

*Curriculum Vitae***DEREK J. POSSELT****EDUCATION**

- Ph. D. Atmospheric Science, Colorado State University 2006
Dissertation: *Application of Advanced Data Assimilation Techniques to the Study of Cloud and Precipitation Feedbacks in the Tropical Climate System*
Advisor: Dr. Graeme L. Stephens
- M.S. Atmospheric Science, University of Wisconsin-Madison 2001
Thesis: *The Role of Latent Heating in the Formation of a Warm-Occluded Thermal Structure in an Intense Continental Cyclone*,
Advisor: Dr. Jonathan E. Martin
- B.S. Atmospheric Science, University of Wisconsin-Madison 1997

RESEARCH INTERESTS

- Cloud and Precipitation Observing Systems*: Determination of the observing system requirements for effective characterization of cloud, precipitation, and aerosol processes. Assessment of current and future surface-based and space-borne observing systems.
- Role of Cloud and Precipitation Processes in the Climate System*: Use of fine-scale numerical models, combined with in-situ and remotely-sensed cloud and precipitation observations, to study the response of cloud dynamics and microphysical processes to perturbations in the Earth's climate system and hydrologic cycle.
- Structure and Evolution of Midlatitude Baroclinic Systems*: Examination of the role of moist processes in the formation and evolution of baroclinic waves. Use of cloud and precipitation information from space-based sensors to explore mesoscale structures within extratropical cyclones.
- Data Assimilation Applications*: Use of data assimilation techniques to study the physics and dynamics of the atmosphere. Fusion of numerical models with observational data to produce improved datasets for the study of atmospheric processes. Application of Markov chain Monte Carlo methods for model parameter estimation and bias constraint.
- Data Assimilation and Retrieval Theory*: Development of new techniques to retrieve and assimilate cloud properties and precipitation on multiple scales. Evaluation of the effect of Gaussian error assumptions on linear least-squares estimates.

PROFESSIONAL EXPERIENCE

- 2016-Present *Scientist*, Jet Propulsion Laboratory, California Institute of Technology.
- 2014-2016 *Associate Professor*, Department of Atmospheric, Oceanic, and Space Sciences, University of Michigan.
- 2011-2014 *Assistant Professor*, Department of Atmospheric, Oceanic, and Space Sciences, University of Michigan.

- 2007-2011 *Assistant Research Scientist*, Department of Atmospheric, Oceanic, and Space Sciences, University of Michigan.
- 2006-2007 *Postdoctoral Fellow*, Global Modeling and Assimilation Office, NASA Goddard Space Flight Center and Dept. of Atmospheric Science, Colorado State University
- 2003-2006 *Graduate Research Assistant*, Dept. of Atmospheric Science, Colorado State University and Global Modeling and Assimilation Office, NASA Goddard Space Flight Center
- 2001-2003 *Assistant Researcher*, Cooperative Institute for Meteorological Satellite Studies, University of Wisconsin–Madison
- 1999-2001 *Graduate Research Assistant*, Department of Atmospheric and Oceanic Sciences, University of Wisconsin–Madison
- 1997-1999 *Graduate Teaching Assistant*, Department of Atmospheric and Oceanic Sciences University of Wisconsin–Madison

GRANTS AWARDED

As PI:

Principal Investigator: *NASA Precipitation Measuring Missions*, A Study of the Influence of Convection on Atmospheric River Genesis, Evolution, and Precipitation Production
Total Budget: \$475,493 1 January 2022 – 31 December 2024

Principal Investigator: *NASA Modeling Analysis and Prediction*, An Observational and Modeling Study of High-Latitude Clouds and Precipitation in Extratropical Cyclones
Total Budget: \$1,001,529 1 January 2021 – 31 December 2024

Principal Investigator: *NASA CYGNSS Competed Science Team*, CYGNSS Based Analysis of Extratropical Cyclones and Atmospheric Rivers
Total Budget: \$541,846 1 May 2021 – 30 Apr 2024

Principal Investigator: *NASA Advanced Information Systems Technology*, A Science-Focused, Scalable, Flexible Instrument Simulation (OSSE) Toolkit for Mission Design
Total Budget: \$1,069,738 1 February 2020 – 31 January 2022

Principal Investigator: *NASA CYGNSS Competed Science Team*, CYGNSS Estimates of Surface Heat Fluxes in Low-Latitude Extratropical Cyclones
Total Budget: \$480,665 8 May 2018 – 7 May 2021

Principal Investigator: *Office of Naval Research Propagation of Intra-Seasonal Tropical Oscillations (PISTON)*, Ensemble Simulations of Deep Convection over the Maritime Continent
Total Budget: \$481,134 1 October 2017 – 30 September 2020

Principal Investigator: *NASA Modeling, Analysis, and Prediction*, An Examination of Midlatitude Frontal Systems in NASA Models and Observations”, NASA Modeling, Analysis, and Prediction.

- Total Budget: \$813,670 1 January 2017 – 31 December 2020
- Deputy Principal Investigator:** NASA Earth Venture-2 Cyclone Global Navigation Satellite System Mission
Total Budget: \$158.7M 7 December 2012 – 6 December 2019
- Principal Investigator:** *Department of Energy Atmospheric Science Research, Bayesian Cloud Property Retrievals from ARM Active and Passive Measurements*
Total Budget: \$374,440 1 September 2016 – 31 August 2018
- Principal Investigator:** *NASA Aerosol-Cloud-Ecosystems (ACE) Mission, Assessment and Optimization of Potential Multi-Sensor Cloud and Precipitation Property Retrieval Schemes for the ACE Mission*
Posselt Budget \$206,463 1 April 2015 – 31 March 2018
- Principal Investigator:** *Naval Research Laboratory Broad Agency Announcement, Data Assimilation Methodologies for Nonlinear Dynamical Systems and Positive Definite Quantities*
Total Budget: \$145,902 2 July 2014 - 1 July 2017
- Co-Principal Investigator:** *NASA Interdisciplinary Research in Earth Science, Sensitivities of Biomass Burning and Land Use Change on Precipitation Days in the Maritime Continent*
Posselt Budget \$317,146 1 February 2014 – 31 January 2017
- Principal Investigator:** *NASA ROSES CloudSAT and CALIPSO Science Team, A CloudSat, CALIPSO, and A-Train-Based Examination of Aerosols, Cloud Structure, and Cloud Radiative Forcing in Midlatitude Cyclones*
Total Budget: \$811,648 1 September 2013 - 31 August 2016
- Principal Investigator:** *National Science Foundation, Dual-polarimetric Radar Data Assimilation Research for Enhanced Initialization of Moist Convective Systems*
Total Budget: \$109,609 1 April 2011 – 31 March 2015
- Principal Investigator:** *Naval Research Laboratory Broad Agency Announcement, Toward an Operational Particle Filter-Based Ensemble Data Assimilation System*
Total Budget: \$193,868 1 September 2010 - 31 May 2014
- Principal Investigator:** *NASA ROSES CloudSAT and CALIPSO Science Team, An Examination of the Relationship Between Aerosols, Cloud Vertical Structure, and Cloud Radiative Forcing in Midlatitude Cyclones*
Total Budget: \$598,658 16 June 2010 - 15 June 2014
- Principal Investigator:** *NASA Modeling, Analysis, and Prediction, Improved Representation of Diurnal Precipitation Patterns in the NASA GEOS 5 General Circulation Model*
Total Budget: \$583,210 5 May 2009 - 4 May 2013

Co-Principal Investigator: *NASA Modeling, Analysis, and Prediction*, Process-Based and Object-Based Investigation of Bias in the Simulations of the Physical Climate, PI: Richard Rood
 Total Budget: \$1,195,000 14 January 2008 - 13 January 2011

As Co-I:

Co-Investigator: *NASA Weather and Atmospheric Dynamics*, Assimilation and Analysis of Airborne Observations of Tropical Storms, PI: Dr. Mathias Schreier, JPL.
 Total Budget: \$462,349 1 March 2020 – 28 February 2023

Co-Investigator: *NASA Science of Terra, Aqua, Suomi NPP, and JPSS*, Assimilation of 3D Atmospheric Motion Vectors to Improve Subseasonal Numerical Weather Forecasts, PI: David Santek, University of Wisconsin – Madison / CIMSS
 Total Budget: \$100,403 1 December 2017 – 30 November 2020

Co-Investigator: *NASA Weather and Atmospheric Dynamics*, Daily Variations of Global Tropical Ocean Surface Winds, PI: Baijun Tian, JPL
 Total Budget: \$261,490 1 June 2017 – 31 May 2019

Co-Investigator: *Department of Energy Atmospheric Science Research*, Model Simulations of Aerosol Effects on Clouds and Precipitation in Comparison With ARM Data, PI: Joyce Penner, University of Michigan
 Total Budget: \$175,546 1 September 2012 – 31 August 2015

Co-Investigator: *Department of Energy Atmospheric Science Research*, Development of Cloud and Precipitation Property Retrieval Algorithms and Measurement Simulators from ASR Data, PI: Gerald Mace, University of Utah
 Total Budget: \$150,000 15 August 2011 – 14 August 2014

Co-Investigator: *NASA Science of Terra and Aqua*, A Multi-Spectral Approach to Evaluating the Response of Deep Organized Convection to Aerosols, PI: Eric Wilcox, Desert Research Institute
 Total Budget: \$100,403 23 March 2011 – 22 March 2015

Co-Investigator: *NSF Water Resources and Climate*, WSC-Category 2: Extreme events impacts on water quality in the Great Lakes: Prediction and management of nutrient loading in a changing climate, PI: Anna Michalak
 Total Budget: \$4,992,894 1 January 2011 - 31 December 2015

Co-Investigator: *NASA Modeling, Analysis, and Prediction*, Optimal Blending of EOS Observations, Goddard Cumulus Ensemble Model, and MERRA Reanalysis: Towards a Benchmark Database for Testing Cloud Parameterizations, PI: Xianglei Huang
 Total Budget: \$991,330 5 May 2009 - 4 May 2014

PEER REVIEWED PUBLICATIONS

(____ denotes student authors)

2022

1. Vukicevic, T., **D. J. Posselt**, and A. Stankovich, 2022: Sensitivity of modeled microphysics to stochastically perturbed parameters. *J. Adv. Modeling Earth Systems*. Submitted.
2. Natraj, V., M. Luo, J.-F. Blavier, V. Payne, J. Neu, Z. Zeng, S. Kulawik, L. Wu, J. Roman, **D. J. Posselt**, S. Sander, Y.-H. Wu, and L. Dorsky 2022: Simulated Multispectral Temperature and Atmospheric Composition Retrievals for the GEO-IR Sounder. *Atmos. Meas. Tech.*, Conditionally Accepted.
3. Lambriigtsen, B., P. Kangaslahta, O. Montes, N. Niamsuwan, **D. J. Posselt**, J. Roman, M. Schreier, A. Tanner, L. Wu, and I. Yanovsky, 2022: A Geostationary Microwave Sounder: Design, Implementation and Performance. IEEE JSTARS, Submitted.
4. Duffy, G. A., and **D. J. Posselt**, 2022: A particle size distribution model for falling snow aggregates. *J. Appl. Meteor. Clim.*, Conditionally Accepted.
5. **Posselt, D. J.**, L. Wu, M. Schreier, J. Roman, M. Minamide, and B. Lambriigtsen, 2022: Assessing the Forecast Impact of a Geostationary Microwave Sounder using Regional and Global OSSEs. *Mon. Wea. Rev.*, Accepted.
6. Minamide, M., and **D. J. Posselt**, 2022: Using Ensemble Data Assimilation to Explore the Environmental Controls on the Initiation and Predictability of Moist Convection, *J. Atmos. Sci.*, Accepted.
7. Ouyed, A., X. Zeng, L. Wu, **D. J. Posselt**, and H. Su, 2022: Two Stage Artificial Intelligence Algorithm for Calculating Moisture-Tracking Atmospheric Motion Vectors. *J. Appl. Meteor. Clim.*, In Press. <https://doi.org/10.1175/JAMC-D-21-0070.1>
8. Grant, L. D., S. C. van den Heever, Z. S. Haddad, J. Bukowski, P. J. Marinescu, R. L. Storer, **D. J. Posselt**, and G. L. Stephens, 2022: A linear relationship between vertical velocity and microphysical process rates in deep convection. *J. Atmos. Sci.*, In Press. <https://doi.org/10.1175/JAS-D-21-0035.1>

2021

9. Naud, C. M., J. A. Crespo, and **D. J. Posselt**, 2021: On the relationship between CYGNSS surface heat fluxes and the lifecycle of low-latitude extratropical cyclones. *J. Appl. Meteor. Clim.* **60**, 1575-1590. <https://doi.org/10.1175/JAMC-D-21-0074.1>
10. **Posselt, D. J.**, B. D. Wilson, R. L. Storer, D. Tropf, G. A. Duffy, M. Lebsack, V. Lall, N. Niamsuwan, and S. Tanelli, 2021: A Science-Focused, Scalable, Flexible Observing System Simulation Experiment (OSSE) Toolkit, *2021 IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*.
11. **Lunderman, S.**, M. Morzfeld, and **D. J. Posselt**, 2021: Using global Bayesian optimization in ensemble data assimilation: parameter estimation, tuning localization and inflation, or all of the above. *Tellus A: Dynamic Meteorology and Oceanography*, **73:1**, 1-16, doi:[10.1080/16000870.2021.1924952](https://doi.org/10.1080/16000870.2021.1924952).
12. Crespo, J. A., C. M. Naud, and **D. J. Posselt**, 2021: CYGNSS Observations and Analysis of Low-Latitude Extratropical Cyclones. *J. Appl. Meteor. Clim.*, **60**, 527-541. <https://doi.org/10.1175/JAMC-D-20-0190.1>
13. Asharaf, S., D. E. Waliser, **D. J. Posselt**, C. S. Ruf, C. Zhang, and A. W. Putra, 2021: CYGNSS Ocean Surface Wind Validation in the Tropics. *J. Atmos. Ocn. Tech.* **38**, 711-724, <https://doi.org/10.1175/JTECH-D-20-0079.1>.

