

# Ghassan “Gus” J. Alaka, Jr.

Curriculum Vitae

NOAA/OAR/AOML/HRD  
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Miami, FL 33149  
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Citizenship: United States of America  
Registered for Selective Service

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## EDUCATION

Colorado State University	Atmospheric Science	Ph.D.	12/2014
Colorado State University	Atmospheric Science	M.S.	12/2010
The University of Michigan	Earth System Science and Engineering	B.S.E.	05/2008

*magna cum laude*

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## EMPLOYMENT HISTORY

**METEOROLOGIST** 08/2022 – Present

*Employer:* National Oceanic and Atmospheric Administration (NOAA)  
Atlantic Oceanographic and Meteorological Laboratory (AOML)  
Hurricane Research Division (HRD)  
4301 Rickenbacker Causeway, Miami, Florida 33149

*Supervisor:* Dr. Frank Marks

*Grade:* ZP-4, Step 1 (GS 13/14 equivalent)

Key member of AOML's Hurricane Modeling & Prediction Program (<https://www.aoml.noaa.gov/hurricane-modeling-prediction>). Leads the HRD Model Science Team, driving complex, meteorological research to inform the hurricane community and improve hurricane forecasts. Plans, coordinates, and manages assigned projects to conduct advanced hurricane research and to accelerate transitions of hurricane research into operations by leading a team effort, advising management, accomplishing project goals, and meeting milestones. Coordinates the transition of hurricane research into operations with NOAA centers and offices, including the Environmental Modeling Center (EMC), the National Hurricane Center (NHC), the Office of Science and Technology Integration (OSTI), and the Developmental Testbed Center (DTC). Works closely with NHC forecasters to improve the operational meteorological product suite. Mentors team members, colleagues, and students on several meteorological projects to accomplish goals. Conducts complex meteorological research to improve hurricane prediction, prediction techniques, and operational forecasts, as well as to increase the understanding of hurricane phenomena. Specific areas of research include tropical meteorology, tropical cyclogenesis, multi-scale hurricane interactions, and numerical hurricane prediction models. Develops, manages, operates, maintains, and upgrades NOAA's operational hurricane prediction models, including the Hurricane Weather

Research and Forecasting (HWRF) and Hurricane Analysis and Forecast System (HAFS) models. Knowledge of and experience with high performance computer systems to produce real-time forecasts from hurricane prediction models. Develops, uses, and shares meteorological software based on the latest science and technology to analyze model output. Acquires, processes, stores, and makes available a wide variety of meteorological data, especially numerical hurricane prediction model output, on the AOML Hurricane Model Viewer web site (<https://storm.aoml.noaa.gov/viewer>). Collects and analyzes hurricane observations in NOAA's Hurricane Field Program. As a lead project scientist on hurricane hunter reconnaissance missions on board NOAA WP-3D Orion aircraft, maintains situational awareness while flying into hurricanes, operates tail Doppler radar, processes dropwindsonde data, and deploys dropwindsonde/ocean probes. Publishes research in peer-reviewed, meteorological journals (*h-index*: 8) and presents at international meteorology conferences.

**IT SPECIALIST** 12/2018 – 08/2022

*Employer:* National Oceanic and Atmospheric Administration (NOAA)  
Atlantic Oceanographic and Meteorological Laboratory (AOML)  
Hurricane Research Division (HRD)  
4301 Rickenbacker Causeway, Miami, Florida 33149

*Supervisor:* Dr. Frank Marks

*Grade:* ZP-4, Step 1 (GS 13/14 equivalent)

**ASSISTANT SCIENTIST** 06/2017 – 12/2018

*Employer:* Cooperative Institute for Marine and Atmospheric Studies (CIMAS)  
Rosenstiel School of Marine and Atmospheric Science (RSMAS)  
University of Miami  
4600 Rickenbacker Causeway, Miami, Florida 33149

*Supervisor:* Dr. Benjamin Kirtman

**POSTDOCTORAL ASSOCIATE** 10/2014 – 06/2017

*Employer:* Cooperative Institute for Marine and Atmospheric Studies (CIMAS)  
Rosenstiel School of Marine and Atmospheric Science (RSMAS)  
University of Miami  
4600 Rickenbacker Causeway, Miami, Florida 33149

*Supervisor:* Dr. Benjamin Kirtman

**GRADUATE RESEARCH ASSISTANT** 08/2008 – 10/2014

*Employer:* Department of Atmospheric Science  
Colorado State University  
3915 Laporte Ave., Fort Collins, Colorado 80521

*Supervisor:* Dr. Eric D. Maloney

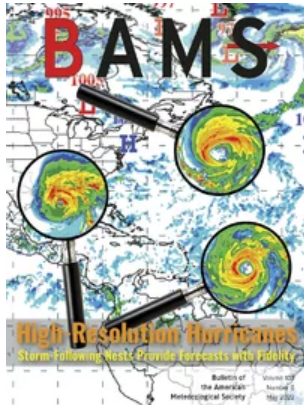
**NOAA STUDENT TEMPORARY EMPLOYMENT PROGRAM (STEP) INTERN** 05/2007 – 08/2007

*Employer:* National Oceanic and Atmospheric Administration (NOAA)  
Geophysical Fluid Dynamics Laboratory (GFDL)  
Princeton University Forrestal Campus

201 Forrestral Road Princeton, New Jersey 08540  
*Supervisor:* Bill Stern  
*Grade:* ZS-02 (GS-04 equivalent)

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## PUBLICATIONS



Cover & Featured Story

*Bulletin of the American Meteorological Society*, Volume 103, Issue 5 (May 2022)

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## Refereed Journal Articles

Web of Science statistics:

Total publications    **24**  
Total citations        **950**  
h-index                **8**

<https://www.webofscience.com/wos/author/record/A-4513-2017>

<https://orcid.org/0000-0003-3137-8535>

Ditchek, Sarah D., Jason A. Sippel, **Ghassan J. Alaka, Jr.**, Stanley B. Goldenberg, and Lidia Cucurull, 2022: A Systematic Assessment of Dropsonde Impact during the 2017-2019 Hurricane Seasons using the Basin-Scale HWRF: Overall Impacts. *Wea. Forecasting*, Early Online Release, <https://doi.org/10.1175/waf-d-22-0102.1>.

