

DANIEL J. LLOVERAS

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RESEARCH INTERESTS

Atmospheric predictability; synoptic and mesoscale meteorology; numerical methods; extratropical cyclones; polar lows

EDUCATION

Ph.D. in Atmospheric Sciences, University of Washington December 2023
Certificate in data science

M.S. in Atmospheric Sciences, University of Washington March 2021

B.S. in Marine and Atmospheric Science, University of Miami, *summa cum laude* May 2018
Majors in meteorology and applied mathematics, minor in broadcast journalism

RESEARCH POSITIONS

Postdoctoral Research Associate, National Research Council 2024 – present
Advisor: Dr. James Doyle
Investigating the predictability of Arctic polar lows at the Naval Research Laboratory using the Coupled Ocean/Atmosphere Mesoscale Prediction System (COAMPS)

Graduate Research Assistant, University of Washington 2018 – 2023
Advisor: Prof. Dale Durran
Investigated initial-condition-error growth in numerical forecasts of midlatitude cyclones using the Weather Research and Forecasting (WRF) model

Undergraduate Research Assistant, University of Miami 2016 – 2018
Advisors: Prof. Paquita Zuidema and Prof. Cassandra Gaston
Analyzed data from the Layered Atlantic Smoke Interactions with Clouds (LASIC) field campaign to examine changes to low-cloud properties in the presence of shortwave-absorbing smoke

Research Intern, Geophysical Fluid Dynamics Laboratory Summer 2017
Advisor: Dr. Xiaosong Yang
Used the Forecast-Oriented Low Ocean Resolution (FLOR) model to understand how the seasonal predictability of precipitation in the southeastern United States depends on the representation of sea surface temperature patterns in the North Atlantic

PUBLICATIONS

Lloveras, D. J. and D. R. Durran, 2023: Improving the representation of moisture and convective instability in baroclinic-wave channel simulations. *Mon. Wea. Rev.*, in revision.

Lloveras, D. J., D. R. Durran, and J. D. Doyle, 2023: The two- to four-day predictability of midlatitude cyclones: Don't sweat the small stuff. *J. Atmos. Sci.*, **80**, 2613–2633. <https://doi.org/10.1175/JAS-D-22-0232.1>

Lloveras, D. J., L. H. Tierney, and D. R. Durran, 2022: Mesoscale predictability in moist midlatitude cyclones is not sensitive to the slope of the background kinetic energy spectrum. *J. Atmos. Sci.*, **79**, 119–139. <https://doi.org/10.1175/JAS-D-21-0147.1>

PRESENTATIONS

Lloveras, D. J., D. R. Durran, and J. D. Doyle, 2023: Initial-condition-error growth in idealized mid-latitude cyclones. *20th American Meteorological Society (AMS) Conference on Mesoscale Processes*. Oral presentation.

Lloveras, D. J., D. R. Durran, and J. D. Doyle, 2023: Upscale versus large-scale error growth in midlatitude cyclones. *3rd Symposium on Mesoscale Processes at the 103rd AMS Annual Meeting*. Oral presentation.

Lloveras, D. J., D. R. Durran, L. H. Tierney, and J. D. Doyle, 2022: The predictability of midlatitude cyclones: Are butterflies important? *National Center for Atmospheric Research–Mesoscale and Microscale Meteorology Laboratory (NCAR–MMM) Happy Hour Seminar*. Invited oral presentation.

Lloveras, D. J., L. H. Tierney, and D. R. Durran, 2022: Mesoscale predictability in moist midlatitude cyclones is not sensitive to the slope of the background kinetic energy spectrum. *19th Conference on Mesoscale Processes at the 102nd AMS Annual Meeting*. Remote oral presentation.

Lloveras, D. J., L. H. Tierney, and D. R. Durran, 2021: Mesoscale predictability in moist midlatitude cyclones is not sensitive to the slope of the background kinetic energy spectrum. *American Geophysical Union (AGU) Fall Meeting 2021*. Remote poster presentation.

