

January 2019

Volume 2, Issue 1

Work and Activities from
11/01/18–12/19/18



Notes from the Head

Welcome to 2019! Like many of you, I've been spending the last several days contemplating the new year in terms of my personal as well as professional life. And hopefully, like me, you've been able to identify multiple reasons for optimism and excitement about 2019. Reason #1 for me is the Annual Meeting of the AMS, to be held in Phoenix, Arizona next week. In addition to escaping the Midwest winter for a few days, I'm personally looking forward to seeing the poster presentations given by our undergraduates during the AMS Student Conference. I'm also looking forward to interacting with our alumni and friends at the UI Atmospheric Sciences reception on Tuesday. On Friday, January 11th, our faculty will be holding a retreat at the Lake of the Woods in Mahomet. While this may not sound particularly exciting, it will jumpstart the preparations for a departmental external review to be held in November, and more generally will help us chart the path of the department for the next five years. Another reason for excitement: our purchase of a mobile (trailer-mounted) 915 MHz wind profiler! The acquisition process is well underway, and once delivered, the profiler will be used either during field campaigns or be deployed to a site on South Farms, where it will be operated continuously with the other SCAMP equipment for research and teaching activities. Finally, here's a sample of other things to come in 2019: the development of our first online graduate-level course, and the formal proposal of an online M.S. degree; a summer visit by undergraduate students from Zhejiang University, and then the arrival of the first enrollees in a new 3+2 academic program with Zhejiang University; CAMP2EX (The Cloud, Aerosol and Monsoon Processes Philippines Experiment), a field campaign that will involve numerous graduate students and faculty members; and the formation of an Alumni Advisory Board.

Enjoy the remainder of the semester break, and see you back on campus soon!

Atmos Briefings

Publications

Hayhoe, K., D.J. Wuebbles, D.R. Easterling, D.W. Fahey, S. Doherty, J. Kossin, W. Sweet, R. Vose, and M. Wehner, 2018: Our Changing Climate. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA. doi: 10.7930/NCA4.2018.CH2

Lee, B., L. Di Girolamo, G. Zhao, and Y. Zhan, 2018: Three-dimensional cloud volume reconstruction from the Multi-angle Imaging SpectroRadiometer. *Remote Sens.* 10(11), 1858, doi:10.3390/rs10111858.

Plummer, D. M., J. F. French, D. C. Leon, A. M. Blyth, S. Lasher-Trapp, L. J. Bennett, D. R. L. Dufton, R. C. Jackson, R. R. Neely, 2018: Radar-Derived Structural and Precipitation Characteristics of ZDR Columns within Warm-Season Convection over the United Kingdom. *J. Appl. Met. Climatol.*, 57, 2485–2505.

Wang, Y., S. Hioki, P. Yang, M. King, L. Di Girolamo, D. Fu, and B.A. Baum, 2018: Inference of an optimal ice particle model through latitudinal analysis of MISR and MODIS data. *Remote Sens.* 10(12), 1981, doi:10.3390/rs10121981.

World Meteorological Organization (WMO) (coauthor), 2018: Executive Summary: Scientific Assessment of Ozone Depletion: 2018, World Meteorological Organization, Global Ozone Research and Monitoring Project – Report No. 58, 67 pp., Geneva, Switzerland. - Wuebbles, D

Wuebbles, D.J., and J.M. Jacobs, 2018: Potential Impacts of Climate Change on the Interstate Highway System. In National Academies of Science, Engineering and Medicine, 2018: Renewing the National Commitment to the Interstate Highway System: A Foundation for the Future. Washington DC: National Academies Press. <https://doi.org/10.17226/25334>, pages 410-486.

Zhan, Y., L. Di Girolamo, R. Davies, and C. Moroney, 2018: Instantaneous top-of-atmosphere albedo comparison between CERES and MISR over the Arctic. *Remote Sens.* 10(12), 1882, doi:10.3390/rs10121882.

Presentations



Dey, S.S., L. Di Girolamo, K.R. Smith, A. Pillarisetti and A. Lyapustin, Assessing long term ambient PM_{2.5} build-up in Delhi NCT using high resolution satellite dataset. Indian Aerosol Science and Technology Association Conference, Delhi, India, 26-28 Nov. 2018

Di Girolamo, L., et al., 2018: The Terra data fusion project. AGU 2018 Fall Meeting, Washington, D.C., 9- 14 Dec 2018.

Dutta, S., L. Di Girolamo, S. Dey, and Y. Zhan, Assessment of newly built resolution-corrected MISR cloud fraction product. AGU 2018 Fall Meeting, Washington, D.C., 9- 14 Dec 2018.

