

IAN B GLENN

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EDUCATION

Ph.D., Atmospheric Sciences

May 2018

Dissertation title: Updraft merging in organized tropical deep convection

University of Utah, Salt Lake City, UT, USA

Advisor: Professor Steven K. Krueger

M.S., Atmospheric Sciences

August 2014

Thesis title: Characteristics of clouds and the near cloud environment in a simulation of tropical convection

University of Utah, Salt Lake City, UT, USA

Advisor: Professor Steven K. Krueger

B.S., Geography, Meteorology, and Climatology

May 2009

Arizona State University, Tempe, AZ, USA

Summa Cum Laude

RESEARCH INTERESTS

Numerical modeling of atmospheric processes, cumulus parameterization for weather and climate modeling, cloud physics and dynamics, microphysical processes, turbulence parameterization, seasonal climate forecasting, radiative transfer, data visualization

RESEARCH EXPERIENCE

Research Assistant / Scientist 1 CIRES CU Boulder/NOAA

2017-2019

- Graham Feingold and I integrated aerosol number concentration observations into a Large Eddy Simulation system for modeling shallow cumulus clouds, then created a database of aerosol-cloud interaction (ACI) simulations constrained by observations. We combined mutual information theory with a framework supported by previous literature and learned how to account for sub-cloud-scale spatial heterogeneities when calculating the radiative effects of ACI, potentially reducing systematic analysis errors, producing at least 3 publications (currently in revision / review).

Research Assistant, University of Utah

2010-2017

- Prof. Steven K. Krueger and I studied cumulus parameterization evaluation, cumulus updraft and downdraft structure, and new analysis techniques for numerical models of convection, producing numerous talks and directly at least 2 publications.

FIRST AUTHOR PUBLICATIONS

Glenn, I. B., G. Feingold, J. Gristey, and T. Yamaguchi, 2019: **Quantification of the Radiative Effect of Aerosol-Cloud-Interactions in Shallow Continental Cumulus Clouds** *J. Atmos. Sci.* *accepted in revision.*

Glenn, I. B., and S. K. Krueger, 2017: **Connections matter: Updraft merging in organized tropical deep convection** *Geophys. Res. Lett.*, **44**, 70877094, doi:10.1002/2017GL074162

Glenn, I. B., and S. K. Krueger, 2014: **Downdrafts in the near cloud environment of deep convective updrafts.** *J. Adv. Model. Earth Syst.*, **6**, 1-7, doi:10.1002/2013MS000261

CONTRIBUTING AUTHOR PUBLICATIONS

Angevine, W. M., J. Olson, J. Gristey, I. B. Glenn, G. Feingold, and D. Turner, 2020: **Scale awareness, resolved circulations, and practical limits in the MYNN-EDMF boundary layer and shallow cumulus scheme.** *In prep.*

Gristey, J. J., G. Feingold, I. B. Glenn, K. S. Schmidt, and H. Chen, 2019: **Surface Solar Irradiance in Continental Shallow Cumulus Cloud Fields: Observations and Large Eddy Simulation,** *J. Atmos. Sci.* *accepted.*

Garrett, T. J., I. B. Glenn, and S. K. Krueger, 2018: **Thermodynamic constraints on the size distributions of tropical clouds.** *J. Geophys. Res. Atmos.*, **123**, 88328849, doi: 10.1029/2018JD028803.

SELECTED CONFERENCE TALKS

Glenn, I. B., G. Feingold, J. Gristey, and T. Yamaguchi, 2019: **Mutual Information and the Radiative Effect of Aerosol-Cloud-Interactions in Shallow Continental Cumulus Clouds** *ARM/ASR PI Meeting June 2019 Silver Springs M.D.*

Glenn, I. B. **Simulation of tropical convection in a 4xCO2 atmosphere.** Deep Carbon Observatory (DCO) Early Career Scientist Meeting, Azores, Portugal. September, 2015.

Glenn, I. B., and S. K. Krueger. **Recirculating downdrafts in deep convection.** American Geophysical Union (AGU) Fall Meeting, San Francisco CA. December, 2014.

Glenn, I. B., and S. K. Krueger. **Tropical deep convection: What can explain the distribution of cloud top heights?** Center for Multiscale Modeling of Atmospheric Processes (CMMAP) Team Meeting, Fort Collins, CO. August 2013.

Glenn, I. B., and S. K. Krueger. **Subsiding shells: A detailed look at deep convection in a high resolution large eddy simulation.** Pan-Global Atmosphere System Studies (GASS) Conference. Boulder, CO. September 2012.

SELECTED CONFERENCE POSTERS

Glenn, I. B., G. Feingold, J. Gristey, and T. Yamaguchi, July 2019: **Quantification of the Radia-**

AWARDS

2014 Recipient of the **Outstanding Teaching Assistant Award**, College of Mines and Earth Sciences, University of Utah.

2014 Recipient of the **Edward J. Zipser Award** for Excellence in Graduate Research, Department of Atmospheric Sciences, University of Utah.

2013 Recipient of the **Kyle Tietze Memorial Award** to fund international travel and encourage international research partnerships. University of Utah, Department of Atmospheric Sciences.

TEACHING EXPERIENCE

The University of Utah, Salt Lake City, UT USA

Teaching Assistantships:

- Boundary Layer Meteorology (Undergraduate) Fall 2013
- Atmospheric Radiation (Undergraduate) Spring 2013
- Atmospheric Thermodynamics (Undergraduate) Spring 2013

Guest Lecturer

- Wind Power Meteorology (Graduate)
- Physical Meteorology (Graduate and undergraduate)
- Intro to Climate Change (Undergraduate)