Ghassan "Gus" J. Alaka, Jr.

Curriculum Vitae

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Citizenship: United States of America
Registered for Selective Service

EXECUTIVE SUMMARY

I am an employee of the Hurricane Research Division at NOAA's Atlantic Oceanographic and Meteorological Laboratory in Miami, FL, where I focus on hurricane forecast models and transitions of research to operations (R2O). I am one of the lead developers for NOAA's primary hurricane model, the Hurricane Weather Research and Forecasting (HWRF) model, and I am leading research activities with an experimental version of HWRF to improve hurricane forecasts. I also work closely with the Hurricane Analysis and Forecast System (HAFS), the next-generation hurricane application of NOAA's Unified Forecast System (UFS). I have extensive experience creating and evaluating tropical cyclone forecast guidance, and I provide experimental guidance to partners in NOAA's Hurricane Field Program. Forecast guidance for operational and NOAA experimental models can be viewed on the publicly available AOML Hurricane Model Viewer (https://storm.aoml.noaa.gov/viewer). I am a regular crew member and lead project scientist aboard the NOAA WP-3D hurricane hunter reconnaissance missions, where I have flown over 25 missions to collect data that is ingested directly into the models I work with. I am an excellent communicator who represents HRD internationally and in outreach throughout the South Florida community. I studied engineering at the University of Michigan before attending Colorado State University for my graduate studies. My true passion lies in creating advancements in hurricane forecasts that can save lives.

EDUCATION

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

PROFESSIONAL EXPERIENCE

IT SPECIALIST 2018 – Present

Hurricane Research Division
NOAA Atlantic Oceanographic and Meteorological Laboratory, Miami, FL
Supervisor: Dr. Frank Marks
Grade: ZP-4 (Step 1) (GS 13/14 equivalent)

ASSISTANT SCIENTIST 2017 – 2018

Cooperative Institute for Marine and Atmospheric Studies
Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL
Supervisor: Dr. Benjamin Kirtman

POSTDOCTORAL ASSOCIATE 2014 – 2017
Cooperative Institute for Marine and Atmospheric Studies
Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL
Supervisor: Dr. Benjamin Kirtman

PRODUCTION ASSISTANT 2007 – 2008
Interpro, College of Engineering, University of Michigan, Ann Arbor, MI
Supervisor: Jonathan West

NOAA STUDENT TEMPORARY EMPLOYMENT PROGRAM (STEP) 2007
Geophysical Fluid Dynamics Laboratory, Princeton, NJ
Supervisor: Bill Stern, M.S.
Grade: ZS-02 (GS-04 equivalent)

IT HELPDESK TECHNICIAN
2001- 2006
Monitor Company Group, *Cambridge, MA*

PUBLICATIONS

Refereed Journal Articles

Alaka, Ghassan J., Jr., Xuejin Zhang, and Sundararaman G. Gopalakrishnan, 2021: High-Definition Hurricanes: Improving Forecasts with Storm-Following Nests. *Bull. Amer. Meteor. Soc.*, Early Online Release, https://doi.org/10.1175/BAMS-D-20-0134.1.

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.*, Early Online Release, https://doi.org/10.1175/MWR-D-21-0021.1.

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, 2021: ACCOMPLISHMENTS OF NOAA'S AIRBORNE HURRICANE FIELD PROGRAM AND A BROADER FUTURE APPROACH TO FORECAST IMPROVEMENT. *Bull. Amer. Meteor. Soc.*, Early Online Release, https://doi.org/10.1175/BAMS-D-20-0174.1.

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

Gramer, Lewis J., Jun A. Zhang, **Ghassan J. Alaka, Jr.**, and Sundararaman G. Gopalakrishnan, 2021: Coastal downwelling and landfalling hurricane intensification. *Geophys. Res. Lett.*, submitted.

Manuscripts 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).

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.

AWARDS & HONORS

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)

CONFERENCE ACTIVITIES

Sessions Chaired

Chairman, **"Numerical Modeling I" Session (17A)**, American Meteorological Society 34th Conference on Hurricanes and Tropical Meteorology; 2021 May 14; Virtual.

Chairman, **"Hazard Communication" Session (5C),** American Meteorological Society 32nd Conference on Hurricanes and Tropical Meteorology; 2016 Apr. 19; San Juan, Puerto Rico.

Papers Presented

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 34th Conference on Hurricanes and Tropical Meteorology; 2021 May 10; Virtual.

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 34th 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 34th 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 34th 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 34th 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 "4TROPSYMP 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 "4TOPSYMP 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 "4TROPSYMP 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, Sundraraman 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 33rd 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 33rd 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 33rd Conference on Hurricanes and Tropical Meteorology; 2018 Apr. 17; Ponte Vedra, Florida.

Ko, Mu-Chieh, Frank D. Marks, **Ghassan J. Alaka**, and Sundraraman 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 33rd Conference on Hurricanes and Tropical Meteorology; 2018 Apr. 17; Ponte Vedra, Florida.

Ghassan J. Alaka, Xuejin Zhang, Sundraraman 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 33rd Conference on Hurricanes and Tropical Meteorology; 2018 Apr. 16; Ponte Vedra, Florida.

