Kelsey Malloy

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PUBLICATIONS

Malloy, K.M. and B.P. Kirtman, 2020: Predictability of Midsummer Great Plains Low-Level Jet and Associated Precipitation. *Wea. Forecasting*, 35, 215–235, https://doi.org/10.1175/WAF-D-19-0103.1.

Mahoney, K., D. Swales, M.J. Mueller, M. Alexander, M. Hughes, and K. Malloy, 2018: An Examination of an Inland-Penetrating Atmospheric River Flood Event under Potential Future Thermodynamic Conditions. *J. Climate*, 31, 6281–6297, https://doi.org/10.1175/JCLI-D-18-0118.1.

EDUCATION

University of Miami Rosenstiel School of Marine & Atmospheric Science — Expected defense: 2022
Ph.D. Program
Thesis: Predictability of Great Plains Summer Hydroclimate via Extratropical Teleconnections
Advisor: Ben Kirtman

Bachelor of Science: University of Maryland, College Park — 2017
Atmospheric & Oceanic Science
Minor: Remote Sensing of Environmental Change

RELEVANT GRADUATE-LEVEL COURSES

Univ. Miami. (24 credits)
Intro to ATM, Climate Change, Geophysical Fluid Dynamics I & II, General Circulation of Atmosphere, Data Analysis Methods, Advanced Weather Forecasting, Predictability, ENSO Dynamics

Univ. Maryland (6 credits)
Physical Oceanography
Analysis Methods in Atmospheric & Oceanic Sciences

ACADEMIC AWARDS AND HONORS

Univ Maryland Departmental Honors
Richard Jordan Scholarship — 2017
Univ. of Maryland Undergraduate Research of the Year — 2017
Outstanding Student Service in Department — 2016-2017
Philip Merrill Presidential Scholar — 2016-2017
Jeffrey and Lily Chen Scholarship Award — 2014-2017
University of Maryland University Honors Program — 2013-2017
NOAA Ernest F. Hollings Scholar — 2015-2016

RESEARCH EXPERIENCE

Graduate Research Assistant, Univ. Miami Rosenstiel School — Fall 2018-Present
Ph.D. Advisor: Dr. Benjamin Kirtman

- Prediction of summertime continental United States southerly low-level jets and associated precipitation 3-4 weeks in advance
  - Using Python for reading and visualizing data
  - Low-frequency variability analysis on:
    - NASA and NOAA reanalysis and observational datasets (MERRA-2, ERSST, NCEP/NCAR, etc.)
    - Community Climate System Model, v4 (CCSM4) output
  - Community Earth System Model (CESM1.2) setup, build, & run
  - Setup and run idealized forcing with an in-house dry nonlinear baroclinic model
  - Research presented at RSMAS Student Seminar

Intern, NOAA Climate and Weather Prediction Center, Ocean Prediction Center Fall 2016-Spring 2017

- Building case study analysis of stratospheric air intrusion events and improving hurricane-force wind forecasts of extratropical cyclones in Atlantic Ocean using satellite imagery
    - Primary channels/products: Himawari-8 Airmass RGB product; AIRS, IASI, and ATMS/CrIS total column ozone; Himawari-8 Water Vapor (6.2 μm, 6.9 μm, 7.3 μm); ASCAT winds; AMSR winds; NUCAPS profiles of moisture and temperature
    - MERRA-2 Global Reanalysis time-averaged and instantaneous 3-hourly data for cross-sectional analysis
- Give presentations or instructional kits to Alaskan Weather Forecast Offices and Ocean and Weather Prediction Centers
- Working with GEMPAK/AWIPS software, Python language for analyzing/visualizing data, Linux/Unix environment
- Research defended for senior thesis:
    - oral prospectus defense in Fall 2016
    - poster presentation in Spring 2017
- Research presented at 2017 AMS Annual Meeting, poster presentation

Intern, NOAA Earth System Research Lab Physical Sciences Division (ESRL/PSD) Summer 2016

- Diagnosed case study of atmospheric river event by comparing "present-day" precipitation and moisture transport over western US with simulated "future" case using pseudo-global warming approach
    - Work with Weather and Research Forecasting (WRF) output to compare control (present-day) run with pseudo-global warming (future) run
    - Read papers about Community Earth System Model-Large Ensemble, which was run to produce delta moisture and temperature values to add to WRF
- Research presented at NOAA Hollings Research Symposium, oral presentation
- Research presented at 2017 AMS Annual Meeting, poster presentation
- Published in Mahoney et al. 2018, https://doi.org/10.1175/JCLI-D-18-0118.1.

