MARIE C. MCGRAW

Postdoctoral Research Associate, Department of Atmospheric Science ⋄ University of Washington ⋄ Seattle, WA
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EDUCATION

Ph.D., Atmospheric Science, Colorado State University, Fort Collins, CO defended March 2019
Advisor: Elizabeth A. Barnes
M.S., Atmospheric Science, Colorado State University, Fort Collins, CO defended October 2015
Advisor: Elizabeth A. Barnes
B.Sc., Mechanical Engineering, Massachusetts Inst. of Technology, Cambridge, MA June 2012

PROFESSIONAL EXPERIENCE

Postdoctoral Research Associate, University of Washington, Seattle, WA June 2019 - Present

- Performed extensive numerical and statistical analysis of large geospatial data sets, with a focus on predictability and extreme events
- Developed open-source Python code to be shared with the scientific community
- Attended scientific workshops, conferences, and hackathons to share scientific results and learn new analysis techniques;

Graduate Research Assistant, Colorado State University, Fort Collins, CO June 2013 - May 2019

- Performed extensive numerical and statistical analysis of large geospatial datasets from observations and climate models
- Led a student- and postdoc-only project that resulted in a peer-reviewed scientific publication
- Collaborated extensively with a research team in electrical and computer engineering, including collaboratively-written publications, oral presentations, and publicly disseminated code
- Ran numerical experiments in simplified atmospheric models

SKILLS AND TRAINING

Programming: Python (including xarray, Pandas, scikit-learn, Jupyter), MATLAB; familiarity with Fortran
Data Analysis: Efficiently preprocessing, analyzing, and visualizing output from large geospatial datasets, including fully coupled climate models, weather forecasting models, and reanalysis products, and satellite observations; experience applying statistical analysis and data science techniques to earth science problems

SELECT PUBLICATIONS

McGraw, M.C. and E.A. Barnes (2020): New Insights on Subseasonal Arctic-Midlatitude Causal Connections from a Regularized Regression Model. *Journal of Climate*, doi:10.1175/JCLI-D-19-0142.1.

McGraw, M.C., C.F. Baggett, C. Liu, and B.D. Mundhenk (2019): Changes in Arctic moisture transport over the North Pacific associated with sea ice loss. *Climate Dynamics*, doi:10.1007/s00382-019-05011-9.

Samarasinghe, S., **M.C. McGraw**, E.A. Barnes, and I. Ebert-Uphoff (2019): A study of links between the Arctic and the midlatitude jet-streams using Granger and Pearl causality. *Environmetrics,* doi:10.1002/env.2540.

McGraw, M.C., and E.A. Barnes (2018): Memory matters: A case for Granger causality in climate variability studies. *J. Climate*, **31,** doi:10.1175/JCLI-D-17-0334.1.

Woollings, T., E. Barnes, B. Hoskins, Y.-O. Kwon, R.W. Lee, C. Li, E. Madonna, **M. McGraw**, T. Parker, R. Rodrigues, C. Spensberger, K. Williams (2018): Daily to decadal modulation of jet variability. *J. Climate*, **31,** doi:10.1175/JCLI-D-17-0286.1.

McGraw, M.C., E.A. Barnes, and C. Deser (2016): Reconciling the observed and modeled Southern Hemisphere circulation response to volcanic eruptions. *Geophys. Res. Lett.,* doi:10.1002/2016GL069835.

McGraw, M.C., and E.A. Barnes (2016): Seasonal sensitivity of the eddy-driven jet to tropospheric heating in an idealized AGCM. *J. Climate*, **29,** doi:10.1175/JCLI-D-15-0723.1.

SELECTED PRESENTATIONS

McGraw, M.C., C.M. Bitz, and E. Blanchard-Wrigglesworth: Evaluating very rapid sea ice loss events in dynamical model forecasts. Poster presentation: American Geophysical Union Annual Meeting, San Francisco, CA. 12/2019.

McGraw, M.C., and E.A. Barnes: Using Causal Discovery to Explore Arctic-Midlatitude Dynamics. Oral presentation: American Geophysical Union Annual Meeting, Washington, DC (12/2018); NCAR Climate Variability and Change weekly seminar, Boulder, CO (11/2018).

Samarasinghe, S., **M. C. McGraw**, E. A. Barnes, and I. Ebert-Uphoff: A Study of Causal Links Between the Arctic and the Midlatitude Jet-Streams. **Spotlight presentation (with Savini Samarasinghe):** 7th International Workshop on Climate Informatics, Boulder, CO. 09/2017.

McGraw, M. C., C. F. Baggett, C. Liu, B. D. Mundhenk, and E. A. Barnes: Multi-Scale Response of Moisture Flux to Projected Sea Ice Loss. Poster: 21st Conf. on Atmospheric and Oceanic Fluid Dynamics, Portland, OR. 06/2017.

McGraw, M. C., and E. A. Barnes: Comparing the Forced Response to Volcanic Eruptions Against Internal Variability in Climate Models. Oral presentation: SPARC DynVAR Workshop, Helsinki, Finland (06/2016); NCAR Climate Variability and Change Working Group Meeting, Boulder, CO (02/2016).

McGraw, M. C., and E. A. Barnes: Seasonal sensitivity of the eddy-driven jet to tropospheric heating in an idealized AGCM. Poster: SPARC Storm Tracks Workshop, Grindelwald, Switzerland. 08/2015.

TEACHING AND MENTORING

Graduate Teaching Assistant for two graduate-level classes involving helping students complete theoretical and numerical analysis of weather and climate problems, and developing independent projects
Mentor in summer 2014 to an undergraduate student who is currently pursuing her Ph.D. at the University of Wisconsin

PROFESSIONAL ORGANIZATIONS AND OUTREACH

Member, American Geophysical Union (2014-present), American Meteorological Society (2014-present), Graduate Women in Science (2015-2019)

Reviewer for *Journal of Climate*, *Journal of Geophysical Research: Atmospheres*, *Geophysical Research Letters*, *Nature Climate Change*, *Earth System Dynamics*, *Weather and Climate Dynamics*

Member, U. Washington Atmospheric Sciences Diversity and Inclusion working group; U. Washington Atmospheric Sciences Colloquium Committee (postdoc representative)