Nicholas A. Mesa

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Education

Masters Student, Atmospheric Science **Exp. Grad 2025**
Colorado State University, *Fort Collins, CO*

Bachelor of Science, Civil Engineering, Summa Cum Laude **May 2023**
University of Florida Honors Program, *Gainesville, FL*
John V. Lombardi Scholar
GPA: 3.93/4.00

Universidad Autónoma de Yucatán, *Mérida, México* **June 2019 – Aug. 2019**
UF in Mérida Study Abroad Immersion Program

Internships

Natural Hazards Engineering Research Infrastructure REU Intern **June 2022 – Aug. 2022**
Oregon State University O.H. Hinsdale Wave Research Laboratory, *Corvallis, OR*
- Investigated Real-Time Hybrid Simulation of cascading seismic and hydrodynamic loading
- Analyzed pressure sensor, force, and displacement data using Python
- Published research paper and results to NHERI DesignSafe-CI Data Depot

William M. Lapenta Scholar and Research Intern **June 2021 – Aug. 2021**
NOAA AOML Hurricane Research Division, *Miami, FL*
- Developed Python code to combine and analyze observations across time and spatial dimensions
- Investigated intensity changes related to thermodynamic and kinematic processes using near-coincident aircraft and satellite observations

Research Experience

NSF MsRI NICHE Proposal Landscape Assessment **Feb. 2022 – Present**
- Conducted literature review, interviews, and site visits to collect specifications on North American wind and wave facilities
- Composed monthly progress reports to NSF project managers
- Compiled comprehensive final report detailing findings and recommendations

Validation of IBTrACS Using Radar and Satellite Data **Jan. 2021 – Apr. 2021**
Dr. Corene Matyas, Dept. of Geography, *University of Florida*
- Worked with Python and GIS to generate interpolated hurricane track from IBTrACS
- Compared IBTrACS interpolation with radar/satellite data to validate hurricane eye position

Civic Scholar Research Program
UF Bob Graham Center for Public Service **Jan. 2020 – Apr. 2020, Jan. 2021 – Apr. 2021**
- Served as research team leader investigating association between education and health outcomes in Florida for 2021 public health initiative
- Compiled NOAA time-series data, analyzed climate-related trends, and interviewed county officials for 2020 climate change preparedness initiative

Community Service

UF in Peru Service Learning Trip   **May 2022**
  • Restored 19th century cathedral in rural town outside of Cusco, Peru

Leadership and Involvement

Club Founder & President of UF American Meteorological Society Club   **Jan. 2022 – Present**
  • Organized monthly meetings with professionals in the field of meteorology
  • Coordinated with faculty and staff to organize momentum on a student-level towards meteorology degree program

UF Weather Center Meteorologist in Training Program   **Jan. 2020 – Apr. 2021**
  • Presented weekly weather forecasts on UF Journalism and NPR Gainesville Facebook Live
  • Refined communication skills and strategies to better inform viewers

Professional Experience

Student Assistant, UF Powell Lab, *Gainesville, FL*   **Sept. 2021 – present**
  • Operated Boundary Layer Wind Tunnel, Flow Field Modulator, and High Airflow Pressure Loading Actuator
  • Assisted with project set up/removal and component repairs
  • Led testing for new Hurricane Hunter dropsonde sponsored by NOAA Aircraft Operations Center

Student Assistant, Florida Coastal Monitoring Program, *Gainesville, FL* **Sept. 2022**
  • Deployed to Tampa and SW FL to intercept Hurricane Ian at landfall
  • Assisted with set up of SENTINEL instrumentation system

Presentations

Investigation of Wave-Structure Interaction during Post-Earthquake Event Using   **August 8, 2022**
Real-Time Hybrid Simulation, N. Mesa, A. Seki, B. Simpson, and P. Lomónaco,
Natural Hazards Engineering Research Infrastructure REU Research Symposium, Austin, TX

Investigating Intensity Changes Related to Thermodynamic and Kinematic   *January 23, 2022*
Processes Using Near-Coincident Aircraft and Satellite Observations,
N. Mesa, R.F. Rogers, and J. Zawislak, 21st American Meteorological Society Student Conference,
Houston, TX

Awards and Scholarships

  • National Science Foundation Graduate Research Fellowship Program Recipient   **2023**
  • American Meteorological Society Graduate Fellowship Recipient   **2023**
  • Charles and Mary Pitts Scholarship   **2023**
  • President's Honor Roll   **2020, 2022**
  • Dean's List Recipient   **2019 – 2022**
  • National Science Foundation Natural Hazards Engineering Research Infrastructure   **2022**
    REU Award
  • Wheat Engineering Scholarship   **2022**
  • John and Mittie Collins Engineering Scholarship   **2021**
  • NOAA William M. Lapenta Scholarship   **2021**
  • UF John V. Lombardi Scholarship   **2019**

Memberships

  • Theta Tau Professional Engineering Fraternity   **2021 – Present**

- • American Meteorological Society **2020 – Present**

Skills
Languages: Fluent English, conversational Spanish
Advanced Computer Skills: Coding in Python and Matlab language, computer aided design with AUTOCAD and Solidworks, ArcGIS

- - Honors thesis
- - Graduate research