Ditchek, Sarah D., Jason A. Sippel, Peter J. Marinescu, and **Ghassan J. Alaka, Jr.**, 2022: Beyond Mean Error and Skill: A Holistic Approach to TC Verification. *Wea. Forecasting*, Early Online Release, <https://doi.org/10.1175/WAF-D-22-0168.1>.

Wu, S.-N., B. J. Soden, and **G. J. Alaka, Jr.**, 2023: The Influence of Radiation on the Prediction of Tropical Cyclone Intensification in a Forecast Model. *Geophys. Res. Lett.*, **50**, e2022GL099442, <https://doi.org/10.1029/2022GL099442>.

Chen, X., A. H. Hazelton, F. D. Marks, **G. J. Alaka, Jr.**, and C. Zhang, 2022: Performance of an Improved TKE-based Eddy-Diffusivity Mass-Flux (EDMF) PBL Scheme in 2021 Hurricane Forecasts from Hurricane Analysis and Forecast System. *Wea. Forecasting*, **38**, 321-336, <https://doi.org/10.1175/WAF-D-22-0140.1>.

Hazelton, Andrew, **Ghassan J. Alaka, Jr.**, Michael Fischer, Ryan Torn, and Sundararaman Gopalakrishnan, 2023: Factors Influencing the Track of Hurricane Dorian (2019) in the West Atlantic: Analysis of a HAFS Ensemble. *Mon. Wea. Rev.*, **151**, 175-192, <https://doi.org/10.1175/MWR-D-22-0112.1>.

Gramer, Lewis J., Jun A. Zhang, **Ghassan J. Alaka, Jr.**, Andrew Hazelton and Sundararaman G. Gopalakrishnan, 2022: Coastal downwelling and landfalling hurricane intensification. *Geophys. Res. Lett.*, **49**, e2021GL096630, <https://doi.org/10.1029/2021GL096630>.

Hazelton, Andrew, Kun Gao, Morris Bender, Levi Cowan, **Ghassan J. Alaka, Jr.**, Alex Kaltenbaugh, Lew Gramer, Xuejin Zhang, Lucas Harris, Timothy Marchok, Matt Morin, Avichal Mehra, Zhan Zhang, Bin Liu, and Frank Marks, 2022: Performance of 2020 Real-Time Atlantic Hurricane Forecasts from High-Resolution

- Global-Nested Hurricane Models: HAFS-globalnest and GFDL T-SHiELD. *Wea. Forecasting*, **37**, 143-161, <https://doi.org/10.1175/WAF-D-21-0102.1>.
- Alaka, Ghassan J., Jr.**, Xuejin Zhang, and Sundararaman G. Gopalakrishnan, 2022: High-Definition Hurricanes: Improving Forecasts with Storm-Following Nests. *Bull. Amer. Meteor. Soc.*, **103**, E680-E703, <https://doi.org/10.1175/BAMS-D-20-0134.1>.
- Zawislak, Jonathan, Robert F. Rogers, Sim D. Aberson, **Ghassan J. Alaka, Jr.**, George Alvey, Altug Aksoy, Lisa Bucci, Joseph Cione, Neal Dorst, Jason Dunion, Michael Fischer, John Gamache, Sundararaman Gopalakrishnan, Andrew Hazelton, Heather M. Holbach, John Kaplan, Hua Leighton, Frank Marks, Shirley T. Murillo, Paul Reasor, Kelly Ryan, Kathryn Sellwood, Jason A. Sippel, and Jun A. Zhang, 2022: ACCOMPLISHMENTS OF NOAA'S AIRBORNE HURRICANE FIELD PROGRAM AND A BROADER FUTURE APPROACH TO FORECAST IMPROVEMENT. *Bull. Amer. Meteor. Soc.*, **103**, E311-E338, <https://doi.org/10.1175/BAMS-D-20-0174.1>.
- Zhang, Zhan, Jun A. Zhang, **Ghassan J. Alaka, Jr.**, Keqin Wu, Avichal Mehra, and Vijay Tallapragada, 2021: A Statistical Analysis of High Frequency Track and Intensity Forecasts from NOAA's Operational Hurricane Weather Research and Forecast (HWRF) Modeling System. *Mon. Wea. Rev.*, **149**, 3325-3339, <https://doi.org/10.1175/MWR-D-21-0021.1>.
- Green, Alrick, Sundararaman G. Gopalakrishnan, **Ghassan J. Alaka, Jr.**, and Sen Chiao, 2021: Understanding the Role of Eddy Vorticity Fluxes on the Rapid Intensification of Hurricane Irma (2017) And Michael (2018). *Atmosphere*, **12**, 492, <https://doi.org/10.3390/atmos12040492>.
- Poterjoy, Jonathan, **Ghassan J. Alaka, Jr.**, and Henry R. Winterbottom, 2021: The irreplaceable utility of sequential data assimilation for model development: Lessons learned from an experimental HWRF system. *Wea. Forecasting*, **36**, 661-677, <https://doi.org/10.1175/WAF-D-20-0204.1>.
- Hazelton, Andrew, Zhan Zhang, Bin Liu, Jili Dong, **Ghassan J. Alaka, Jr.**, Weiguo Wang, Tim Marchok, Avichal Mehra, Sundararaman Gopalakrishnan, Xuejin Zhang, Morris Bender, Vijay Tallapragada, and Frank Marks, 2021: 2019 Atlantic Hurricane Forecasts from The Global-Nested Hurricane Analysis and Forecast System: Composite Statistics and Key Events. *Wea. Forecasting*, **36**, 519-538, <https://doi.org/10.1175/WAF-D-20-0044.1>.
- Hazelton, Andrew, **Ghassan J. Alaka, Jr.**, Levi Cowan, Michael Fischer, Sundararaman Gopalakrishnan, and Xuejin Zhang, 2021: Understanding the Processes Causing the Early Intensification of Hurricane Dorian Through an Ensemble of the Hurricane Analysis and Forecast System (HAFS). *Atmosphere*, **12**, 93, <https://doi.org/10.3390/atmos12010093>.
- Wu, Shun-Nan, Brian J. Soden, and **Ghassan J. Alaka, Jr.**, 2020: Ice Water Content as a Precursor to Tropical Cyclone Rapid Intensification. *Geophys. Res. Lett.*, **47**, e2020GL089669, <https://doi.org/10.1029/2020GL089669>.
- Alaka, Ghassan J., Jr.**, D. Sheinin, B. Thomas, L. Gramer, Z. Zhang, B. Liu, H.-S. Kim, and A. Mehra, 2020: A Hydrodynamical Atmosphere/Ocean Coupled Modeling System for Multiple Tropical Cyclones. *Atmosphere*, **11**, 869, <https://doi.org/10.3390/atmos11080869>.
- Ko, Mu-Chieh, Frank D. Marks, **Ghassan J. Alaka, Jr.**, and Sundararaman G. Gopalakrishnan, 2020: Evaluation of Hurricane Harvey (2017) Rainfall in Deterministic and Probabilistic HWRF Forecasts. *Atmosphere*, **11**, 666, <https://doi.org/10.3390/atmos11060666>.
- Alaka, Ghassan J.**, Xuejin Zhang, Sundararaman Gopalakrishnan, Zhan Zhang, Frank D. Marks, and Robert Atlas, 2019: Track Uncertainty in High-Resolution HWRF Ensemble Forecasts of Hurricane Joaquin. *Wea. Forecasting*, **34**, 1889-1908, <https://doi.org/10.1175/WAF-D-19-0028.1>.
- Alaka, Ghassan J.**, Xuejin Zhang, Sundararaman Gopalakrishnan, Stanley B. Goldenberg, and Frank D. Marks, 2017: Performance of Basin-Scale HWRF Tropical Cyclone Track Forecasts. *Wea. Forecasting*, **32**, 1253-1271, <https://doi.org/10.1175/WAF-D-16-0150.1>.
- Alaka, Ghassan J.** and Eric D. Maloney, 2017: Internal Intraseasonal Variability of the West African Monsoon in WRF. *J. Climate*, **30**, 5815-5833, <https://doi.org/10.1175/JCLI-D-16-0750.1>.
- Rydbeck, A., E. Maloney, and **G. Alaka**, 2017: In Situ Initiation of East Pacific Easterly Waves in a Regional Model. *J. Atmos. Sci.*, **74**, 333-351, <https://doi.org/10.1175/JAS-D-16-0124.1>.
- Zhang, X., S. Gopalakrishnan, S. Trahan, T. Quirino, Q. Liu, Z. Zhang, **G. Alaka**, and V. Tallapragada, 2016: Representing Multiple Scales in the Hurricane Weather Research and Forecasting Modeling System: Design of Multiple Sets of Movable Multilevel Nesting and the Basin-Scale HWRF Forecast Application. *Wea. Forecasting*, **31**, 2019-2034, <https://doi.org/10.1175/WAF-D-16-0087.1>.
- Alaka, Ghassan J.** and Eric D. Maloney, 2014: The Intraseasonal Variability African Easterly Waves Energetics. *J. Climate*, **27**, 6559-6580, <https://doi.org/10.1175/JCLI-D-14-00146.1>.

