

**Matthew R. Igel, PhD**  
4600 Rickenbacker Causeway  
Miami, FL 33149 USA  
migel@rsmas.miami.edu  
(305) 421-4022

<http://www.researcherid.com/rid/A-5727-2013>  
<http://orcid.org/0000-0001-8916-544X>

**Positions:**

Since 2014 -- NSF Postdoctoral Fellow hosted by the University of Miami

**Education:**

2014 -- Doctorate of Philosophy in Atmospheric Science from Colorado State University  
2011 -- Masters of Science in Atmospheric Science from Colorado State University  
2009 -- Honors Bachelors of Science in Meteorology from North Carolina State University  
(*magna cum laude*)  
-- Bachelors of Science in Physics (*magna cum laude*)  
-- Minor in Mathematics  
-- University Honors Program Degree

**PhD Dissertation:**

2014 -- Tropical Deep Convective Cloud Morphology (Prof. van den Heever)

**Master's Thesis:**

2011 -- A Tropical Radiation and Cloud System Feedback Modulated by Sea Surface Temperature (Prof. Stephens)

**Honors:**

NSF Atmospheric and Geospace Sciences Postdoctoral Research Fellowship  
(Fall 2014-Summer 2016)  
Herbert Riehl Memorial Award (CSU Atmospheric Science best Masters publication)  
NASA Earth and Space Science [Graduate] Fellowship (2013-2014)  
CSU School of Global Environmental Sustainability Fellowship  
2015 Gordon Research Seminar co-chair  
Sigma Pi Sigma: National Physics Honors Society  
AMS Undergraduate Fellowship  
AMS Student Travel Grant

**Experience:**

2016 -- NSF Postdoc Professional Development Workshop (UCAR/NCAR)  
2015 -- Delivered guest lectures at the University of Miami.  
2014 -- Teaching Assistant (Mesoscale Modeling)  
2013 -- HS3 Forecaster at NASA Wallops Air Base  
-- Gordon Research Seminar/Conference on Radiation and Climate  
-- CSU SoGES Fellowship professional communication workshops (monthly)  
2012 -- DYNAMO Campaign cruise lead radar operator onboard R/V Revelle  
-- JPL CCS Summer School: Using Satellite Observations to Advance Climate Models  
-- Research mentor for CMMAP summer intern (Aryeh Drager, Dartmouth)  
-- Awarded an NCAR student High-Power Computing Allocation  
2011 -- Teaching Assistant (Atmospheric Dynamics)

### **Publications:**

- Bourgeois, Q., **M. R. Igel**, A.M.L. Ekman, and R. Krejci: The Forgotten Clouds of the Tropical Middle Troposphere. Pending Revisions at *Nature Communications*.
- Igel, M. R.**, S. Herbener, and S. Saleeby: The Tropical Precipitation Pickup Threshold and Clouds in a Radiative Convective Equilibrium Model. Part I: Column Moisture. Submitted to *Journal of Atmospheric Sciences*.
- Igel, M. R.**: The Tropical Precipitation Pickup Threshold and Clouds in a Radiative Convective Equilibrium Model. Part II: Two-Layer Moisture. Submitted to *Journal of Atmospheric Sciences*.
- Igel, M. R.**, and S. C. van den Heever (2015): Deep-Convective Morphology as Observed from CloudSat. *Atmospheric Chemistry and Physics Discussion*. 15, 15977-16017, doi: 10.5194/acpd-15-15977-2015.
- King, J. M., C. D. Kummerow, S. C. van den Heever, **M. R. Igel** (2015): Modeled and observed warm rainfall occurrence and its relationships with cloud macrophysical properties. *Journal of Atmospheric Sciences*. 72, 4075-4090.
- Igel, M. R.**, and S. C. van den Heever (2015): The Relative Influence of Environmental Characteristics on Deep Convective Morphology as Observed by CloudSat. *Journal of Geophysical Research*. 120, doi: 10.1002/2014JD022690.
- Igel, A. L., **M. R. Igel**, and S. C. van den Heever (2015): Make it a Double? Sobering Results from Simulations using Single-Moment Microphysics Schemes. *Journal of Atmospheric Sciences*, 72, 910-925, doi: 10.1175/JAS-D-14-0107.1.
- Igel, M. R.**, A. J. Drager, and S. C. van den Heever (2014): A CloudSat Cloud-Object Partitioning Technique and Assessment and Integration of Deep Convective Anvil Sensitivities to Sea Surface Temperature. *Journal of Geophysical Research*. 119, 10-515-10,535, doi: 10.1002/2014JD021717.
- Igel, M. R.**, S. C. van den Heever, G. L. Stephens, and D. J. Posselt (2014): Convective-Scale Responses of a Large-Domain Modeled, Tropical Atmosphere to Surface Warming. *Quarterly Journal of the Royal Meteorological Society*, 140, DOI:10.1002/qj.2230. (Riehl Award)
- Posselt, D. J., S. van den Heever, G. Stephens, and **M. R. Igel** (2012): Changes in the interactions between tropical convection, radiation and the large scale circulation in a warming environment. *Journal of Climate*, 25, doi: 10.1175/2011JCLI4167.1.

