

Juliette ORTET

*Postdoctoral researcher
in satellite passive microwave
remote sensing for the cryosphere*

Helsinki

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📄 <https://jortet.github.io/>

Professional experiences

Since Oct. **Postdoctoral researcher.**

- 2025 ○ Radiative transfer model (L-MEB, 2-Stream, MEMLS) – Inverse modeling
- Soil Moisture and Ocean Salinity (SMOS) – Arctic area – Soil moisture and temperature
- Python – Linux – QGIS – Matlab – R

Oct. 2019 **Design and development engineer**, *Magellium*, Toulouse, France.

- to July 2020 ○ IDL programming for satellite imagery processing (Overland software)
- Project manager

Education

2020 – 2025 **PhD in environmental science**, *ReMoTe-Nord laboratory, Université du Québec à Trois-Rivières*, Trois-Rivières, Canada.

PhD in environmental science, *Centre d'Etudes Spatiales de la Biosphère (CESBIO), Université de Toulouse*, Toulouse, France.

- Title: "Observations of soil surface temperatures over the whole Arctic permafrost area using remote sensing"
- co-supervised by Alexandre Roy (UQTR) and Arnaud Mialon (CESBIO)

2018 – 2019 **Master Degree in Physical Methods for Remote Sensing**, *Institut de Physique du Globe de Paris (IPGP)*, Paris, France.

2016 – 2019 **Engineering Master Degree in Geomatics**, *Ecole Nationale des Sciences Géographiques*, Paris, France.

Internships at the European Southern Observatory (ESO, APEX/ALMA), in Munich (Germany) and Santiago (Chile), supervised by Carlos de Breuck and Juan-Pablo Pérez-Beaupuits

- "A study of the influence of the historical snow accumulation and wind effects on the extended Chajnantor plateau" (4 months)
- "Improving atmospheric models and short-term forecasting capability of the water vapour above the Chajnantor plateau" (5 months)

2014 – 2016 **Two-year preparatory courses for a competitive examination to enter Engineering Schools (Bachelor Level)**, *Lycée Jean Rostand*, Strasbourg, France.
Specialized in Earth Sciences, Biology, Mathematics, Chemistry and Physics

Teaching

- 2020 - 2022 **Ecole Nationale des Sciences Géographiques(ENSG)**, Paris, France.
- Lectures & practicals at bachelor level (L3) (6h/y): *Introduction to satellite imagery*
 - Lectures & practicals at bachelor level (L3) (15h/y): *The image format*
- 2022 **Ecole d'ingénieurs de Purpan**, Toulouse, France.
- Practical at bachelor level (L1) (7.5h/y): Mathematics
 - Practical at bachelor level (L1) (27h/y): R programming for physics

Communication

- March 2024 **Journées Internationales des Femmes et Filles de Sciences, JIFFS**, Villeneuve Tolosane, France.
- March 2023 **Event "Rencontre Exploreur"**, *Festival Cultive ta Science*, Castelnau-Montratier, France.
- Jan. 2023 **Event "Rencontres Declics"**, *Dialogues Entre Chercheurs et Lycéens pour les Intéresser à la Construction des Savoirs*, Lavaur, France.
- Nov. 2022 **APECS France Polar week**, *Association of Polar Early Career Scientists*, Online, France.
- 2017 - 2021 **ENSG representative**, *Forum G2E (Géologie, Eau et Environnement)*, Paris, France.

Collaborations

- Université de Trois Rivières, Québec, Canada (Alex Gélinas, Azza Gorrab)
- Université de Sherbrooke, Québec, Canada (Alain Royer)
- Gamma-WSL, Zurich, Swiss (Mike Schwank)
- MétéoSwiss, Zurich, Swiss (Simone Bircher-Adrot)
- Finnish Meteorological Institute, Helsinki, Finland (Kimmo Rautiainen, Manu Holmberg)

Publications

Articles (1st author)

Juliette Ortet et al., "Observational evidence of Arctic snow-vegetation feedback effect on soil temperature from microwave satellite observations", in prep.