**Alaka, Ghassan J.** and Eric D. Maloney, 2012: The Influence of the MJO on Upstream Precursors to African Easterly Waves. *J. Climate*, **25**, 3219–3236, <https://doi.org/10.1175/JCLI-D-11-00232.1>.

Donner, L., B. Wyman, R. Hemler, L. Horowitz, Y. Ming, M. Zhao, J. Golaz, P. Ginoux, S. Lin, M. Schwarzkopf, J. Austin, **G. Alaka**, W. Cooke, T. Delworth, S. Freidenreich, C. Gordon, S. Griffies, I. Held, W. Hurlin, S. Klein, T. Knutson, A. Langenhorst, H. Lee, Y. Lin, B. Magi, S. Malyshev, P. Milly, V. Naik, M. Nath, R. Pincus, J. Ploshay, V. Ramaswamy, C. Seman, E. Shevliakova, J. Sirutis, W. Stern, R. Stouffer, R. Wilson, M. Winton, A. Wittenberg, and F. Zeng, 2011: The Dynamical Core, Physical Parameterizations, and Basic Simulation Characteristics of the Atmospheric Component AM3 of the GFDL Global Coupled Model CM3. *J. Climate*, **24**, 3484–3519, <https://doi.org/10.1175/2011JCLI3955.1>.

## Theses

**Alaka, Ghassan J.**, 2014: African Easterly Wave Energetics on Intraseasonal Timescales. Ph.D. thesis, Dept. of Atmospheric Science, Colorado State University, 214 pp, <https://mountainscholar.org/handle/10217/88406>.

**Alaka, Ghassan J.**, 2010: Intraseasonal Variability of the West African Monsoon and African Easterly Waves During Boreal Summer. M.S. thesis, Dept. of Atmospheric Science, Colorado State University, 126 pp, <https://mountainscholar.org/handle/10217/44834>.

## Manuscripts in Submission

Stackhouse, Shakira. D., Stephanie E. Zick, Corene J. Matyas, Kimberly M. Wood, Andrew T. Hazelton, and **Ghassan J. Alaka, Jr.**, 2023: Evaluation of Experimental High-Resolution Model Forecasts of Tropical Cyclone Precipitation using Object-Based Metrics, *Wea. Forecasting*, revisions.

## Manuscripts in Preparation

**Alaka, Ghassan J., Jr.** and Hananeh Jafary, 2023: The Relationship Between Precipitation and Tropical Cyclogenesis in a High-Resolution Numerical Hurricane Prediction Model. *Wea Forecasting*. *Wea Forecasting*, in preparation.

**Alaka, Ghassan J., Jr.**, 2022: Evaluation of Tropical Cyclone Track Forecast Uncertainty in Ensemble Prediction Systems. *Wea. Forecasting*, in preparation.

Ditchek, Sarah D., Jason A. Sippel, **Ghassan J. Alaka, Jr.**, and Lidia Cucurull, 2022: An Assessment of the G-IV Inner Circumnavigation Impact during the 2018-2020 Hurricane Seasons using the Basin-Scale HWRF. *Wea. Forecasting*, in preparation.

Forde, Evan B., **Ghassan J. Alaka, Jr.**, Jason P. Dunion, and Michael L. Black, 2021: Identification of Atlantic Basin Tropical Cyclones in Proximity to Significant Dry Air Events in Total Precipitable Water Imagery (1987-2015). *J. Climate*, in preparation.

Prince, Kevin, Clark Evans, and **Ghassan J. Alaka, Jr.**, 2023: Indirect Storm-to-Storm Interactions in the 2020 Basin-Scale HWRF. *J. Atmos. Sci.*, in preparation.

