

Carlos J. Martinez

CONTACT INFORMATION

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Climate & Global Dynamics
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RESEARCH INTERESTS

Atmosphere-Ocean Interactions • Climate Variability • Large-Scale Oscillations • Social Impacts of Climate Change • Adaption/Mitigation Practices • Interfaith Environmentalism

EDUCATION

Columbia University, New York, NY, GPA: 3.80
Ph.D. in Earth and Environmental Science, July 2021
Thesis: “Seasonal Climatology, Variability, Characteristics, and Prediction of the Caribbean Rainfall Cycle”

Columbia University, New York, NY, GPA: 3.82
M.Phil. in Earth and Environmental Science, May 2020

Columbia University, New York, NY, GPA: 3.90
M.A. in Earth and Environmental Science, Oct 2018

Texas A&M University, College Station, TX, GPA: 3.87
B.Sc. in Atmospheric Science, May 2015, *Magna Cum Laude*
Thesis: “The Impact of the Summit Station, Greenland Radiosonde Program on Weather and Climate Prediction”
Minor: Mathematics

RESEARCH AND PROFESSIONAL EXPERIENCE

- 2021 – Present: **Advanced Study Placement NCAR Postdoctoral Fellow**
- Assessing how CESM2 and other general circulation models simulate the Caribbean Rainfall Cycle and investigate future climate scenarios in the Caribbean
 - Work on relational building between UCAR and interfaith/spiritual organizations and communities on environmentalism
 - Mentors: Drs. John Fasullo, Isla Simpson, Andreas Prein, and Kris Karnauskas, National Center for Atmospheric Research / University of Colorado in Boulder.
- 2021 – Present: **American Meteorological Society Interfaith Committee Chair**
- Formalize a space for spiritual/faith-based AMS members to share ideas, topics, and collaboration on spiritual/faith-based environmentalism.
 - Work with interfaith, indigenous, and spiritual organizations and the AMS on community resiliency from weather/climate-risks, environmental justice, public communication on environmentalism, and increasing representation of indigenous knowledge systems and voices at the AMS.
- 2016 – 2021: **IRI/LDEO Graduate Research Assistant**
- Understanding the seasonal climatology, interannual variability, and predictability of the Caribbean rainfall cycle and its associated dynamical mechanisms.
 - Collaborating with local agricultural communities, and Caribbean climate and weather services on Caribbean research.

- Advisors: Drs Lisa Goddard and Yochanan Kushnir, Lamont-Doherty Earth Observatory / International Research Institute for Climate and Society, Columbia University

2015 - 2016: **Undergraduate Research Scholars Program**

- Quantified using MATLAB the improvement in ECMWF model forecasts when radiosonde data was assimilated.
- Assessed the connection between accurately characterizing the atmosphere over Greenland and weather prediction and climate science in the region.
- Advisor: Dr. Oliver Frauenfeld, Department of Geography, Texas A&M University

2014 – 2015: **National Oceanic and Atmospheric Admin. Hollings Scholar**

- Assessed radiosonde assimilation rates by ECMWF under varying meteorological conditions and how well ECMWF observes the shallow seasonal temperature inversion at the Greenland Ice Sheet.
- Advisor: Dr. Sandy Starkweather, Earth Systems Research Laboratory, NOAA

2014 – 2015: **National Center for Atmospheric Research SOARS Protégé**

- Investigated the relationship between atmospheric blocking and AMO on decadal time scales.
- Assessed the CESM1LE simulations against observation in simulating blocking and AMO.
- Mentors: Dr. Justin Small, Climate & Global Dynamics Division, NCAR; Dr. Young-Oh Kwon & Dr. Hyodae Seo, Department of Physical Oceanography, WHOI

PUBLICATIONS

Refereed/Peer-Reviewed

Martinez, C., Munoz A, Goddard L, Kushnir Y, Ting M. A Self-Adaptative Approach to Quantify Weather-within-Climate Rainfall Characteristics. *Climate Dynamics*. (2022). <https://doi.org/10.1007/s00382-022-06193-5>

Martinez, C., Goddard, L., Kushnir, Y. Ting, M. Interannual Variability of Early and Late-Rainy Seasons in the Caribbean. *Climate Dynamics*. (2020). <https://doi.org/10.1007/s00382-020-05341-z>

Martinez, C., Goddard, L., Kushnir, Y. Ting, M. Seasonal climatology and dynamical mechanisms of rainfall in the Caribbean. *Climate Dynamics*. (2019). <https://doi.org/10.1007/s00382-019-04616-4>

Kwon, YO., Camacho, A., **Martinez, C.** et al. North Atlantic winter eddy-driven jet and atmospheric blocking variability in the Community Earth System Model version 1 Large Ensemble simulations. *Climate Dynamics* (2018) 51: 3275. <https://doi.org/10.1007/s00382-018-4078-6>

Submitted/In Preparation

Martinez, C., Munoz A, Goddard L, Kushnir Y, Ting M. Seasonal Prediction of the Caribbean Rainfall Cycle. *Climate Services* (in review)

Non-refereed/Other

Martinez, C., April, 2016, The Impact of the Summit Station, Greenland Radiosonde Program on Weather and Climate Prediction. *Undergraduate Research Scholar Thesis*.