### **Conference Presentations (Oral):**

- 2016 -- Coauthor: The Forgotten Clouds of the Tropical Middle Troposphere (EGU GA)  
The Nature and Magnitude of Hydrometeor Frictional Heating in Convective Clouds (AMOS Meeting)
- 2015 -- The Tropical Convective Cloud Population and the Critical Transition to Heavy Precipitation (CNES Tropical Meeting)
- 2014 -- The Effects of Large-Scale Dynamic Flows on Tropical Deep Convective Morphology (AGU Fall Meeting)  
-- The Importance of Aerosol to Deep Convective Cloud Morphology (AMS Conference on Cloud Physics)  
-- 2<sup>nd</sup> author: Tropical Cold Pool Characteristics (Tropical Workshop)
- 2013 -- Mature Deep Convective Cloud Morphology as Observed by CloudSat (AGU Fall Meeting)

- An analysis of tropical, deep convective anvil-climate interactions using CloudSat (Gordon Research Seminar)
- 2<sup>nd</sup> author: Tropical Cold Pool Characteristics (AMS Mesoscale Meeting)
- 2012 -- Tropical Precipitation Responses to Surface Warming in a CRM (3ICESM)
- A Scaling Relationship between Tropical Convective Core and Anvil Widths (AGU Fall Meeting)
- Coauthor: Shipboard Operations of the NASA-TOGA Radar in DYNAMO (2012 Tropical Conference)
- Coauthor: Microphysical Contributions to Latent Heating Structures of Midlatitude and Tropical Storms and Feedbacks to Storm Organization (AGU Fall Meeting)
- 2009 -- Effects of Aerosol on Shallow Marine Clouds in the Bay of Bengal (AMS Annual Meeting)

**Poster:**

- 2015 -- Feedbacks in Tropical Deep Convective Clouds Resulting in the Transition to Strong Precipitation (Gordon Research Seminar/Conference)
- The Role of Depositional Heating in the Transition to Strong Precipitation in Tropical Deep Convection (AMS Mesoscale Conference)
- Organization of the Tropical Convective Cloud Population by Humidity and the Critical Transition to Heavy Precipitation (AGU Fall Meeting)
- 2013 -- Mature Deep Convective Cloud Morphology as Observed by CloudSat (AGU Fall Meeting)
- An Analysis of tropical, deep convective anvil-climate interactions using CloudSat (Gordon Research Seminar/Conference)
- 2012 -- 2<sup>nd</sup> author to advised summer intern: CloudSat Derived Morphology of Deep Convection over Tropical Oceans (AGU Fall Meeting and AMS Annual Meeting) (OSPA winning poster)
- 2011 -- The Case for Cooler Anvil Temperatures in the Tropics (AGU Fall Meeting)

**Service:**

- 2010-11 -- Graduate student representative
- 2010 -- Student recruiter at AMS Annual Meeting

**Professional Organizations:**

- Since 2003 -- American Meteorological Society
- 2008 -- American Geophysical Union
- American Physical Society
- 2015 -- European Geosciences Union

**Labs**

- 2014-current -- Mapes Research Group: University of Miami
- 2010-14 -- van den Heever Research Group: Colorado State University
- 2009-10 -- Stephens Research Group: Colorado State University
- 2006-09 -- Aerosol Climate Interactions Lab: NC State University
- 2008 -- Space Weather Prediction Center: NOAA Boulder

**Miscellaneous**

- 2012 -- Winner of inaugural AGU Fall Meeting Student T-shirt Design Contest
- 2012 -- CSU Little Shop of Physics