Zhang, Xuejin, Avichal Mehra, **Ghassan J. Alaka, Jr.**, Sundararaman G. Gopalakrishnan, Vijay Tallapragada, and Frank D. Marks, 2021: How can we improve hurricane forecast guidance? Development Roadmap of the UFS-based Hurricane Analysis and Forecast System. *Bull. Amer. Meteor. Soc.*, in prep (proposal accepted).

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## AWARDS & HONORS

South Florida Federal Executive Board Certificate (2020), 55th Annual Federal Employee of the Year Awards Program

*“Member of HWRF-B Development Team, Nominee in the Scientific category”*

United States Department of Commerce NOAA/AOML Certificate of Appreciation (2019)

*“In appreciation of the excellent contributions you have made to NOAA and the nation during my tenure as AOML director.”*

United States Department of Commerce NOAA/AOML Certificate of Appreciation (2019)  
*“For exceptional performance in helping transition significant updates to NOAA’s Hurricane Forecast system.”*

United States Department of Commerce NOAA/AOML Certificate of Appreciation (2018)  
*“For your exceptional performance in assisting NOAA’s Environmental Modeling Center to successfully test, evaluate, and subsequently receive approval for the 2018 HWRF upgrades by the NCEP Director.”*

American Meteorological Society Early Career Leadership Academy Graduate (2018)

American Meteorological Society Summer Policy Colloquium Fellow (2014)

Colorado State University Global Sustainability Leadership Fellow (2012-2013)

James B. Angell Scholar, University of Michigan (2008)

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## CONFERENCE ACTIVITIES

### Sessions Chaired

Co-Chair, **“Tropical Cyclone Intensity and Structure (IV)” Session (12)**, American Meteorological Society 103rd Annual Meeting; 2023 Jan 11; Denver, Colorado.

Co-Chair, **“NOAA Hurricane Forecast Improvement Program (HFIP) IV” Session (12B)**, American Meteorological Society 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2022 May 12; Virtual.

Co-Chair, **“NOAA Hurricane Forecast Improvement Program (HFIP) III” Session (11A)**, American Meteorological Society 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2022 May 11; Virtual.

Chair, **“Numerical Modeling I” Session (17A)**, American Meteorological Society 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2021 May 14; Virtual.

Chair, **“Hazard Communication” Session (5C)**, American Meteorological Society 32<sup>nd</sup> Conference on Hurricanes and Tropical Meteorology; 2016 Apr. 19; San Juan, Puerto Rico.

### Papers Presented (last 5 years)

**Alaka, Ghassan J., Jr.**, Mu-Chieh Ko, JungHoon Shin, Andrew T. Hazelton, Lewis J. Gramer, William D. Ramstrom, Kyle K. Ahern, Sundararaman G. Gopalakrishnan, Xuejin Zhang, Bin Liu, Zhan Zhang, Avichal Mehra, and Frank D. Marks, Developing a Multi-Storm Configuration of the Hurricane Analysis and Forecast System. Oral presentation (**8A.4**) delivered at the “Facilitating Hurricane R2O: NOAA Hurricane Forecast Improvement Program [HFIP]: II” Session, American Meteorological Society 103rd Annual Meeting; 2023 Jan 10; Denver, Colorado.

Ramstrom, William D., Xuejin Zhang, Kyle K. Ahern, **Ghassan J. Alaka, Jr.**, and Sundararaman G. Gopalakrishnan, Moving Nest Implementation for the Hurricane Analysis and Forecast System (HAFS). Oral presentation (**8A.2**) delivered at the “Facilitating Hurricane R2O: NOAA Hurricane Forecast Improvement Program [HFIP]: II” Session, American Meteorological Society 103rd Annual Meeting; 2023 Jan 10; Denver, Colorado.

Hazelton, Andrew T., **Ghassan J. Alaka, Jr.**, Lewis J. Gramer, William D. Ramstrom, Xiaomin Chen, Mu-Chieh Ko, Sarah D. Ditchek, Kyle K. Ahern, George R. Alvey, Sundararaman G. Gopalakrishnan, Xuejin Zhang, Frank D. Marks, Bin Liu, Zhan Zhang, Weiguo Wang, JungHoon Shin, Avichal Mehra, and Vijay S. Tallapragada, Real-Time and Retrospective Evaluation of the Hurricane Analysis and Forecast System (HAFS-S Version). Oral presentation (**7A.3**) delivered at the “Facilitating Hurricane R2O: NOAA Hurricane Forecast Improvement Program [HFIP]: I” Session, American Meteorological Society 103rd Annual Meeting; 2023 Jan 10; Denver, Colorado.

Chen, Xiaomin, George H. Bryan, Andrew T. Hazelton, Frank D. Marks, Patrick Fitzpatrick, **Ghassan J. Alaka, Jr.**, Chunxi Zhang, Bin Liu, Weiguo Wang, and Zhan Zhang, An Improved PBL Scheme in Hurricane Conditions using Large-Eddy Simulations and Its Impact on Hurricane Forecasts from Hurricane Analysis and Forecast System. Oral presentation (**8A.3**) delivered at the “Facilitating Hurricane R2O: NOAA