14. Teixeira, J., H. Nguyen, **D. J. Posselt**, H. Su, and L. Wu, 2021: Using machine learning to model uncertainty for water vapor atmospheric motion vectors. *Atmos. Meas. Tech.*, **14**, 1941–1957. <https://doi.org/10.5194/amt-14-1941-2021>
 15. Morales, A., **D. J. Posselt**, and H. Morrison, 2021: Which combinations of environmental conditions and microphysical parameter values produce a given orographic precipitation distribution? *J. Atmos. Sci.*, **78**, 619–638. <https://doi.org/10.1175/JAS-D-20-0142.1>
- 2020**
16. Suselj, K., **D. J. Posselt**, M. Smalley, M. Lebsock, and J. Teixeira, 2020: A new methodology for observation-based parameterization development. *Mon. Wea. Rev.*, **148**, 4159–4184. <https://doi.org/10.1175/MWR-D-20-0114.1>
 17. Maahn, M., D. D. Turner, U. Lohnert, **D. J. Posselt**, K. Ebell, G. G. Mace, and J. M. Comstock, 2020: Optimal Estimation Retrievals and Their Uncertainties: What Every Atmospheric Scientist Should Know. *Bull. Amer. Meteor. Soc.*, **101**, E1512–E1523, <https://doi.org/10.1175/BAMS-D-19-0027.1>
 18. Zeng, X., R. Atlas, R. J. Birk, F. H. Carr, M. J. Carrier, L. Cucurull, W. H. Hooke, E. Kalnay, R. Murtugudde, **D. J. Posselt**, J. L. Russell, D. P. Tyndall, R. A. Weller, and F. Zhang, 2020: Use of Observing System Simulation Experiments in the U.S. *Bull. Amer. Meteor. Soc.*, **101**, E1427–E1438. <https://doi.org/10.1175/BAMS-D-19-0155.1>
 19. Morrison, H., M. van Lier-Walqui, A. M. Fridlind, W. W. Grabowski, J. Y. Harrington, C. Hoose, A. Korolev, M. R. Kumjian, J. A. Milbrandt, H. Pawlowska, **D. J. Posselt**, O. P. Prat, K. J. Reimel, S.-I. Shima, B. van Dierenhoven, and L. Xue, 2020: Confronting the challenge of modeling cloud and precipitation microphysics. *J. Adv. Model. Earth. Sys.*, **12**. <https://doi.org/10.1029/2019MS001689>
 20. Stephens, G., A. Freeman, E. Richard, P. Pilewskie, P. Larkin, C. Chew, S. Tanelli, S. Brown, **D. J. Posselt**, and E. Peral, 2020: The Emerging Technological Revolution in Earth Observations. *Bull. Amer. Meteor. Soc.*, **101**, E274–E285, <https://doi.org/10.1175/BAMS-D-19-0146.1>
 21. Stephens, G. L., S. C. van den Heever, Z. S. Haddad, **D. J. Posselt**, R. L. Storer, L. D. Grant, O. O. Sy, T. N. Rao, S. Tanelli, and E. Peral, 2020: A Distributed Small Satellite Approach for Measuring Convective Transports in the Earth’s Atmosphere. *IEEE Trans. Geosci. Rem. Sens.*, **58**, 4–13. doi:10.1109/TGRS.2019.2918090.
- 2019**
22. Xu, Z., G. G. Mace, and **D. J. Posselt**, 2019: A method for assessing relative skill in retrieving cloud and precipitation properties in next generation cloud radar and radiometer orbiting observatories. *J. Atmos. Ocn. Tech.*, **36**, 2283–2306, <https://doi.org/10.1175/JTECH-D-18-0204.1>
 23. Storer, R. L., and **D. J. Posselt**, 2019: Environmental Impacts on the Flux of Mass Through Deep Convection. *Q. J. Roy. Meteor. Soc.*, **145**, 3832–3845. <https://doi.org/10.1002/qj.3669>.
 24. **Posselt, D. J.**, L. Wu, K. Mueller, L. Huang, F. W. Irion, S. Brown, H. Su, D. Santek, and C. S. Velden, 2019: Quantitative Assessment of State-Dependent Atmospheric Motion Vector Uncertainties. *J. Appl. Meteor. Climatol.*, **58**, 2479–2495, <https://doi.org/10.1175/JAMC-D-19-0166.1>.
 25. Tierney, G. T., **D. J. Posselt**, and J. F. Booth, 2019: The Impact of Coriolis Approximations on the Environmental Sensitivity of Idealized Extratropical Cyclones. *Clim. Dyn.*, **53**, 7065–7080. <https://doi.org/10.1007/s00382-019-04976-x>

26. Crespo, J. A., **D. J. Posselt**, and S. Asharaf, 2019: CYGNSS Surface Heat Flux Product Development. *Rem. Sens.*, 11(19), 2294; <https://doi.org/10.3390/rs11192294>.
27. Ruf, C., D. McKague, M. Morris, **D. J. Posselt** and M. Moghaddam, 2019: The GNSS-R Cygnss Mission: an Update, IGARSS 2019 - 2019 IEEE International Geoscience and Remote Sensing Symposium, Yokohama, Japan, 2019, pp. 5171-5172, doi: 10.1109/IGARSS.2019.8900604.
28. Reid, J. S., **D. J. Posselt**, K. Kaku, R. E. Holz, G. Chen, E. Eloranta, J. Jimenez, R. Kuehn, S. Woods, J. Zhang, B. Anderson, T. P. Bui, G. Diskin, P. Minnis, M. J. Newchurch, S. Tanelli, C. Trepte, K. Thornhill, and L. D. Ziemba, 2019: Observations and hypotheses related to low to middle free tropospheric aerosol, water vapor and altocumulus cloud layers within convective weather regimes: A SEAC4RS case study. *Atmos. Chem. Phys.*, **19**, 11413-11442. <https://doi.org/10.5194/acp-19-11413-2019>.
29. Morales, A. M., **D. J. Posselt**, H. Morrison, and F. He, 2019: Assessing the Influence of Microphysical and Environmental Parameter Perturbations on Orographic Precipitation. *J. Atmos. Sci.*, **76**, 1373–1395, <https://doi.org/10.1175/JAS-D-18-0301.1>
30. Pulido, M., P. van Leeuwen, and **D. J. Posselt**, 2019: Kernel embedded nonlinear observational mappings in the variational mapping particle filter, *arXiv*, <http://arxiv.org/abs/1901.10426> [stat.ML]
31. **Posselt, D. J.**, F. He, J. Bukowski, and J.S. Reid, 2019: On the Relative Sensitivity of a Tropical Deep Convective Storm to Changes in Environment and Cloud Microphysical Parameters. *J. Atmos. Sci.*, **76**, 1163–1185, <https://doi.org/10.1175/JAS-D-18-0181.1>
32. Tao, W.-K., J. Chern, T. Iguchi, S. Lang, M.-J. Lee, X. Li, A. Loftus, T. Matsui, K. Mohr, S. Nicholls, C. Peters-Lidar, **D. J. Posselt**, and G. Skofronick-Jackson, 2019: Microphysics in Goddard Multi-scale Modeling Systems: A Review. In “Current trend in the Representation of Physical Processes in Weather and Climate Models” by Springer Nature, 253-316 (2 February 2019).

2018

33. van den Heever, S. C., L. D. Grant, G. L. Stephens, Z. Haddad, R. L. Storer, O. O. Sy, and **D. J. Posselt**, 2018: The challenge of representing vertical motion in numerical models. Proc. SPIE 10782, Remote Sensing and Modeling of the Atmosphere, Oceans, and Interactions VII, 1078204 (23 October 2018); doi: 10.1117/12.2501584
34. Haddad, Z. S., O. O. Sy, G. L. Stephens, S. C. van den Heever, and **D. J. Posselt**, 2018: Atmospheric remote sensing with convoys of miniature radars. Proc. SPIE 10776, Remote Sensing of the Atmosphere, Clouds, and Precipitation VII, 1077601 (2018); doi: 10.1117/12.2500285
35. **Posselt, D. J.** and C. H. Bishop, 2018: Nonlinear Data Assimilation for Clouds and Precipitation using a Gamma-Inverse Gamma Ensemble Filter. *Q. J. Roy. Meteor. Soc.*, **144**, 2331-2349. <https://doi.org/10.1002/qj.3374>
36. Ross, A., R. E. Holz, G. Quinn, J. S. Reid, P. Xian, F. J. Turk, and **D. J. Posselt**, 2018: Exploring the First Aerosol Indirect Effect over the Maritime Continent Using a 10-Year Collocated MODIS, CALIOP, and Model Dataset. *Atmos. Chem. Phys.*, **18**, 12747-12764, <https://doi.org/10.5194/acp-18-12747-2018>
37. He, F., **D. J. Posselt**, N. N. Narisetty, C. M. Zarzycki, and V. N. Nair, 2018: Application of Multivariate Sensitivity Analysis Techniques to AGCM-Simulated Tropical Cyclones. *Mon. Wea. Rev.*, **146**, 2065-2088, doi: <https://doi.org/10.1175/MWR-D-17-0265.1>.

38. Morales, A., H. Morrison, and **D. J. Posselt**, 2018: Orographic Precipitation Response to Microphysical Parameter Perturbations for Idealized Moist Nearly Neutral Flow. *J. Atmos. Sci.*, **75**, 1933-1953, <https://doi.org/10.1175/JAS-D-17-0389.1>
39. Tierney, G., **D. J. Posselt**, and J. F. Booth, 2018: An Examination of Extratropical Cyclone Response to Changes in Baroclinicity and Temperature in an Idealized Environment. *Cli. Dyn.*, **50**, doi: <https://doi.org/10.1007/s00382-018-4115-5>.
40. Naud, C. M., D. J. Posselt, and S. C. van den Heever, 2018: Reply to “Comments on ‘A CloudSat-CALIPSO view of cloud and precipitation properties across cold fronts over the global oceans’”. *J. Climate*, **31**, 2969–2975, <https://doi.org/10.1175/JCLI-D-17-0777.1>
- 2017**
41. Naud, C. M., **D. J. Posselt**, and S. C. van den Heever, 2017: Observed co-variations of aerosol optical depth and cloud cover in extratropical cyclones. *J. Geophys. Res.*, **122**, 10,338-10,356. doi:10.1002/2017JD027240.
42. Crespo, J. A., **D. J. Posselt**, C. M. Naud, and C. Bussy-Virat, 2017: Assessing CYGNSS’s Potential to Observe Extratropical Fronts and Cyclones. *J. Appl. Meteor. Clim.*, **56**, 2027-2034.
43. Ge, C., J. Wang, J. S. Reid, **D. J. Posselt**, P. Xian, and E. Hyer, 2017: Mesoscale modelling of smoke transport from equatorial Southeast Asian Maritime Continent to the Philippines: first comparison of ensemble analysis with in situ observations. *J. Geophys. Res.*, **122**, 5380–5398, doi:10.1002/2016JD026241.
44. Roesler, E. L., **D. J. Posselt**, and R. B. Rood, 2017: Using large eddy simulations to reveal the size, strength, and phase of updraft and downdraft cores of an Arctic mixed phase stratocumulus cloud. *J. Geophys. Res.*, **122**, doi:10.1002/2016JD026055.
45. Reid, J. S., R. E. Kuehen, R. E. Holz, E. W. Eloranta, K. C. Kaku, S. Kuang, M. J. Newchurch, A. M. Thompson, C. R. Trepte, J. Zhang, S. A. Atwood, J. L. Hand, B. N. Holben, P. Minnis, and **D. J. Posselt**, 2017: Ground based high spectral resolution lidar observation of aerosol vertical distribution in the summertime Southeastern United States. *J. Geophys. Res.*, **122**, 2970–3004, doi:10.1002/2016JD025798
46. Bukowski, J., **D. J. Posselt**, J. S. Reid, and S. A. Atwood, 2017: Modes of Thermodynamic and Wind Variability over the Maritime Continent. *Atmos. Chem. Phys.*, **17**, 4611-4626, doi:10.5194/acp-17-4611-2017.
47. **Posselt, D. J.**, J. Kessler, and G. G. Mace, 2017: Bayesian retrievals of vertically resolved cloud particle size distribution properties. *J. Appl. Meteor. Clim.*, **56**, 745-765, <https://doi.org/10.1175/JAMC-D-16-0276.1>
48. Zhang, S., Z. Pu, **D. J. Posselt**, and R. Atlas, 2017: Impact of CYGNSS ocean surface wind speeds on numerical simulations of a hurricane in observing system simulation experiments. *J. Atmos. Ocn. Tech.*, **34**, 375-383, doi: 10.1175/JTECH-D-16-0144.1.
49. Li, X., J. R. Mecikalski, and **D. J. Posselt**, 2017: An Ice-Phase Microphysics Forward Model and Preliminary Results of Polarimetric Radar Data Assimilation. *Mon. Wea. Rev.*, **145**, 683-708, doi: 10.1175/MWR-D-16-0035.1.
- 2016**
50. Reid, J. S., P. Xian, B. N. Holben, E. J. Hyer, E. A. Reid, S. V. Salinas, J. Zhang, J. R. Campbell, B. N. Chew, R. E. Holz, A. P. Kuciauskas, N. Lagrosas, **D. J. Posselt**, C. R. Sampson, A. L. Walker, E. J. Welton, and C. Zhang, 2016: Aerosol meteorology of the Maritime Continent for the 2012 7SEAS southwest monsoon intensive study – Part 1:

