R. Caneill**, F. Roquet, G. Madec, J. Nycander
https://github.com/rcaneill/DRAKKAR-2020-poster/blob/master/poster.pdf

Skills

- Dynamical and descriptive physical oceanography
- Climate and ocean data analysis
- Ocean modelling (run NEMO on HPC, analyze models outputs)
- Profiles analyzes (e.g. ARGO)

Computer science

- Proficient with **Python** data analysis (numpy, xarray, matplotlib, jupyter, xgcm), and **Snakemake**
- Good level in open- and reproducible-science practices (**Git**, **GitHub**, **GitHub actions**, **GNU/Linux**, **Apptainer** container system, python application testing with **pytest**), **Snakemake**, basics level in **GNU make**
- Proficient with articles and documents production (e.g. **Latex**, **Markdown**, **HTML**)

○ Basic level in **C**, **C++**, **Fortran**

Languages

French	Native language
English	Oral and written practice

Participation to open-source projects

xnemogcm	Core developer. xnemogcm is a python package that opens NEMO outputs and make them compliant with xgcm.
	github.com/rcaneill/xnemogcm
xnemogcm-test-data	Containers that can run NEMO 3.6 to 4.2 test case in a reproducible way to produce test data for xnemogcm.
	github.com/rcaneill/xnemogcm_test_data
xgcm	I wrote the NEMO example, the documentation on grid boundary conditions, and I participated to discussions about vertical remapping.
	github.com/xgcm/xgcm/commits?author=rcaneill
gsw-xarray	Core developer. gsw-xarray is a xarray wrapper for gsw that adds CF attributes.
	github.com/DocOtak/gsw-xarray

Hobbies

Carpentry	Professional French Diploma in cabinet making (in French: *CAP de menuiserie*).
Music	Guitar, composition, concert sound system installation.
Sports	Mountaineering, climbing in competition, skiing, trekking, wave surfing, kite surfing.