- Hurricane Forecast Improvement Program [HFIP]: II” Session, American Meteorological Society 103rd Annual Meeting; 2023 Jan 10; Denver, Colorado.
- Ko, Mu-Chieh, Jason P. Dunion, and **Ghassan J. Alaka, Jr.**, The Development of a Tropical Cyclogenesis Index with a Consensus Machine Learning Model using the HAFS Dataset. Poster presentation (**904**) delivered at the “Artificial Intelligence for Environmental Science Posters II” Session, American Meteorological Society 103rd Annual Meeting; 2023 Jan 11; Denver, Colorado.
- Alaka, Ghassan J., Jr.**, Xuejin Zhang, and Sundararaman Gopalakrishnan, An Evaluation of Tropical Cyclone Interactions in the Hurricane Weather Research and Forecasting (HWRF) Model. Oral presentation (**10A.3**) delivered at the “NOAA Hurricane Forecast Improvement Program (HFIP) II” Session, American Meteorological Society 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2022 May 11; New Orleans, Louisiana.
- Ditchek, Sarah D., Jason A. Sippel, **Ghassan J. Alaka, Jr.**, Stanley B. Goldenberg, and Lidia Cucurull, A Systematic Assessment of Dropsonde Impact during the 2017-2020 Hurricane Seasons using the Basin-Scale HWRF: Overall Impacts. Oral presentation (**6B.2**) delivered at the “Observing Systems and Strategies I” Session, American Meteorological Society 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2022 May 10; New Orleans, Louisiana.
- Gopalakrishnan, Sundararaman, **Ghassan J. Alaka, Jr.**, and Andrew Hazelton, Understanding the Role of Mean and Eddy Momentum Transport in the Rapid Intensification of Hurricanes. Oral presentation (**11A.1**) delivered at the “NOAA Hurricane Forecast Improvement Program (HFIP) III” Session, American Meteorological Society 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2022 May 11; New Orleans, Louisiana.
- Hazelton, Andrew, Michael S. Fischer, **Ghassan J. Alaka, Jr.**, Sundararaman Gopalakrishnan, and Frank D. Marks, HAFS Simulations of Eyewall Replacement Cycles in 2021 Hurricanes Ida, Larry, and Sam. Poster presentation (**83**) delivered at the “Wednesday Poster Session”, American Meteorological Society 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2022 May 11; New Orleans, Louisiana.
- Jafary, Hananeh and **Ghassan J. Alaka, Jr.**, Advancing Understanding of the Relationship Between Tropical Cyclogenesis and Precipitation in the Basin-Scale Hurricane Weather Research Forecasting Model. Poster presentation (**69**) delivered at the “Wednesday Poster Session”, American Meteorological Society 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2022 May 11; New Orleans, Louisiana.
- Wu, Shun-Nan, Brian J. Soden, David S. Nolan, and **Ghassan J. Alaka, Jr.**, The Role of Radiation in Accelerating Tropical Cyclone Development. Poster presentation (**59**) delivered at the “Wednesday Poster Session”, American Meteorological Society 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2022 May 11; New Orleans, Louisiana.
- Zhang, Zhan, Xuejin Zhang, Bin Liu, **Ghassan J. Alaka, Jr.**, Andrew Hazzelton, Avichal Mehra, Vijay Tallapragada, Sundararaman Gopalakrishnan, and Frank D. Marks, Toward Initial Operational Capability: Challenges and Issues in Developing and Improving Hurricane Analysis and Forecast System (HAFS). Oral presentation (**9A.6**) delivered at the “NOAA Hurricane Forecast Improvement Program (HFIP) I” Session, American Meteorological Society 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2022 May 11; New Orleans, Louisiana.
- Ditchek, Sarah D., Jason A. Sippel, **Ghassan J. Alaka, Jr.**, Stanley B. Goldenberg, and Lidia Cucurull, A Systematic Assessment of Dropsonde Impacts during the 2017-2020 Hurricane Seasons Using the Basin-Scale HWRF: Overall Impacts. Oral presentation (**6A.4**) delivered at the “Numerical Analysis and Prediction Experiments Involving Observations: Data Impact and Observation Sensitivity Tests. Part II” Session, 26th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS), American Meteorological Society 102nd Annual Meeting; 2022 Jan.25; Houston, Texas.
- Hazelton, Andrew T., Lewis J. Gramer, **Ghassan J. Alaka, Jr.**, Hyun-Sook Kim, Daniel Rosen, Sundararaman Gopalakrishnan, Xuejin Zhang, Frank D. Marks, Bin Liu, Zhan Zhang, and Avichal Mehra, Analysis of the Performance of the Global-Nested Hurricane Analysis and Forecast System during the 2021 Atlantic Hurricane Season. Oral presentation (**15B.3**) delivered at the “Facilitating Hurricane R2O: NOAA Hurricane Forecast Improvement Program” Session, Joint with the 12th Conference on Transition of Research to Operations, American Meteorological Society 102nd Annual Meeting; 2022 Jan.27; Houston, Texas.
- Zhang, Zhan, Jun Zhang, **Ghassan J. Alaka, Jr.**, Keqin Wu, Avichal Mehra, and Vijay S. Tallapragada, A Statistical Analysis of High-Frequency Track and Intensity Forecasts from NOAA’s Operational Hurricane Weather Research and Forecast (HWRF) Modeling System. Oral presentation (**J16A.5**) delivered at the Forecast “Verification Methods and Performance. Part IV: Hurricanes and Cyclones” Session, Joint with the 31st