- regional-scale phenomena, *Atmos. Chem. Phys.*, **16**, 14041-14056, doi:10.5194/acp-16-14041-2016.
51. Reid, J. S., N. D. Lagrosas, H. H. Jonsson, E. A. Reid, S. A. Atwood, T. J. Boyd, V. P. Ghate, P. Xian, D. J. Posselt, J. B. Simpas, S. N. Uy, K. Zaiger, D. R. Blake, A. Bucholtz, J. R. Campbell, B. N. Chew, S. S. Cliff, B. N. Holben, R. E. Holz, E. J. Hyer, S. M. Kreidenweis, A. P. Kuciauskas, S. Lolli, M. Oo, K. D. Perry, S. V. Salinas, W. R. Sessions, A. Smirnov, A. L. Walker, Q. Wang, L. Yu, J. Zhang, and Y. Zhao, 2016: Aerosol meteorology of Maritime Continent for the 2012 7SEAS southwest monsoon intensive study – Part 2: Philippine receptor observations of fine-scale aerosol behavior, *Atmos. Chem. Phys.*, **16**, 14057-14078, doi:10.5194/acp-16-14057-2016.
52. Naud, C. M., **D. J. Posselt**, and S. C. van den Heever, 2016: Aerosol Optical Depth Distribution in Extratropical Cyclones over the Northern Hemisphere Oceans. *Geophys. Res. Lett.*, **43**, 10,504-10,511, doi:10.1002/2016GL070953.
53. Crespo, J. A., and **D. J. Posselt**, 2016: A-Train Based Case Study of Stratiform - Convective Transition within a Warm Conveyor Belt, *Mon. Wea. Rev.*, **144**, 2069–2084. <https://doi.org/10.1175/MWR-D-15-0435.1>
54. Ruf, C., R. Atlas, P. Chang, M. P. Clarizia, J. Garrison, S. Gleason, S. Katzberg, Z. Jelenak, J. Johnson, S. Majumdar, A. O'Brien, **D. J. Posselt**, A. Ridley, R. Rose, and V. Zavorotny, 2016: New Ocean Winds Satellite Mission to Probe Hurricanes and Tropical Convection. *Bull. Amer. Meteor. Soc.*, **97**, 385-395.
55. van Lier-Walqui, A. M. Fridland, A. S. Ackerman, S. Collis, J. Helmus, D. R. MacGorman, K. North, P. Kollias, and **D. J. Posselt**, 2016: Polarimetric radar signatures of deep convection: characteristics of Kdp columns observed during MC3E. *Mon. Wea. Rev.*, **144**, 737-758.
56. **Posselt, D. J.**, 2016: A Bayesian Examination of Deep Convective Squall Line Sensitivity to Changes in Cloud Microphysical Parameters. *J. Atmos. Sci.*, **73**, 637–665.
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- 2008**
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85. Vukicevic, T., and **D. J. Posselt** 2008: Analysis of the Impact of Model Nonlinearities in Inverse Problem Solving. *J. Atmos. Sci.*, **65**, 2803-2823.
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87. **Posselt, D. J.,** and J. E. Martin, 2004: The Effect of Latent Heat Release on the Evolution of a Warm Occluded Thermal Structure., *Mon. Wea. Rev.*, **132**, 578-599.
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TECHNICAL REPORTS AND MISCELLANEOUS PAPERS

- Liu, G. (Chair), A. Barros, A. Dessler, G. Egbert, S. Gille, L. Jaegle, L. Jones, R. Miller, **D. J. Posselt**, S. Powell, and D. Vandemark., 2015: NASA Earth Science Senior Review.
- Ritchie, E. A. (Chair), A. Barros, R. Bell, A. Braun, R. Houghton, B. C. Johnson, G. Liu, J. Luo, J. Morrill, **D. J. Posselt**, S. Powell, W. Randel, T. Strub, and D. Vandemark., 2013: NASA Earth Science Senior Review.

SEMINAR AND COLLOQUIUM TALKS

1. *Designing Satellite Observing Systems at the Intersection Between Science and Mathematics*, Seminar presented in the Mathematics and Hydrology and Atmospheric Sciences Departments, University of Arizona, Tucson, AZ, 23 October 2019.
2. *Observing System Simulation Experiments for Convective Clouds*, Seminar presented at the Naval Research Laboratory, Monterey, CA, 9 July 2019.
3. *Observing System Simulation Experiments for Convective Clouds*, JPL Climate Center Seminar, Pasadena, CA, 20 March 2019.
4. *Observing System Simulation Experiments for Convective Clouds*, NASA Goddard Space Flight Center GMAO Spring Seminar Series, Greenbelt, MD, 19 February 2019.
5. *OSSEs of Varying Complexity and Their Use in Satellite Mission Design*, University of Reading, Data Assimilation Research Centre Seminar, Reading, UK, 26 July 2018.
6. *Cyclone Global Navigation Satellite System (CYGNSS) Mission: Observing Near-Surface Winds Over the Global Tropical Oceans*, JPL Climate Center Seminar, Pasadena, CA, 4 May 2018.
7. *Bayesian Retrievals of Vertically Resolved Cloud Properties*, University of Reading Radar Group Seminar, Reading, UK, 27 October 2017.
8. *Bayesian Estimation of Cloud Microphysical Parameters in Retrievals and Model Parameterizations*, ECMWF, Reading, UK, 25 October 2017.
9. *Model Parameter Estimation Using Nonlinear Ensemble Algorithms*, University of Reading Data Assimilation Research Group Seminar, Reading, UK, 24 October 2017.
10. *The Role of Cloud Processes in Weather-Climate Interactions*. University of Reading Meteorology Department Seminar, Reading, UK, 23 October 2017.
11. *Cyclone Global Navigation Satellite System (CYGNSS) Mission: Observing Near-Surface Winds Over the Global Tropical Oceans*, Scripps Institute of Oceanography, La Jolla, CA. 05 October 2017.
12. *Examining Tipping Points in Weather-Climate Interactions*, University of Wisconsin – Madison AOS Department Seminar, Madison, WI. 11 September 2017.
13. *Understanding how Weather Responds to Changes in Climate*, California Institute of Technology, Pasadena, CA. 18 January 2017.

14. *Improved Understanding of Weather through Integration of Observations, Modeling, and Data Assimilation*, Jet Propulsion Laboratory, Pasadena, CA. 7 March 2016.
15. *Exploring Tipping Points in Weather-Climate Interactions*, Jet Propulsion Laboratory, Pasadena, CA. 25 June 2015.
16. *Assessment of Uncertainty in Global Models: Applications to Parameterization Sensitivity and Tropical Cyclone Variability*, Naval Research Laboratory, Monterey, CA. 25 July 2013.
17. *On the Use of Uncertainty Quantification Methods to Examine Process-Level Cloud-Environment Interactions*, Naval Research Laboratory, Monterey, CA. 9 April 2013.
18. *On the Use of Data Assimilation Methods to Examine Feedbacks in the Earth's Climate System*, Pennsylvania State University, 3 January 2013.
19. *Toward an Improved Understanding of the Role of Clouds in the Earth's Climate System*, University of Georgia, 19 December 2012.
20. *On the Interaction Between Cloud Microphysics, Dynamics, and Radiation in Deep Moist Convection*. Colorado State University Convection Workshop. 5 November 2012.
21. *Nonlinear Model Parameter Estimation: Sensitivity to True State and Model Dimensionality*. Naval Research Laboratory, Monterey, CA. 9 July 2012.
22. *Uncertainty Quantification in Weather and Climate Models*. Global Modeling and Assimilation Office at NASA Goddard Space Flight Center, Greenbelt, MD. 4 April 2012.
23. *Markov Chain Monte Carlo Methods: Theory and Applications*. Naval Research Laboratory, Monterey, CA. 24 February 2012.
24. *Cloud Systems at the Intersection Between Weather and Climate: Examining Interactions Across Multiple Scales*. Department of Global Ecology, Stanford University, Palo Alto, CA. 22 February 2012.
25. *Nonlinear Model Parameter Estimation Using a Markov Chain Monte Carlo Algorithm and Two Variants of an Ensemble Kalman Filter*. Naval Research Laboratory, Monterey, CA. 5 January 2012.
26. *The Influence of Convection on Extratropical Cyclone Frontal Structure*. Colorado State University Convection Workshop. 18 May 2011.
27. *Nonlinear Model Parameter Estimation With an Ensemble Transform Kalman Smoother*. Naval Research Laboratory, Monterey, CA. 20 April 2011.
28. *Changes to the Tropical Hydrologic Cycle in a Warming Environment: Interaction Between Deep Convection and the Large Scale Flow and Environment*. University of Wisconsin-Madison Atmospheric, Oceanic, and Space Sciences Department, Madison, WI. 23 February 2011.
29. *Object Based Evaluation of GCM-Simulated Clouds and Radiation During the 1998 El Nino-La Nina Transition*. Lawrence Livermore National Laboratory, Livermore, CA. 9 February 2011.
30. *Changes in the Tropical Hydrologic Cycle in a Warming Environment: Influence of Sea Surface Temperature on Convective Organization*. NASA's Jet Propulsion Laboratory, Pasadena, CA. 11 November 2010.
31. *Toward an Improved Understanding of Model Uncertainty: Implications for Satellite Retrievals and Data Assimilation*. Naval Research Laboratory, Monterey, CA. 19 February 2010.

32. *Probabilistic Model Evaluation: Toward Ensemble-Based Representations of Model Physics Uncertainty*. Global Modeling and Assimilation Office, NASA Goddard Space Flight Center, Greenbelt, MD. 5 August 2009.
33. *Exploring the Characteristics of a Thin Ice Cloud Property Retrieval Using a Markov Chain Monte Carlo Algorithm*. Cooperative Institute for Meteorological Satellite Studies, University of Wisconsin-Madison, Madison, WI. 20 Oct. 2008.
34. *Nonlinear Characterization of Observation Errors: Applications to the Assimilation of Clouds and Precipitation*. Joint Center for Satellite Data Assimilation, National Oceanic and Atmospheric Administration, Camp Springs, MD. 12 Jun. 2007.
35. *Variability of Clouds and Precipitation in a Changing Climate: Understanding Uncertainty in Climate Model Predictions*. University of Michigan, Department of Atmospheric, Oceanic, and Space Sciences, Ann Arbor, MI. 12 March 2007.
36. *Variability of Clouds and Precipitation in a Changing Climate: Understanding Uncertainty in Climate Model Predictions*. San Jose State University, Department of Meteorology, San Jose, CA. 30 November 2006.
37. *Non-Gaussian Model Error and Parameter Estimation, Applications to Atmospheric Retrievals and Data Assimilation*. University of Colorado–Boulder, Boulder, CO. 30 Oct. 2006.
38. *Evaluation of CRM Sensitivity to Changes in Cloud Microphysical Parameters*. Lawrence Livermore National Laboratory, Livermore, CA. 6 Apr. 2006.
39. *Application of Advanced Data Assimilation Techniques to the Study of the Tropical Climate System*. University of Wisconsin-Madison Department of Atmospheric and Oceanic Sciences. 28 Nov. 2005.

CONFERENCE PRESENTATIONS

(____ denotes student authors)

2021

2020

1. **Posselt, D. J.**, and M. Minamide, Cloud Process Nonlinearity and Model Uncertainty in Data Assimilation and Remote Sensing. Poster presented at the 4th Workshop on Assimilating Satellite Cloud and Precipitation Observations for NWP. ECMWF, Reading, UK, 3-6 February 2020.
2. **Posselt, D. J.**, M. Lebsock, R. L. Storer, M. Minamide, J. Mace, and Z. Xu, Observing System Simulation Experiments for Convective Clouds. Talk presented in the 24th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
3. **Posselt, D. J.**, J. S. Reid, S. C. van den Heever, J. Mace, L. Di Girolamo, and L. D. Ziemba, Early Observation and Modeling Results from the NASA Cloud, Aerosol, and Monsoon Processes Philippines Experiment (CAMP2Ex). Talk presented in the 8th Symposium on the Madden-Julian Oscillation and Sub-Seasonal Monsoon Variability at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
4. Morales, A., **D. J. Posselt**, and H. Morrison, Multivariate Sensitivity Analysis of Orographic Precipitation within an Idealized Atmospheric River Environment. Poster presented in the

- 33rd Conference on Climate Variability and Change at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
5. Crespo, J. A., C. M. Naud, and **D. J. Posselt**, CYGNSS Wind Speed and Surface Heat Flux Observations of Low-Latitude Extratropical Cyclones and Fronts. Poster presented in the 33rd Conference on Climate Variability and Change at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
 6. Minamide, M., F. Zhang, and **D. J. Posselt**, Forecast Error Growth of Convective Processes through Nonlinear Interaction between Dynamical and Moisture Initialization Uncertainties. Invited talk presented in the 4th Symposium on Multiscale Predictability: Data-model Integration and Uncertainty Quantification for Weather, Climate and Earth System Monitoring and Prediction at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
 7. **Posselt, D. J.**, B. D. Wilson, R. L. Storer, E. L. Nelson, N. Niamsuwan, and S. Tanelli, Observation-Based Cloud and Precipitation Properties from Spaceborne Measurements Using a Parallel Bayesian Retrieval Framework. Talk presented in the 26th Conference on Probability and Statistics at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
 8. **Posselt, D. J.**, H. Su, L. Wu, M. Minamide, H. Nguyen, K. J. Mueller, J. Teixeira, and W. McCarty, Quantification of Uncertainty in Water Vapor Atmospheric Motion Vectors, and the Effect on Data Assimilation and OSSEs. Poster presented in the 8th AMS Symposium on the Joint Center for Satellite Data Assimilation (JCSDA) at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
 9. Storer, R. L., K. A. Schiro, and **D. J. Posselt**, The Influence of Moisture on the Development of Tropical Deep Convection in High-Resolution Simulations. Talk presented in the Tropical Meteorology and Tropical Cyclones Symposium at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
 10. Grant, L. D., S. C. van den Heever, Z. S. Haddad, R. L. Storer, **D. J. Posselt**, J. Bukowski, O. O. Sy, and G. L. Stephens, The Relationship between Vertical Velocity and Microphysical Process Rates in Deep Convection. Poster presented in the Wayne Schubert Symposium at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
 11. Minamide, M., and **D. J. Posselt**, Potential Sources of Variability in the Vortex Precession Process prior to the Onset of Tropical Cyclone Rapid Intensification. Poster presented in the Tropical Meteorology and Tropical Cyclones Symposium at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
 12. Tian, B., **D. J. Posselt**, and C. S. Ruf, Daily Variations of Global Tropical Ocean Surface Wind Speed Based on the CYGNSS Data. Talk presented in the 3rd Conference on Earth Observing SmallSats at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
 13. Ruf, C. S., S. Gleason, D. McKague, **D. J. Posselt**, and M. Moghaddam, Cyclone Global Navigation Satellite System (CYGNSS): Mission and Science Data Product Status. Talk presented in the 3rd Conference on Earth Observing SmallSats at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.
 14. Crespo, J. A., S. Asharaf, and **D. J. Posselt**, CYGNSS Surface Heat Flux Product: Development, Results, and Updates. Talk presented in the 3rd Conference on Earth Observing

SmallSats at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.

