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Research

2026 – present	**Postdoctoral Researcher**, CryoPyr group, Instituto Pirenaico de Ecología (IPE-CSIC), Zaragoza (Spain)
2024 – 2026	**Postdoctoral Research Associate** (28 months), Snow HydRO Lab, University of Utah, Salt Lake City (USA)
2020 – 2023	**Ph.D. candidate** (39 months), Institute of Environmental Geosciences (IGE) + Snow Research Center (CNRM-CEN), Grenoble (France)
2020 – 2020	**Graduate internship** (6 months), Institute of Environmental Geosciences (IGE), Grenoble (France)
2019 – 2019	**Research engineer** (3 months), Institute of Environmental Geosciences (IGE), Grenoble (France)
2019 – 2019	**Graduate internship** (3 months), Laboratoire des Ecoulements Geophysiques et Industriels (LEGI), Grenoble (France).

Education

2023 **Ph.D.** in Earth, Universe and Environmental Sciences, Université Grenoble Alpes, Grenoble (France). Dissertation: *Three-dimensional modeling of the interactions between solar radiation and snow: from the fundamental role of its microstructure to that of mountain topography*

2020 **M.Sc.** in Earth Science, Atmosphere and Climate, Université Grenoble Alpes, Grenoble (France)

2018 **B.Sc.** in Physics, Universidad Autónoma de Madrid, Madrid (Spain)

Publications

7. **Robledano**, **A.**, Olson, M., Meyer, J., Hu, J. M., and Skiles, S. M.: Downscaling HRRR radiation for distributed snow modeling: Part 2 – Topographic correction of incoming longwave and evaluation of combined radiation updates, accpeted in *Journal of Advances in Modeling Earth Systems,* 2026.

6. Olson, M., **Robledano**, **A.**, Meyer, J., Hu, J. M., Leemann, M., and Skiles, S. M.: Downscaling HRRR radiation for distributed snow modeling: Part 1 – Incoming shortwave partitioning and topographic correction, accepted in *Journal of Advances in Modeling Earth Systems*, 2026.

5. Liu, Y., Hu, J. M., **Robledano**, **A.**, and Skiles, S. M.: Representing canopy snow mass and energy balance processes in iSnobal to improve snow accumulation and melt timing, *Journal of Hydrology*, 136669, https://doi.org/10.1016/j.jhydrol.2026.136669, 2026.

4. **Robledano, A.**, Picard, G., Dumont, M., Flin, F., Arnaud, L., and Libois, Q.: Unraveling the optical shape of snow, *Nature Communications*, 14, 3955, https://doi.org/10.1038/s41467-023-39671-3, 2023.

3. Dumont, M., Gascoin, S., Réveillet, M., …, **Robledano, A.** (31/39), …, and Voiron, C.: Spatial variability of Saharan dust deposition revealed through a citizen science campaign, *Earth Syst. Sci. Data*, 15, 3075–3094, https://doi.org/10.5194/essd-15-3075-2023, 2023.

2. **Robledano, A.**, Picard, G., Arnaud, L., Larue, F., and Ollivier, I.: Modelling surface temperature and radiation budget of snow-covered complex terrain, *The Cryosphere*, 16, 559–579, https://doi.org/10.5194/tc-16-559-2022, 2022.

1. Larue, F., Picard, G., Aublanc, J., …, **Robledano, A.** (5/10), …, and Thibaut, P.: Radar altimeter waveform simulations in Antarctica with the Snow Microwave Radiative Transfer Model (SMRT), *Remote Sensing of Environment*, 263, 112534, https://doi.org/10.1016/j.rse.2021.112534, 2021.

In review:

a. Hu, J. M., Meyer, J., **Robledano**, **A.,** Leemann, M., and Skiles, S. M.: Integrating satellite-derived albedo into energy balance snow modeling: evaluation across the Upper Colorado River Basin, submitted to *Water Resources Research*, 2025.

In late preparation:

i. **Robledano, A.**, Hunsaker, A., and Skiles, S.M.: Determination of liquid water content in the snowpack through remotely-sensed hyperspectral imagery, 2026.

ii. Alonso-González, E., Sourp, L., Aalstad, K., Deschamps-Berger, C., **Robledano, A.,** Gascoin, S., and López-Moreno, J.I.: Mapping snow hydrological hotspots reveals hidden vulnerability of Mediterranean water resources, 2026.

Book Chapters & Communications

4. Skiles, S. M., Donahue, C., and **Robledano, A**.: Snow Optical Grain Size: A Review, in: Kokhanovsky A. (eds), Springer Series in Light Scattering (Volume 13), Springer, Cham, https://doi.org/10.1007/978-3-032-35383-2_3, 2027.

3. **Robledano, A**.: Prix Henri Milon 2025, *Les Cahiers de la SHF 2026*, p. 52

2. **Robledano, A.** et al.: X-ray microtomography reveals the optical shape of snow, *ESRF Highlights 2023* - chapter Environment, Earth and Planetary Sciences, pp. 124-125, https://www.esrf.fr/Apache_files/Highlights/2023/index.html, 2024.

1. **Robledano, A.** and Dumont, M.: La forme optique de la neige, Meteo-France: *Rapport Recherche 2023*, pp. 70, https://hal.science/hal-04655378, 2024.

