Joseph A. Finlon

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EDUCATION

Ph.D., Atmospheric Sciences, University of Illinois, In Progress
M.S., Atmospheric Sciences, University of Illinois, December 2015
B.S., Meteorology, summa cum laude, State University of New York at Oswego, May 2012

RESEARCH EXPERIENCE

Doctoral Research

Dissertation Committee: Dr. Robert M. Rauber (adviser), Dr. Greg M. McFarquhar, Dr. Stephen W. Nesbitt, Dr. Sonia G. Lasher-Trapp

This research assesses the distribution and sensitivity of *a* and *b* coefficients from mass-dimension (m-D) relationships of ice crystals. Coincident measurements of ground-based radar and in-situ microphysical data from the Olympic Mountain Experiment (OLYMPEx), GPM Cold-season Precipitation Experiment (GCPEx), Mid-latitude Continental Convective Clouds Experiment (MC3E), and Profiling of Winter Storms (PLOWS) experiment are used to test a novel approach that determines a surface of equally realizable *a* and *b* coefficients in (*a*,*b*) phase space for a variety of environments.

NCAR ASP Graduate Visitor

Collaborator: Dr. Roy M. Rasmussen

At the NCAR Research Applications Laboratory, I operated the Meteorological Particle Spectrometer optical array probe (OAP) at the Marshall Field Site in Boulder, CO. Data collected was processed using the University of Illinois/Oklahoma OAP Processing Software, with the goal of retrieving the 2D particle properties to analyze particle size distributions within the sub-500 micrometer size range.

Masters Research

Thesis Title: A Comparison of X-band Polarization Parameters With In-situ Cloud Measurements in the Comma Head of Two Winter Cyclones
Advisers: Dr. Robert M. Rauber, Dr. Greg M. McFarquhar

Analyzed polarization data from ground-based range-height indicator radar scans in conjunction with properties of ice particles from microphysical data collected in situ. These microphysical properties are related to particle mass and reflectivity to develop a probabilistic approach for hydrometeor classification.

PEER-REVIEWED PUBLICATIONS

Finlon, J. A., G. M. McFarquhar, R. M. Rauber, D. M. Plummer, B. F. Jewett, D. Leon, and K. R. Knupp, 2016: A comparison of X-band polarization parameters with in situ microphysical measurements in the comma head of two winter cyclones. *J. Appl. Meteorol. Climatol.*, **55,** 2549–2574.

Murphy, A. M., R. M. Rauber, G. M. McFarquhar, **J. A. Finlon,** D. M. Plummer, A. A. Rosenow, and B. F. Jewett, 2016: A Microphysical Analysis of Elevated Convection in the Comma Head Region of Continental Winter Cyclones. *J. Atmos. Sci.*, **74**, 69–91.

PUBLICATIONS IN PREPARATION

Finlon, J. A., G. M. McFarquhar, R. M. Rauber, S. W. Nesbitt, W. Wu, and M. R. Poellot, 2017: Use of Radar and Microphysical Data to Evaluate the Variability of Mass-Dimension Parameters Within Ice Clouds During MC3E. Atmos. Chem. Phys., In preparation.

Chase, R. J., **J. A. Finlon,** P. Borque, G. M. McFarquhar, S. W. Nesbitt, S. Tanelli, and M. R. Poellot. 2017: Evaluation of Triple-Frequency Radar Retrieval of Snowfall Properties using Coincident Airborne In-Situ Observations during OLYMPEx. *Geophys. Res. Lett.*, In preparation.

COMPUTATIONAL SKILLS

Python v2.7 and v3.5	WRF-ARW	Unix/Linux systems
MATLAB	Solo III & GRAnalyst	Unix shell scripting
NCAR Command Language	SAS and Minitab	HTML5, CSS3, PHP, & Javascript
Fortran 95 & C	AWOT & PyART Packages	

FIELD WORK

- Southern Ocean Clouds, Radiation, Aerosol Transport Experimental Study (SOCRATES; Hobart, Tasmania, Australia; 01/2018 - 02/2018): Flight-based operation of microphysics probes
- SUNY Oswego Storm Forecasting and Observation Program (Great Plains; 05/2012): Forecasting, rawinsonde launches
- Lake-effect Observations by the Doppler on Wheels (Oswego, NY; 01/2011 - 02/2011): Ground-based transects & radar operation, rawinsonde launches, forecasting

TEACHING EXPERIENCE

- Teaching Assistanceships for 6 semesters covering a total of 2 courses
- Topics: introduction to meteorology, severe and hazardous weather
- Tutored undergraduate students in the areas of meteorology, math (ordinary differential equations, calculus, matrix algebra), physics, and chemistry
- Developed lab activities and graded assignments for general education meteorology courses