15. Asharaf, S., D. E. Waliser, **D. J. Posselt**, C. S. Ruf, C. Zhang, and A. W. Putra, CYGNSS Surface Wind Validation over the Tropical Ocean Using Moored Buoy Observations. Talk presented in the 3rd Conference on Earth Observing SmallSats at the 2020 American Meteorological Society Annual Meeting, Boston, MA, 12-16 January 2020.

2019

16. Xu, Z., G. G. Mace, and **D. J. Posselt**, Impact of Precipitation on Retrieved Warm Cloud Properties Using Visible and Near-infrared Reflectances Using Markov Chain Monte Carlo Techniques. Poster presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
17. **Posselt, D. J.**, Using Nonlinear Data Assimilation to Answer Questions of Cause and Effect in Convective Storms. Poster presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
18. Crespo, J. A., S. Asharaf, C. M. Naud, and **D. J. Posselt**, CYGNSS Surface Heat Flux Product and Low-Latitude Extratropical Cyclone Analysis. Poster presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
19. Reid, J. S., H. B. Maring, G. Narisma, E. O. Cayanan, D. P. Eleuterio, A. Benedetti, M. Brooks, S. Chen, L. Di Girolamo, T. Fehr, R. Holz, P. Lawson, G. G. Mace, J. Moum, D. J. Posselt, S. Reiny, S. A. Rutledge, T. Y. Tanaka, S. Tanelli, E. L. Schaller, J. Simpas, C. R. Trepte, S. C. van den Heever, J. R. Zavaleta and L. D. Ziemba, The Cloud, Aerosol, and Monsoon Processes, Philippines Experiment (CAMP2Ex): Planning, performance, and early outcomes. Talk presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
20. van den Heever, S. C., L. D. Grant, Z. S. Haddad, R. L. Storer, **D. J. Posselt**, J. Bukowski, O. O. Sy, and G. L. Stephens, A Linear Relationship Between Microphysical Process Rates and Vertical Motion in Convective Storm Systems. Talk presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
21. Storer, R. L., K. Schiro, and **D. J. Posselt**, Moisture Controls on the Behavior of Simulated Tropical Deep Convection. Poster presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019. Morales, A., **D. J. Posselt**, and H. Morrison, Multivariate Sensitivity Analysis of Orographic Precipitation Within an Idealized Atmospheric River Environment. Poster presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
22. Minamide, M., and **D. J. Posselt**, Predictability of atmospheric moist convection revealed by all-sky infrared satellite radiance assimilation. Poster presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
23. Freeman, S. W., S. C. van den Heever, J. S. Reid, and **D. J. Posselt**, Tropical Deep Convective Morphology in the Different Thermodynamic and Aerosol Environments of CAMP2Ex and PISTON. Talk presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
24. Ruf, C. S., S. Gleason, D. S. McKague, **D. J. Posselt**, and M. Moghaddam, The NASA CYGNSS Small Satellite Constellation. Talk presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.

25. Suselj, J., and **D. J. Posselt**, Development of Observation System for Constraining Uncertainties in Physical Parameterization. Talk presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
26. Lunderman, S., M. Morzfeld, and **D. J. Posselt**, Simultaneous parameter and state estimation by derivative-free optimization of ensemble Kalman filter residuals. Poster presented at the 2019 American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2019.
27. **Posselt, D. J.**, L. Wu, K. Mueller, L. Huang, F. W. Irion, S. Brown, H. Su, D. Santek, and C. S. Velden, Quantitative Assessment of State-Dependent Atmospheric Motion Vector Uncertainties. Talk presented (by H. Su) at the 2019 Space Lidar Winds meeting, Hampton, VA, 10-11 July 2019.
28. He, F., **D. J. Posselt**, H. M. Nguyen, L. Wu, and J. P. Teixeira, A Deep Neural Network Perspective on Atmospheric Motion Vectors. Talk presented in the 1st Workshop on Leveraging AI in the Exploitation of Satellite Earth Observations & Numerical Weather Prediction, College Park, MD, 23-25 April 2019.
29. Crespo, J. A., and **D. J. Posselt**, Surface Heat Flux Analysis and Products for the CYGNSS Mission. Talk presented in the 23rd Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the American Meteorological Society Annual Meeting, Phoenix, AZ, 6-10 January 2019.
30. Tierney, G., **D. J. Posselt**, and J. F. Booth, Exploring Radiative Influence on Extratropical Cyclone Development and Sensitivity. Talk presented in the 32nd Conference on Climate Variability and Change at the American Meteorological Society Annual Meeting, Phoenix, AZ, 6-10 January 2019.
31. Minamide, M., and **D. J. Posselt**, Potential Impacts of Tropical Cyclone Inner-Core Moisture Initializations on the Predictability of the Onset of Rapid Intensification. Talk presented in the conference on Tropical Cyclones and Extreme Monsoon Precipitation: Prediction, Impacts, and Communication at the American Meteorological Society Annual Meeting, Phoenix, AZ, 6-10 January 2019.
32. Ruf, C. S., S. Gleason, D. McKague, **D. J. Posselt**, and M. Moghaddam, Cyclone Global Navigation Satellite System (CYGNSS): Status of Mission and Science Data Products. Talk presented in the 23rd Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the American Meteorological Society Annual Meeting, Phoenix, AZ, 6-10 January 2019.
33. Asharaf, S., D. E. Waliser, C. Zhang, **D. J. Posselt**, and A. W. Putra, Validation of CYGNSS Surface Winds using In Situ Marine Observations in the Maritime Continent Region. Talk presented in the 23rd Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the American Meteorological Society Annual Meeting, Phoenix, AZ, 6-10 January 2019.
34. **Posselt, D. J.**, C. Ruf, M. P. Clarizia, S. Gleason, Valery Zavorotny, and co-authors, NASA CYGNSS Mission Science Highlights. Talk presented in the 9th Conference on Transition of Research to Operations at the American Meteorological Society Annual Meeting, Phoenix, AZ, 6-10 January 2019.
35. **Posselt, D. J.**, S. C. van den Heever, Z. S. Haddad, G. L. Stephens, L. D. Grant, R. L. Storer, and O. O. Sy, Measuring Vertical Mass Flux in Convection: Lessons Learned from a Convection-Resolving Ensemble. Poster presented in the Special Symposium on Mesoscale Meteorological Extremes: Understanding, Prediction, and Projection at the American Meteorological Society Annual Meeting, Phoenix, AZ, 6-10 January 2019.

36. **Posselt, D. J.**, Data Assimilation for Clouds and Precipitation Using Non-Linear Ensemble Algorithms. Talk presented in the 23rd Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the American Meteorological Society Annual Meeting, Phoenix, AZ, 6-10 January 2019.
37. **Posselt, D. J.**, H. Su, L. Wu, H. Nguyen, K. Mueller, J. Teixeira, F. He, and W. McCarty, Quantitative Evaluation of Uncertainty in Water Vapor Atmospheric Motion Vectors and Implications for Data Assimilation and OSSEs. Talk presented in the 23rd Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the American Meteorological Society Annual Meeting, Phoenix, AZ, 6-10 January 2019.

2018

38. Storer, R. L., **D. J. Posselt**, and G. L. Stephens, Investigating the sensitivity of deep convection to small environmental changes. Poster presented at the 2018 American Geophysical Union Fall Meeting, Washington, DC, 10-14 December 2018.
39. Morales, A. M., **D. J. Posselt**, and H. Morrison, Orographic Precipitation Response to Microphysical and Environmental Perturbations for Idealized Moist Nearly Neutral Flow. Poster presented at the 2018 American Geophysical Union Fall Meeting, Washington, DC, 10-14 December 2018.
40. Xu, Z., G. G. Mace, **D. J. Posselt**, and B. Berry, Joint Retrievals of Vertically Resolved Cloud and Precipitation Properties Using Markov Chain Monte Carlo Techniques. Poster
41. **Posselt, D. J.**, Data Assimilation for Clouds and Precipitation Using Non-Linear Ensemble Algorithms. Poster presented at the 2018 American Geophysical Union Fall Meeting, Washington, DC, 10-14 December 2018.
42. Ruf, C. S., S. Gleason, D. S. McKague, **D. J. Posselt**, and M. Moghaddam, The NASA CYGNSS SmallSat Constellation. Invited talk presented at the 2018 American Geophysical Union Fall Meeting, Washington, DC, 10-14 December 2018.
43. Crespo, J. A., and **D. J. Posselt**, CYGNSS Surface Heat Flux Product Development. Poster presented at the 2018 American Geophysical Union Fall Meeting, Washington, DC, 10-14 December 2018.
44. Posselt, D. J., R. L. Storer, M. Minamide, J. Leinonen, J. Mace, Z. Xu, and J. Bukowski, OSSEs for CCP. Talk presented at the Aerosols, Clouds, Convection, and Precipitation Study Team Workshop, Hampton, VA, 28 October – 1 November 2018.
45. **Posselt, D. J.**, G. Tierney, F. He, and A. Morales, Moist Processes and Tipping Points in Weather-Climate Interactions. Poster presented at the Cloud Feedback Model Intercomparison Project (CFMIP) Workshop, Boulder, CO, 16-19 October 2018.
46. Morales, A., **D. J. Posselt**, H. Morrison, and F. He, Orographic Precipitation Response to Microphysical and Environmental Perturbations for Idealized Moist Nearly Neutral Flow. Talk presented at the 18th AMS Mountain Meteorology Conference, Santa Fe, NM, 25-29 June 2018
47. Crespo, J. A., and **D. J. Posselt**, Developing a Surface Heat Flux Product for the CYGNSS Satellite Mission, Talk presented at the 21st Conference on Air-Sea Interaction, Oklahoma City, OK, 11-15 June 2018.
48. **Posselt, D. J.**, J. Mace, Z. Xu, R. L. Storer, and J. Bukowski, Measurements and Processes: What do we need to observe, and how accurately do we need to measure it? Talk presented at the Aerosols, Clouds, Ecosystems Science Working Group Workshop, Silver Spring, MD, 30 April – 2 May 2018.

49. **Posselt, D. J.**, R. L. Storer, J. Bukowski, and F. He, Quantifying the Environmental Sensitivity of Deep Moist Convection using Ensembles of Cloud Resolving Simulations. Talk presented at the AIRS Science Team Meeting, Pasadena, CA, 25-27 April 2018.
50. Crespo, J. A., and **D. J. Posselt**, CYGNSS Estimates of Surface Heat Fluxes, Talk presented at the 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL, 16-20 April 2018.
51. **Posselt, D. J.**, and C. H. Bishop, Model Parameter Estimation Using Nonlinear Ensemble Algorithms. Talk presented at the SIAM Conference on Uncertainty Quantification, Garden Grove, CA, 16-19 April 2018.
52. Mace, J., Z. Xu, and **D. J. Posselt**, Characterizing the Trade Space Between Capability and Complexity in Next Generation Cloud and Precipitation Observing Systems: Shallow Cumulus Convection. Talk presented at the European Geosciences Union General Assembly Meeting, Vienna, Austria, 8-13 April, 2018.
53. **Posselt, D. J.**, H. Su, L. Wu, L. Huang, H. Nguyen, C. Velden, and D. Santek, Simulating 3D Atmospheric Motion Vectors (AMVs) using Water Vapor Feature Tracking. Talk presented at the 2018 Working Group on Space-based Lidar Winds Workshop, Boulder, CO, 7-8 February 2018.
54. **Posselt, D. J.**, C. S. Ruf, R. Atlas, N. L. Baker, D. Burrage, J. A. Crespo, J. T. Johnson, T. J. Lang, X. Li, E. D. Maloney, D. McKague, M. Morris, Z. Pu, E. Riley Dellaripa, and D. E. Waliser, CYGNSS Science Highlights from the First Year on Orbit. Talk presented in the 22nd Conference on Satellite Meteorology and Oceanography at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.
55. Su, H., **D. J. Posselt**, L. Wu, K. J. Mueller, N. Niamsuwan, F. W. Irion, and T. Pagano, Characteristics of 3D Atmospheric Motion Vectors (AMV) from Water Vapor Feature-Tracking Technique. Talk presented in the 22nd Conference on Satellite Meteorology and Oceanography at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.
56. **Posselt, D. J.**, H. Su, L. Wu, H. Nguyen, W. McCarty, and R. Atlas, Using a Spectrum of OSSEs of Varying Complexity to Support Satellite Mission Design. Talk presented in the 22nd Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.
57. **Posselt, D. J.**, J. S. Reid, J. Bukowski, R. L. Storer, and F. He, Aerosol–Convection Covariability: Results from Field Campaigns and Model Ensembles. Talk presented in the 10th Symposium on Aerosol-Cloud-Climate Interactions at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.
58. Morales, A. M., **D. J. Posselt** and H. Morrison, Sensitivity of Orographic Precipitation to Microphysics Parameter and Process Perturbations. Poster presented in the 32nd Conference on Hydrology at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.
59. **D. J. Posselt**, G. Tierney, F. He, and A. Morales, Moist Processes as Triggers for Tipping Points in Weather–Climate Interactions. Poster presented in the 31st Conference on Climate Variability and Change at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.
60. Tierney, G., **D. J. Posselt** and J. F. Booth, Assessing the Impacts of Climate Variability on Extratropical Cyclone Development and Strength. Talk presented in the 31st Conference on

Climate Variability and Change at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.

61. Crespo, J. A., and **D. J. Posselt**, CYGNSS Observations of Low-Latitude Extratropical Cyclones and Estimates of Surface Heat Fluxes. Talk presented in the 22nd Conference on Satellite Meteorology and Oceanography at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.
62. Tian, B., and **D. J. Posselt**, Some Early Results of Daily Variations of Global Tropical Ocean Surface Wind Based on CYGNSS data. Talk presented in the 22nd Conference on Satellite Meteorology and Oceanography at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.
63. Xu, Z., J. Mace, and **D. J. Posselt**, Characterizing the Trade Space between Capability and Complexity in Next-Generation Cloud and Precipitation Observing Systems Using Markov Chain Monte Carlo Techniques. Poster presented in the First Conference on Earth Observing SmallSats at the 98th American Meteorological Society Annual Meeting, Austin, TX, 7-11 January 2018.