Xuejin Zhang, **Ghassan J. Alaka**, Frank D. Marks, Sundraraman 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 33rd 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, 8th Conference on Transition of Research to Operations, American Meteorological Society 98th 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 98th Annual Meeting; 2018 Jan. 9; Austin, Texas.

Alaka, Ghassan J., Xuejin Zhang, Sundararaman G. Gopalakrishnan, Frank D. Marks, Mu-Chieh Ko, and Russell St. Fleur, Basin-Scale HWRF: Evaluation of 2017 Real-Time Forecasts. Oral presentation delivered at the "Results from Jet: Real-Time Reservations (Stream 2)" Session, 2017 HFIP Annual Review Meeting; 2017 Nov. 8, Miami, Florida.

Alaka, Ghassan J., John Kaplan, Peter Dodge, Frank D. Marks, and Jun A Zhang, Inland Severe Weather Impacts Produced by Landfalling Tropical Cyclones in 2017. Poster presentation (**2.20**) delivered at the "VORTEX-SE Work In Progress" Session, VORTEX-SE 2017 Fall Workshop; 2017 Nov. 16; Huntsville, Alabama.

Alaka, Ghassan J., Xuejin Zhang, Sundararaman G. Gopalakrishnan, and Frank D. Marks, Investigation of Tropical Cyclone Forecasts in the Basin-Scale HWRF Ensemble System. Poster presentation (**560**) delivered at the "Forecasting Tools, Numerical Weather Prediction, and Tropical Cyclones" Session, 28th Conference on Weather Analysis and Forecasting / 24th Conference on Numerical Weather Prediction, American Meteorological Society 97th Annual Meeting; 2017 Jan. 24; Seattle, Washington; doi: 10.13140/RG.2.2.25624.80649.

Zhang, Xuejin, **G. J. Alaka**, B. Thomas, D. Sheinin, Z. Zhang, R. St. Fleur, S. Gopalakrishnan, and I. Ginis, Development on the Atmosphere-Ocean Coupled Basin-scale HWRF System: Targeting Research-to-Operation Transition. Oral presentation (**5.4**) delivered at the "Advances in Satellite Observations for Earth Science & Observing Technologies Part III" Session, Seventh Conference on Transition of Research to Operations, American Meteorological Society 97th Annual Meeting; 2017 Jan. 25; Seattle, Washington.

Zhang, Xuejin and **Ghassan J. Alaka**, Development of the Basin-Scale HWRF Modeling System. Oral presentation delivered at the 2017 Hurricane Forecast Improvement Program Annual Meeting; 2017 Jan. 11; Miami, Florida.

Alaka, Ghassan J., Xuejin Zhang, Sundararaman G. Gopalakrishnan, and Frank D. Marks, Investigating Major Hurricane Joaquin Track Forecasts using the Basin-Scale HWRF. Oral presentation (**14A.3**) delivered at the "HFIP IV" Session, American Meteorological Society 32nd Conference on Hurricanes and Tropical Meteorology; 2016 Apr. 21; San Juan, Puerto Rico.

Forde, Evan and **Ghassan J. Alaka**, The Influence of Saharan Air Layers on Atlantic Basin Tropical Cyclone Intensity (1987-2008). Oral presentation (**10D.7**) delivered at the "Cyclone Intensity V: External Influences on Tropical Cyclone Intensity" Session, American Meteorological Society 32nd Conference on Hurricanes and Tropical Meteorology; 2016 Apr. 20; San Juan, Puerto Rico.

Zhang, Xuejin, **Ghassan J. Alaka**, and Sundararaman G. Gopalakrishnan, The Importance of Storm-storm Interactions in the Real-time Tropical Cyclone Forecast System. Oral presentation (**17D.3**) delivered by Xuejin Zhang at the "Numerical Modeling IV: Operational Forecasts and Evaluation" Session, American Meteorological Society 32nd Conference on Hurricanes and Tropical Meteorology; 2016 Apr. 22; San Juan, Puerto Rico.

Paulik, Laura and **Ghassan J. Alaka**, Outreach to Children -- A Unique Opportunity to Excite Weather Interest in Hospitalized Children. Poster presentation delivered at the "Poster Session II: Outreach" Session, 25th Symposium on Education American Meteorological Society 96th Annual Meeting; 2016 Jan. 11; New Orleans, Louisiana.

Alaka, Ghassan J., Xuejin Zhang, Sundararaman G. Gopalakrishnan, and Frank D. Marks, How Can Land Surface Processes Impact Track and Intensity Forecasts in the Basin-Scale HWRF? Poster presentation (**69**) delivered at the American Meteorological Society 16th Conference on Mesoscale Processes; 2015 Aug. 3; Boston, Massachusetts.

Alaka, Ghassan J. and Eric D. Maloney, Intraseasonal Variability of the West African Monsoon in a Regional Climate Model. Poster Presentation delivered at the "West African Monsoon and Its Modeling I" Session at the 2013 American Geophysical Union Fall Meeting; 2013 Dec. 9; San Francisco, California.

