Scott W. Powell

Assistant Professor · Department of Meteorology, Naval Postgraduate School

swpowell.github.io | swpowell | Google Scholar

Education

Ph.D., Atmospheric Sciences — *Seattle, WA*

University of Washington — *2009–2016*

B.S., Meteorology and Applied Mathematics — *Coral Gables, FL*

University of Miami — *2005–2009*

- *magna cum laude*
- Minors: Geography and Regional Studies, Psychology

Work Experience

Assistant Professor — *Monterey, CA*

Department of Meteorology, Naval Postgraduate School — *2018 – present*

NOAA Climate and Global Change Postdoctoral Fellow — *Fort Collins, CO*

Colorado State University/University Corporation for Atmospheric Research — *2016 – 2018*

Research Scientist — *Seattle, WA*

University of Washington — *2016*

Publications

Peer-Reviewed Journal Articles

Criticality in the shallow-to-deep transition of simulated tropical marine convection — *J. Atmos. Sci.*

S.W. Powell — *2022*

- https://doi.org/10.1175/JAS-D-21-0155.1

Decomposing satellite-based classification uncertainties in large Earth science datasets — *IEEE Trans. Geosci. Remote Sens.*

P. Ortiz, B. Marsh, M. Orescanin, V. Petkovic, S. W. Powell — *2022*

- https://doi.org/10.1109/TGRS.2022.3152516

Tropical thermodynamic-convection coupling in observations and reanalyses — *J. Atmos. Sci.*

B. O. Wolding, S. W. Powell, J. Dias, M. Gehne, G. N. Kiladis, F. Ahmed, J. D. Neelin — *2022*

- https://doi.org/10.1175/JAS-D-21-0256.1

Large-scale moistening by adiabatic lifting during MJO initiation over the Indian Ocean — *J. Climate*

C. Snide, Á. F. Adames, S. W. Powell, V. C. Mayta — *2022*

- https://doi.org/10.1175/JCLI-D-21-0322.1

Bayesian deep learning for passive microwave precipitation type estimates — *IEEE Geosci. Remote Sens. Lett.*

M. Orescanin, V. Petkovic, S. W. Powell, B. R. Marsh, S. C. Heslin — *2021*

- https://doi.org/10.1109/LGRS.2021.3090743

Improving the physical basis for updraft dynamics in deep convection parameterization — *J. Adv. Model. Earth Syst.*

J. M. Peters, H. Morrison, G. J. Zhang, S. W. Powell — *2021*

- https://doi.org/10.1029/2020MS002282

The development of rainfall retrievals from radar at Darwin — *Atmos. Meas. Techniques*

R. Jackson, S. Collis, V. Louf, A. Protat, D. Wang, S. Giangrande, E. J. Thompson, B. Dolan, S. W. Powell — *2021*

- https://doi.org/10.5194/amt-14-53-2021

Tropical precipitation evolution in a buoyancy-based framework — *J. Atmos. Sci.*

Á. F. Adames, S. W. Powell, F. Ahmed, V. C. Mayta, J. D. Neelin — *2021*

- https://doi.org/10.1175/JAS-D-20-0074.1

Interactions between moisture and tropical convection. Part I: The co-evolution of moisture and convection — *J. Atmos. Sci*

B. Wolding, J. Dias, G. Kiladis, F. Ahmed, S. W. Powell, E. Maloney, M. Branson — *2020*

- https://doi.org/10.1175/JAS-D-19-0225.1

Observing possible thermodynamic controls on tropical marine rainfall in moist environments — *J. Atmos. Sci*

S. W. Powell — *2019*

- https://doi.org/10.1175/JAS-D-19-0144.1

Near-surface frontogenesis and atmospheric instability along the U.S. East Coast during the extratropical transition of Hurricane Matthew (2016) — *Mon. Wea. Rev.*

S. W. Powell, M. M. Bell — *2019*

- https://doi.org/10.1175/MWR-D-18-0094.1

The diurnal variability of precipitating cloud populations during DYNAMO — *J. Atmos. Sci*

N. Sakaeda, S. W. Powell, G. N. Kiladis, and J. Dias — *2018*

- https://doi.org/10.1175/JAS-D-17-0312.1

Successive MJO Propagation in MERRA2 Reanalysis — *Geophys. Res. Lett.*

S. W. Powell — *2017*

- https://doi.org/10.1002/2017GL073399

Updraft buoyancy within and moistening by cumulonimbi prior to MJO convective onset in a regional model — *J. Atmos. Sci.*

S. W. Powell — *2016*

- https://doi.org/10.1175/JAS-D-15-0326.1

Rainfall-type categorization of radar echoes using polar coordinate reflectivity data — *J. Atmos. Oceanic Technol.*

