Kelsey Malloy
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https://kelseymalloy.github.io/

PUBLICATIONS

<u>Malloy, K.M.</u> and Kirtman, B.P. (2021). East Asian monsoon forcing and North Atlantic subtropical high modulation of summer Great Plains low-level jet. *J. Climate*, under review.

<u>Malloy, K.M.</u> and Kirtman, B.P. (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., Swales, D., Mueller, M.J., Alexander, M., Hughes, M., and <u>Malloy</u>, K. (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

<u>Univ. Miami. (27 credits)</u>
Intro to ATM, Climate Change, Geophysical Fluid Dynamics I & II, General Circulation of Atmosphere, Data Analysis Methods, Advanced Weather Forecasting, Predictability, ENSO Dynamics, Computational Fluid Dynamics

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

RESEARCH EXPERIENCE
Graduate Research Assistant, Univ. Miami Rosenstiel School   Fall 2017-Present
Ph.D. Advisor: Dr. Benjamin Kirtman
- Predictability of summer Great Plains / North American low-level jet and associated precipitation on S2S and interannual timescales through understanding of large-scale dynamics and climate variability
- Using Python for reading and visualizing data
- High-level data analysis on:
    - NASA, ECMWF, and NOAA reanalysis and observational datasets (ERA-5, MERRA-2, ERSST, NCEP/NCAR, etc.)
    - Community Climate System Model, v4 (CCSM4) forecast output
    - Dry nonlinear baroclinic atmospheric model output
    - Community Atmospheric Model, v5 (CAM5) output
- Community Earth System Model (CESM1.2) and CAM5 setup, build, & run four different experiment
- Setup, write code for monsoon forcing, and run idealized forcing with a dry nonlinear baroclinic model
- Oral presentation at 2021 AMS annual meeting
- Oral presentation at Rosenstiel School Student Seminar series in 2019, 2020, 2021

- Poster presentation at 2020 AMS annual meeting

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

Co-founder, *Seasoned Chaos* blog about subseasonal-to-seasonal forecasting   Present
- https://seasonedchaos.github.io

Lead Coordinator, Students for Students Outreach   Present
Rosenstiel School Graduate-Undergraduate Mentoring (GUM) program   Present
Rosenstiel School Climate Group   Present
Rosenstiel School Marine Science Graduate Student Organization's Sustainability Initiative   Present
Rosenstiel School Marine Science Graduate Student Organization's Earth Week Committee   Present
Rosenstiel School COMPASS Seminar Committee   2019-2020

SKILLS & AWARDS
- 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.)
- Tutoring and teaching experience from middle school to graduate level
- Involved in Machine Learning/Artificial Intelligence literature reading group with some experience in applying to climate data
- Gave software and programming seminars to Rosenstiel School colleagues through "Lunch Bytes" program
- Accepted into 2020 Swiss Climate Summer School (canceled because of COVID-19)
- Attended Summer 2018 Weather and Climate Extremes NCAR Tutorial/Workshop
- 2017 University of Maryland Undergraduate Researcher of the Year
- 2017 University of Maryland Philip Merrill Presidential Scholar
- 2017 Richard Jordan Scholar (for atmospheric & oceanic science senior thesis presentations)
- 2016-2017 Outstanding Student Service in Atmos. & Oceanic Science Department
- 2014-2017 Jeffrey & Lily Chen Scholar (for atmospheric & oceanic science majors)
- 2015-2016 NOAA Ernest F. Hollings Scholar