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 Web of Science ResearcherID R-9154-2018

Degrees

B.Sc. (Honors)	Mathematics & Physics	University of Toronto	1987
M.Sc.	Atmospheric Physics	University of Toronto	1989
Ph.D.	Atmospheric Physics	University of Toronto	1993

History of Employment

- Postgraduate Researcher, Center for Clouds, Chemistry and Climate, Scripps Inst. of Oceanography, University of California at San Diego, La Jolla, CA, 1993-1994
- Associate/Project Scientist, Microscale and Mesoscale Meteorology Division, National Center for Atmospheric Research, Boulder, CO, 1995-2001
- Assistant/Associate/Full Professor, Department of Atmospheric Sciences, University of Illinois at Urbana-Champaign, Urbana, IL, 2001-2017
- Visiting Professor, Université Blaise Pascal, Clermont-Ferrand, France, 2012
- Visiting Faculty Fellow, National Center for Atmospheric Research (NCAR), Boulder, CO, 2015-16
- Director, Cooperative Institute for Mesoscale Meteorological Studies (CIMMS) and Cooperative Institute for Severe and High Impact Weather Research and Operations (CIWRO) & Professor, School of Meteorology, University of Oklahoma, 2017–now)

Narrative of Research Experience

- Research concentrates on obtaining knowledge of cloud properties and better understanding of processes occurring in clouds to quantitatively determine impact of cloud processes on weather and climate using in-situ and remote sensing observations obtained by aircraft, ships and ground instruments, as well as models with variety of spatial and temporal scales
- 267 publications in the refereed literature
- h-index of 76, i10-index of 230, & 18,368 citations (google scholar)
- Investigator for 65 grants from: 2 Cooperative Institute (~\$294 Million), 16 NSF (~\$9.2 million), 22 DOE (~\$7.3 million), 17 NASA (~\$6.0 million), 3 NOAA (~\$3.1 million), 3 PNNL (~\$120,000), 1 ONR (\$599k), 1 private industry (~14,000)
- 85 invited lectures and 56 invited conference presentations
- Participant in 37 Airborne Field Campaigns and Lead/Co-Lead Scientist for following field programs: ISDAC, SOCRATES, CAESAR and MARCUS and for cloud microphysics probes on ORACLES, PECAN, RACORO and BAMEX
- McFarquhar and group have made 876 presentations at national/international conferences
- Chief Scientist for DOE Atmospheric Radiation Measurement (ARM) Program's Aerial Facility Program (AAF), 2003-2010
- Advised/advising 33 M.S. theses, 25 Ph.D. theses, 37 undergraduate/high school students, 6 postdoctoral fellows, 5 research scientists (Ph.D. level) and 2 research associates (M.S. level)
- Taught 13 different undergraduate and graduate classes at Illinois, 3 graduate classes at Oklahoma, and 1 graduate class at University of Colorado at Boulder
- Convened 25 sessions at AGU fall meeting and 58 at other meetings
- Led 36 workshops on varied topics (e.g., standardizing data analysis for cloud physics probes; fire weather; science, predictability, operations & response for high impact weather)
- Developed middle school curriculum *Weathering the Storm*; lead workshops for K-12 teachers; created travelling trunks with supplies and complete lesson kits for meteorology; instructor after school program for Boys & Girls Club of America "Five Nights of Eddies";

Short List of Key Publications:

