Jairo Michael Valdivia Prado

Curriculum Vitae

PERSONAL DETAILS

Location	Boulder, CO
Mail	jairo.valdiviaprado@colorado.edu
G. Scholar	Jairo M. Valdivia; Citations: 232; h-index: 8, i10-index: 8
ORCID	0000-0003-0709-1163
Scopus ID	57214790895
Personal Webpage	Jairo M. Valdivia

EDUCATION

Ph.D. (expected July 2026) 2023-present
University of Colorado, Boulder, CO
Department of Atmospheric and Oceanic Sciences (ATOC)

Master's Degree 2023-2025
University of Colorado, Boulder, CO
Department of Atmospheric and Oceanic Sciences (ATOC)

Engineer Degree 2016-2018
Universidad Nacional José Faustino Sánchez Carrión, Lima, Perú
Thesis title: *Rainfall Quantification Using Ka Band Radar Profiler MIRA35C.*

B.Sc. (Hons) Environmental Engineer 2011-2015
Universidad Nacional José Faustino Sánchez Carrión, Lima, Perú
First Class Honours. Department Prize for Outstanding Performance.

WORK EXPERIENCE

Research Assistant 2023-present
University of Colorado, Boulder
Department of Atmospheric and Oceanic Sciences (ATOC).

- Performing Dual-Doppler analysis with Doppler on Wheels (DOW) radars from the Wintre-Mix field campaign to compute three-dimensional wind fields.
- Analyzing the life cycle and microphysical evolution of Cloud Top Generating Cells (CTGCs) using radar data.
- Simulating radar retrievals at multi-frequency bands for particle type identification using T-matrix method.
- Simulating geoengineering scenarios using CESM2.1 to investigate high-altitude albedo modification and climate feedbacks.

Radar Scientist 2019-2023
Geophysical Institute of Peru
Department of Atmospheric and Hydrospheric Sciences (SCAH).

- Signal processing of 35 GHz cloud profiler (MIRA35c) to precipitation studies.
- Quantitative precipitation estimation using a mobile dual polarimetric radar (PX-1000).
- Multi-frequency rainfall rate estimation using 35 GHz radar (MIRA35c), 445 MHz radar (CLAIRE) and 50 MHz wind profiler (BLTR).
- Analysis of uncertainties sources of Dual-frequency Precipitation Radar (DPR) on the core satellite of the Global Precipitation Measurement mission (GPM) over central Peruvian Andes.
- Development of open access instrumental database.

Research Assistant 2016-2019
Geophysical Institute of Peru
Department of Atmospheric and Hydrospheric Sciences (SCAH). Investigations related to:
Radar Measurements and Cloud Microphysics.

SKILLS

Languages	Spanish (native), English (fluent)
Software	PYTHON, PYTORCH, PYTMATRIX, MATLAB, SHELL-SCRIPT, LaTeX
Data Analysis & Processing	Dual-Doppler analysis, signal processing, quality control, algorithm development, large dataset management

PUBLICATIONS

Journal Articles (peer reviewed)

[1] J. L. Flores-Rojas, D. A. Guizado-Vidal, **J. Valdivia-Prado**, Y. Silva, E. Villalobos-Puma, L. Suárez-Salas, Z. Mata-Adauto, and H. A. Karam. "Surface Energy Exchanges and Stability Conditions Associated with Convective Intense Rainfall Events on the Central Andes of Peru". In: *Agricultural and Forest Meteorology* 369 (June 2025), p. 110570. ISSN: 01681923. DOI: 10.1016/j.agrformet.2025.110570.

[2] **J. Valdivia**, V. Llactayo, C. Yarleque, S. Callañaupa, E. Villalobos-Puma, D. Guizado, and R. Alvarado-Lugo. "Future Changes of Precipitation Types in the Peruvian Andes". In: *Scientific Reports* 14.1 (Sept. 2024), p. 22634. ISSN: 2045-2322. DOI: 10.1038/s41598-024-71840-2.

[3] **J. M. Valdivia**, J. L. Flores-Rojas, J. J. Prado, D. Guizado, E. Villalobos-Puma, S. Callañaupa, and Y. Silva-Vidal. "Hailstorm Events in the Central Andes of Peru: Insights from Historical Data and Radar Microphysics". In: *Atmospheric Measurement Techniques* 17.8 (Apr. 2024), pp. 2295–2316. ISSN: 1867-8548. DOI: 10.5194/amt-17-2295-2024.

[4] E. Villalobos-Puma, A. Morales, D. Martinez-Castro, **J. Valdivia**, R. Cardenas-Vigo, W. Lavado-Casimiro, and A. Santiago. "Dynamic Atmospheric Mechanisms Associated with the Diurnal Cycle of Hydrometeors and Precipitation in the Andes–Amazon Transition Zone of Central Peru during the Summer Season". In: *Journal of Earth System Science* 133.2 (Apr. 2024), p. 75. ISSN: 0973-774X. DOI: 10.1007/s12040-024-02278-3.

