



Notes from the Head

I'm writing this month's Notes from the Head from Villa Carlos Paz, a resort village approximately 20 km west of Cordoba, Argentina, and the HQ of RELAMPAGO since late October. I'd like to devote most of the Notes on my thoughts about RELAMPAGO, and for this I ask for your forbearance. First, this project has been possible because of Prof. Steve Nesbitt's tireless efforts and leadership. Steve has deftly navigated radar installations, outreach events and press conferences, and, of course, PI personalities! Speaking of PIs, DAS is well represented across the RELAMPAGO-science spectrum: Steve is part of the "upscale-growth group", Deanna and I are members of the "severe group", Francina helps lead the "hydromet group", and postdoc Paloma Borque is now serving as CACTI liaison. Our graduate students are also well represented and are playing key roles: Jake Mulholland is providing expert weather briefings (Prof. Frame would be proud!); Holly Mallinson and Amy Chen are the cornerstones of sounding teams UI1 and UI2; Piyush Garg and Jeff Thayer comprise an important part of the extensive mobile observation teams; and Sujan Pal and Carolina Bieri are members of the fearless hydromet team. We look forward to the arrival of more students next week, and are anxious to introduce them to medialunas, milanesa, and 9-pm dinners.

An impressive amount of work has taken place this past month, as evidenced by the three pages of publications, presentations, and activities, and to this I say: Well done! Have a wonderful Thanksgiving break! And see you soon!

Publications

Bastos A, P Friedlingstein, S Sitch, V Arora, C Chen, P Canadell, P Ciais, F Chevallier, C Delire, V Haverd, AK Jain, F Joos, E Kato, D Lawrence, C LeQuere, S Lienert, J Melton, A Mialon, R Myneni, J Nabel, G Peters, J Pongratz, B Poulter, C Rödenbeck, R Séférian, H Tian, C VanEck, N Viovy, A Walker, JP Wigneron, A Wiltshire, S Zaehle, and D Zhu (2018), Impact of the 2015-16 El Nino on the terrestrial carbon cycle constrained by bottom-up and top-down approaches, *Philosophical Transactions B*, <http://dx.doi.org/10.1098/rstb.2017.0304>

Jackson, R., J. R. French, D. C. Leon, D. M. Plummer, S. Lasher-Trapp, A. M. Blyth, A. Korolev, 2018: Observations of the microphysical evolution of convective clouds in south-west United Kingdom. *Atmos. Chem. Phys.*, <https://doi.org/10.5194/acp-2018-437>

Khodayari, A., F. Vitt, D. Phoenix, and D. J. Wuebbles, 2018: Sensitivity of NOx emissions from lightning on the production of aviation-induced ozone. *Atmospheric Environment*, 187, 410-416; doi.org/10.1016/j.atmosenv.2018.05.057

Lasher-Trapp, S., S. Kumar, D. H. Moser, A. M. Blyth, J. R. French, R. C. Jackson, D. C. Leon, and D. M. Plummer, 2018: On Microphysical Pathways Leading to Convective Rainfall. *J. Appl. Meteor. Clim.*, 57, 2399-2417. <https://journals.ametsoc.org/doi/full/10.1175/JAMC-D-18-0041.1>

Phoenix, D., A. Khodayari, D. Wuebbles, and K. Stewart, 2018: Aviation impact on air quality present day and mid-century simulated in the Community Atmosphere Model (CAM). *Atmospheric Environment*, in press.

Trapp, R.J., G.R. Marion, and S.W. Nesbitt, 2018: Reply to "Comments on 'The Regulation of Tornado Intensity by Updraft Width'". *J. Atmos. Sci.*, 75, 4057-4061, <https://doi.org/10.1175/JAS-D-18-0276.1>

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. Geophys. Res. Atmos.* 123 doi:10.1029/2018JD028902.

Presentations



Chase, R., Nesbitt, S. W., and G. McFarquhar: "Large ice particles as seen by the NASA Global Precipitation Measurement Mission". Proceedings, NASA Precipitation Measurement Missions Science Team Meeting, Phoenix, AZ. Oct. 2018

Di Girolamo, L., 2018: "Current data and computing challenges in addressing NASA's Earth science questions: Perspectives from the ACCESS to Terra Fusion Project". NASA Science Mission Directorate Workshop on Maximizing the Scientific

Presentations Continued

Return on NASA Data, Washington DC., 30-31 Oct. 2018

Di Girolamo, L.: "Perspectives on Terra data fusion for improved Earth science products and knowledge". NASA Goddard Space Flight Center, Greenbelt, MD. 12 Oct. 2018

Dominguez, F.: "Ingredients for Extreme Convection over South America-RELAMPAGO and ANDEX". ANDEX workshop, Santiago de Chile, 22 Oct. 2018.