- Conference on Weather Analysis and Forecasting (WAF)/27th Conference on Numerical Weather Prediction (NWP) and 27th Conference on Probability and Statistics, American Meteorological Society 102nd Annual Meeting; 2022 Jan.27; Houston, Texas.
- Alaka, Ghassan J. Jr.**, Biju Thomas, Lewis J. Gramer, Sundararaman G. Gopalakrishnan, and Avichal Mehra, Capturing Multi-Storm and Multi-Scale Interactions for Tropical Cyclone Intensity Predictions. Oral presentation (**2B.9**) delivered at the “Hurricane Forecast Improvement Program (HFIP) and Hurricane Analysis and Forecast System (HAFS) I” Session, American Meteorological Society 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2021 May 10; Virtual. Available online at <https://doi.org/10.13140/RG.2.2.15863.91049> and <https://ams.confex.com/ams/34HURR/meetingapp.cgi/Paper/373340>.
- Ditchek, Sarah D., Jason A. Sippel, **Ghassan J. Alaka, Jr.**, Karina Apodaca, and Lidia Cucurull, A Systematic Assessment of Dropsonde Impact during the 2017-2019 Hurricane Seasons using the Basin-Scale HWRF. Oral presentation (**8A.4**) delivered at the “Data Assimilation and Observing Strategies I” Session, American Meteorological Society 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2021 May 11; Virtual.
- Green, Alrick, Sundararaman G. Gopalakrishnan, Sen Chiao, Xuejin Zhang, and **Ghassan J. Alaka, Jr.**, Eddy Vorticity Fluxes impact on the Rapid Intensification of Hurricanes Irma (2017) and Michael (2018). Oral presentation (**4C.2**) delivered at the “Tropical Cyclone Intensity Change in Moderate Vertical Wind Shear: Mechanisms, Observations, and Predictability I” Session, American Meteorological Society 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2021 May 10; Virtual.
- Hazelton, Andrew, **Ghassan J. Alaka, Jr.**, Sundararaman G. Gopalakrishnan, Frank D. Marks, Levi Cowan, and Michael Fischer, What Caused the Uncertainty in the Early-Stage Forecasts of Hurricane Dorian? Oral Presentation (**2B.4**) delivered at the “Hurricane Forecast Improvement Program (HFIP) and Hurricane Analysis and Forecast System (HAFS) I” Session, American Meteorological Society 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2021 May 10; Virtual.
- Wu, Shun-Nan, Brian J. Soden, David S. Nolan, and **Ghassan J. Alaka, Jr.**, Examining the Impact of Cloud Radiative Effect on the Development of Tropical Cyclone. Oral presentation (**16C.8**) delivered at the “Tropical Cyclogenesis II” Session, American Meteorological Society 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; 2021 May 14; Virtual.
- Alaka, Ghassan J. Jr.**, Lewis J. Gramer, Andrew Hazelton, Russell St. Fleur, Zhan Zhang, Bin Liu, Jili Dong, Biju Thomas, Weiguo Wang, Sundararaman G. Gopalakrishnan, and Avichal Mehra, The Hurricane Forecast Improvement Project (HFIP) Real-Time Experiments (HREx): Evaluating Tropical Cyclone Forecasts To Advance UFS and Improve Operations. Oral presentation (**3B.6**) delivered at the “Advancing NOAA's Unified Forecasting System as a Community-Based Modeling System for Research and Operations: Part III” Session, American Meteorological Society 101st Annual Meeting; 2021 Jan. 11; Virtual.
- Ditchek, Sarah D., Jason Sippel, **Ghassan J. Alaka, Jr.**, Karina Apodaca, and Lidia Cucurull, Quantifying the Overall and Radial Impacts of Dropsondes during the 2017-19 Hurricane Seasons Using the Basin-Scale HWRF. Oral presentation (**11.3**) delivered at the “Field Experiments: Observational and Assimilation Results” Session, American Meteorological Society 101st Annual Meeting; 2021 Jan. 14; Virtual.
- Hazelton, Andrew, Levi Cowan, **Ghassan J. Alaka Jr.**, Lewis J. Gramer, Sundararaman G. Gopalakrishnan, Xuejin Zhang, Frank D. Marks, Jr., Bin Liu, Jili Dong, and Avichal Mehra, 2020 Real-Time Forecasts from the Global-Nested Hurricane Analysis and Forecast System (HAFSV0.1B). Oral presentation (**12.5**) delivered at the “Tropical Cyclone Research and Forecasting: Multiscale Processes and Model Development Part II” Session, American Meteorological Society 101st Annual Meeting; 2021 Jan. 14; Virtual.
- Dong, Jili, Zhan Zhang, Avichal Mehra, Jim Purser, Bin Liu, **Ghassan J. Alaka, Jr.**, Biju Thomas, Andrew Hazelton, Lin Zhu, Weiguo Wang, Chunxi Zhang, Keqin Wu, Jung Hoon Shin, Vijay S. Tallapragada, Xuejin Zhang, Sundararaman G. Gopalakrishnan, and Frank D. Marks, Jr., The FV3-Based Hurricane Analysis and Forecast System (HAFS) Regional Model on the Extended Schmidt Gnomonic (ESG) Grid: The HFIP Real-Time Experiments for the 2020 Atlantic Hurricane Season. Poster presentation (**893**) delivered at the “4TROPASYMP Thursday” Session, American Meteorological Society 101st Annual Meeting; 2021 Jan. 14; Virtual.
- Gramer, Lewis J., Jun A. Zhang, **Ghassan J. Alaka, Jr.**, Sundararaman G. Gopalakrishnan, Hyun-Sook Kim, Biju Thomas, and Avichal Mehra, The Role of the Coastal Ocean in Tropical Cyclone Evolution: HWRF-B Case Studies. Poster presentation (**1073**) delivered at the “4TROPASYMP Friday” Session, American Meteorological Society 101st Annual Meeting; 2021 Jan. 15; Virtual.