2017

64. Crespo, J. A., and **D. J. Posselt**, CYGNSS Surface Wind Observations and Surface Flux Estimates within Low-Latitude Extratropical Cyclones. Poster presented at the 2017 American Geophysical Union Fall Meeting, New Orleans, LA, 11-15 December 2017.
65. **Posselt, D. J.**, H. Nguyen, B. Chen, L. Wu, H. Su, and A. J. Braverman, Creating Weather System Ensembles Through Synergistic Process Modeling and Machine Learning. Talk presented at the 2017 American Geophysical Union Fall Meeting, New Orleans, LA, 11-15 December 2017.
66. Fitzpatrick, L., A. Fujisaki-Manome, A. Gronewald, E. J. Anderson, C. Spence, J. Chen, C. Shao, **D. J. Posselt**, D. M. Wright, B. M. Lofgren, and D. J. Schwab, Reconstructing Heat Fluxes Over Lake Erie During the Lake Effect Snow Event of November 2014. Poster presented at the 2017 American Geophysical Union Fall Meeting, New Orleans, LA, 11-15 December 2017.
67. Xu, Z., G. G. Mace, and **D. J. Posselt**, Characterizing the Trade Space Between Capability and Complexity in Next Generation Cloud and Precipitation Observing Systems Using Markov Chain Monte Carlo Techniques. Poster presented at the 2017 American Geophysical Union Fall Meeting, New Orleans, LA, 11-15 December 2017.
68. **Posselt, D. J.**, and C. H. Bishop, Model Parameter Estimation Using Non-Linear Ensemble Algorithms. Invited talk presented at the RIKEN International Symposium on Data Assimilation, Kobe, Japan, 02 March 2017.
69. Tierney, G., and **D. J. Posselt**, An Ensemble-Based Examination of Extratropical Cyclone Characteristics in Future Climates, Poster presented in the Lance Bosart Symposium at the 97th American Meteorological Society Annual Meeting, Seattle, WA, 22-26 January 2017.
70. Bukowski, J., **D. J. Posselt**, and J. S. Reid, *Climatological Thermodynamic and Aerosol Variability over the Maritime Continent*, Talk presented in the 9th Symposium on Aerosol-Cloud-Climate Interactions at the 97th American Meteorological Society Annual Meeting, Seattle, WA, 22-26 January 2017.
71. Crespo, J. A., **D. J. Posselt**, and C. M. Naud, *Utilizing CYGNSS Near Surface Winds to Improve Surface Sensible and Latent Heat Flux Estimates*, Poster presented in the Observation Symposium at the 97th American Meteorological Society Annual Meeting, Seattle, WA, 22-26 January 2017.

72. Azzopardi, N., M. Manikantan, R. Raba, D. M. Wright, G. Tierney, and D. J. Posselt, *Modeling Lake Effect Snow with an Interactive Lake Model in WRF*, Poster presented in the 16th Annual AMS Student Conference at the 97th American Meteorological Society Annual Meeting, Seattle, WA, 22-26 January 2017.
73. Frauhammer, K. M., R. Ogorek, L. Rasmussen, D. M. Wright, G. Tierney, and D. J. Posselt, *Effects of WRF Model Resolution on Convective Features of a Severe Weather Event*, Poster presented in the 16th Annual AMS Student Conference at the 97th American Meteorological Society Annual Meeting, Seattle, WA, 22-26 January 2017.
74. Bukowski, J., L. E. Fitzpatrick, S. Kawecki, Y. Li, A. Steiner, D. J. Posselt, and K. Richardville, *Modeled Sensitivity of Tropospheric Ozone to PBL Height in the Great Lakes Region*, Poster presented in the 16th Annual AMS Student Conference at the 97th American Meteorological Society Annual Meeting, Seattle, WA, 22-26 January 2017.
75. Fitzpatrick, L. E., A. Manome, A. Gronewold, E. J. Anderson, C. Spence, J. Chen, C. Shao, D. M. Wright, B. M. Lofgren, C. Xiao, **D. J. Posselt**, and D. J. Schwab, *Reconstructing Evaporation over Lake Erie during the Historic November 2014 Lake Effect Snow Event*, Poster presented in the Fifth Symposium on Building a Weather-Ready Nation at the 97th American Meteorological Society Annual Meeting, Seattle, WA, 22-26 January 2017.
76. Ruf, C. S., R. Atlas, P. Chang, M. P. Clarizia, J. L. Garrison, S. Gleason, S. J. Katzberg, Z. Jelenak, J. T. Johnson, S. J. Majumdar, A. O'Brien, **D. J. Posselt**, D. provost, A. Ridley, R. Rose, F. Said, J. Scherrer, S. Soisuvarn, and V. Zavorotny, *The NASA CYGNSS Satellite Constellation for Tropical Cyclone Observations*, Talk presented in the 21st Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface at the 97th American Meteorological Society Annual Meeting, Seattle, WA, 22-26 January 2017.

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77. Steiner, A. L., O. Gates, and **D. J. Posselt**, *The Atmospheric Moisture Budget over the Great Lakes: Comparing Reanalysis and CMIP5 Present-day Simulations*, Poster presented at the 2016 American Geophysical Union Fall Meeting, San Francisco, CA, 12-16 December 2016.
78. Ruf, C. S., D. Provost, R. Rose, J. Scherrer, R. M. Atlas, P. Chang, M. P. Clarizia, J. L. Garrison, S. Gleason, S. J. Katzberg, Z. Jelenak, J. T. Johnson, S. Majumdar, A. O'Brien, **D. J. Posselt**, A. J. Ridley, F. Said, S. Soisuvarn, and V. U. Zavorotny, *The NASA CYGNSS Satellite Constellation for Tropical Cyclone Observations*, Talk presented at the 2016 American Geophysical Union Fall Meeting, San Francisco, CA, 12-16 December 2016.
79. Naud, C. M., J. Booth, A. Del Genio, S. C. van den Heever, and D. J. Posselt, *An A-train climatology of extratropical cyclone clouds and precipitation*, Talk presented at the 2016 American Geophysical Union Fall Meeting, San Francisco, CA, 12-16 December 2016.
80. **Posselt, D. J.**, J. A. Crespo, and C. M. Naud, *CYGNSS Observations of Surface Wind Speeds in Oceanic Tropical and Extratropical Cyclones*, Talk presented at the 2016 American Geophysical Union Fall Meeting, San Francisco, CA, 12-16 December 2016.
81. **Posselt, D. J.**, C. M. Naud, and S. C. van den Heever, *Using A-Train Observations to Study Cloud Processes in Frontal Regions*, Talk presented at the 21st Conference on Satellite Meteorology, Madison, WI, 15-19 August 2016.
82. **Posselt, D. J.**, G. G. Mace, and J. Kessler, *Bayesian Retrievals of Vertically Resolved Cloud Particle Size Distribution Properties*, Talk presented at the 21st Conference on Satellite Meteorology, Madison, WI, 15-19 August 2016.

83. Crespo, J. A., and **D. J. Posselt**, *Exploring the use of CYGNSS for Surface Flux Estimation in Extratropical Cyclones*, Talk presented at the 21st Conference on Satellite Meteorology, Madison, WI, 15-19 August 2016.
84. Morales, A., and **D. J. Posselt**, *Evaluating the Influence of Microphysics on Orographic Precipitation*, Talk presented at the 17th Conference on Mountain Meteorology, Burlington, VT, 27 June – 1 July 2016.
85. Bukowski, J., and **D. J. Posselt**, *Thermodynamic Modes of Variability over the Maritime Continent*, Talk presented at the 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, Puerto Rico, 18-22 April 2016.
86. **Posselt, D. J.**, *Sensitivity of Mesoscale Convective Cloud Systems to Changes in Microphysics and the Environment*, Talk presented at the 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, Puerto Rico, 18-22 April 2016.
87. He, Fei, and **D. J. Posselt**, *Impact of Parameterized Physical Processes on Simulated Tropical Cyclone Characteristics in Community Atmosphere Model*, Talk presented at the 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, Puerto Rico, 18-22 April 2016.
88. Ruf, C. S., M. P. Clarizia, S. Gleason, A. Ridley, and **D. J. Posselt**, *The NASA CYGNSS Satellite Constellation Tropical Cyclone Mission*, Talk presented at the 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, Puerto Rico, 18-22 April 2016.
89. **Posselt, D. J.**, G. Tierney, J. Crespo, J. Booth, C. M. Naud, and S. C. van den Heever, *Stratiform – Convective Transitions in Extratropical Cyclones*. Talk presented at the 2016 CloudSat/CALIPSO Science Team Meeting, Newport News, VA, 1-3 March 2016.
90. **Posselt, D. J.**, J. Kessler, and G. G. Mace, *How well can we retrieve low liquid cloud properties from A-Train?* Poster presented at the 2016 CloudSat/CALIPSO Science Team Meeting, Newport News, VA, 1-3 March 2016.
91. Bukowski, J., **D. J. Posselt**, J. S. Reid, and S. A. Atwood, *An Evaluation and Constraint of Thermodynamic Boundary Conditions over the Maritime Continent*. Poster presented in the 15th Annual Student Conference at the 96th American Meteorological Society Annual Meeting, New Orleans, LA, 10-14 January 2016.

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92. Naud, C. M., J. Booth, A. Del Genio, D. J. Posselt, and S. C. van den Heever, *A-Train Based Observational Metrics for Model Evaluation in Extratropical Cyclones*, Talk presented at the 2015 American Geophysical Union Fall Meeting, San Francisco, CA, 14-18 December 2015.
93. Tierney, G., **D. J. Posselt**, and J. Booth, *A Multivariate Analysis of Extratropical Cyclone Environmental Sensitivity*. Talk presented at the 2015 American Geophysical Union Fall Meeting, San Francisco, CA, 14-18 December 2015.
94. **Posselt, D. J.**, *Bayesian Exploration of Cloud Microphysical Sensitivities in Mesoscale Cloud Systems*. Invited talk presented at the 2015 American Geophysical Union Fall Meeting, San Francisco, CA, 14-18 December 2015.
95. Morales, A., and **D. J. Posselt**, *Evaluating the Influence of Ice Microphysics on an Idealized Simulation of Orographic Precipitation*. Poster presented at the 2015 American Geophysical Union Fall Meeting, San Francisco, CA, 14-18 December 2015.
96. Wright, D. M., and **D. J. Posselt**, *Lake Surface Temperature Influence on Atmospheric Circulation and Precipitation Processes in the Great Lakes Region*. Poster presented at the 2015 American Geophysical Union Fall Meeting, San Francisco, CA, 14-18 December 2015.

97. Crespo, J. A., and **D. J. Posselt**, *Satellite-Based Analysis of a Warm Conveyor Belt in a Marine Extratropical Cyclone*. Talk presented at the 2015 American Geophysical Union Fall Meeting, San Francisco, CA, 14-18 December 2015.
98. Tushaus, S. A., **D. J. Posselt**, M. Miglietta, R. Rotunno, and L. delle Monache, *Bayesian Exploration of Multivariate Orographic Precipitation Sensitivity for Nearly Moist Neutral Flows*, Poster presented in the 33rd International Conference on Alpine Meteorology, Innsbruck, Austria, 31 August – 4 September 2015.
99. Reid, J., S. Atwood, J. Campbell, B. N. Chew, M. Garay, B. Holben, R. Holz, E. Hyer, H. Johsson, S. Kreidenweiss, R. Kuehn, N. Lagrosas, P. Lynch, **D. J. Posselt**, E. Reid, S. Salinas, J. Simpas, F. Turk, J. Wang, and L. Yu, 2015: Crossroads of Tropical Meteorology and Atmospheric Composition in the Maritime Continent: Recent Field Results from the 7SEAS Program. Talk presented at the 12th Asia-Oceania Geosciences Society Annual Meeting, Singapore, 2-7 August 2015.
100. **Posselt, D. J.**, Observational Requirements for Next-Generation Cloud Remote Sensing Systems: A Bayesian Perspective. Invited talk presented at the Applied Inverse Problems conference, Helsinki, Finland, 25-29 May 2015.
101. **Posselt, D. J.**, Exploring Tipping Points in Cloud System-Environment Interactions. Invited talk presented at the Midwest Mathematics and Climate Conference, Lawrence, KS, May 2015.
102. **Posselt, D. J.**, E. M. Wilcox and T. Yuan, *An Observation and CRM Based Analysis of Large Scale Aerosol-Convection Interaction in the Tropics*, Talk presented in the 7th Symposium on Aerosol-Cloud-Climate Interactions at the 2015 American Meteorological Society Annual Meeting, Phoenix, AZ, January 2015.
103. Torres, A. D., J. K. Wolff, M. Harrold, C. L. Phillips, and **D. J. Posselt**, *Using the Mesoscale Model Evaluation Testbed (MMET) to test physics options in the Weather Research & Forecasting (WRF) model*, Poster presented in the 14th Student Conference at the 2015 American Meteorological Society Annual Meeting, Phoenix, AZ, January 2015.
104. Wright, D. M., **D. J. Posselt** and G. Mann, *Examining the land-lake-atmosphere interactions of the May 5, 2003 severe weather event over southwest Michigan*, Talk presented in the 13th Symposium on the Coastal Environment at the 2015 American Meteorological Society Annual Meeting, Phoenix, AZ, January 2015.
105. **Posselt, D. J.**, X. Li, S. A. Tushaus, and J. Mecikalski, *Dual-Polarization Radar Data Assimilation in Deep Convective Storms: Information Content in the Ice-Phase Region*, Talk presented in the 19th Conference on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface at the 2015 American Meteorological Society Annual Meeting, Phoenix, AZ, January 2015.
106. Mace, G. G., **D. J. Posselt** and S. J. Cooper, *Deriving Properties of Marine Low Clouds over the Remote Oceans with A-Train*, Talk presented in the 7th Symposium on Aerosol-Cloud-Climate Interactions at the 2015 American Meteorological Society Annual Meeting, Phoenix, AZ, January 2015.
107. Crespo, J. A., and **D. J. Posselt**, *A-Train-Based Analysis of Frontal Cloud and Precipitation Structures: A Case Study*, Poster presented in the 20th Conference on Satellite Meteorology and Oceanography at the 2015 American Meteorological Society Annual Meeting, Phoenix, AZ, January 2015.
108. Fehnel, T., J. Mecikalski, X. Li, and **D. J. Posselt**, *Assimilation of Dual-polarimetric Radar Observations with Real Case Studies*, Talk presented in the 19th Conference on

- Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface at the 2015 American Meteorological Society Annual Meeting, Phoenix, AZ, January 2015.
109. Tushaus, S. A., **D. J. Posselt**, M. Miglietta, R. Rotunno, and L. delle Monache, *Bayesian Exploration of Multivariate Orographic Precipitation Sensitivity*, Talk presented in the 19th Conference on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface at the 2015 American Meteorological Society Annual Meeting, Phoenix, AZ, January 2015.
110. **Posselt, D. J.**, C. S. Ruf, A. Ridley, V. Zavorotny, S. Gleason, A. O'Brien, M. P. Clarizia, S. J. Katzberg, J. T. Johnson, J. L. Garrison, R. Atlas, and S. J. Majumdar, *Cyclone Global Navigation Satellite System (CYGNSS): All Weather Observations of Surface Winds in Tropical Cyclones and Hurricanes*, Talk presented in the Fifth Conference on Transition of Research to Operations at the 2015 American Meteorological Society Annual Meeting, Phoenix, AZ, January 2015.