Frame, J. W., and K. T. Gray: "A mesoscale analysis of the development of storms and transition to supercells during the Indiana and Ohio Tornado Outbreak of 24 August 2016", 29th Conference on Severe Local Storms, American Meteorological Society, <https://ams.confex.com/ams/29SLS/webprogram/Paper348222.html>. Stowe, VT, 25 Oct. 2018

Fu, D., L. Di Girolamo, L. Liang, and G. Zhao: "Estimating the regional bias of MODIS-retrieved cloud droplet effective radius through MISR-MODIS data fusion". MODIS and VIIRS Science Team Meeting, Silver Spring, MD. 15-18 Oct. 2018

Gray, K., Frame, J.: "Investigating the Transition from Elevated Multicellular Convection to Surface-based Supercells in the Tornado Outbreak of 24 August 2016 using a WRF Model Simulation", AMS Conference on Severe Local Storms, Stowe, VT, 23 Oct. 2018

Jain, AK: "Dynamics and Drivers of Land Use & Land Cover Changes in Bangladesh", Keynote Talk at the Intl. Conf. on Advance Remote Sensing 2018, <https://icars2018.sciforum.net/> Keynote Talk, Wuhan, China, 16-18 Oct. 2018

Jain, AK: "Integrated Assessment Modeling of Biogeochemical Cycles, Climate Change and Impacts". Department of Atmospheric and Oceanic Sciences School of Physics, Peking University, Beijing, China, 11 Oct. 2018

Jain, AK: "The Impacts of Various Environmental Factors and Management Strategies on Food Crops Over the 21st Century", Department of Ecology, Peking University, Beijing, China, 10 Oct 2018

Jain, AK: "The Impacts of Various Environmental Factors and Management Strategies on Food Crops Over the 21st Century", Joint Global Change Research Institute (JGCRI) Pacific Northwest National Laboratory, College Park, MD, 22 Oct. 2018

Marion, G.R., R.J. Trapp: "The Dynamical Coupling of Convective Updrafts, Downdrafts, and Cold Pools in Simulated Supercell Thunderstorms." American Meteorological Society, 29th Conference on Severe Local Storms, Stowe, VT, Oct. 2018

Marion, G.R., R.J. Trapp, S.W. Nesbitt, T. Calamari: "Using Overshooting Top Area to Discriminate Potential for Large, Intense Tornadoes." American Meteorological Society, 29th Conference on Severe Local Storms, Stowe, VT, Oct. 2018

Mulholland, J, S. Nesbitt, and J. Trapp: "Convective Storm Life Cycle and Environments Near the Sierras De C rdoba, Argentina", American Meteorological Society's Severe Local Storms Conference, Stowe, VT, 10 Oct. 2018

Nesbitt, S. W., P. Borque, J. Finlon, R. Chase, and G. McFarquhar: "Towards improved spaceborne ice and mixed phase retrievals". Proceedings, NASA Precipitation Measurement Missions Science Team Meeting, Phoenix, AZ. Oct. 2018

Riemer, N.: "Aerosol Mixing State: Metrics, Measurements, Modeling", Seminar at the Environmental Engineering & Sciences Colloquium, Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, 4 Oct. 2018

Sessa, M., R. J. Trapp, J. Einbinder: "Observed Relationship Between Tornado EF Rating and Pre-Tornadic Mesocyclone Width", 29th Conference on Severe Local Storms, Stowe, VT, 25 Oct. 2018

Vega-Westhoff, B., and Sriver, R. L.: "Hector, sea-level rise and probability", 2018 GCAM Community Modeling Workshop, College Park, MD, Oct. 2018

Vega-Westhoff, B., Sriver, R. L., Hartin, C., Wong, T., and Keller, K.: "A Hector application: Sea-level constraints tighten climate sensitivity and temperature projections", 2018 GCAM Community Modeling Workshop, College Park, MD, Oct. 2018.