Finlon, J, R. Rauber, T. Zaremba, G. McFarquhar, W. Wu, Microphysical Processes within a Southern Hemisphere Atmospheric River, Southern Ocean Science Workshop, Boulder, CO, 27-29 Nov. 2018

Hayhoe, K, D. Wuebbles, et al., The 4th National Climate Assessment: The Science of Climate Change (invited), AGU 2018 Fall Meeting, Washington, DC, 11 Dec. 2018.

Hong, Y., L. Di Girolamo, and J.S. Reid, An investigation of aerosol, warm and mixed phase clouds overlapped by cirrus over the Southeast Asia Region. AGU 2018 Fall Meeting, Washington, D.C., 9- 14 Dec 2018.

Jain, AK., Carbon Dioxide as It Relates to Climate Change, Civil Department, Indian Institute of Technology, New Delhi, India, 26 Nov. 2018.

Jain, AK., Dynamics and Drivers of Land Use & Land Cover Changes – Country Scale to Global Scale (invited), Intl. Conf. on 25 years of Community Forestry: Mapping Tree Dynamics in Nepal, Kathmandu, Nepal, 29-30 Nov. 2018.

Jain, AK., Responses of the Carbon, Energy and Water Fluxes to Different Land Use and Land Cover Products in the E3SM Model (invited), DOE Modeling PI Meeting, Potomac, MD, 5-9 Nov. 2018.

Kristovich, D., J. Wang, and A. Hiscox, "Dispersion of Particles in Temperature Inversions," 73rd Annual Meeting of the North Central Weed Science Society, Milwaukee, WI. 5 Dec. 2018.

Lasher-Trapp, S., and coauthors, Comparison of Rime Splintering in Summertime Southern Ocean Cumuli vs. Tropical Caribbean Cumuli, Southern Ocean Science Meeting, Boulder, CO, 27-29 Nov. 2018.

Majetic, M., A. Bruchhauser, N. Riemer, Mobile Monitoring the Spatial Variability of Trace Gas and Particulate Concentrations in Champaign County, presented at GIS Day, UIUC, 14 Nov. 2018.

Nesbitt, S. W., Radar applications in warm season convection. National Science Foundation RELAMPAGO Advanced Study Institute, Villa Carlos Paz, Argentina (invited) Nov. 2018.

Riemer, N and A. Ault, Aerosol Mixing State: Metrics, Measurements, Modeling, Tutorial talk, AGU 2018 Fall Meeting, Washington, D.C., Dec. 2018.

Riemer, N, A multi-scale modeling framework for simulating aerosol climate impacts (invited), Northern Illinois University, 2 Nov. 2018.

Sanyal, S., and D. Wuebbles, Impact of Climate Change on Air Quality, AGU 2018 Fall Meeting, Washington, DC, 13 Dec. 2018.

Scott, E., and S. Lasher-Trapp, Investigating Rime Splintering in Summertime Southern Ocean Cumuli, Southern Ocean Science Meeting, Boulder, CO, 27-29 Nov. 2018.

Shea, Y., D. Feldman, P. Pilewskie, L. Liang, S.-H. Ham, S. Kato, L. Di Girolamo, and B. Wielicki, Unraveling Earth's climate change mysteries from space: What do we need from our measurements? OSA Light, Energy and the Environ. Congress, Singapore, Chowdhury 5-8 Nov. 2018.

Shea, Y., L. Liang, L. Di Girolamo, S.-H. Ham, and S. Kato, Evaluating retrieval algorithm climate stability: towards obtaining large-scale 3D optical depth bias distributions by cloud type. AGU 2018 Fall Meeting, Washington, D.C., 9- 14 Dec 2018.

Striver, R. L., B. Vega-Westhoff, C. Hartin, T. Wong, and K. Keller, Pinning the Tails on HECTOR: Recent Model Developments and Bayesian Calibration using Global Sea-level Rise Information, DOE Modeling PI meeting, Washington DC, Nov. 2018.

Striver, R. L., E. Hogan, R. Nicholas, and K. Keller, Influence of uncertainties on the tails of climate projections on decision-relevant spatial and temporal scales, DOE Modeling PI meeting, Washington DC, Nov. 2018.