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111. Naud, C. M., J. Booth, **D. J. Posselt**, S. C. van den Heever, and A. Del Genio, *A-Train Observations in Extratropical Cyclones: A Comprehensive Tool for Model Evaluation*, Talk presented at the 2014 American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
112. He, F., and **D. J. Posselt**, *The Sensitivity of Simulated Tropical Cyclones to Tunable Physical Parameters in Community Atmosphere Model*, Poster presented at the 2014 American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
113. Mace, G. G., **D. J. Posselt**, and S. Cooper, *The Information Available in A-Train Data Regarding Precipitation Processes in Warm Cumulus*, Talk presented at the 2014 American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
114. Xu, Z., G. G. Mace, D. Turner, and **D. J. Posselt**, *How Various Sources of Uncertainty Affect Retrieval Uncertainty in the Optimal Estimation Framework Using a Non-precipitating Liquid Clouds Example*, Talk presented at the 2014 American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
115. Tierney, G., J. Booth, and **D. J. Posselt**, *Testing the Sensitivity of Extratropical Cyclones to Variations in Environmental Conditions*, Poster presented at the 2014 American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
116. Ridley, A., C. Ruf, **D. J. Posselt**, R. Rose, and D. Provost, *The strengths of constellation missions when exploring our atmosphere*, Talk presented at the 2014 American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
117. Yuan, T., Z. Li, E. Wilcox, L. Oreopoulos, L. Remer, H. Yu, S. Platnick, **D. J. Posselt**, Z. Zhang, and J.-V. Martins, *Aerosol Microphysical and Macrophysical Effects on Deep Convective Clouds*, Poster presented at the 2014 American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
118. M. Bryan, A. Steiner, and **D. J. Posselt**, *Regional modeling of surface-atmosphere interactions and their impact on Great Lakes hydroclimate*, Poster presented at the 2014 American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.
119. Tushaus, S. A., **D. J. Posselt**, M. M. Miglietta, R. Rotunno, and L. delle Monache, *Bayesian Analysis of orographic precipitation sensitivity to upwind sounding and terrain*, Talk presented at the World Weather Open Science Conference, Montreal, QC, August 2014.

120. **Posselt, D. J.**, *Using data assimilation to explore precipitation - cloud system - environment interactions*, Talk presented at the World Weather Open Science Conference, Montreal, QC, August 2014.
121. **Posselt, D. J.**, E. M. Wilcox, and T. Yuan, *An Observation and CRM Based Analysis of Aerosol-Convection Interaction in the Tropics*, Talk presented at the 31st Conference on Hurricanes and Tropical Meteorology, San Diego, CA April 2014.
122. Jelenak, Z., P. Chang, S. Soisuvarn, A. O'Brien, A. Ridley, **D. J. Posselt**, M. P. Clarizia, and C. S. Ruf, *Evaluation and Validation of CYGNSS Winds*, Talk presented at the 31st Conference on Hurricanes and Tropical Meteorology, San Diego, CA April 2014.
123. He, F., and **D. J. Posselt**, *On the role of vertical wind shear in AGCM-simulated tropical cyclones: Intensity change, Vertical structure and Precipitation distribution*, Poster presented at the 31st Conference on Hurricanes and Tropical Meteorology, San Diego, CA April 2014.
124. He, F., and **D. J. Posselt**, *How is the impact of model resolution on tropical cyclone development affected by varying initial conditions in AGCMs?*, Poster presented at the 31st Conference on Hurricanes and Tropical Meteorology, San Diego, CA April 2014.
125. Tushaus, S., **D. J. Posselt**, M. M. Miglietta, R. Rotunno, and L. delle Monache, *Application of a Markov Chain Monte Carlo Algorithm to Orographic Precipitation Analysis*, Poster presented at the 2014 American Meteorological Society Annual Meeting, Atlanta, GA, February 2014.
126. Yuan, T., E. M. Wilcox, **D. J. Posselt**, and H. Yu, *Impacts of Aerosols on Deep Convective Clouds: Clues from Millions of Observed Cloud Objects*, Poster presented at the 2014 American Meteorological Society Annual Meeting, Atlanta, GA, February 2014.
127. Wilcox, E. M., **D. J. Posselt**, and T. Yuan, *Radiative Forcing by Aerosol Modification of Deep Convective Cloud Cover: An Evaluation with Cloud Resolving Simulations and Satellite Observations*, Talk presented at the 2014 American Meteorological Society Annual Meeting, Atlanta, GA, February 2014.
128. Wright, D. M., **D. J. Posselt**, and G. Mann, *Examining the Land-Lake-Atmosphere Interactions of the May 5, 2003 Severe Weather Event over Southwest Michigan*, Poster presented at the 2014 American Meteorological Society Annual Meeting, Atlanta, GA, February 2014.
129. Tierney, G., and **D. J. Posselt**, *Untangling the Effects of Latent Heat Release on an Extratropical Cyclone Using Potential Vorticity Analysis*, Poster presented at the 2014 American Meteorological Society Annual Meeting, Atlanta, GA, February 2014.

2013

130. **Posselt, D. J.**, *On the Use of Data Assimilation Methodologies for Examining Cloud System - Environment Interactions*, Invited talk presented at the 2013 American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
131. Tushaus, S., **D. J. Posselt**, R. Rotunno, M. Miglietta, and L. Delle Monache, *Bayesian Estimates of the Sensitivity of Orographic Precipitation to Upwind Sounding and Terrain*. Poster presented at the 2013 American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
132. Li, X., J. R. Mecikalski, T. Fehnel, and **D. J. Posselt**, *Assimilation of Dual-Polarimetric Radar Observations with WRF 3DVAR and its Impact on Ice Microphysics*. Poster presented at the 2013 American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.

133. **Posselt, D. J.**, D. Hodyss, and C. H. Bishop, *Assessing Ensemble Filter Estimates of the Analysis Error Distribution of the Day*, Poster presented at the 2013 American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
134. He, F., **D. J. Posselt**, N. Narisetty, C. Zarzycki, and V. Nair, *Sensitivities of AGCM-Simulated Tropical Cyclones to Varying Initial Conditions*, Poster presented at the 2013 American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
135. Fryxell, B., **D. J. Posselt**, A. Molod, and B. Williams, *Sensitivity Analysis of Physical Parameters in a Single-Column Climate Model*, Poster presented at the 2013 American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
136. Bryan, A. M., G. Wang, **D. J. Posselt**, and A. L. Steiner, *Synoptic and Local Controls on Precipitation Patterns in the Great Lakes Region*, Poster presented at the 2013 American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
137. Naud, C. M., J. F. Booth, A. D. Del Genio, **D. J. Posselt**, and S. C. van den Heever, *Southern Hemisphere Cloudiness In Extratropical Cyclones: An Observational Evaluation Of ERA-interim And MERRA*, Poster presented at the 2013 American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
138. **Posselt, D. J.**, *On the Use of Data Assimilation Methodologies for Examining Cloud System - Environment Interactions*, Talk presented at the 6th World Meteorological Organization Symposium on Data Assimilation, College Park, MD, October 2013.
139. **Posselt, D. J.**, and Co-Authors, *Cyclone Global Navigation Satellite System (CYGNSS): All Weather Observations of Surface Winds in Tropical Cyclones and Hurricanes*, Talk presented at the Joint American Meteorological Society/EUMETSAT Meteorological Satellite Conference, Vienna, Austria. September 2013.
140. Wright, D. M., **D. J. Posselt**, and A. L. Steiner. *Sensitivity of Lake-Effect Snowfall to Lake Ice Cover and Temperature in the Great Lakes Region*. Poster presented at the American Meteorological Society's 15th Conference on Mesoscale Processes. Portland, OR. August 2013.
141. **Posselt, D. J.**, *Model Error Analysis: Uncertainty Inherent in Model Physics Parameterizations*, Invited talk presented at the Society for Industrial and Applied Mathematics Annual Meeting, San Diego, CA. July 2013.
142. B. Doyle, K. Kuo, **D. J. Posselt**, and A. L. Steiner, *Atmospheric water budget over the Great Lakes Region and the effects of climate change*, Poster presented in the 12th Annual Student Conference at the 93rd American Meteorological Society Annual Meeting, Austin, TX. January 2013.
143. G. Tierney, J. A. Crespo, and **D. J. Posselt**, *Evaluation of the Effect of Latent Heat Release on an Extratropical Cyclone by Simulation and Observational Comparison*, Poster presented in the 12th Annual Student Conference at the 93rd American Meteorological Society Annual Meeting, Austin, TX. January 2013.
144. D. M. Wright, **D. J. Posselt**, and A. L. Steiner, *Sensitivity of Lake-Effect Snowfall to Lake Ice Cover and Temperature in the Great Lakes Region*, Poster presented in the 25th Conference on Climate Variability and Change at the 93rd American Meteorological Society Annual Meeting, Austin, TX. January 2013.
145. **D. J. Posselt**, and B. Fryxell, *Quantification of Model Parameterization Uncertainty in the NASA GEOS GCM*, Poster presented in the 25th Conference on Climate Variability and Change at the 93rd American Meteorological Society Annual Meeting, Austin, TX. January 2013.

146. M. van Lier-Walqui, T. Vukicevic, and **D. J. Posselt**, *An approach for addressing Non-Gaussian error in microphysical parameterization*, Poster presented in the Symposium on the Role of Statistical Methods in Weather and Climate Prediction at the 93rd American Meteorological Society Annual Meeting, Austin, TX. January 2013.
147. **D. J. Posselt**, *Simultaneous Nonlinear Estimation of Model Physics Uncertainty and Model State in Simulations of Deep Convection*, Talk presented in the 17th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the 93rd American Meteorological Society Annual Meeting, Austin, TX. January 2013.
148. Eric. M. Wilcox, T. Yuan, and **D. J. Posselt**, *Deep convective cloud system size and structure: thermodynamic forcing and modification by aerosols*, Talk presented in the Fifth Symposium on Aerosol-Cloud-Climate Interactions at the 93rd American Meteorological Society Annual Meeting, Austin, TX. January 2013.
149. **D. J. Posselt**, E. L. Dagg, and S. M. Saleeby, *Long-term CRM Simulations of Aerosol-Convection Interaction in the Tropics*, Talk presented in the Fifth Symposium on Aerosol-Cloud-Climate Interactions at the 93rd American Meteorological Society Annual Meeting, Austin, TX. January 2013.

2012

150. **D. J. Posselt**, *Multiscale Interactions Between Convection and the Environment*, Invited talk presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2012.
151. **D. J. Posselt**, *A Markov Chain Monte Carlo-Based Examination of the Interaction Between Model Physics Uncertainty and Model State*. Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2012.
152. **D. J. Posselt**, *CYGNSS: Observing Surface Winds in Tropical Cyclones and Hurricanes*. Talk presented on the NASA Hyperwall at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2012.
153. Mace, G. G., S. Cooper, and **D. J. Posselt**, *Resolving Processes that Modulate the Properties of Clouds and Precipitation in Vertical Columns using Ground-Based Remote Sensing Measurements Collected by the ARM Program*. Invited talk presented by G. Mace at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2012.
154. Naud, C. M., J. F. Booth, A. D. Del Genio, **D. J. Posselt**, and S. C. van den Heever, *Southern Hemisphere Cloudiness: Models vs. Observations in Different Dynamical Conditions*. Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2012.
155. Fryxell, B., and **D. J. Posselt**, *Quantification of Model Parameterization Uncertainty in Single Column Climate Models*. Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2012.
156. Igel, A. L., S. C. van den Heever, C. M. Naud, S. M. Saleeby, and **D. J. Posselt**, *Warm frontal cloud response to cloud-nucleating aerosol concentrations*. Poster presented at American Geophysical Union Fall Meeting, San Francisco, CA. December 2012.
157. van Lier-Walqui, M., T. Vukicevic, and **D. J. Posselt**, *Perturbing Model Processes to Linearize non-Gaussian Model Error in Microphysical Parameterization*. Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2012.

158. Roesler, E. L., and **D. J. Posselt**, *Death of an Arctic Mixed Phase Cloud: How Changes in the Arctic Environment Influence Cloud Properties and Cloud Radiative Feedbacks*. Poster presented at the AGU Fall Meeting, San Francisco, CA. December 2012.
159. **Posselt, D. J.**, *Quantifying Uncertainty in Model Physical Parameterizations*, Poster presented at the 1st Pan-GASS Workshop, Boulder, CO. September 2012.
160. **Posselt, D. J.**, A. Igel, S. C. van den Heever, and C. M. Naud, *Synergistic Observational and Cloud System Resolving Model Studies of Warm Frontal Cloud and Precipitation Structures*. Poster presented at the CloudSat-CALIPSO Science Team Meeting, Paris, France. June 2012.
161. **Posselt, D. J.**, C.-Y. Hsu, A. R. Jongeward, and G. L. Potter, *Object-Based Evaluation of Deep Convective Cloud Systems in the NASA GEOS-5 Model*, Talk presented in the 24th Conference on Climate Variability and Change at the 92nd American Meteorological Society Annual Meeting, New Orleans, LA. January 2012.
162. **Posselt, D. J.**, J. A. Crespo, G. Tierney, and C. M. Naud, *A Multi-Sensor Satellite-Based Examination of Cloud Structure, Precipitation, and the Thermodynamic Environment in a Warm Frontal Cloud System*, Talk presented in the 18th Conference on Satellite Meteorology, Oceanography and Climatology at the 92nd American Meteorological Society Annual Meeting, New Orleans, LA. January 2012.
163. **Posselt, D. J.**, *Nonlinear Model Parameter Estimation: Comparison of Results From a Markov Chain Monte Carlo Algorithm and An Ensemble Transform Kalman Filter*, Talk presented in the 16th Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the 92nd American Meteorological Society Annual Meeting, New Orleans, LA. January 2012.
164. van Lier-Walqui, M., T. Vukicevic, and **D. J. Posselt**, *Quantification of Cloud Microphysical Parameterization Uncertainty Using Radar Reflectivity*, Talk presented in the 16th Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the 92nd American Meteorological Society Annual Meeting, New Orleans, LA. January 2012.
165. Crespo, J. A., and **D. J. Posselt**, *Satellite and Analysis Based Examination of the Warm Conveyor Belt in An Extratropical Cyclone*, Poster presented in the 11th Annual AMS Student Conference at the 92nd American Meteorological Society Annual Meeting, New Orleans, LA. January 2012.
166. Tierney, G., and **D. J. Posselt**, *The Effect of Warm Frontal Latent Heat Release on the Structure and Evolution of An Extratropical Cyclone*, Poster presented in the 11th Annual AMS Student Conference at the 92nd American Meteorological Society Annual Meeting, New Orleans, LA. January 2012.