Alaka, Ghassan J., Variability of the West African Monsoon: Implications for Sahelian Precipitation and Atlantic Tropical Cyclones. Oral presentation delivered at the 2013 AMS Summer Community Meeting; 2013 Aug. 14; Boulder, Colorado.

Alaka, Ghassan J. and Eric D. Maloney, The Influence of the MJO on Upstream Precursors to African Easterly Waves. Poster presentation (**Po.6A.1**) delivered at the "Intraseasonal Variability and Predictability I & II" Session, 4th AMMA International Conference; 2012 July 2-6; Toulouse, France.

Alaka, Ghassan J. and Eric D. Maloney, The Influence of the MJO on Upstream Precursors to African Easterly Waves. Oral presentation (**11D.2**) delivered at the "Tropical Waves I" Session, American Meteorological Society 30th Conference on Hurricanes and Tropical Meteorology; 2012 Apr. 19; Ponte Vedra Beach, Florida.

Alaka, Ghassan J. and Eric D. Maloney, The Influence of the MJO on Upstream Precursors to African Easterly Waves. Poster presentation delivered at the "Atmospheric Observations Including Upper Troposphere and Stratosphere Session", 2011 World Research Climate Programme Conference; 2011 Oct. 24-28; Denver, Colorado.

Alaka, Ghassan J., Impact of the MJO on the West African Monsoon and African Easterly Waves. Poster presentation (**P1.116**) delivered at the "TCs and Climate, Monsoons, HFIP, TC Formation, Extratropical Transition, Industry Applications, TC Intensity, African Climate and Weather" Session, American Meteorological Society 29th Conference on Hurricanes and Tropical Meteorology; 2010 May 11; Tucson, Arizona.

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.

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

- Crew member for WP-3D reconnaissance missions into Hurricane Earl (2016), Hurricane Hermine (2016), Hurricane Matthew (2016), Hurricane Franklin (2017), Tropical Storm Chris (2018), and Hurricane Dorian (2019).
- 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

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

COMMITTEE SERVICE

San Jose State University, Department of Meteorology and Climate Science, M.S. Graduate Committee, Hananeh Jafary, in progress
San Jose State University, Department of Meteorology and Climate Science, M.S. Graduate Committee, Alrick Green, 2020
University of Miami, Rosenstiel School of Marine and Atmospheric Science, M.P.S. Graduate Committee, Samantha Camposano, 2018

PROFESSIONAL TRAINING

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

EXTRACURRICULAR UNIVERSITY SERVICE

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

OUTREACH EVENTS & ACTIVITIES

2018 NOAA Open House — May 11, 2018
Atlantic Oceanic and Meteorological Laboratory, Miami, FL

Miami AMS Local Chapter — December 6, 2017
Local 10 Studios, Pembroke Pines, FL

AOML Take Your Child To Work Day — February 2, 2017
Atlantic Oceanic and Meteorological Laboratory, Miami, FL

My Brother's Keeper National Lab Week — March 4, 2016
Atlantic Oceanic and Meteorological Laboratory, Miami, FL

Miami-Dade Public Schools Summer Program — July 23, 2015
Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL

"Feel the Force" Day — May 30, 2015
Patricia and Philip Frost Miami Museum of Science, Miami, FL

AOML Open House — May 14, 2015
Atlantic Oceanic and Meteorological Laboratory, Miami, FL

Severe Weather Safety Day — April 25, 2013
Loveland High School, Loveland, CO — May 16, 2014
Mountain View High School, Loveland, CO

TECHNOLOGY SUMMARY

ENVIRONMENTS: Linux, Windows, Mac OS X

LANGUAGES: (Expert) Shell-scripting, FORTRAN, Python, NCL
(Proficient) Matlab, XML, HTML, PHP, Javascript, GrADS, C++

TECH EXPERIENCE:
> Excellent scripting skills. Adaptable to new languages.
> Conducted developments and/or research with community and operational numerical weather models (e.g., HWRF, HAFS, HMON, WRF-ARW, GFS, ECMWF).
> Worked with GRIB/GRIB2/NetCDF/HDF5/Binary/ATCF data formats.
> Worked with Moab and Slurm batch schedulers
> Built automated graphical post-processing software for community and operational numerical weather models.
> Built verification software package based on software developed at NCAR (MET-TC).
> Developed ensemble framework for multiple tropical cyclone forecasts in numerical weather model (HWRF), based on Python and Rocoto.
> Built executable to input NetCDF data into a community numerical weather model (WRF).
> Altered physics schemes in a community numerical weather model (WRF).
> Trained others on community numerical models and software (e.g., HWRF).
> Experience with supercomputer batch system and resource allocations.
> Experience with version-controlled community software (e.g., HWRF, HAFS).

WEB SITES

1) AOML Hurricane Model Viewer (https://storm.aoml.noaa.gov/)
2) Graduate Research (http://maloney.atmos.colostate.edu/galaka/index.php)

LANGUAGES

English (native)
Spanish (can read with dictionary)

PROFESSIONAL MEMBERSHIPS/AFFILIATIONS

American Meteorological Society member (2007-present)
American Meteorological Society – Miami Chapter (2015-present)

REFERENCES

Available upon request.