Martinez, C., August, 2014, North Atlantic Atmospheric Blocking and Atlantic Multidecadal Oscillation with CESM1 Large Ensemble Simulations, SOARS, Open Sky Repository, UCAR

**FELLOWSHIPS
AND AWARDS**

2022	Outstanding Oral Presentation Award – Weather Analysis and Forecasting / Numerical Weather Prediction Symposium, 102 nd AMS Meeting
2021	Honorable Mention – Societal Applications Symposium, 101 st AMS Meeting
2020	Outstanding Oral Presentation Award – Climate Variability and Change Conference, 100 th AMS Meeting
2018	Outstanding Student Presentation Award – AGU Fall Meeting
2018	Honorable Mention - National Science Foundation Student Graduate Fellowship
2016	Provost’s Diversity Fellowship – Columbia University
2016	Dean’s Fellowship – Columbia University
2016	Undergraduate Atmospheric Scientist Award , Texas A&M University
2015	The OM and Saraswati (Sara) Bahethi Scholarship , AMS
2015(14)(13)	George Crocker Scholarship – Texas A&M University
2015	2nd Prize Poster , Earth Science, Geoscience, and Water Resources, Texas A&M Student Research Week
Jan. 2015	3rd Prize Poster , Air & Sea Interaction Conference, 95 th AMS Meeting
2014 – 2015	Ernest F. Hollings Undergraduate Scholarship , NOAA
Dec 2014	Grand Prize , AGU Virtual Poster Showcase, AGU Fall Meeting
2013 & 2014	NSF STEM Scholarship , NSF/Texas A&M University
2014	SOARS Protégé Student Research & Travel Award , SOARS, NCAR/UCAR

**PRESENTATIONS
AT
PROFESSIONAL
CONFERENCES**

Martinez, C., Munoz A., Goddard, L., Kushnir, Y., Ting, M. Seasonal Prediction of the Caribbean Rainfall Cycle. AMS Annual Meeting, Virtual/Houston, TX. 2022.

Martinez, C., Munoz A., Goddard, L., Kushnir, Y. Ting, M. Seasonal Prediction of the Caribbean Rainfall Cycle. AGU Fall Meeting, Virtual/New Orleans.

Martinez, C., Munoz A., Goddard, L., Kushnir, Y., Ting, M. A Self-Adaptive Approach to Quantify Weather-within-Climate Rainfall Characteristics, AMS Annual Meeting, Virtual. 2021

Martínez, C., Munoz A., Goddard, L., Kushnir, Y., Ting., M. A Self-Adaptive Approach to Quantify Weather-within-Climate Rainfall Characteristics, AGU Fall Meeting, Virtual. 2020

Martínez, C., Goddard, L., Kushnir, Y., Ting, M. Interannual Variability of the Early and Late-Rainy Seasons in the Caribbean., American Meteorological Society, 100th Annual AMS National Conference, Boston, MA. 2020

Martínez, C., Goddard, L., Kushnir, Y. Ting, M. Interannual Variability of the Early and Late-Rainy Seasons in the Caribbean., American Geophysical Union, AGU Fall Meeting, San Francisco, CA. 2019

Martínez, C., Goddard, L., Kushnir, Y. Ting, M. Seasonal climatology and dynamical mechanisms of rainfall in the Caribbean., American Meteorological Society, 99th Annual AMS National Conference, Phoenix, AZ, 2019

Martínez, C., Goddard, L., Kushnir, Y. Ting, M. Seasonal climatology and dynamical mechanisms of rainfall in the Caribbean., *American Geophysical Union*, AGU Fall Meeting, Washington, D.C., 2018

Martínez, C., Starkweather S., Cox, C., Shupe, M., Solomon, A. "Evaluating the Impact of the Summit Station, Greenland Radiosonde Program on Science and Forecast Services", *American Meteorological Society*, 96th Annual AMS Meeting, New Orleans, LA, 2016

Martínez, C., Starkweather S., Cox, C., Shupe, M., Solomon, A. "Evaluating the Impact of the Summit Station, Greenland Radiosonde Program on Science and Forecast Services", *American Geophysical Union*, AGU Fall Meeting, San Francisco, CA, 2015

Martínez, C., Starkweather S., Cox, C., Shupe, M., Solomon, A. "Evaluating the Impact of the Summit Station, Greenland Radiosonde Program on Science and Forecast Services", *National Oceanic and Atmospheric Administration*, 2015 NOAA Student Science and Education Symposium, Silver Spring, MD, 2015

Martínez, C., Kwon, Y., Seo, H., Small J. "North Atlantic Atmospheric Blocking and Atlantic Multidecadal Oscillation in CESM1 Large Ensemble Simulations", Texas A&M University, Texas A&M University Student Research Week, College Station, TX, 2015.

Martínez, C., Kwon, Y., Seo, H., Small J. "North Atlantic Atmospheric Blocking and Atlantic Multidecadal Oscillation in CESM1 Large Ensemble Simulations", American Meteorological Society, 95th AMS National Conference, Phoenix, AZ, 2015.