2011

167. **Posselt, D. J.**, *On the use of data assimilation methods to quantify uncertainty in model physics parameterizations*, Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2011.
168. Li, X., J. R. Mecikalski, and **D. J. Posselt**, *Understanding the assimilation of dual-polarimetric radar observations and their impact on convective weather forecasting in mesoscale models*, Talk presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2011.

169. van Lier-Walqui, M., T. Vukicevic, and **D. J. Posselt**, *Quantification of Cloud Microphysical Parameterization Uncertainty using Radar Reflectivity*, Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2011.
170. Wright, D. M., **D. J. Posselt**, and A. L. Steiner, *Sensitivity of Lake-Enhanced Snowfall to Lake Ice Cover in the Great Lakes Region*, Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2011.
171. Anderson, C. J., **D. J. Posselt**, and R. W. Arritt, *Interaction between moist physics, cumulus parameterization and GCM grid spacing in simulations of midlatitude mesoscale convective systems*, Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2011.
172. Roesler, E. L., **D. J. Posselt**, and R. B. Rood, *Comparison of bin and bulk microphysics in simulations of springtime Arctic mixed-phase stratocumulus clouds with a higher-order turbulence*, Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2011.
173. Naud, C. M., **D. J. Posselt**, and S. C. van den Heever, *Comparison of clouds and precipitation in northern and southern ocean extratropical cyclones*, Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2011.
174. Wilcox, E. M., T. Yuan, and **D. J. Posselt**, *Relationships between atmospheric state and scale-dependent cloud properties as a pathway for investigating the impact of aerosols on deep convective clouds*, Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2011.
175. **Posselt, D. J.**, *On the Use of Data Assimilation Methods to Quantify Uncertainty in Model Physics Parameterizations*, Poster presented at the World Climate Research Program Open Science Conference, Denver, CO. October 2011.
176. Potter, G. L., **D. J. Posselt**, A. R. Jongeward, and C.-Y. Hsu, *Object Based Evaluation of MERRA-Simulated Clouds and Radiation For the 1998 El Nino*, Poster presented at the World Climate Research Program Open Science Conference, Denver, CO. October 2011.
177. **Posselt, D. J.**, S. C. van den Heever, and G. L. Stephens, *Changes in the Tropical Hydrologic Cycle in a Warming Environment: Influence on Organized Deep Convection*, Poster presented at the Gordon Research Conference on Radiation and Climate, Colby College, Waterville, ME. July 2011.
178. Hsu, C.-Y., A. R. Jongeward, **D. J. Posselt**, and G. L. Potter, *Object Based Evaluation of GCM-Simulated Clouds and Radiation For the 1998 El Nino- La Nina Transition*, Poster presented at the Gordon Research Conference on Radiation and Climate, Colby College, Waterville, ME. July 2011.
179. **Posselt, D. J.**, C. M. Naud, and S. C. van den Heever, *An A-Train Based Multi-Sensor Examination of a Warm Frontal Cloud System*, Poster presented at the CloudSat-CALIPSO Science Team Meeting, Montreal, QC. June 2011.
180. Naud, C., **D. J. Posselt**, and S. C. van den Heever, *Cloud and Precipitation in the Warm Conveyor Belt as Seen With the A-train: NH Versus SH Oceans*, Poster presented at the CloudSat-CALIPSO Science Team Meeting, Montreal, QC. June 2011.
181. van Lier-Walqui, M., T. Vukicevic, and **D. J. Posselt**, *Markov-chain Monte Carlo assimilation of radar reflectivity to improve microphysical parameterization*. Poster presented in the 15th Conference on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the 91st American Meteorological Society Annual Meeting, Seattle, WA. January 2011.

2010

182. **Posselt, D. J.**, *Use of Markov Chain Monte Carlo Algorithms for Model Uncertainty Estimation: Beating the Problem of Nonuniqueness*. Invited talk presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2010
183. **Posselt, D. J.**, S. C. van den Heever, and G. L. Stephens, *Changes in the Tropical Hydrologic Cycle in a Warming Environment: Influence on Organized Deep Convection*. Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2010
184. Anderson, C. J., **D. J. Posselt**, and R. Arritt, *Sensitivity of Midwest Diurnal Cycle of Precipitation to Grid Spacing and Cloud Spectrum Characteristics in NASA GEOS-5*. Talk presented at the 2010 American Geophysical Union Fall Meeting, San Francisco, CA. December 2010
185. Hsu, C.-Y., A. R. Jongeward, **D. J. Posselt**, and G. Potter, *Object Based Evaluation of GCM-Simulated Clouds and Radiation for the 1998 El Nino- La Nina Transition*. Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2010
186. Briley, L., R. B. Rood, **D. J. Posselt**, and G. Potter, *Drought in the U.S. Southeast, Model Bias, and Climate Change*, Poster presented at the 2010 American Geophysical Union Fall Meeting, San Francisco, CA. December 2010
187. **Posselt, D. J.**, C. Naud, S. C. van den Heever, and A. Lichtenberger, *A-Train-Based Examination of the Relationship Between Aerosols, Cloud Vertical Structure, and Cloud Radiative Forcing in Midlatitude Cyclones*. Poster presented at the 2010 A-Train Symposium, New Orleans, LA. October 2010.
188. **Posselt, D. J.**, G. L. Potter, A. Jongeward, and C.-Y. Hsu, *Evaluation of Deep Convective Cloud Systems in the NASA MERRA Reanalysis: Toward a Probabilistic Framework*. Talk presented at the 17th Satellite Meteorology and Oceanography Symposium, Annapolis, MD. September 2010.
189. **Posselt, D. J.**, *On the use of model physics parameters as control variables in data assimilation systems*. Talk presented in the 14th Conference on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the 90th American Meteorological Society Annual Meeting, Atlanta, GA. January 2010.
190. **Posselt, D. J.**, G. L. Potter, R. B. Rood, A. Jongeward, M. J. Suarez, and M. M. Rienecker, *Using the 1997–1998 El Nino as a test case for climate model response*. Talk presented in the 22nd Conference on Climate Variability and Change at the 90th American Meteorological Society Annual Meeting, Atlanta, GA. January 2010.
191. Charboneau, B. R., and **D. J. Posselt**, *An observational analysis of middle tropospheric stable layers over the tropical western Pacific ARM sites*. Poster presented in the 22nd Conference on Climate Variability and Change at the 90th American Meteorological Society Annual Meeting, Atlanta, GA. January 2010.
192. Bell, L. J., R. B. Rood and **D. J. Posselt**, *Effect of changes in GCM resolution on the connection between summertime precipitation, moisture flux, and the position of the Bermuda High*. Poster presented in the 22nd Conference on Climate Variability and Change at the 90th American Meteorological Society Annual Meeting, Atlanta, GA. January 2010.
193. Jongeward, A. R., and **D. J. Posselt**, *Evaluation of MERRA using CERES cloud objects for the 1998 El Nino - La Nina transition*. Poster presented in the 9th AMS Student

Conference at the 90th American Meteorological Society Annual Meeting, Atlanta, GA. January 2010.

194. Ferguson, E., F. J. Marsik, **D. J. Posselt**, and G. J. Keeler, *Climatology of Convection in Florida: Implications for Mercury Deposition*. Poster presented in the 9th AMS Student Conference at the 90th American Meteorological Society Annual Meeting, Atlanta, GA. January 2010.

2009

195. **Posselt, D. J.**, and B. Charboneau, *On the occurrence and properties of middle tropospheric stable layers over the tropical western Pacific*. Talk presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2009.
196. T. Matsui, W. Tao, H. Masunaga, C. D. Kummerow, W. S. Olson, N. Teruyuki, M. Sekiguchi, M. Chou, T. Y. Nakajima, X. Li, J. Chern, J. J. Shi, X. Zeng, **D. J. Posselt**, and K. Suzuki, *Goddard Satellite Data Simulation Unit: Multi-Sensor Satellite Simulators to Support Aerosol-Cloud-Precipitation Satellite Missions*. Talk presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2009.
197. **Posselt, D. J.**, and T. Vukicevic, *Characterization of Model Physics Uncertainty. Implications for Ensemble-Based Prediction and Assimilation*. Talk presented at the 5th World Meteorological Organization Symposium on Data Assimilation, Melbourne, VIC, Australia. October 2009.
198. **Posselt, D. J.**, T. S. L'Ecuyer, and T. Matsui, *Statistical Evaluation of CRM-Simulated Cloud and Precipitation Structures Using Multi-sensor TRMM Measurements and Retrievals*. Talk presented at the American Geophysical Union Joint Assembly, Toronto, Ontario, May 2009.
199. **Posselt, D. J.**, and T. Vukicevic, *Nonlinear Characterization of Uncertainty in Model Physics Routines and Implications for Ensemble-Based Prediction*. Talk presented in the 13th Conference on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at the 89th American Meteorological Society Annual Meeting, Phoenix, AZ. January 2009.
200. **Posselt, D. J.**, T. S. L'Ecuyer, and G. L. Stephens, *Exploring the Error Characteristics of Thin Ice Cloud Property Retrievals Using a Markov Chain Monte Carlo Algorithm*. Poster presented in the 16th Conference on Satellite Meteorology and Oceanography at the 89th American Meteorological Society Annual Meeting, Phoenix, AZ. January 2009.
201. Charboneau, B. R., and **D. J. Posselt**, *An observational analysis of middle tropospheric stable layers over the tropical western pacific ARM sites*. Poster presented in the student conference at the 89th American Meteorological Society Annual Meeting, Phoenix, AZ. January 2009.

2008

202. **Posselt, D. J.**, *Evaluation of CRM-Simulated Cloud and Precipitation Structures Using Multi-sensor TRMM Retrievals: Implications for Model Development*. **Invited Talk** presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2008.
203. **Posselt, D. J.**, S. C. van den Heever, and G. L. Stephens, *Large Domain Cloud Resolving Simulations of Equatorial Tropical Convection: Influence of Sea Surface Temperature on Convective Organization*. Talk presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2008.

204. **Posselt, D. J.**, S. C. van den Heever, and G. L. Stephens, *Large Domain Cloud Resolving Simulations of Trimodal Cloudiness and Tropical Stable Layers*. Poster presented at the 4th PAN-GEWEX Cloud System Study Meeting, Toulouse, France. June 2008.

2006

205. **Posselt, D. J.**, T. S. L'Ecuyer, and G. L. Stephens, *Nonlinear Non-Gaussian Parameter Estimation Using Markov Chain Monte Carlo Methods*. Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 2006.
206. **Posselt, D. J.**, T. S. L'Ecuyer, and G. L. Stephens, *Use of Markov chain Monte Carlo sampling methods to assess and improve variational MODIS cloud retrievals*. Poster presented in the 14th Conference on Satellite Meteorology and Oceanography at the 86th American Meteorological Society Annual Meeting, Atlanta, GA. January 2006.

2005

207. **Posselt, D. J.**, T. Vukicevic, and G. L. Stephens, *Use of Maximum Likelihood Markov Chain Monte Carlo Sampling to Estimate Model Parameter Probability Density Distributions*. Poster presented at the 4th World Meteorological Organization International Symposium on Assimilation of Observations in Meteorology and Oceanography, Prague, CZ. April 2005.

2004

208. Feltz, W. F., H. B. Howell, R. O. Knuteson, J. Mecikalski, K. Bedka, R. L. Tanamachi, and **D. J. Posselt**, *New meteorological applications using AERI thermodynamics profiling*. 14th Atmospheric Radiation Measurement (ARM) Science Team Meeting, Albuquerque, NM. March 2004.
209. Otkin, J. A., **D. J. Posselt**, E. R. Olson, J. E. Davies, W. F. Feltz, R. O. Knuteson, and J. R. Mecikalski, *Generation of simulated top of atmosphere radiance datasets for GIFTS/HES algorithm development*. Poster presented in the 20th International Conference on Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology at the 84th American Meteorological Society Annual Meeting, Seattle, WA. January 2004.
210. F. Sun, J. Li, T. J. Schmit, and **D. J. Posselt**, *HES simulation study using cube data from MM5*. Poster presented in the 20th International Conference on Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology at the 84th American Meteorological Society Annual Meeting, Seattle, WA. January 2004.
211. Davies, J. E., H. Wei, P. Yang, H. L. Huang, D. D. Turner, E. R. Olson, and **D. J. Posselt**, *Fast model cloudy radiances for infrared hyperspectral observations*. Poster presented in the 20th International Conference on Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology at the 84th American Meteorological Society Annual Meeting, Seattle, WA. January 2004.
212. Huang, H.-L., C. S. Velden, J. Li, E. Weisz, K. Baggett, J. E. Davies, J. R. Mecikalski, B. Huang, R. Dengel, S. A. Ackerman, E. R. Olson, R. O. Knuteson, D. Tobin, L. Moy, J. A. Otkin, **D. J. Posselt**, H. E. Revercomb, and W. L. Smith, *Infrared hyperspectral sounding modeling and processing: An overview*. Talk presented in the 20th International Conference on Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology at the 84th American Meteorological Society Annual Meeting, Seattle, WA. January 2004.
213. Antonelli, P., T. Cherubini, H. Revercomb, S. Businger, R. Knuteson, **D. J. Posselt**, and S. Ackerman, *Comparison of S-HIS temperature and water vapor Retrievals to MM5 derived fields for THORPEX 2003*. Talk presented in the Eighth Symposium on Integrated Observing

and Assimilation Systems for Atmosphere, Oceans, and Land Surface at the 84th American Meteorological Society Annual Meeting, Seattle, WA. January 2004.