- Zhang, Xuejin, Avichal Mehra, **Ghassan J. Alaka, Jr.**, Sundararaman G. Gopalakrishnan, Vijay Tallapragada, and Frank D. Marks, Jr., Development Roadmap of the UFS-based Hurricane Analysis and Forecast System: A Progress Report. Poster presentation (**923**) delivered at the “GMMSYMP Thursday” Session, American Meteorological Society 101st Annual Meeting; 2021 Jan. 14; Virtual.
- Zhang, Zhan, Jun A. Zhang, Keqin Wu, **Ghassan J. Alaka, Jr.**, Avichal Mehra, and Vijay S. Tallapragada, A Statistical Analysis of High-Frequency Track and Intensity Forecasts from NOAA’s Operational Hurricane Weather and Research Forecast (HWRF) Modeling System. Poster presentation (**913**) delivered at the “4TROPASYMP Thursday” Session, American Meteorological Society 101st Annual Meeting; 2021 Jan. 14; Virtual.
- Alaka, Ghassan J.**, Biju Thmas, Xuejin Zhang, Avichal Mehra, Sundararaman G. Gopalakrishnan, and Frank D. Marks, Transition of the Basin-Scale Hurricane Weather Research and Forecasting Model to Operations. Oral presentation (**1.6**) delivered at the “Models and Data Assimilation to Enable and Accelerate the Transition of Research to Operations to Decision-Makers, End Users, and to the Public: Land–Ocean–Hydrological Modeling, Advanced Modeling, and DA Development and Testbeds” Session, American Meteorological Society 100th Annual Meeting; 2020 Jan. 13; Boston, Massachusetts.
- Green, Alrick, Sundararaman G. Gopalakrishnan, Sen Chiao, Xuejin Zhang, and **Ghassan J. Alaka**, Understanding the Role of Eddy Vorticity Fluxes on Rapid Intensification of Hurricanes Irma and Michael. Poster Presentation (**1033**) delivered at the “Wayne Schubert Symposium Tropical Cyclone” Session, American Meteorological Society 100th Annual Meeting; 2020 Jan. 15; Boston, Massachusetts.
- Alaka, Ghassan J.**, Jonathan Poterjoy, Mu-Chieh Ko, Xuejin Zhang, Sundararaman G. Gopalakrishnan, Frank D. Marks, and Russell St. Fleur, The Basin-Scale HWRF: Developments and Evaluation of 2018 Real-Time Forecasts. Poster presentation (**707**) delivered at the “Tropical Cyclones and Extreme Monsoon Precipitation: Posters I” Session, American Meteorological Society 99th Annual Meeting; 2019 Jan. 8; Phoenix, Arizona.
- Ko, Mu-Chieh, Frank D. Marks, **Ghassan J. Alaka**, Sundararaman G. Gopalakrishnan, A Rainfall Evaluation of Deterministic and Ensemble Basin-Scale HWRF. Oral presentation (**5.6**) delivered at the “Tropical Cyclones: Coastal Impacts and Communication” Session, American Meteorological Society 99th Annual Meeting; 2019 Jan. 9; Phoenix, Arizona.
- Ryan, Kelly, Lisa Bucci, Jonathan Poterjoy, **Ghassan J. Alaka**, Shirley Murillo, Robert Atlas, Impact of Aircraft Observations on the Prediction of 2017 Atlantic Tropical Cyclones. Oral presentation (**12.2**) delivered at the “Numerical Analysis and Prediction Experiments Involving Observations: Data Impact and Observation Sensitivity Tests—Part I” Session, American Meteorological Society 99th Annual Meeting; 2019 Jan. 9; Phoenix, Arizona.
- Poterjoy, Jonathan, **Ghassan J. Alaka**, Xuejin Zhang, Jason A. Sippel, Sundararaman G. Gopalakrishnan, Altuğ Aksoy, and Xuguang Wang, Probabilistic Analysis of the 2017 Atlantic Hurricane Season from a Continuously Cycled Basin-Scale HWRF Data Assimilation and Prediction System. Oral presentation (**9B.7**) delivered at the “Numerical Modeling II” Session, American Meteorological Society 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; 2018 Apr. 18; Ponte Vedra, Florida.
- Gopalakrishnan, Sundararaman G., Morris Bender, **Ghassan J. Alaka**, Xuejin Zhang, Shian-Jiann Lin, Nicole P. Kurkowski, and Frank D. Marks, The 2017 NOAA Hurricane Forecast Improvement Program (HFIP) Real-Time Experiments: Highlights on Hurricanes Harvey, Irma and Maria. Oral Presentation (**7D.2**) delivered at the “High-Impact Hurricanes of 2017 IV” Session, American Meteorological Society 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; 2018 Apr. 17; Ponte Vedra, Florida.
- Ghassan J. Alaka**, John Kaplan, Peter P. Dodge, Jun A. Zhang, and Frank D. Marks, Inland Severe Weather Impacts Produced by Landfalling Atlantic Hurricanes in 2017. Poster Presentation (**63**) delivered at the “High Impact Hurricanes of 2017: The Science and Impacts” Session, American Meteorological Society 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; 2018 Apr. 17; Ponte Vedra, Florida.
- Ko, Mu-Chieh, Frank D. Marks, **Ghassan J. Alaka**, and Sundararaman G. Gopalakrishnan, Precipitation Evaluation of the Real-Time Basin-Scale HWRF in 2017. Poster Presentation (**132**) delivered at the “Hurricane Forecast Improvement Project (HFIP)” Session, American Meteorological Society 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; 2018 Apr. 17; Ponte Vedra, Florida.
- Ghassan J. Alaka**, Xuejin Zhang, Sundararaman G. Gopalakrishnan, and Zhan Zhang, Investigation of Irma & Maria Track Forecasts Using an Ensemble Approach within Basin-Scale HWRF. Oral Presentation (**1C.5**) delivered at the “Hurricane Forecast Improvement Project (HFIP) I” Session, American Meteorological Society 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; 2018 Apr. 16; Ponte Vedra, Florida.

Xuejin Zhang, **Ghassan J. Alaka**, Frank D. Marks, Sundararaman G. Gopalakrishnan, Ming Cai, and Liangbo Qi, Isolating Factors for the Northward Turn Timing and Location of Hurricane Irma. Oral Presentation (**1C.4**) delivered at the “Hurricane Forecast Improvement Project (HFIP) I” Session, American Meteorological Society 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; 2018 Apr. 16; Ponte Vedra, Florida.

Poterjoy, Jonathan, **Ghassan J. Alaka**, Xuejin Zhang, Jason A. Sippel, and Zhan Zhang, An Experimental Basin-Scale HWRF Analysis and Prediction System for Model Development and Satellite Data Assimilation Research. Oral Presentation (**10.1**) delivered at the “Testbeds, Models, and Data Assimilation to Enable and Accelerate the Transition of Research to Operations to End Users and to the Public in Weather, Water, or Climate Applications—Part II” Session, 8<sup>th</sup> Conference on Transition of Research to Operations, American Meteorological Society 98<sup>th</sup> Annual Meeting; 2018 Jan. 10; Austin, Texas.

Gopalakrishnan, Sundararaman G., **Ghassan J. Alaka**, Morris Bender, Xuejin Zhang, Shian-Jiann Lin, Frederick Toepfer, and Frank D. Marks, The 2017 NOAA Hurricane Forecast Improvement Program (HFIP) Real-Time Experiments. Oral presentation (**4.5**) delivered by **Ghassan J. Alaka** at “Hurricanes of 2017: Part I” Session, Major Weather Events and Impacts of 2017, American Meteorological Society 98<sup>th</sup> Annual Meeting; 2018 Jan. 9; Austin, Texas.

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## LABORATORY/DEPARTMENTAL TALKS

**Alaka, Ghassan J.**, Advances in Research Transitions and Model Evaluation. Oral presentation delivered at the 2019 AOML Laboratory Review; 2019 Nov. 19; Miami, Florida.

**Alaka, Ghassan J.**, Intraseasonal Variability of African Easterly Waves. Oral presentation delivered at the NCAR/NOAA/CSU Tropical Cyclone Workshop; 2014 Jan. 8; Boulder, Colorado.

**Alaka, Ghassan J.**, Intraseasonal Variability of North African Energy Budgets. Oral presentation delivered at the 2013 Young Scientist Symposium on Atmospheric Research; 2013 Sept. 20; Fort Collins, Colorado.

**Alaka, Ghassan J.**, The Influence of the MJO on Upstream Precursors to African Easterly Waves. Oral presentation delivered at the 2012 Young Scientist Symposium on Atmospheric Research; 2012 Oct. 5; Fort Collins, Colorado.