Congress (selected, total 1st author = 12)

1. **Robledano, A.**, Meyer, J., Hu, J. M., Skiles, S. M.: Combining process-based snow modeling with geostationary satellite cloud cover data. Western and Eastern Snow Conference 2026. Denver (USA), 12-15 May 2026. Poster.

2. **Robledano, A.**, Olson, M., Meyer, J., Hu, J. M., Skiles, S. M.: Recent iSnobal enhancements: assessing improvements from an updated representation of the radiative balance using geostationary satellite cloud cover in the Upper Colorado River Basin, AGU Annual Meeting 2025, New Orleans, Louisiana (USA), 15-19 Dec. 2025. Oral presentation.

3. **Robledano, A.**, Hu, J. M., Meyer, J., Olson, M., Liu, Y., and Skiles, M.: Recent developments of the iSnobal model: assesing improvements from an updated representation of the radiative balance in the Upper Colorado River Basin (USA), Busan IAMAS-IACS-IAPSO (BACO) Joint Assembly, Busan (South Korea), 20-25 July 2025. Oral presentation.

4. **Robledano, A.**, Picard, G., Dumont, M., Arnaud, L., and Flin, F.:, Exploring the impact of dust-snow mixing structures on snow optical properties with a ray-tracing model, XXVIII General Assembly of the International Union of Geodesy and Geophysics (IUGG), Berlin (Germany), 11-19 July 2023, https://doi.org/10.57757/IUGG23-1932. Poster.

5. **Robledano, A.**, Picard, G., Dumont, M., Arnaud, L., and Flin, F.: Linking snow optical properties to snow microstructure, EGU General Assembly 2022, Vienna (Austria), 23-27 May 2022, https://doi.org/10.5194/egusphere-egu22-3463. Oral presentation.

Awards, service and merits

- **PhD award** in Hydrology Henri Milon 2025 by the Société Hydrotechnique de France.
- **Travel grant** to Busan IAMAS-IACS-IAPSO Joint Assembly 2025: International Association of Cryospheric Sciences (IACS) and University of Utah.
- **Open-source model development**: active role in the development of the Community iSnobal model (snow mass and energy balance model).
- **Workshop organizing committee**: CryoDA 2026: Training Workshop on data assimilation for the terrestrial cryosphere. Jaca (Spain), November 2026 (~ 25 attendees)
- Participation in **NASA's** Western Water Action Office (WWAO) workshop to improve water management in the arid Western US by connecting NASA data with water managers and decision makers
- **Peer-review activity**: Journal of Glaciology, Atmospheric Pollution Research, Journal of Advances in Modelling Earth Systems.

Supervision and teaching

- **Master thesis co-advisor.** A hybrid physics-LSTM framework for snow-dominated streamflow in the Yampa River Basin, Colorado, by Madison Muxworthy, University of Utah, USA, 2026.

- **Master thesis co-advisor**: Comparison of algorithms for remote sensing of snow surface temperature, by Elise Ortega, Université Grenoble Alpes, France, 2022

- **Guest lecturer**: Master in Earth Sciences, Atmosphere and Climate 2022/2023. Course: Remote sensing retrievals and GIS (9 hours TP). Université Grenoble Alpes, France, 2022.

Field work experience

- Participation in large-scale field campaign to measure the presence of Saharan dust in the snowpack (French Alps, 2021): Snow density, specific surface area, temperature profile, X-ray microtomography.

- Regular participation in snowpack data acquisition for the IVORI project (ERC Starting Grant) in the French Alps (Col du Porte, 8 outings over 2022-2023 winter season): Snow density, specific surface area, temperature profile, X-ray microtomography.

- Early-stage development of thermal imagery acquisition for snow surface temperature retrieval, under the TRISHNA satellite cal/val actions. Halted due to Covid-19 pandemic, Col du Lautaret (French Alps, 2020).

Participation in research projects

- “Advancing distributed process based snow modeling capability for use in CBRFC water supply forecasting, funded by the United States Bureau of Reclamation (grant number R24AC0061-00). PI: S. McKenzie Skiles (University of Utah), Jan. 2024 – Dec. 2025. Grant amount: $650 000. Role: Postdoc researcher.

- “IVORI: New insights on the snow cover: from snowflakes to ice sheets, in seconds to centuries”, funded by the European Research Council (grant number 949516). PI: Marie Dumont (Meteo-France – CNRS). Feb. 2021 – Feb. 2027. Grant amount: EUR 1 800 000. Role: Postdoc researcher.

- “MiMESis-3D: Metamorphism and properties of snow from 3D images: microscale experimentation and simulation for a better understanding of involved mechanisms”, funded by the Agence Nationale de la Recherche (ANR-19-CE01-0009). PI: Frederic Flin (Meteo-France – CNRS). Mar. 2020 – Mar. 2024. Grant amount: EUR 670 000. Role: PhD candidate.

- “EAIIST: East antarctic International Ice Sheet Traverse”, funded by the Agence Nationale de la Recherche (ANR-16-CE01-0011). PI: Joel Savarino (Universite Grenoble Alpes). Dec. 2016 – Dec. 2020. Grant amount: EUR 980 000. Role: Research engineer.