HONORS AND AWARDS

Student Presenter Award (2nd Place; AMS 36th Conf. Radar Meteor.)	Fall 2015
NCAR ASP Graduate Visitor	2015-2016 (1 year)
Research Review Award (2nd Place; Dept. Atmos. Sci., Univ. Illinois)	Spring 2014
Outstanding Meteorology Senior (Meteor. Dept., SUNY Oswego)	Spring 2012
Edward Austin Sheldon Award (SUNY Oswego)	Spring 2010

CONFERENCE PRESENTATIONS AND SEMINARS

Nesbitt, S. W., P. Borque, **J. A. Finlon,** R. J. Chase, and G. M. McFarquhar, 2017: Using GV Field Campaign Data to Improve GPM Algorithm Assumptions. *NASA Precipitation Measurement Missions Science Team Meeting,* San Diego, CA.

Finlon, J. A., G. M. McFarquhar, R. M. Rauber, S. W. Nesbitt, W. Wu, and M. R. Poellot, 2017: Using Radar Data to Evaluate the Variability of Mass-Dimension Parameters Within Ice Clouds. *38th Conference on Radar Meteorology*, Chicago, IL.

Finlon, J. A., G. M. McFarquhar, W. Wu, D. M. Stechman, 2017: University of Illinois OAP Processing Software (UIOPS). *EUFAR/ICCP/IUGG/IAMAS Processing Workshop,* Oberpfaffenhofen, Germany.

McFarquhar, G. M., **J. Finlon,** J. Um, S. Nesbitt, W. Wu, and H. Morrison, 2017: A Stochastic Approach for Representing Ice Cloud Microphysical Processes in Models. *DOE Atmospheric System Research Science Team Meeting*, Tysons, VA.

G. McFarquhar, R. Chase, P. Borque, S. Ding, **J. Finlon,** S. Nesbitt, M. Poellot, A. Heymsfield, and A. Bansemer, 2017: Aircraft PSD Studies Using UND Citation Data. *OLYMPEx Workshop,* Seattle, WA.

Finlon, J. A., G. M. McFarquhar, R. M. Rauber, B. F. Jewett, D. M. Plummer, and R. M. Rasmussen, 2016: Investigation of Mass-Dimension Relationship Parameters Within a Surface of Equally Realizable Solutions. *17th International Conference on Clouds & Precipitation,* Manchester, United Kingdom.

Finlon, J. A., R. M. Rauber, G. M. McFarquhar, B. F. Jewett, D. M. Plummer, D. Leon, and K. R. Knupp, 2015: A Comparison of X-band Polarization Parameters with In-Situ Microphysical Measurements in the Comma Head of Two Winter Cyclones. *37th Conference on Radar Meteorology,* Norman, OK.

Finlon, J. A., R. M. Rauber, G. M. McFarquhar, B. F. Jewett, D. M. Plummer, D. Leon, and K. R. Knupp, 2015: A Comparison of X-band Polarization Parameters with In-Situ Cloud Measurements in the Comma Head Region of Two Winter Cyclones. *SESE Research Review,* Urbana, IL.

Finlon, J. A., D. M. Plummer, R. M. Rauber, G. M. McFarquhar, P. Kollias, M. Maahn, B. F. Jewett, K. R. Knupp, and D. Leon, 2014: A Comparison of X-band Polarization Parameters with Aircraft Measurements of Two Comma Head Winter Cyclones. *14th Conference on Cloud Physics,* Boston, MA.

Finlon, J. A., D. M. Plummer, R. M. Rauber, G. M. McFarquhar, B. F. Jewett, K. R. Knupp, and D. Leon, 2013: A Comparison of X-band Polarization Parameters with Aircraft Measurements of Two Comma Head Winter Cyclones. *36th Conference on Radar Meteorology,* Breckenridge, CO.

Finlon, J. A., R. M. Rauber, G. M. McFarquhar, B. F. Jewett, and D. Leon, 2013: A Comparison of Radar Structures of Two Comma Head Winter Cyclones Using Dual-Doppler Analysis. *15th Conference on Mesoscale Processes,* Portland, OR.

Finlon, J. A., and R. M. Rauber, 2013: A Preliminary Look at Winter Cyclone Features Using the Mobile Alabama X-Band Radar. *SESE Research Review,* Urbana, IL.

SERVICE ACTIVITIES AND PROFESSIONAL ORGANIZATIONS

- Conference Co-Chair, Midwest Student Conference on Atmospheric Research (2016 – 2017)
- Committee Member, School of Earth, Society & Environment Research Review (2016 – 2017)
- President, Dept. of Atmos. Sci. Graduate Student Organization (2013 – 2014)
- Committee Member, Dept. of Atmos. Sci. Curriculum Committee (2013 – 2014)
- Member, Omicron Delta Kappa Natl. Leadership Honor Society (2011 – present)
- Student Member, American Meteorological Society (2008 – present)