**Alaka, Ghassan J.**, Intraseasonal AEW Variability: A Large-Scale Perspective. Oral presentation delivered at the NCAR/NOAA/CSU Tropical Cyclone Workshop; 2012 Aug. 16; Boulder, Colorado.

**Alaka, Ghassan J.** and William Stern, Implementation of the Wheeler-Kiladis Diagnostic and a Preliminary Look at Equatorial Wave Structures in GFDL GCMs. Oral presentation delivered at the 2007 Geophysical Fluid Dynamics Laboratory Summer Intern Colloquium; 2007 Aug. 10; Princeton, New Jersey.

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## FIELD EXPERIENCE

**LEAD PROJECT SCIENTIST / RADAR SCIENTIST / DROPSONDE SCIENTIST** 2016 – Present

*NOAA Hurricane Field Program*

*NOAA Aircraft Operations Center, MacDill Air Force Base, Tampa, FL*

*NOAA Aircraft Operations Center, Lakeland Linder Regional Airport, Lakeland, FL*

- Science crew member for WP-3D reconnaissance missions into Hurricane Earl (2016), Hurricane Hermine (2016), Hurricane Matthew (2016), Hurricane Franklin (2017), Tropical Storm Chris (2018), Hurricane Dorian (2019), Hurricane Ida (2021), and Hurricane Sam (2021).
- Co-Principal Investigator the Genesis Stage & End Stage Experiments.

**FIELD TECHNICIAN**

12/2011 – 01/2012

*DYNAMO Field Campaign, Diego Garcia, B.I.O.T.*

- Launched radiosondes and recorded surface data on Diego Garcia as a part of the Dynamics of the Madden-Julian oscillation (DYNAMO) Field Campaign.

## TEACHING EXPERIENCE

### Department of Atmospheric Science, Colorado State University, Fort Collins, CO

Teaching Assistant - Atmospheric Dynamics I	08/2012 – 12/2012
Teaching Assistant - Introduction to Climate	08/2009 – 12/2009

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## RESEARCH EXPERIENCE

**GRADUATE RESEARCH ASSISTANT (M.S. AND PH.D.)** 2008 – 2014

*Department of Atmospheric Science, Colorado State University, Fort Collins, CO*  
Supervisor: Dr. Eric D. Maloney

**ATMOSPHERIC DYNAMICS MODELING GROUP INTERN** 2008

*Atmospheric, Oceanic and Space Sciences Department,  
University of Michigan, Ann Arbor, MI*  
Supervisor: Dr. Christiane Jablonowski

**UNDERGRADUATE RESEARCH ASSISTANT** 2007

*Atmospheric, Oceanic and Space Sciences Department,  
University of Michigan, Ann Arbor, MI*  
Supervisors: Dr. Chris Ruf, Dr. Xianglei Huang

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## STUDENTS MENTORED

Arjun Subramanian (B.S., expected 2025), Department of Atmospheric Sciences, University of Washington. AOML internship (2023).

Angelie Nieves-Jimenez (M.S., expected 2024), Department of Atmospheric Science, Colorado State University.

Hananeh Jafary (M.S., 2022), Department of Meteorology and Climate Science, San Jose State University. NOAA mentor for NERTO internship (2021). Served on the graduate committee.

Alrick Green (M.S., 2020), Department of Meteorology and Climate Science, San Jose State University. NOAA co-mentor for NERTO internship (2019). Served on the graduate committee.

Samantha Camposano (M.P.S., 2018), Rosenstiel School of Marine and Atmospheric Science, University of Miami. Served on the graduate committee.

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## PROFESSIONAL TRAINING

NOAA Mentoring Program	2023
NOAA Virtual Leadership Seminar	2020
OAR Cloud Computing Workshop	2019
American Meteorological Society Early Career Leadership Academy	2018
HWRF Tutorial	2016
AAAS Workshop on Communicating Climate Science	2015

American Meteorological Society Summer Policy Colloquium	2014
EarthCube End User Assembly Workshop	2014
Climate Science Day on Capitol Hill	2014

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### EXTRACURRICULAR UNIVERSITY SERVICE

Graduate Student Representative	2011-2012
<i>Department of Atmospheric Science, Colorado State University, Fort Collins, CO</i>	
WOLV TV Weather Anchor	2007
Vice President of Recruitment	2007
<i>Interfraternity Council Executive Board, University of Michigan, Ann Arbor, MI</i>	
Vice President	2006
<i>Zeta Psi Fraternity (Xi Chapter), University of Michigan, Ann Arbor, MI</i>	

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### OUTREACH EVENTS & ACTIVITIES

2018 NOAA Open House	May 11, 2018
<i>Atlantic Oceanic and Meteorological Laboratory, Miami, FL</i>	
Miami AMS Local Chapter	December 6, 2017
<i>Local 10 Studios, Pembroke Pines, FL</i>	
AOML Take Your Child To Work Day	February 2, 2017
<i>Atlantic Oceanic and Meteorological Laboratory, Miami, FL</i>	
My Brother's Keeper National Lab Week	March 4, 2016
<i>Atlantic Oceanic and Meteorological Laboratory, Miami, FL</i>	
Miami-Dade Public Schools Summer Program	July 23, 2015
<i>Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL</i>	
"Feel the Force" Day	May 30, 2015
<i>Patricia and Philip Frost Miami Museum of Science, Miami, FL</i>	
AOML Open House	May 14, 2015
<i>Atlantic Oceanic and Meteorological Laboratory, Miami, FL</i>	
Severe Weather Safety Day	April 25, 2013
<i>Loveland High School, Loveland, CO</i>	
<i>Mountain View High School, Loveland, CO</i>	

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### TECHNOLOGY SUMMARY

<b>ENVIRONMENTS:</b>	Linux, Windows, Mac OS X
<b>LANGUAGES:</b>	(Expert) Shell-scripting, FORTRAN, Python, NCL (Proficient) Matlab, XML, HTML, PHP, Javascript, GrADS, C++ Excellent scripting skills. Adaptable to new languages.

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### LANGUAGES

English (native)  
Spanish (can read with dictionary)

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**MEMBERSHIPS/AFFILIATIONS**

American Meteorological Society member (2007-present)

American Meteorological Society – Miami Chapter (2015-present)

NOAA Gulf of Mexico Regional Collaboration Team (2022-present)

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**REFERENCES**

Available upon request.