Martínez, C., Kwon, Y., Seo, H., Small J. "North Atlantic Atmospheric Blocking and Atlantic Multidecadal Oscillation in CESM1 Large Ensemble Simulations", American Geophysical Union, AGU Fall Meeting, San Francisco, CA, 2014.

Martinez, C., Kwon, Y., Seo, H., Small J. “North Atlantic Atmospheric Blocking and Atlantic Multidecadal Oscillation: Analysis through Climate Models, Reanalysis and Datasets”, Society of the Advancement of Chicanos and Native Americans in Science, 2014 SACNAS National Conference, Los Angeles, CA, 2014

Martinez, C., Kwon, Y., Seo, H., Small J. “North Atlantic Atmospheric Blocking and Atlantic Multidecadal Oscillation: Analysis through Climate Models, Reanalysis and Datasets”, Woods Hole Oceanographic Institution, 2014 WHOI Summer Student Presentation, Woods Hole, MA, 2014.

Martinez, C., Kwon, Y., Seo, H., Small J. “North Atlantic Atmospheric Blocking and Atlantic Multidecadal Oscillation: Analysis through Climate Models, Reanalysis and Datasets”, Significant Opportunities in Atmospheric Research and Science, 2014 SOARS Colloquium, Boulder, CO, 2014.

**PROFFESIONAL
ACTIVITIES**

Teaching

Columbia University

Spring 2020 Teaching Assistant, Regional Climatology & Climate Impacts
Fall 2019 Teaching Assistant, Dynamics Climate Variability and Change
Fall 2018 Teaching Assistant, Dynamics Climate Variability and Change
Spring 2018 Teaching Assistant, Regional Climatology & Climate Impacts

Workgroups

Fall 2017 – Sp. 2021 *Columbia World Project, ACToday*
To combat hunger by increasing climate knowledge in six countries that are particularly dependent on agriculture and vulnerable to the effects of climate variability and change
Fall 2016 – Sp. 2018 *The International Research and Applications Project*
Integrates physical and social sciences to increase climate resilience, develop decision support systems, and advance science

Workshops/Colloquiums

2020 AMS Summer Policy Colloquium
2019 NCAR Advanced Study Program Colloquium:
Quantifying and communicating uncertainty in high-impact weather prediction, Boulder, CO
2019 NEXTGEN Seasonal to Sub-seasonal Predictability Workshop, IRI, NY
2018 Central American and Caribbean Workshop on Subseasonal-to-Seasonal Predictability of the Mid-Summer Drought, Antigua, Guatemala
2014 SOARS Scientific Communication Workshop, Boulder, CO
2014 19th Annual Community Earth System Model Workshop, Breckenridge, CO
2014 SOARS Leadership Training, Boulder, CO

Service

- 2021 – Pres. **Chair**, American Meteorological Society, Interfaith Committee
- 2021 – Pres. **Member**, Advanced Study Placement, NCAR, Professional Networking Committee
- 2021 – Pres. **Member**, GreenFaith Boulder Organizing Committee
- Working with spiritual/faith communities on environmental topics and discussing with spiritual/faith communities climate science and relate fields
- 2020 – Pres. **Board Member**, American Meteorological Society, Board of Representation, Accessibility, Inclusion, and Diversity.
- Enhancing diversity, equity, and inclusion in the AMS and in the weather, water, climate enterprise through advocacy, networking, service, and leadership amongst underrepresented groups.
- 2019 – 2022 **Student Board Member**, American Meteorological Society Climate Variability and Change (CVC) Committee
- Curating sessions for the Annual AMS Meetings aimed at important Climate Variability and Change topics, and collaborating with the public entities on Climate-related topics.
- 2018 **Instructor**, Central American and Caribbean Workshop on Subseasonal-to-Seasonal Predictability of the Mid-Summer Drought, Antigua, Guatemala
- 2016 **Volunteer**, Citizen Schools after-school teaching program, Success Academy Harlem North West
- 2015 – 2016 **Member**, AMS Student Conference Planning Committee, American Meteorological Society
- 2015 – 2016 **President**, Texas A&M Student Chapter of the American Meteorological Society, Texas A&M University
- 2015 – 2016 **Tutor**, Department of Atmospheric Science, Texas A&M University
- 2015 **Honorary Speaker**, Bright STaRS Luncheon, American Geophysical Union Fall Meeting, December 2015
- 2015 **Volunteer**, College of Geosciences Texas A&M University booth, American Geophysical Union Fall Meeting, December 2015
- 2014 – 2016 **Atmospheric Science Recruiter**, Geosciences Undergraduate Recruitment Team, Texas A&M University

Skills

Technical

Python, MATLAB, IRI Data Library, R, Fortran, GitHub

Communication

English – Professional Proficiency

Spanish – Intermediate Proficiency

Affiliations/Memberships

- 2017 – 2020 New York Academy of Sciences
- 2014 – Present American Geophysical Union
- 2014 – Present American Meteorological Society
- 2014 – 2015 Society for the Advancement of Chicanos and Native Americans in Science