Lloveras, D. J. and P. Zuidema, 2018: Assessment of low-cloud changes in the presence of shortwave-absorbing smoke. *17th Student Conference at the 98th AMS Annual Meeting*. Poster presentation.

Lloveras, D. J. and X. Yang, 2018: Evaluating the predictability of summertime precipitation over the southeastern United States. *17th Student Conference at the 98th AMS Annual Meeting*. Poster presentation.

HONORS AND AWARDS

Graduate Student Distinguished Service Award, University of Washington	2022
Honorable Mention Oral Presentation, 19th AMS Conference on Mesoscale Processes	2022
Outstanding Student Presentation Award, AGU Fall Meeting	2021
Achievement Rewards for College Scientists Fellowship	2018 - 2021
Honorable Mention, National Science Foundation Graduate Research Fellowship Program	2019
Departmental Honors in Atmospheric Science, University of Miami	2018
Outstanding Graduating Senior in Mathematics, University of Miami	2018
Honor Roll and Dean's List, University of Miami	2014 - 2018
President's Scholarship, University of Miami	2014 - 2018

SERVICE AND OUTREACH

Member , AMS Committee on Weather Analysis and Forecasting Plan conferences and chair sessions Evaluate AMS glossary submissions and award nominees Co-author 5-year strategic and implementation plans	2020 - Present
Mentor , University of Washington Graduate-Undergraduate Mentoring Program Mentor for three undergraduates in Department of Atmospheric Sciences Meet quarterly to discuss courses and career opportunities Attend quarterly social events to engage with other undergraduates	2019 - 2023

Volunteer , University of Washington Outreach Program	2018 - 2023
Provide demos during science nights at local elementary schools	
Host field trips from local schools by providing demos and tours of the building	
Manager , University of Washington WxChallenge Forecasting Team	2020 - 2023
Coordinated weekly weather discussions and daily email weather briefings	
Taught and mentored undergraduates interested in weather forecasting and analysis	
Recruited and registered team members in national forecasting competition	
Graduate President , University of Washington Student Chapter of the AMS	2020 - 2022
Organized monthly social and professional development events	
Raised funds for undergraduates to attend AMS Student Conference	
Mentored undergraduate officers	
Treasurer , University of Miami Student Chapter of the AMS	2017 - 2018
Managed the chapter's budget	
Coordinated reimbursements	

TEACHING EXPERIENCE

Instructor , ATM S 490: Current Weather Analysis, University of Washington	
Winter Quarter 2021, Autumn Quarter 2021, Spring Quarter 2022	
Led weekly discussions on current weather	
Presented lectures on fundamentals and frontiers of weather analysis	
Taught sections for both majors and non-majors	
Teaching Assistant , ATM S 111: Global Warming, University of Washington	
Winter Quarter 2022, Spring Quarter 2023	
Led weekly quiz sections to review material and facilitate discussions	
Developed new homework and exam questions	
Graded assignments and final projects	
Teaching Assistant , ATM S 103: Hurricanes and Thunderstorms, University of Washington	
Spring Quarter 2020	
Presented weekly lectures on a "storm of the week"	
Led exam review sessions	
Developed new homework and exam questions	
Adapted to the first online-learning quarter of the pandemic	

COMPUTING EXPERIENCE

NRL's Coupled Ocean/Atmosphere Mesoscale Prediction System (COAMPS)

NCAR's Weather Research and Forecasting (WRF) Model

Developed novel Python code for initializing baroclinic-wave simulations in WRF
Code is publicly available at <https://github.com/llovasdan/init-bwave>
Gained experience with WRF at both the Namelist and FORTRAN level
Analyzed and visualized WRF output with NumPy, Xarray, netCDF4, and Matplotlib
Compiled and ran WRF on high-performance computing machines

GFDL's Forecast-Oriented Low-Ocean Resolution (FLOR) Model

Analyzed model output with MATLAB
Computed verification statistics using ERA-Interim reanalysis data
Conducted composite analysis

Layered Atlantic Smoke Interactions with Clouds (LASIC) Data

Analyzed data with Interactive Data Language (IDL)

Analyzed output from radars, lidars, and cloud-condensation nuclei counters

Last updated: January 2024