












# Chibueze N. Oguejiofor, Ph.D (In View).

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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 (ICTP), 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 Inst. for Mathematical Sciences (AIMS), 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

- Jan 2024 - Feb 2024     **National Center for Atmospheric Research (NCAR), Boulder**  
†Graduate Research Visitor  
-On the Dynamics of Conditional Eddies in the Hurricane Eyewall.
- Aug 2022 - Jan 2023     **National Center for Atmospheric Research (NCAR), Boulder**  
†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**<sup>†</sup>, G. H. Bryan, and D. H. Richter, “On the Kinematics of Turbulent Structures in Hurricanes,” (In Prep.), 2024.
- [2] **C. N. Oguejiofor**<sup>†</sup>, 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* (Under Review), 2024.
- [3] **C. N. Oguejiofor**<sup>†</sup>, 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 (Upcoming).
- [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, Shell Scripting, MATLAB, SQL, R, $\LaTeX$ .                    |
| 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 and Certifications

### Grants & Awards

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|------|---|
| 2024 | <b>NCAR Graduate Visitor Fund</b> - Mesoscale & Microscale Met. (MMM) Lab. <b>\$2,500</b>                         |
| 2023 | <b>Computational Sciences and Visualization Award</b> - Center for Research Computing, Notre Dame. <b>\$1,000</b> |
| 2023 | <b>3rd place oral presentation Award</b> - AMS 23rd Conference on Air-Sea interaction.                            |

## Awards and Certifications (continued)

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|-------------|---|---|
| 2022 - 2023 | 📌 | <b>NCAR Fellowship Award</b> - Advanced Study Program (ASP) graduate visitor. <b>\$15,750</b> |
| 2019        | 📌 | <b>UNESCO/IAEA Study Grant</b> - International Centre for Theoretical Physics. <b>€9,600</b>  |
| 2017        | 📌 | <b>AAPG - L. Austin Weeks</b> , Undergraduate Research Grant Program. <b>\$500</b>            |
| 2012 - 2017 | 📌 | <b>MTN Foundation Scholarship</b> , for outstanding academic performance. <b>\$450/year</b>   |

## Professional Certifications

|           |   |   |
|-----------|---|---|
| May 2023  | 📌 | <b>Machine Learning in Weather and Climate (Tier 1)</b> - by ECMWF. |
| Sept 2022 | 📌 | <b>Certified AWS Cloud Practioner</b> - by Udemy.                   |

## Teaching

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|------------|---|---|
| Fall 2022  | 📌 | <b>CE 30125: Statics</b> (Prof. David. H. Richter).               |
| 2020; 2021 | 📌 | <b>CE 30125: Computational Methods</b> (Prof. David. H. Richter). |
| 2021       | 📌 | <b>CE 40450: Hydraulics</b> (Prof. Andrew Kennedy).               |

## Services & Professional Appointments

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|-------------|---|--|
| 2023 - 2024 | 📌 | <b>Altius Small Unmanned Aerial System (sUAS)</b> – data quality control and analysis team (led by Dr. Joseph J. Cione, NOAA).                             |
| 2022 - 2024 | 📌 | <b>American Meteorological Society (AMS)</b> , air-sea interaction committee.  |
| Summer 2021 | 📌 | <b>Tropical Cyclone Rapid Intensification (TCRI) Campaign</b> – aircraft planning team (with Dr. Pete Finocchio) funded by Office of Naval Research (ONR). |

## 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