Presentations Continued

- Sriver, R. L., I. Haqiqi, T.W. Hertel, W. Schlenker, Assessing the Suitability of NASA Earth Exchange Global Daily Downscaled Projections (NEX-GDDP) Dataset for Coupled Human-Environment Analysis, DOE Modeling PI meeting, Washington DC, Nov. 2018
- Trapp, R. J., and G. R. Marion, "The Dynamical Coupling of Convective Updrafts, Downdrafts, and Cold Pools in Highly Organized Convective Storms in Midlatitudes" (invited), AGU 2018 Fall Meeting, Washington, D.C., 12 Dec 2018.
- Wehner, M., K. Hayhoe, D. Wuebbles, et al., Chapter 2 of the 4th National Climate Assessment: The Science of Climate Change (invited poster), AGU 2018 Fall Meeting, Washington, DC, 12 Dec. 2018.
- Wuebbles, D, An overview of the SPARC Core Project for the CLIVAR SSG meeting 2018. CLIVAR meeting, Washington, D.C., 25 Nov. 2018
- Wuebbles, D., 2018: Using the 4th National Climate Assessment to inform National Security. AGU Annual Meeting, Washington, DC, 12 Dec. 2018.
- Wuebbles, D., Following in the Footsteps of Bert Bolin: Assessing the Science of Climate Change (invited). AGU 2018 Fall Meeting, Washington, DC, 12. Dec. 2018.
- Wuebbles, D., The 4th National Climate Assessment: The Science and Why We Should All Care. Spurlock Museum, Urbana, IL, 2 Dec. 2018.
- Wuebbles, D., The Science of Climate Change. The Bolles School (High school), Jacksonville FL, 17 Nov. 2018.
- Wuebbles, D., The Science of Climate Change: Why We All Should Care. Jacksonville FL, 17 Nov. 2018
- Wuebbles, D., Why We Should All Care About Climate Change, Presentation to the Urbana Exchange Club, Urbana, IL. 20 Dec. 2018.
- Zhan, Y, L. D. Girolamo, G. Zhao, Global spectral and texture trends as observed from Terra, AGU 2018 Fall Meeting, Washington D.C., 11 Dec 2018.

Activities and Awards

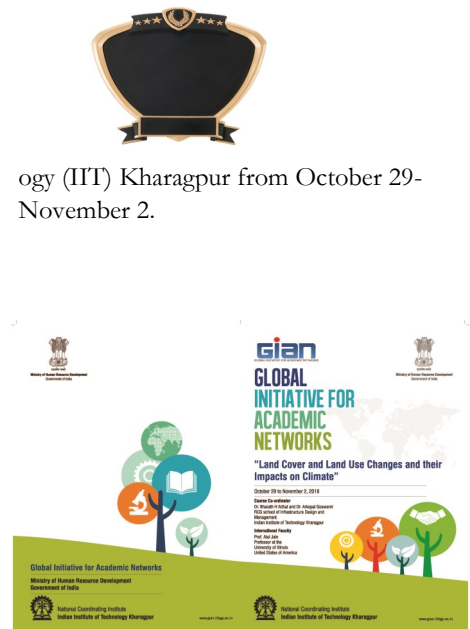
Don Wuebbles received the Bert Bolin Global Environmental Change Award from the American Geophysical Union, on December 11, 2018. He also led two sessions on Communicating Climate Change at the AGU Annual Meeting.

A paper that Larry Di Girolamo co-authored was chosen as the Editor's Highlight for JGR-Atmospheres: Werner, F., Z. Zhang, G. Wind, D. Miller, S. Platnick, and L. Di Girolamo, 2018: Improving cloud optical property retrievals for partly cloudy pixels using coincident higher-resolution single band measurements: A feasibility study using ASTER observations. J. Ge-

ophys. Res. Atmos. 123
doi:10.1029/2018JD028902.

Don Wuebbles attended the Science Advisory Committee meeting for the Environmental Law and Policy center on November 27. He also represented the international SPARC organization at the CLIVAR meeting in Washington DC on November 28-29.

Atul Jain led the Global Initiative for Academic Network (GIAN), an initiative of Government of India. As part of this initiative he delivered lectures on "Land Cover and Land Use Changes and their Impacts on Climate" at Indian Institute of Technol-



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Photos from RELAMPAGO-CACTI campaign in Argentina



ATMOSPHERIC SCIENCES
School of Earth, Society, and Environment

Announcements



Upcoming Events

- ◆ AMS Meeting January 6-10, 2019
- ◆ January Seminar
 - ◆ 01.15. Robin Tanamachi
 - ◆ 01.22 Don Wuebbles
 - ◆ 1.29 Francina Dominguez

Congratulations

Dongwei Fu deposited his M.S. thesis "Examination of the behavior of MODIS-retrieved cloud droplet effective radius through MISR-MODIS data fusion"

Daniel Stechman deposited his Ph.D. dissertation "Observed Microphysical Characteristic and Inferred Thermodynamic Processes Contributing to the Structure, Evolution, and Maintenance of Nocturnal Elevated Mesoscale Convective Systems".

Zachery Zobel deposited his Ph.D. dissertation "Evaluations of Historical and projected High-resolution Dynamically Downscaled Ensemble over the Continental United States"

Alum Alexandra Jones (Ph.D. 2016) has joined the faculty at the University of Maryland, College Park.

Call for Briefing Submissions

Remember to submit your publications, presentations, activities, and awards for the month of rest of December and January <https://forms.illinois.edu/sec/2177927>

Alum Receptions

Join us at the DAS Reception at the AMS Annual Meeting:

Tuesday, January 8, 2019
6:00:00 PM-8:00:00 PM
Sheraton Hotel, Room Camelback A
Phoenix, AZ