













Chibueze N. Oguejiofor, Ph.D.

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Education


- 2020 - 2024  **Ph.D., University of Notre Dame, United States**
Civil & Environmental Engineering and Earth Sciences (Fluid Dynamics).
Dissertation: On the Internal Processes Modulating Tropical Cyclone Intensity: Turbulent Stresses & Submesoscale Dynamics.
- 2019 - 2020  **Postgrad., International Center for Theoretical Physics, Italy**
Physics (Earth Systems).
Thesis: Local and Non-Local PBL schemes in WRF model - Impact on the Intensification of Tropical cyclone Idai.
- 2018 - 2019  **M.Sc., African Institute for Mathematical Sciences, Rwanda**
Mathematical Sciences.
Thesis: Simulating the influence of sea-surface-temperature on tropical cyclones over South-West Indian ocean, using the UEMS-WRF regional climate model.
- 2012 - 2017  **B.Sc., University of Lagos, Nigeria**
Geophysics.
Award: Overall Best Graduating Student in Geosciences (GPA: 4.74/5.0; Top 1%).


Professional Experience

- July 2024 - Present  **Verisk Extreme Event Solutions, Boston, MA**
†Scientist II – Tropical Cyclone Risk Modeller
- Jan 2024 - Feb 2024  **National Center for Atmospheric Research (NCAR), Boulder, CO**
†Graduate Research Visitor
-On the Dynamics of Conditional Eddies in the Hurricane Eyewall.
- Aug 2022 - Jan 2023  **National Center for Atmospheric Research (NCAR), Boulder, CO**
†Advanced Graduate Visiting Fellow, ASP-GVP
-Investigated the role of turbulence in the inner eyewall of intense hurricanes.
-Collaborators: Dr. George Bryan, Dr. Richard Rotunno and Dr. Peter Sullivan.
- Sept 2018 - Sept 2019  **Indicina Inc.** - †Data Engineer
-Built and optimized credit risk machine learning (ML) models.
- Feb 2018 - Aug 2018  **KPMG** - †Datascience Intern
- Built and deployed a machine learning (ML) churn model as an API.
- Nov 2017 - Jan 2018  **Carbon Inc.** - †Datascience Intern
-Adapted machine learning models on AWS platforms.

Research Publications

Peer-Reviewed Journal Publications

- [1] **C. N. Oguejiofor**†, G. H. Bryan, and D. H. Richter, “Near-surface Coherent Structures in an Intense Tropical Cyclone: Conditional Eddies and Vertical Momentum Fluxes,” *Journal of Fluid Mechanics (In Prep.)*, 2025.
- [2] **C. N. Oguejiofor**†, G. H. Bryan, R. Rotunno, P. P. Sullivan, and D. H. Richter, “The Role of Turbulence in an Intense Tropical Cyclone: Momentum Diffusion, Eddy Viscosities, and Mixing Lengths,” *Journal of the Atmospheric Sciences*, vol. 81 (8), 2024.  DOI: 10.1175/JAS-D-23-0209.1.

- [3] **C. N. Oguejiofor†**, C. Wainwright, J. Rudzin, and D. H. Richter, “Onset of Tropical Cyclone Rapid Intensification: Evaluating the response to Length Scales of Sea Surface Temperature Anomalies,” *Journal of the Atmospheric Sciences*, vol. 80 (8), 2023.  DOI: 10.1175/JAS-D-22-0158.1.





Thesis

- [1] **C. N. Oguejiofor†** and G. Guiliani, *Local and Non-Local PBL schemes in WRF model - Impact on the Intensification of Tropical cyclone Idai*. 2020.
- [2] **C. N. Oguejiofor†** and B. J. Abiodun, *Simulating the influence of sea-surface-temperature on tropical cyclones over South-West Indian ocean, using the UEMS-WRF regional climate model*. 2019.