S. W. Powell, R. A. Houze, Jr., S. R. Brodzik — *2016*

- https://doi.org/10.1175/JTECH-D-15-0135.1

Effect of dry large-scale vertical motions on initial MJO convective onset — *J. Geophys. Res. Atmos.*

S. W. Powell, R. A. Houze, Jr. — *2015*

- https://doi.org/10.1002/2014JD022961

Evolution of convective echo top heights observed by TRMM radar over the Indian Ocean during DYNAMO — *J. Geophys. Res. Atmos.*

S. W. Powell, R. A. Houze, Jr. — *2015*

- https://doi.org/10.1002/2014JD022934

The cloud population of the Madden-Julian Oscillation over the Indian Ocean during DYNAMO-AMIE — *J. Geophys. Res. Atmos.*

S. W. Powell, R. A. Houze, Jr. — *2013*

- https://doi.org/10.1002/2013JD020421

Evolution of convective echo top heights observed by TRMM radar over the Indian Ocean during DYNAMO — *J. Atmos. Sci.*

X. Zeng, W-K. Tao, S. W. Powell, R. A. Houze, Jr., P. Ciesielski, N. Guy, H. Pierce, T. Matsui — *2013*

- https://doi.org/10.1175/JAS-D-12-050.1

Comparison of simulated and observed continental tropical anvil clouds and their radiative heating profiles — *J. Atmos. Sci.*

S. W. Powell, R. A. Houze, Jr., A. Kumar, and S. A. McFarlane — *2012*

- https://doi.org/10.1175/JAS-D-11-0251.1

Idealized simulations of the intertropical convergence zone and its multi-level flows — *J. Atmos. Sci.*

D. S. Nolan, S. W. Powell, C. Zhang, and B. E. Mapes — *2010*

- https://doi.org/10.1175/2010JAS3417.1

Other Literature

Will We Have the Marine Atmospheric Boundary Layer Observations Necessary to Realize the "Decade of Convection" in the Tropics? — *US CLIVAR Variations*

B. O. Wolding, S. W. Powell, K. Schiro, R. Storer, T. Lee, R. Krishnamurthy — *in press*

Mirai Radar Data: DYNAMO Legacy Rainfall Products *UCAR-EOL*

S. Rutledge, P. F. Hein, B. Dolan, S. W. Powell, S. R. Brodzik *2018*

- `https://data.eol.ucar.edu/datafile/nph-get/347.192/radar_ship_mirai_readme.pdf`

Communicating weather information to the public: people's reactions and understandings of weather information and terminology *American Meteorological Society*

S. W. Powell, H. D. O'Hair *2008*

- 3rd Symp. Policy Socioeconomic Impacts, New Orleans, LA, P1.3

Oral and Poster Presentations

Listing all oral and poster presentations on this CV would make it cumbersome. If you are interested, you can find a list of my group's presentations on my website along with PDFs of the presentation documents.

Teaching

Assistant Professor *Monterey, CA*

Department of Meteorology, Naval Postgraduate School *2018 – present*

- Remote Sensing of the Atmosphere and Ocean
- Tropical Meteorology
- Advanced Tropical Meteorology
- Python for Meteorology and Oceanography Applications

Primary Instructor *Seattle, WA*

Department of Atmospheric Sciences, University of Washington *2014 – 2016*

- Weather Analysis

Teaching Assistant *Seattle, WA*

Department of Atmospheric Sciences, University of Washington *2010, 2013*

- Weather (101-level course)

Math/Physics Tutor *Coral Gables, FL*

Athletic Department, University of Miami *2006 – 2007*

- Various mathematics and physics courses.

Students Advised

Ph. D. Students

CAPT (USAF) Daniel Bazemore

Dissertation title TBD *2024 est.*

M.S. Students

LCDR (USN) Jessica Wasserman

M.S. thesis title TBD *2023 est.*

LCDR (USN) Monica Killoran

Sea Level Variability Analysis for Coastal Naval Installations *2022*

- Co-advised with Dr. Mara Orescanin, Dept. of Oceanography

LT (USN) Micky Hall

Emulating Passive Microwave Observations with Patch-to-Pixel Convolutional Neural Networks *2022*

- Co-advised with Dr. Marko Orescanin, Dept. of Computer Science

LT (USAF) Sean Heslin

Applications of Bayesian Neural Networks to Global Precipitation Measurement Mission Data *2021*

- Co-advised with Dr. Marko Orescanin, Dept. of Computer Science

LCDR (USN) Coriandre Johnson

Techniques for the Determination of Particle Growth Factors in Real Time *2020*

LCDR (USN) Benjamin Wells

Sensible and Latent Heat Fluxes Across the Marginal Ice Zone and Irminger Current *2019*

LT (USN) Wesley Davis

Verifying the Representation of Tropical Easterly Waves in Community Climate Model Version 4 *2019*

Other Advisees

Jessica Solomon

REU summer internship at Colorado State University *2017*

David Coppin, B.S, M.S.