[5] **J. M. Valdivia**, D. A. Guizado, J. L. Flores-Rojas, D. P. Gamarra, Y. F. Silva-Vidal, and E. R. Huamán. "Field Campaign Evaluation of Sensors Lufft GMX500 and MaxiMet WS100 in Peruvian Central Andes". In: *Sensors* 22.9 (Apr. 2022), p. 3219. ISSN: 1424-8220. DOI: 10.3390/s22093219.

[6] **J. M. Valdivia**, P. N. Gatlin, S. Kumar, D. Scipión, Y. Silva, and W. A. Petersen. "The GPM-DPR blind zone effect on satellite-based radar estimation of precipitation over the Andes from a ground based Ka-band profiler perspective". In: *Journal of Applied Meteorology and Climatology* (2022). ISSN: 1558-8424. DOI: 10.1175/jamc-d-20-0211.1.

[7] C. Del Castillo-Velarde, S. Kumar, **J. M. Valdivia-Prado**, A. S. Moya-Álvarez, J. L. Flores-Rojas, E. Villalobos-Puma, D. Martínez-Castro, and Y. Silva-Vidal. "Evaluation of GPM Dual-Frequency Precipitation Radar Algorithms to Estimate Drop Size Distribution Parameters, Using Ground-Based Measurement over the Central Andes of Peru". In: *Earth Systems and Environment* 0123456789 (2021). ISSN: 2509-9426. DOI: 10.1007/s41748-021-00242-5.

[8] J. L. Flores-Rojas, A. S. Moya-Álvarez, **J. M. Valdivia-Prado**, M. Piñas-Laura, S. Kumar, H. A. Karam, E. Villalobos-Puma, D. Martínez-Castro, and Y. Silva. "On the dynamic mechanisms of intense rainfall events in the central Andes of Peru, Mantaro valley". In: *Atmos. Res.* 248 (2021). ISSN: 01698095. DOI: 10.1016/j.atmosres.2020.105188.

[9] J. L. Flores-Rojas, Y. Silva, L. Suárez-Salas, R. Estevan, **J. Valdivia-Prado**, M. Saavedra, L. Giraldez, M. Piñas-Laura, D. Scipión, M. Milla, S. Kumar, and D. Martinez-Castro. "Analysis of Extreme Meteorological Events in the Central Andes of Peru Using a Set of Specialized Instruments". In: *Atmosphere* 12.3 (Mar. 2021), p. 408. ISSN: 2073-4433. DOI: 10.3390/atmos12030408.

[10] **J. M. Valdivia**, D. E. Scipión, M. Milla, J. J. Prado, J. C. Espinoza, D. Cordova, M. Saavedra, E. Villalobos, S. Callañaupa, and Y. Silva. "Dataset on the first weather radar campaign over Lima, Peru". In: *Data in Brief* (2021), p. 106937. ISSN: 2352-3409. DOI: https://doi.org/10.1016/j.dib.2021.106937.

[11] S. Kumar, C. Del Castillo-Velarde, **J. M. Valdivia**, J. L. F. Rojas, S. M. Gutierrez, A. S. Alvarez, D. Martine-Castro, and Y. Silva. "Rainfall characteristics in the mantaro basin over tropical andes from a vertically pointed profile rain radar and in-situ field campaign". In: *Atmosphere (Basel).* 11.3 (2020). ISSN: 20734433. DOI: 10.3390/atmos11030248.

[12] **J. M. Valdivia**, K. Contreras, D. Martinez-Castro, E. Villalobos-Puma, L. F. Suarez-Salas, and Y. Silva. "Dataset on raindrop size distribution, raindrop fall velocity and precipitation data measured by disdrometers and rain gauges over Peruvian central Andes (12.0°S)". In: *Data Br.* 29 (Apr. 2020), p. 105215. ISSN: 23523409. DOI: 10.1016/j.dib.2020.105215.

[13] **J. M. Valdivia**, D. E. Scipión, M. Milla, and Y. Silva. "Multi-Instrument Rainfall-Rate Estimation in the Peruvian Central Andes". In: *J. Atmos. Ocean. Technol.* 37.10 (2020), pp. 1811–1826. ISSN: 0739-0572. DOI: 10.1175/jtech-d-19-0105.1.

[14] D. Martínez-Castro, S. Kumar, J. L. Flores Rojas, A. Moya-Álvarez, **J. M. Valdivia-Prado**, E. Villalobos-Puma, C. D. Castillo-Velarde, and Y. Silva-Vidal. "The Impact of Microphysics Parameterization in the Simulation of Two Convective Rainfall Events over the Central Andes of Peru Using WRF-ARW". In: *Atmosphere (Basel).* 10.8 (2019), p. 442. DOI: 10.3390/atmos10080442.

