

EDUCATION

Colorado State University Fort Collins, Colorado
PhD, Electrical Engineering Aug. 2016 - Jun. 2023
Dissertation: *Microphysical retrieval in severe storms from ground-based and space-borne radar network*
Advisor: V. Chandrasekar

Universidad del Norte Barranquilla, Colombia
MSc, Electronic Engineering Jan. 2012 - Feb. 2014
Thesis: *Retrieving Ocean Variables via X-band Radar*

Universidad del Norte Barranquilla, Colombia
BSc, Mathematics and Electronic Engineering Jan. 2016 - Feb. 2012

EMPLOYMENT

University at Albany, State University of New York Albany, New York
Postdoctoral Associate, Atmospheric Science Research Center Aug. 2025 - Present
Radar Meteorology and Engineering, Applied Hydrometeorology, Microphysics
Supervisor: Christopher Thorncroft

Naval Postgraduate School Monterey, California
Postdoctoral Intern, Department of Meteorology Apr. 2024 - Jul. 2025
Radar and NWP analysis and integration
Supervisor: Scott Powell

Colorado State University Fort Collins, Colorado
Postdoctoral Fellow, Radar and Remote Sensing Group Jul. 2023 - Mar. 2024
Scattering simulation of radar variables, radar data analysis
Lead operator, engineer, and data mentor of the CSU-CHIVO C-band radar
Supervisor: V. Chandrasekar

Colorado State University Fort Collins, Colorado
Research Assistant, Radar Group Aug. 2016 - Jun. 2023
Multiple band and platforms radar processing (Calibration, Correction, Doppler Winds, IQ)
Supervisor: V. Chandrasekar

NCAR - EOL Boulder, Colorado
Advanced Study Program Graduate Visitor May 2021- Dec. 2021
Radar Climatology for RELAMPAGO campaign
Supervisor: Tammy Weckwerth

Soluciones de Ingeniería A&H Barranquilla, Colombia
Electrical Engineer Mar. 2013 - Jul. 2016
Power system, renewable energy (solar and wind) systems design and installation

Universidad del Norte Barranquilla, Colombia
Research Assistant, Telecommunication and Signals Research Group Jan. 2012 - May. 2014
Estimation of ocean variables via radar located onshore

Ivan Arias Hernandez

iariashernandez@albany.edu • +1 518 437 8752 • 1220 Washington Ave., Albany, NY 12222

University of Arizona

Research Intern, Advanced Sensing Laboratory

Detecting tropical cyclogenesis in the Western North Pacific from infrared imagery

Tucson, Arizona

May 2011 - Aug 2011

FIELD WORK EXPERIENCE

CASA-DFW Radar network (*Collaborative Adaptive Sensing of the Atmosphere*)

Radar and disdrometers data analysis, data quality control

Dallas-Fort Worth, Texas

Feb. 2023 - Present

ICECHIP (*In-situ Collaborative Experiment for the Collection of Hail In the Plains*)

Lead Field Engineer, CSU C-Band Radar (CSU-CHIVO)

Fort Collins, Colorado

May 2025 - Jun. 2025

TIME-SLICE-CO (*Testing INCUS Methods Experiment – Suborbital preLaunch Investigations of Convective Evolution - COlorado*)

Lead Field Engineer, CSU C-Band Radar (CSU-CHIVO)

Fort Collins, Colorado

May 2024 - Jun. 2024

PRECIP 2021 (*Prediction of Rainfall Extremes Campaign In the Pacific*)

Lead Field Engineer, CSU C-Band Radar (CSU-CHIVO)

Fort Collins, Colorado

May 2021 - Jun. 2021

RELAMPAGO (*Remote sensing of Electrification, Lightning, And Mesoscale/microscale-Processes with Adaptive Ground Observations*)

Lead Field Engineer, CSU C-Band Radar (CSU-CHIVO)

Cordoba, Argentina

Nov. 2018 - Jan. 2019

ICE-POP 2018 (*International Collaborative Experiments for PyeongChang 2018 Olympic and Paralympic Winter games*)

Lead Field Engineer, NASA Dual-frequency Dual-polarized Doppler Radar (D3R)

PyeongChang, Korea

Jan. 2018 - Mar. 2018

PEER REVIEWED PUBLICATIONS

Arias Hernandez, I., & Powell, S. (In-preparation). Kinematic and Microphysical Cell Structures Observed during CACTI Using Multi-Doppler Analysis.

Arias Hernandez, I., & Chandrasekar, V. (In-preparation). Microphysical Retrieval in Hailstorms Using Dual Polarimetric Scattering Simulation Based on in-Situ Aircraft Measurements and Radar Observations.