Juliette Ortet, Arnaud Mialon, Alain Royer, Mike Schwank, Kimmo Rautiainen, Manu Holmberg, Simone Bircher-Adrot, Andreas Colliander, Yann Kerr, Alexandre Roy (under review) Retrieving frozen ground temperature under the snowpack in Arctic permafrost area, *The Cryosphere*, DOI :10.5194/tc-19-3571-2025

Juliette Ortet, Arnaud Mialon, Yann Kerr, Alain Royer, Aaron Berg, Julia Boike, Elyn Humphreys, François Gibon, Philippe Richaume, Simone Bircher-Adrot, Azza Gorrab & Alexandre Roy (2024) Evaluating soil moisture retrieval in Arctic and sub-Arctic environments using passive microwave satellite data, *International Journal of Digital Earth*, 17:1, 2385079, DOI: 10.1080/17538947.2024.2385079

Article (co-author)

Azza Gorraab, Oliver Sonnentag, Arnaud Mialon, Bram Hadiwijaya, Xiangzhuo Liu Aaron Berg, Camille Roy, Nia Perron, **Juliette Ortet**, Muhammad Umair, Alexandre Roy (under review) Challenges and Limitations in Comparing Satellite Microwave Vegetation Optical Depth (VOD) Against in-situ Tree Hydraulics in the Canadian Boreal Forest, *Canadian Journal of Remote Sensing (UJRS)*, DOI : 10.1080/07038992.2025.2566760.

Azza Gorraab, Oliver Sonnentag, Arnaud Mialon, Chelene Hanes, **Juliette Ortet**, Aaron Berg, Alexandre Roy (2025) Assessment of L-band Passive Microwave soil moisture retrievals in the North American Boreal biome, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, DOI : 10.1109/JSTARS.2025.3569063.

Presentation

Ortet, J., Mialon, A., Royer, A. and Roy, A., Soil temperature retrieval below the snowpack in the Arctic permafrost area using passive microwave satellite remote sensing. *SMAPVEX Workshop*, May 7-9, 2024

Ortet, J., Mialon A., Roy, A., Kerr, Y., Royer, A., Bircher-Adrot, S. and Schwank, M., Monitoring surface soil temperature in the Arctic permafrost areas in winter using passive microwave satellite remote sensing. *European Conference on Permafrost*, 2023

Ortet, J., Roy, A., Schwank, M., Royer, A., Bircher, S., Kerr, Y. and Mialon, A., Monitoring the surface soil moisture and temperature of the Arctic permafrost using passive microwave satellite remote sensing. *Journées Jeunes Chercheurs du CNES*, 2022 – **Best presentation award**

Poster

Ortet J., Mialon A., Royer A., Schwank M., Rautiainen K., Holmberg M., Bircher-Adrot S., Colliander A., Kerr Y. & Roy A., Poster : Retrieving the soil surface temperature under the snowpack in the Arctic permafrost area from SMOS brightness temperatures. *SMOS Science Conference & 15 Year Anniversary*, 2024

Ortet, J., Mialon, A., Royer, A., Bircher, S., Kerr, Y. and Roy, A., Poster : Mesure de l'humidité du sol en zone de pergélisol arctique par télédétection satellite micro-ondes. *Institut Nordique du Québec*, 2023

Ortet, J., Mialon, A., Royer, A., Bircher, S., Kerr, Y. and Roy, A., Poster : Suivi des humidités et températures du sol en zone de pergélisol arctique par télédétection satellite micro-ondes. *18ème Journées Scientifiques du Comité National Français des Recherches Arctiques et Antarctiques*, 2022 – **Best poster award**

Ortet, J., Mialon, A., Royer, A., Bircher, S., Kerr, Y. and Roy, A., Poster : Suivi des humidités et températures du sol en zone de pergélisol arctique par télédétection satellite micro-ondes. *Colloque du Centre d'Etudes Nordiques*, 2022