2003

214. **Posselt, D. J.**, *Use of High-Resolution MM5 Simulations for GIFTS Forward Model and Retrieval Algorithm Development*, Talk presented at the 13th Annual MM5 Users Workshop, Boulder, CO. June 2003.
215. **Posselt, D. J.**, *Simulation of an IHOP Convective Initiation Case for GIFTS Preparation*, Talk presented at the International H₂O Project Spring Workshop, Boulder, CO. March 2003.
216. **Posselt, D. J.**, W. F. Feltz, and D. D. Turner, *Verification of Mesoscale Numerical Model Forecasts Using Remotely-Sensed Observations*, Poster presented at the 83rd American Meteorological Society Annual Meeting, Long Beach, CA. February 2003.
217. **Posselt, D. J.**, E. Olson, B. Osborne, W. F. Feltz, J. R. Mecikalski, R. Aune, R. O. Knuteson, H. E. Revercomb, and W. L. Smith, *Simulation of an IHOP Convective Initiation case for GIFTS forward model and algorithm development*. Poster presented at the 83rd American Meteorological Society Annual Meeting, Long Beach, CA. February 2003.
218. Feltz, W. F., **D. J. Posselt**, J. R. Mecikalski, G. S. Wade, and T. J. Schmit, *12 June 2002 rapid water vapor transitions during the IHOP field program*. Talk presented at the 83rd American Meteorological Society Annual Meeting, Long Beach, CA. February 2003
219. Davies, J. E., E. R. Olson, and **D. J. Posselt**, *Cloud model upgrade to the GIFTS Fast Radiative Transfer Model*. University of Wisconsin-Madison, Space Science and Engineering Center, Madison, WI, 2003, Call Number: UW SSEC Publication No.03.09.D1
220. Martin, J. E., **D. J. Posselt**, and J. McLay, *The influence of latent heat release on the occlusion processes in an idealized primitive equation simulation*. Talk presented at the American Meteorological Society 10th Conference on Mesoscale Processes, Portland, OR. June 2003.

2002

221. **Posselt, D. J.**, W. F. Feltz, and D. D. Turner, *Validation of MM5 with AERI observations over the Southern Great Plains ARM site*, Talk presented at the 12th Annual MM5 Users Workshop, Boulder, CO. June 2002.
222. **Posselt, D. J.**, J. R. Mecikalski, J.; Tanamachi, R.; Feltz, W. F.; Turner, D. D.; Tobin, D.; Knuteson, R. O. and H. E. Revercomb, *Comparisons of a cloud resolving model and ARM data*. Poster presented at the 12th Atmospheric Radiation Measurement (ARM) Science Team Meeting, St. Petersburg, FL. April 2002.
223. Mecikalski, J. R., and **D. J. Posselt**, *The Developing Infrastructure for Hyperspectral Data Assimilation at the University of Wisconsin-Madison*, Talk presented at the 82nd American Meteorological Society Annual Meeting, Orlando, FL. January 2002.

2001

224. Morgan, M. C., K. La Casse, D. T. Kleist, H M Kim, J. McLay, **D. J. Posselt**, J. R. Mecikalski, C. Velden, and D. Stettner, *Evaluating the potential impact of the assimilation of satellite derived products on a mesoscale forecast of PACific landfalling JETs experiment (PACJET) IOP 10*. Poster presented at the 11th AMS Conference on Satellite Meteorology and Oceanography, Madison, WI. October 2001.
225. Tobin, D, K. Baggett, R. Garcia, H. Woolf, H.-L. Huang, R. Knuteson, J. R. Mecikalski, E. R. Olson, B. Osborne, **D. J. Posselt**, and H. Revercomb, *Simulation of GIFTS data cubes*. 11th AMS Conference on Satellite Meteorology and Oceanography, Madison, WI. October 2001.

226. **Posselt, D. J.**, and J. E. Martin, *The Role of Latent Heat Release in the Formation of a Warm Occluded Thermal Structure in an Intense Continental Cyclone*, Talk presented at the 9th American Meteorological Society Conference on Mesoscale Processes, Fort Lauderdale, FL. August 2001.

2000

227. **Posselt, D. J.** and J. E. Martin, *The Effect of Latent Heat Release on the Decay of an Intense Continental Cyclone*, Talk presented at the 11th Cyclone Workshop, Pacific Grove, CA. August 2000.

TEACHING EXPERIENCE

University of Michigan, Department of Atmospheric, Oceanic, and Space Sciences

AOSS 701 Graduate Directed Study	2009 - 2016
AOSS 605 Data Assimilation	2015
AOSS 586 Climate Data Analysis	2014
AOSS 499 Undergraduate Directed Study	2009 - 2016
AOSS 422 Boundary Layer Meteorology	2013
AOSS 411 Clouds, Aerosols, and Precipitation	2009, 2011, 2012, 2013, 2014, 2016
AOSS 401 Geophysical Fluid Dynamics	2007, 2008, and 2015

Colorado State University, Department of Statistics

Guest Lecturer, Statistics 796 Advanced Data Assimilation Fall 2005

University of Wisconsin–Madison, Department of Atmospheric and Oceanic Sciences

Teaching Assistant, AOS 101 Weather and Climate, Lab Section	Spring 1999
Teaching Assistant, AOS 452 Synoptic Lab I: The Frontal Cyclone	Fall 1997, Fall 1998

MEDIA HIGHLIGHTS

NASA Earth Observatory Image of the Day 19 November 2014
http://earthobservatory.nasa.gov/IOTD/view.php?id=84743&eocn=home&eoci=iotd_image

NASA Earth Observatory Image of the Day 13 May 2011
<http://earthobservatory.nasa.gov/IOTD/view.php?id=50588>

NATIONAL SERVICE

<i>Member</i> , AMS Probability and Statistics Committee	2019 - Present
<i>Panelist: Effective Resume Building</i> , 6 th AMS Conference for Early Career Professionals, 98 th AMS Annual Meeting, Austin, TX.	2018
<i>Co-Chair</i> , 21 st Conference on Satellite Meteorology and Oceanography, Madison, WI.	2016
<i>Co-Chair</i> , 20 th Conference on Satellite Meteorology and Oceanography, 2015 AMS Annual Meeting, Phoenix, AZ.	2015
<i>NASA Senior Review Science Panel</i> , NASA Earth Science Senior Review for the Extension of all current Earth Science Operating Missions	2013 and 2015

Member, AMS Satellite Meteorology and Oceanography Committee 2010 - 2016

Review Panel, NASA ROSES 2013 NASA Energy and Water Cycle Science 2014

Proposal Reviewer, NASA ROSES 2012 Precipitation Science Program 2012

Review Panel, NASA ROSES 2009 CloudSat/CALIPSO Science Team 2009

Proposal Reviewer, NASA ROSES 2009 Precipitation Science Program 2009

Proposal Reviewer, NASA ROSES 2008 Modeling, Analysis, and Prediction Program 2008

Reviewer: More than 45 peer reviewed scientific articles submitted to: Atmospheric Research, Climate Dynamics, Geophysical Research Letters, 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, Nonlinear Processes in Geophysics, Weather and Forecasting

UNIVERSITY SERVICE

University of Michigan

Faculty Ally for Diversity in Graduate Education 2014-2016

Participant: Future of Diversity in STEM Panel, Society of Hispanic Professional Engineers Annual Meeting November 2014

Member: Future of Visualization Committee 2013 – 2016

University of Michigan, Department of Atmospheric, Oceanic, and Space Sciences

Chair: Graduate Admissions Committee 2013-2016

Internal Review Committee 2012-2013

Information Technology (IT) Committee 2011–2016

Awards Committee 2011–2013

Qualifying Examination Committee 2009–2010

Executive Committee 2008–2010

Graduate Recruitment Committee 2007–2010, 2012-2013

University of Michigan School of Natural Resources and the Environment

Panelist: “Nature Provoked: Hurricane Sandy and the Link Between “Natural” Disasters and Climate Change” 4 April 2013

University of Michigan College of Engineering

Judge for the CoE Engineering Graduate Symposium student conference. 2009, 2011, 2013

University of Michigan Depts. of Atmospheric, Oceanic, and Space Sciences and Geology

Judge for the Michigan Geophysical Union student conference. March 2008, March 2010

University of Michigan Center for the Education of Women

Focus Group: Non-Tenure Track Faculty 23 Feb 2009

University of Northern Colorado, McNair Scholars Program

Tutored an undergraduate atmospheric science major in core dynamics course 2005–2006

University of Wisconsin–Madison, TRIO Student Support Services Program

Tutored undergraduate students enrolled in an introductory atmos. science course 2000–2001

UNIVERSITY ADVISING

University of Michigan College of Engineering

Faculty Advisor, Multidisciplinary Design Program Student Team:

Mapleseed Microdrones for Atmospheric Sensing 2014-2016

Project: Design of maple-seed (Samara) inspired in-situ sensor networks for boundary layer measurement.

Faculty Advisor, Multidisciplinary Design Program Student Team:

Great Lakes Simulation 2014-2016

Project: Design of a Great Lakes simulation system for atmosphere, lake (surface and hydrodynamics), hydrology, vegetation, and chemistry.

University of Michigan Department of Atmospheric, Oceanic, and Space Sciences

Advisor, Ph. D. Student: Annareli Morales. 2014-2019

Project: Quantitative Analysis of the Response of Orographic Precipitation to Changes in Environment, Mountain Geometry, and Cloud Microphysics.

Advisor, Ph. D. Student: Juan Crespo. 2013-2018

Project: Exploring New Satellite Technology for Extratropical Cyclone and Surface Heat Flux Analysis

Advisor, Ph. D. Student: Gregory Tierney. 2012-2017

Project: An Examination of Extratropical Cyclone Sensitivity to Environmental Variability

Advisor, Ph. D. Student: Fei He. 2012-2016

Project: Quantitative Assessment of Tropical Cyclone Simulation Sensitivity in the Community Atmosphere Model

Advisor, Ph. D. Student: David Wright. 2012-2016

Project: The Influence of Lake Surface Temperature on Atmospheric Circulations in the Great Lakes Region

Advisor, M.S. Student: Omar Gates. 2013-2015

Project: Analysis of Changes in Tornado Outbreaks in a Changing Climate.

Advisor, M.S. Student: Samantha Tushaus. 2012-2014

Project: Quantitative Exploration of Sensitivity of Orographic Precipitation to Changes in Mountain Geometry and the Upwind Environment.

Advisor, Ph. D. Student: Erika Roesler. 2011-2012

Project: Aerosol Effects on Spring Time Arctic Clouds.

Advisor: Res. Exper. for Undergraduates (REU) project, Student: Greg Tierney 2011

Project: The Effect of Latent Heat Release on the Development of Warm Frontal Structure in an Extratropical Cyclone.

Advisor: Res. Exper. for Undergraduates (REU) project, Student: Juan Crespo 2011

Project: Satellite and Analysis Based Examination of the Warm Conveyor Belt in Extratropical Cyclones.

- Advisor, M.S. Student: Chuan-Yuan Hsu. 2009-2011
 Project: Object-based evaluation of GCM simulated clouds and precipitation.
- Advisor, M.S. Student: David Wright. 2009-2010
 Project: A model-based examination of lake-enhanced precipitation over western Michigan.
- Advisor for undergraduate research project, Student: Aaron Preston. 2009-2010
 Project: Observation-based analysis of mid-tropospheric clouds and stable layers over the U. S. Southern Great Plains.
- Advisor for undergraduate directed study project, Student: Andrew Jongeward. 2009-2010
 Project: Evaluation of MERRA reanalysis cloud and precipitation fields using satellite observations.
- Co-Advisor: Res. Exper. for Undergraduates (REU) project, Student: Eleanor Ferguson 2009
 Project: Climatology of gulf coast convection and relationship to mercury wet deposition.
- Advisor for undergraduate research project, Student: Brad Charboneau. 2008-2009
 Project: Observation-based analysis of mid-tropospheric clouds and stable layers over the Tropical Western Pacific Ocean.

University of Michigan School of Natural Resources and the Environment

- Outside advisor, M. S. students 2007–2008
 Project: Effects of climate change on Puerto Rico

HONORS AND AWARDS

University of Michigan Ted Kennedy Family Faculty Team Excellence Award, 2015 – 2016.

Editors' Citation for Excellence in Refereeing – J. Geophysical Research Atmospheres, 2014

Visiting Scientist: Naval Research Laboratory, September 2010 – April 2011.

Cover Article: Bulletin of the American Meteorological Society, May 2008 Issue.

First Place: Student Poster Competition, 14th Conference on Satellite Meteorology and Oceanography, AMS Annual Meeting, Atlanta, GA., January 2006.

Center for Earth-Atmosphere Studies Fellowship, NASA Goddard Space Flight Center, Greenbelt, MD and Colorado State University Department of Atmospheric Science, Fort Collins, CO. 2003-2006.

NCAR Advanced Studies Program Summer Colloquium, Data Assimilation for Atmospheric and Climate System Prediction, Boulder, CO, 2003.

NATO Advanced Studies Institute, Data Assimilation for the Earth System, Maratea, Italy, 2002.

Wahl Award for Outstanding Performance as a Teaching Assistant, Department of Atmospheric and Oceanic Sciences, Univ. Wisconsin–Madison, Madison, WI, 1999-2000.

PROFESSIONAL AFFILIATIONS

American Meteorological Society	2002-Present
American Geophysical Union	2006-Present

FIELD EXPERIENCE

Participant, Cloud, Aerosol and Monsoon Processes Philippines Experiment (CAMP ² Ex), Clark Airfield, Pampanga, Philippines	August – September 2019
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Participant, First Pacific THORPEX Operations Science Test field campaign Honolulu, HI	February 2003
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Participant, International H ₂ O Project field experiment Liberal, KS	June 2002
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