Arias Hernandez, I., & Chandrasekar, V. (2024). Microphysical insights from dual polarization spectral analysis in updraft and mix-phase environments. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. <https://doi.org/10.1109/JSTARS.2024.3458890>

Arias, I., & Chandrasekar, V. (2023). Attenuation of Melting Ice at C-band Frequencies, Observed Using Dual Radar Observations During the RELAMPAGO Campaign. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. <https://doi.org/10.1109/JSTARS.2023.3325568>

Arias, I., & Chandrasekar, V. (2021). Cross validation of the network of ground-based radar with GPM during the Remote sensing of Electrification, Lightning, And Mesoscale/microscale Processes with Adaptive Ground Observations (RELAMPAGO) field campaign. *Journal of the Meteorological Society of Japan. Ser. II*, 99(6), 1423-1438. <https://doi.org/10.2151/jmsj.2021-069>

Nesbitt, S. W., Salio, P. V., Ávila, E., Bitzer, P., Carey, L., Chandrasekar, V., **Arias, I.**, ... & Grover, M. A. (2021). A storm safari in subtropical South America: Proyecto RELAMPAGO. Bulletin of the American Meteorological Society, 102(8), E1621-E1644. <https://doi.org/10.1175/BAMS-D-20-0029.1>

Arias, I., Chandrasekar, V., & Joshil, S. S. (2019). Cross-validation of CSU-CHIVO radar and GPM during RELAMPAGO. In IGARSS 2019-2019 IEEE International Geoscience and Remote Sensing Symposium (pp. 7586-7589). <https://doi.org/10.1109/IGARSS.2019.8898835>

Arias, I., & Chandrasekar, V. (2018). Cross validation of GPM and ground-based radar in Latin America and the Caribbean. In IGARSS 2018-2018 IEEE International Geoscience and Remote Sensing Symposium (pp. 3891-3893). <https://doi.org/10.1109/IGARSS.2018.8517848>

Arias, I., Velez, J. C., & Calle, M. (2015). System for estimation of significant height and direction of waves by using radar intensities. IEEE Latin America Transactions, 13(11), 3598-3603. <https://doi.org/10.1109/LATINCOM.2014.7041878>

Wood, K. M., Rodríguez-Herrera, O. G., Ritchie, E. A., Piñeros, M. F., **Arias, I.**, & Tyo, J. S. (2015). Tropical cyclogenesis detection in the North Pacific using the deviation angle variance technique. Weather and Forecasting, 30(6), 1663-1672. <https://doi.org/10.1175/WAF-D-14-00113.1>

INVITED LECTURE PRESENTATION

Microphysical retrieval from multiple radar observations during the CACTI experiments in Argentina. Environmental Science & Technology Department, Brookhaven National Laboratory, January 2026.

Insight into the microphysics of severe storms from multiple radar observations: Study over la Plata region in South America, Earth Observing Laboratory NSF-NCAR seminar series, October 2023. <https://www.youtube.com/watch?v=3NmGw0Qu0oo>

Workshop on dual polarization weather radar for early warning of severe weather, Universidad Nacional de Colombia, March 2023. <https://youtu.be/EwBfCwKGtP0>

Multiple radar observations during the RELAMPAGO field campaign, EOL monthly seminar series, January 2022.

C-band dual polarization radars, advantages and challenges, Grupo de ciencias de la Atmósfera en Colombia (AtmosCol), October 2021. https://www.youtube.com/watch?v=0_NrpZqApaA&t=1385s

Deep Dive on Weather Radar and RELAMPAGO, Vaisala Deep Dive seminar series, June 2020.

CONFERENCES

Arias Hernandez, I., & Chandrasekar V. (2026, January), Microphysical Analysis of Simultaneous C-, S-, and X-Band Radar Observations Collected during ICECHIP Campaign in Colorado. In 106th American Meteorological Society Annual Meeting. Houston, TX. (Talk)

Arias Hernandez, I., & Chandrasekar, V. (2025, August). Microphysical Retrieval in Hailstorms Using Dual Polarimetric Scattering Simulation Based on in-Situ Aircraft Measurements and Radar Observations. In 41th International Conference on Radar Meteorology. Toronto , Canada. (Talk)

Arias Hernandez, I., & Powell S. (2025, March), Kinematic Cell Structures Observed during CACTI Using Multi-Doppler Analysis. In VIII Convection Permitting Climate Modeling Workshop. 2025 ARM/ASR Joint User Facility and PI Meeting. Rockville, MD. (Poster)

Arias Hernandez, I., & Powell S. (2025, January), Using Multiple Doppler Retrieval to Investigate Linkages between Boundary Layer Convergence and Convective Initiation. In 105th American Meteorological Society Annual Meeting. New Orleans, LA. (Talk)

Arias Hernandez, I., & Chandrasekar V. (2025, January), Microphysical Retrieval in Hailstorms Using Scattering Simulation Based on in-Situ Aircraft Measurements and Dual Polarimetric Radar Observations. In 105th American Meteorological Society Annual Meeting. New Orleans, LA. (Talk)

