Kelsey Malloy

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https://kelseymalloy.github.io/

PUBLICATIONS

Malloy, K.M. and Kirtman, B.P. (2021). The summer Asia-North America teleconnection and ENSO modulation in Community Atmosphere Model, version 5 (CAM5). *J. Climate*, in prep.

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

Malloy, K.M. 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 Malloy, 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: Spring 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. (30 credits)
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

Univ. Maryland (6 credits)
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 (ERA5, 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
- Invited presentation at North American Multi-Model Esemble (NMME) monthly meeting (Feb 2020)
- Poster presentation at 2020 AMS annual meeting

Collaborator, PyWR, Weather Typing and S2S Sources of Predictability Summer 2021-Present
Projects Leads: Ángel Muñoz and Andrew Robertson

- Project in collaboration with participants of NCAR Advanced Summer Program *The Science of S2S Predictions* PyWR and Weather Typing group and International Research Institute/Lamont-Doherty Earth Observatory (IRI/LDEO) scientists
- Applying weather typing via *k*-means clustering to explore summertime predictability of North Atlantic circulation and associated precipitation
    - Primary contribution – boreal summer intraseasonal oscillation (BSISO) and East Asian monsoon (EAM) as a source of predictability for summer weather types

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
- Give presentations or instructional kits to Alaskan Weather Forecast Offices and Ocean and Weather Prediction Centers
- 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
- Research presented at NOAA Hollings Research Symposium, oral presentation
- Research presented at 2017 AMS Annual Meeting, poster presentation

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
- 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
Presenter/Collaborator, Rosenstiel School Lunch Bytes Seminar Spring 2019
Rosenstiel School Atmospheric Science Dept. Student Ambassador 2018-2019

TEACHING EXPERIENCE

Tutor for high school students, mostly math and science	Present
Teaching Assistant for Data Analysis Methods (graduate course)	Spring 2020
Teaching Assistant for Weather Forecasting	Spring 2019
Teaching Assistant for Large-scale Atmospheric & Oceanic Dynamics	Spring 2017
Teaching Assistant for Atmospheric Thermodynamics	Fall 2016

SKILLS & AWARDS

- Attended the 2021 NCAR Advanced Summer Program "The Science of Subseasonal-to-Seasonal Predictions" Colloquium and Workshop
- Tutoring and teaching experience from middle school to graduate level
- Runner-up for 2020-2021 Rosenstiel School Student Seminar *Best Presentation Skills* award
- Programming Languages: 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.)
- Involved in Machine Learning/Artificial Intelligence literature reading group with some experience in applying to climate data
- 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)
- 2015-2016 NOAA Ernest F. Hollings Scholar