- McFarquhar, G.M., and A.J. Heymsfield, 1996: Microphysical characteristics of three cirrus anvils sampled during the Central Equatorial Pacific Experiment (CEPEX). *J. Atmos. Sci.*, **53**, 2401-2423.
- McFarquhar, G.M., A.J. Heymsfield, J. Spinhirne, and W. Hart, 2000: Thin and Subvisual tropopause tropical cirrus: Observations and radiative impacts. *J. Atmos. Sci.*, **57**, 1841-1853.
- McFarquhar, G.M., and A.J. Heymsfield, 2001: Parameterizations of INDOEX microphysical measurements and calculations of cloud susceptibility: Applications for climate studies. *J. Geophys. Res.*, **106**, 28675-28698.
- McFarquhar, G.M., G. Zhang, M.R. Poellot, G.L. Kok, R. McCoy, T. Tooman, and A.J. Heymsfield, 2007: Ice properties of single layer stratocumulus during the Mixed-Phase Arctic Cloud Experiment (MPACE). Part I: Observations. *J. Geophys. Res.*, **112**, D24202.
- McFarquhar, G.M., and 33 Co-authors, 2011: Indirect and Semi-Direct Aerosol Campaign (ISDAC): The impact of arctic aerosols on clouds, *Bull. Amer. Meteor. Soc.*, **92**, 183-201.
- Zhang, H., G. McFarquhar, S. Saleeby and W.R. Cotton, 2007: Impacts of Saharan Dust as CCN on the evolution of an idealized tropical cyclone. *Geophys. Res. Lett.*, **34**, L14812.
- McFarquhar, G.M., 2004: A new representation of collision-induced breakup of raindrops and its implications for the shapes of raindrop size distributions. *J. Atmos. Sci.*, **61**, 777-794.
- McFarquhar, G.M., and 19 Co-authors, 2017: Processing of ice cloud in situ data collected by bulk water, scattering and imaging probes: Fundamentals, uncertainties and efforts towards consistency. *Amer. Meteor. Soc. Monographs*, **58**, II.1-11.31.
- McFarquhar, G.M., and 51 Co-authors, 2021: Unique observations of clouds, aerosols and precipitation over the Southern Ocean: An overview of CAPRICORN, MARCUS, MICRE and SOCRATES. *Bull. Amer. Meteor. Soc.*, **102**, doi.org/10.1175/BAMS-D-20-0132.1.
- Gupta, S., G.M. McFarquhar, and 6 Co-authors, 2022: Factors affecting precipitation formation and precipitation susceptibility of marine stratocumulus with variable above- and below-cloud aerosol concentrations over the Southeast Atlantic. *Atmos. Chem. Phys.*, **22**, 2769-2793.
- Dzambo, A., G. McFarquhar, A. Sledd, and T. L'Ecuyer, 2023: Assessing latent and kinetic energy trend changes in extratropical cyclones from 1940-2020: Results from ERA-5 reanalysis. *Geophys. Res. Lett.*, **50**, e2023GL105207.
- McFarquhar, G.M., T.-L. Hsieh, M. Freer, J. Mascio, and B.F. Jewett, 2015: The characterization of ice hydrometeor gamma size distributions as volumes in $N_0/\lambda/\mu$ phase space: implications for microphysical process modeling. *J. Atmos. Sci.*, **72**, 892-909.
- Jackson, R.C, G.M. McFarquhar, and 6 Co-authors, 2014: An assessment of the impact of anti-shattering tips and artifact removal techniques on cloud ice size distributions measured by the 2D cloud probe. *J. Atmos. Ocean. Tech.*, **31**, 2567-2590.
- D'Alessandro, J.J., and G.M. McFarquhar, 2023: Impacts of drop clustering and entrainment mixing on mixed phase shallow cloud properties over the Southern Ocean: Results from SOCRATES. *J. Geophys. Res.*, **128**, e2023JD038622.

Honors:

- Fellow, American Geophysical Union (2020)
- Fellow, American Meteorological Society (2017)
- UI List of Teachers ranked Excellent by their Students (fall 2002, spring 2003, fall 2003, fall 2005, fall 2007, fall 2008 (2 classes), fall 2009, fall 2010, fall 2011 (2 classes), spring 2012, fall 2013, fall 2014, spring 2015, spring 2017)
- NCAR Advanced Study Program Faculty Fellowship (2014-2015)
- Richard and Margaret Romano Professorial Scholar (2008 – 2011)
- Petit Scholar (2005-06)
- National Academy of Sciences Committee on Future Use of NASA Airborne Platforms to Advance Earth Science Priorities (2020-21)
- NASA Group Achievement Award 2002, 2009, 2014, 2019, 2020

Professional Society Memberships:

- American Geophysical Union
- American Meteorological Society
- American Association for the Advancement of Science