Journal Articles (under review)

[1] Valdivia, J. M., Friedrich, K., Zaremba, T., & Tessendorf, S. (Under Review). Temporal Evolution of Cloud-Top Generating Cells: A Case Study. *Journal of Atmospheric Sciences.*

[2] Valdivia, J. M., Chapman, W., & Friedrich, K. (Under Review). Radar Data Smoothing using the Discrete Cosine Transform: A Fast Spectral Domain Algorithm. *Atmos. Meas. Tech.*. [Preprint DOI]

OTHER PUBLICATIONS

1. **Valdivia Jairo M.** (2018). Cuantificación de lluvias usando el radar perfilador de banda Ka MIRA35C (Engineer degree thesis), *Universidad Nacional José Faustino Sánchez Carrión*, Lima, Peru
t[Link]

2. **Valdivia Jairo M.**, Josep Prado, Silva Yamina, y Scipión Danny (2018). Observando precipitaciones en Lima con un radar meteorológico, *Boletín Técnico "Generación de odelos climáticos para el pronóstico de ocurrencia del Fenómeno El Niño", Instituto Geofísico del Perú*, Noviembre, 4, 11, 8-9
[Link]

3. **Valdivia Jairo M.**, Silva Yamina, y Scipión Danny (2017). Cuantificación de lluvias usando un radar meteorológico de banda Ka, *Compend. Investig. Geof.*, 18, 20-25, ISSN: 2079-696X
[Link]

4. Silva Yamina, Scipión Danny, and **Valdivia Jairo M.** (2017). Radares para estudios atmosféricos en el Perú, *Boletín Técnico "Generación de odelos climáticos para el pronóstico de ocurrencia del Fenómeno El Niño", Instituto Geofísico del Perú*, Noviembre, 4, 11, 8-9
[Link]

5. **Valdivia Jairo M.**, y Silva Yamina (2016). Estadística de ocurrencia de tormentas en el Observatorio de Huancayo, *Compend. Investig. Geof.*, 17, 38-42, ISSN: 2079-696X
[Link]

SEMINARS AND COLLOQUIA

41st International Conference on Radar Meteorology, Toronto, Canada Aug, 26, 2025
Oral

Valdivia, J. M., Friedrich, K., Zaremba, T., & Tessendorf, S. "Temporal Evolution of Cloud-Top Generating Cells: A Case Study"

105th AMS Annual Meeting Survey, New Orleans, USA Jan, 15, 2025
Oral

Valdivia, J. M., Friedrich, K., Zaremba, T., & Tessendorf, S. "Characterization and Microphysical Impacts of Cloud Top Generating Cells During WINTRE-MIX"

10th European Conference on Radar in Meteorology and Hydrology, Ede-Wageningen, Netherlands July, 1, 2018
Oral

Scipión, D., Valdivia, J., Silva, Y., Milla M. "Multi-instrument rainfall rate estimation in the Peruvian central Andes (12°S)"

10th European Conference on Radar in Meteorology and Hydrology, Ede-Wageningen, Netherlands July, 1, 2018
Poster

Valdivia, J., Scipión, D., Silva, Y. "Simultaneous observations of Ka band profiler and GPM dual-frequency precipitation radar over tropical central Andes"

10th European Conference on Radar in Meteorology and Hydrology, Ede-Wageningen, Netherlands July, 1, 2018
Poster

Valdivia, J., Saavedra Miguel, Scipión, D., Silva, Y., Cheong B. L. "Rainfall rate estimation using hydro-estimator (GOES) and dual polarimetric radar in a coastal tropical basin of Peru"

2nd WCRP Summer School on Climate Model Development 2018, Cachoeira Paulista, Brazil Jan, 31, 2018
Poster

Valdivia, J., Scipión, D., Silva, Y. "Microphysical parameters retrieval of rainfall using a Ka band and VHF band radars in the central Andes of Peru"

XXVI Simposio Peruano de Física 2017, Huacho, Peru Nov, 17, 2017

Oral

Valdivia, J., Silva, Y., Scipión, D. "Multi-instrumentación para la estimación de la intensidad de la lluvia: Resultados preliminares"

38th Conference on Radar Meteorology 2017, Chicago, USA Aug, 29, 2017

Oral

Villalobos E., Valdivia, J., Scipión, D., Silva, Y. "Characterization of the stratiform rainfall using cloud radar in the central peruvian Andes"

38th Conference on Radar Meteorology 2017, Chicago, USA Aug, 29, 2017

Poster

Valdivia, J., Scipión, D., Silva, Y. "Microphysical parameters retrieval of rainfall using a Ka band cloud radar in the central Andes of Peru"

International Scientific Meeting (ECI 2017), Lima, Peru Jan, 03, 2017

Oral

Valdivia, J., Silva, Y., Scipión, D. "Obtención de parámetros microfísicos de lluvias usando un radar perfilador que opera en banda Ka"