Arias Hernandez, I., Powell S., Rasmussen K., & Chandrasekar, V. (2024, September), Insight from Comparing High Resolution Simulation with Radar Observations during the CACTI/RELAMPAGO Campaigns in Argentina. In VIII Convection Permitting Climate Modeling Workshop. Fort Collins, CO (Poster)

Arias Hernandez, I., & Chandrasekar, V. (2023, August). Microphysical Insights from Dual-Polarization Spectral Decomposition in Updraft Environments during the RELAMPAGO Campaign. In 40th International Conference on Radar Meteorology. Minneapolis, USA. (Talk)

Arias, I., & Chandrasekar, V. (2023, January), The Attenuation of Melting Ice in the C-Band, a Study Case Using Multiple Radar Observation during the RELAMPAGO Campaign. In 103rd American Meteorological Society Annual Meeting. Denver, CO. (Talk available in the following [link](#))

Arias, I., Weckwerth, T., & Chandrasekar, V. (2022, January), Echo-Top Connection to Rain and Hail: An Analysis Using Multiple Radar Observations during the RELAMPAGO Field Campaign. In 102nd American Meteorological Society Annual Meeting. Online. (poster available in the following [link](#))

Arias, I., Chandrasekar, V., Rasmussen, K. L., & Rowe, A. K. (2021, January). Evaluation of microphysics schemes with ground-based observation in deep convection during RELAMPAGO. In 101st American Meteorological Society Annual Meeting. Online. (Poster available in the following [link](#))

Arias, I., Chandrasekar, V., & Rowe, A. (2020, July). Dual Radar Time Sequence Observation of Convective Initiation over Sierras De Cordoba during RELAMPAGO Field Campaign-Dec 13-14 Case. In 19th Conference on Mountain Meteorology. Online. (Talk available in the following [link](#))

Arias, I., & Chandrasekar, V. (2019, September). Cross-validation of CSU-CHIVO with GPM-DPR and CSAPR2 during RELAMPAGO. In 39th International Conference on Radar Meteorology. Nara, Japan. (Poster)

Arias, I., Velez, J.C., & Calle, M.G. (2014, July). System for estimation of significant height and direction of waves by using radar intensities. IEEE Latin-America Conference on Communication. Cartagena, Colombia. (Talk)

DATABASES

Arias Hernandez, I., & Powell, SW. (In preparation). 31 days of systematic Multiple Doppler analysis for CACTI and RELAMPAGO field experiments.

Arias, I., & Chandrasekar, V. (2019). CSU C-Band Radar Data during RELAMPAGO Campaign. Version 1.0. UCAR/NCAR - Earth Observing Laboratory. <https://doi.org/10.26023/DA1G-MCNC-YB0F>.

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iariashernandez@albany.edu • +1 518 437 8752 • 1220 Washington Ave., Albany, NY 12222

EDITORIAL SERVICE

IEEE Transactions on Geoscience and Remote Sensing: 3 articles in 2023, 2021, 2020.

IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing: 2 articles in 2025

AMS Journal of Atmospheric and Oceanic Technology: 2 articles in 2025, 2019

AMS Journal of Hydrometeorology: 1 article in 2025

AGU Journal of Geophysical Research Atmospheres: 1 article in 2025

PROFESSIONAL AFFILIATION

A Regional Hydroclimate Initiative for the Andes ([ANDEX-GEWEX](#)) Jan. 2023 - Present
Participant

South America Affinity Group ([SAAG-NCAR](#)) Jan. 2023 - Present
Participant

Grupo de ciencias de la Atmósfera en Colombia (AtmosCol) May 2021 - Present
Co-founder with Francina Dominguez

AMS Committee for Hispanic and Latinx Advancement (CHALA) Aug. 2021 - Present
Academic ambassador

MENTORING AND TEACHING EXPERIENCE

Colorado State University Fort Collins, Colorado
Co-teaching ECE578 - Satellite Data Analysis Fall 2023

Colorado State University Fort Collins, Colorado
Co-advising three ECE master students 2019 - 2023
Topic: Radar calibration, IQ time series analysis, and multiple radar platform analysis

Colorado State University Fort Collins, Colorado
Mentoring four ECE undergraduate students 2017- 2019
Topic: Radar measurement from GPM analysis

Universidad del Norte Barranquilla, Colombia
Teaching assistant, Electrical and Electronics Department 2013 - 2016
Courses: Measurement and Instrumentation, and Satellite Communication

SKILLS & INTERESTS

Familiar instruments: CSU radars (D3R, CHILL, C-Band), ARM Facility instruments, GPM Ku Ka band and GMI, GOES 16.

Computer: WRF, Dual Doppler, IRIS and Sigmet, Python, MATLAB.

Graduate coursework: Mesoscale Dynamics, Mesoscale Meteorology, Cloud Physics and Thermodynamics, Atmosphere Radiation, Remote Sensing, Water Cycle, Radar System Design, Random Processes, Digital Signal Processing.