Univ. of Pierre and Marie Curie, Master 1 Internship *2013*

Service

External Service

2020	Associate Editor, *Monthly Weather Review*	
2019	Lead Convener and OSPA Liasion, AGU Session on Atmospheric, Land, and Ocean Processes in the Maritime Continent and Indo-Pacific	*San Francisco, CA*
2017–19	Program Co-chair, 6th–7th Symposia on the Madden-Julian Oscillation and Sub-Seasonal Monsoonal Variability	*Austin, TX; Phoenix, AZ*
2017–19	K–5 Outreach Demonstrations with Gates County Schools	*Gates Co., NC*
2017	Session Chair, 5th Symposium on the Madden-Julian Oscillation	*Seattle, WA*
2009–15	University of Washington Dept. of Atmospheric Sciences K–12 Outreach	*Seattle, WA*
2015–16	University of Washington College of Environment Committee on Graduate Recruitment, Retention, and Diversity (Funding and Resource Subcommittee)	*Seattle, WA*
2013–14	Graduate Student Invited Distinguished Speaker Coordinator	*Seattle, WA*
2010–13	Treasurer, American Meteorological Society Student Chapter at the Univ. of Washington	*Seattle, WA*
2011	North Deanery Science Fair Judge	*Seattle, WA*
2009	President, University of Miami Atmospheric Science Club and American Meteorological Society Student Chapter	*Coral Gables, FL*
2008	Treasurer, University of Miami Atmospheric Science Club and American Meteorological Society Student Chapter	*Coral Gables, FL*

University Service

2020–	NPS Faculty Council representative for Department of Meteorology
2020–21	Dept. of Meteorology representative for Graduate School of Engineering and Applied Science (GSEAS) Dean Search Committee
2020	NPS Focus Group for Enhancing Distance Learning
2018–	Dept. of Meteorology Liaison for High Performance Computing at NPS

Journals/Agencies Served as Reviewer

Advances in Atmospheric Sciences
Atmosphere
Atmospheric Science Letters
Bulletin of the American Meteorological Society
Climate Dynamics
Geophysical Research Letters
International Journal of Climatology
Journal of Advances in Modeling Earth Systems
Journal of Applied Meteorology and Climatology
Journal of Atmospheric and Oceanic Technology

Journal of the Atmospheric Sciences
Journal of Climate
Journal of Geophysical Research—Atmospheres
Monthly Weather Review
Nature
Quarterly Journal of the Royal Meteorological Society
Science
U.S. Department of Energy
National Oceanic and Atmospheric Administration
National Science Foundation

Honors & Awards

2016	NOAA Climate and Global Change Postdoctoral Fellow	
2013	Student Poster Award: DOE Atmospheric System Research Spring Meeting	*Rockville, MD*
2009	American Meteorological Society Graduate Fellowship	
2009	UW Dept. of Atmospheric Science "Top Scholar" Award	
2008	American Meteorological Society John R. Hope Endowed Scholarship in Atmospheric Science	
2007	NOAA Ernest F. Hollings Scholarship	
2005	Foote Fellow, University of Miami	

Field Project Participation

2022	**Lead PI**, CALifornia Investigation of Convection over Ocean (CALICO)	*Marina, CA*
2018	Propagation of Intraseasonal Tropical Oscillations (PISTON)	*RV Thomas G Thompson, West Pacific*
2011	Dynamics of the Madden-Julian Oscillation (DYNAMO)/ARM Madden-Julian Oscillation Investigation Experiment (AMIE)	*Addu City, Maldives*

Research Funding Support

National Oceanic and Atmospheric Administration — *$748,583*

Dependence of MJO Precipitation Maintenance on Convective Processes — *2023 – 25*

- Role: Principal Investigator
- Climate Variability and Prediction Program
- Interagency Agreement # TBD

U.S. Department of Energy — *$493.378*

Dynamics of Shallow to Deep Convective Transition during CACTI — *2021 – 24*

- Role: Principal Investigator
- Atmospheric System Research
- Interagency Agreement Number 89243021SSC000077

Office of Naval Research — *$451,288*

Small-Scale Thermodynamic and Dynamic Mechanisms for Growth of Shallow Cumuliform Clouds — *2020 – 23*

- Role: Principal Investigator
- Code 32
- Grant Number: N0001421WX01472

Office of Naval Research — *$554,853*

Deep Learning Uncertainties of GOES Advanced Baseline Imager Products Ingested by GeoIPS for Assimilation into Navy Global Models — *2020 – 23*

- Role: Co-Investigator (Co-wrote proposal)
- Code 32
- Grant Number: N0001421WX00575