Conference Proceedings

- [1] C. N. Oguejiofor†, G. H. Bryan, R. Rotunno, P. P. Sullivan, and D. H. Richter, “The diffusive role of turbulence in an intense tropical cyclone,” in *American Meteorological Society’s (AMS) 36th Conference on Hurricanes and Tropical Meteorology*, Long Beach, California, 2024.
- [2] C. N. Oguejiofor†, C. Wainwright, J. Rudzin, and D. H. Richter, “Tropical cyclone rapid intensification: Evaluating the response to length scales of sea surface temperature anomalies,” in *American Meteorological Society’s (AMS) 23rd Conference on Air-Sea Interaction - The 103rd AMS Annual Meeting*, Denver, Colorado, 2023.
- [3] C. N. Oguejiofor†, C. Wainwright, and D. Richter, “Investigating the dependence of hurricane intensity on varying sst patterns using idealized model simulations,” in *Ocean Sciences Meeting (OSM)*, Held Virtually, 2022.
- [4] C. N. Oguejiofor†, C. Wainwright, and D. Richter, “Investigating the sensitivity of hurricane intensification to length scales of sea surface temperature (sst) heterogeneities,” in *35th Conference on Hurricanes and Tropical Meteorology (AMS)*, New Orleans, Louisiana, 2022.
- [5] C. N. Oguejiofor†, C. Wainwright, J. Rudzin, and D. Richter, “Tropical cyclone rapid intensification: Influence of multiscale anomalies in sea surface temperature (sst),” in *Front Range Tropical Cyclone Workshop*, Fort Collins, Colorado, 2022.
- [6] C. N. Oguejiofor†, C. Wainwright, and D. Richter, “Investigating the dependence of hurricane intensity on varying sst patterns using idealized model simulations,” in *American Geophysical Union (AGU)*, New Orleans, Louisiana, 2021.
- [7] C. N. Oguejiofor†, C. Wainwright, and D. Richter, “Investigating the dependence of hurricane intensity on varying sst patterns using idealized model simulations,” in *Midwest Student Conference on Atmospheric Research (MSCAR)*, Held Virtually, 2021.

Skills

Coding	 Python, FORTRAN, MATLAB, SQL, R, Shell Scripting.
Packages	 Numpy/Scipy, Tensorflow/Keras, xarray, Matplotlib, CDO, NCL/NCO, GRADS.
Models	 Weather research and forecast (WRF), Cloud model (CM1), HYSPLIT, TouchStone®.
Computing	 High performance computing (MPI), Cloud Computing (AWS), Version control (Git).

Awards, Certifications and Appointments

Grants & Awards

2024	■	NCAR Graduate Visitor Fund - Mesoscale & Microscale Met. (MMM) Lab.	\$2,500
2023	■	Computational Sciences and Visualization Award - Center for Research Computing, Notre Dame.	\$1,000
2023	■	3rd place oral presentation Award - AMS 23rd Conference on Air-Sea interaction.	
2022 - 2023	■	NCAR Fellowship Award - Advanced Study Program (ASP) graduate visitor.	\$15,750
2019	■	UNESCO/IAEA Study Grant - International Centre for Theoretical Physics.	€9,600
2017	■	AAPG - L. Austin Weeks , Undergraduate Research Grant Program.	\$500
2012 - 2017	■	MTN Foundation Scholarship , for outstanding academic performance.	\$450/year

Professional Certifications

May 2023	■	Machine Learning in Weather and Climate (Tier 1) - by ECMWF.
Sept 2022	■	Certified AWS Cloud Practitioner - by Udemy.

Services & Professional Appointments

2024	■	Springer - Advances in Atmospheric Sciences , Reviewer.
2024	■	American Meteorological Society (AMS) 36th Conference on Hurricanes and Tropical Meteorology , Co-chair - Session 7D: The Air-Sea Transition Zone I.
2023 - 2024	■	Altius Small Unmanned Aerial System (sUAS) – data quality control and analysis team (led by Dr. Joseph J. Cione, NOAA).
2022 - 2024	■	American Meteorological Society (AMS) , air-sea interaction committee.
Summer 2021	■	Tropical Cyclone Rapid Intensification (TCRI) Campaign – aircraft planning team (with Dr. Pete Finocchio) funded by Office of Naval Research (ONR).

Teaching

Fall 2022	■	CE 30125: Statics (Prof. David. H. Richter).
2020; 2021	■	CE 30125: Computational Methods (Prof. David. H. Richter).
2021	■	CE 40450: Hydraulics (Prof. Andrew Kennedy).

References

†Dr. George H. Bryan

Section head,
Mesoscale and Microscale Meteorology (MMM),
National Center for Atmospheric Research (NCAR),
gbryan@ucar.edu

†Dr. Richard Rotunno

Senior scientist (MMM),
National Center for Atmospheric Research (NCAR),
Member – National Academy of Sciences,
rotunno@ucar.edu

†Prof. Joseph H. Fernando

Wayne and Diana Murdy Endowed Prof. of Engr.,
Civil and Environmental Engineering,
University of Notre Dame,
Harindra.J.Fernando.10@nd.edu

†Prof. David H. Richter (PhD. Advisor)

Associate Professor,
Civil and Environmental Engineering,
University of Notre Dame,
David.Richter.26@nd.edu