Intern, UC San Diego Scripps Undergraduate Research Fellowship (SURF) Summer 2015

- Compared vertical profiles of Feb. 6th 2015 atmospheric river event using NCEP/NCAR Final Reanalysis model and dropsonde data
    - Wrote Matlab scripts to read and organize dropsonde and reanalysis data
    - Wrote Matlab scripts to plot vertical profiles of moisture flux and surface analyses of atmospheric river development
- Simulated GPS radio occultation techniques (Doppler shift, bending angles, refractivity profiles)
- Research presented at SIO SURF Student Symposium, poster presentation
- Research presented at 2016 AMS Annual Meeting, poster presentation

RELEVENT EXTRACURRICULARS

Founder, *Seasoned Chaos* blog about subseasonal-to-seasonal forecasting Present

- https://seasonedchaos.github.io
- Develop scientific writing & communication skills for scientists and non-scientist audiences
- Collaborate with lab members and outside "guest" scientists for blog post material
- Create engaging figures with Microsoft Powerpoint and Adobe Illustrator
- Maintain blog website and social media presence

Lead Coordinator, Students for Students Outreach Present

- Organize presentations for K-12 and public audiences as person-of-contact
- Design or edit atmospheric science, programming, STEM talks
- Communicate with outside groups that request Rosenstiel School student outreach presentations

- Many of these outside groups cannot afford field trips to Rosenstiel School so Students for Students members offer their time to visit school

Member, RSMAS COMPASS Seminar Committee — Present

- Work together to create scoresheets, schedule speakers, choose seminar speaker winners, etc.
- Introduce speakers
- Log and organize speaker scores

RSMAS Climate Group — Present

- Present updates on research for peer feedback, practicing presentation skills
- Present on topics relevant for group
  - Presented on Forecast Skill Scores in Spring 2019
- Give feedback to peers about research figures, learn about their topic

Presenter/Collaborator, RSMAS Lunch Bytes Seminar — Spring 2019

- Present on relevant and/or desirable skills in regard to coding, data analysis, research organization, etc.
  - Presented on Python Data Analysis for Beginners and Matlab Converts

Univ. Miami Atmospheric Science Dept. Student Ambassador — 2018-2019

- Representative of graduate students in departmental meetings
- Take official minutes and relay information to other graduate students

President, American Meteorological Society – UMD Undergraduate Chapter — Fall 2016-Spring 2017

- Organize speakers, tours, and workshops relating to meteorology and oceanography in private and public sector
- Relay information about internships, jobs, graduate programs, etc. to undergraduates
- Help organize AMS Annual Meeting with AOSC department
- Representative of AOSC undergraduates for department

UMD Weather forecaster — Fall 2016-Spring 2017

- Writes blogpost forecasts for website: weather.umd.edu/author/kmalloy

Secretary, American Meteorological Society – UMD Undergraduate Chapter — Fall 2015-Spring 2016

- Take official minutes for AMS chapter meetings
- Help build and organize AMS website

Co-founder, TERP Climate, Co-Founder — Fall 2015-Spring 2016

- Student organization that encourages multidisciplinary discussion about climate change issues
  - Social media (Facebook) effort to ask students across campus to talk about issues or ask questions: www.facebook.com/TERPClimate
  - Organized student forum with student moderators for discussion of prominent climate change issues
  - Organized campus wide forum with professional outside and university faculty for Earth Day 2016

SERVICE ACTIVITY (paid or unpaid)

Teaching Assistant for Data Analysis Methods (graduate course) — Spring 2020
SEGUE Student Reviewer (for UCAR Comet modules) — Fall 2019-Spring 2020
Teaching Assistant for Weather Forecasting — Spring 2019
Middle through high school tutor, Algebra & standardized tests — Fall 2017-Present
Teaching Assistant for Large-scale Atmospheric & Oceanic Dynamics — Spring 2017
Teaching Assistant for Atmospheric Thermodynamics — Fall 2016
College of Computer, Mathematical, & Natural Sciences Student Ambassador — Fall 2015-Spring 2017
Student athlete tutor for atmospheric science and geography courses — Fall 2015-Spring 2017
First-year Innovation and Research Experience (FIRE) peer mentor — Fall 2014

SKILLS

Tutoring and teaching experience from middle school to graduate level
Languages (in order of proficiency): Python, Matlab, Shell, Git Bash, Fortran, Markdown/HTML, NCAR Command Language (NCL), C
Software/Operating Systems (no particular order): Linux/Unix, Git Bash, Microsoft Office (Word, Excel, Powerpoint, etc.), Adobe Illustrator
Participated in Summer 2018 NCAR Tutorial on Climate and Weather Extremes