Wuebbles, D., and J. Zhang: "Evaluation of FAA Climate Tools". Presentation at the FAA ASCENT meeting, Alexandria, VA, 9-10 Oct 2018.

Wuebbles, D., and S. Sanyal: "Particulate Matter and Ozone Prediction: Source Attribution for Air Quality Management in a Changing Climate". Presentation at the SPARC General Assembly 2018, international conference of the Stratosphere-troposphere Processes And their Role in Climate, Kyoto, Japan, 1-5 Oct. 2018.

Wuebbles, D.: "Climate Change: The Science and Why it Matters". Invited talk at the 99th UIUC Conference for Veterinarians, Champaign, IL, 12 Oct 2018.

Presentations Continued

- Wuebbles, D.: "Panel discussion on climate change and its solutions". Symposium on Confronting the Challenges of Climate Change, Beckman Institute, University of Illinois, Urbana, IL 16 Oct. 2018
- Wuebbles, D.: "Panel discussion, Engaging Politicians with Science: An Open Discussion". Beckman Institute, 22 Oct. 2018
- Wuebbles, D.: "The Science of Climate Change and What It Means to the American People". Urbana Presbyterian Church, Urbana, IL, 14 Oct. 2018
- Wuebbles, D.: "The Science of Climate Change: Why We All Should Care". Seminar at Notre Dame University, 23 Oct. 2018
- Wuebbles, D.: "The Science of Climate Change: Why We All Should Care". Youth Sustainability Summit, University of Illinois, Urbana, IL, 14 Oct. 2018
- Yang, M., L. Clipp, H.-K. Lee, G. Zhao, and L. Di Girolamo, 2018: "Generation of 16-years large-scale Terra Level 1B data fusion products". MODIS and VIIRS Science Team Meeting, Silver Spring, MD. 15-18 Oct. 2018

Activities and Awards



Bob Rauber attended the Engineering College Dean's advisory board meeting at Colorado State University

Bob Rauber and Jeff Trapp represented UIUC at the UCAR members meeting in October

Don Wuebbles was a member of the Organization Committee, SPARC General Assembly 2018, Kyoto, Japan, October 1-5, 2018.

Don Wuebbles participated in international SPARC Steering Group Meeting (elected member), Kyoto, Japan, October 6-7, 2018.

Don Wuebbles was a session chair for SPARC General Assembly 2018, Kyoto, Japan, October 1-5, 2018.

Don Wuebbles was interviewed by the New York Times, October 14, 2018.

Don Wuebbles was interviewed by the Associated Press, October 15, 2018.

Don Wuebbles will represent the international organization SPARC at a CLIVAR meeting in DC in November.

Francina Dominguez became a new mem-

ber of the National Academies Water Science and Technology Board

Francina Dominguez became a new panel member for the GEWEX Hydroclimatology Panel and attended its meeting in Santiago de Chile, October 2018.

Larry Di Girolamo ended a 5-year term on the American Meteorological Society's Scientific and Technological Activities Commission on Atmospheric Radiation, during which he helped organize the 2014 and 2018 AMS Conference on Atmospheric Radiation, and addressed community issues on atmospheric radiation.

Larry Di Girolamo was invited to give a talk at the NASA Science Mission Directorate Workshop on Maximizing the Scientific Return on NASA Data

Larry Di Girolamo participated in NASA's MODIS and VIIRS Science Team Meeting

Nicole Riemer was a guest panelist in "Writing Across Engineering" Discussion Panel on incorporating writing in the classroom, for Department of Physics, UIUC, October 29, 2018.

Steve Nesbitt was a session chair at the NASA Precipitation Measurement Missions Science Team Meeting in Phoenix, Arizona

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Top Row Photos are from MSCAR Conference

Bottom Row Photos are from RELAMPAGO-CACTI campaign in Argentina



ATMOSPHERIC SCIENCES
School of Earth, Society, and Environment

Announcements



Upcoming Events

- ◆ November Seminars
 - ◆ 11.20 Thanksgiving Break
 - ◆ 11.27 Chuan-Chieh Chang, Kevin Gray, Geoffrey Marion, and Doug Miller
- ◆ December Seminar
 - ◆ 12.3. Rose Miller

IMPACTS Funding

Congratulations to Bob Rauber, whose collaborative \$30 million NASA Earth Venture Sub-orbital-3 proposal "IMPACTS" was funded. The research will involve flights over Northeast winter cyclones during 3 winters with the NASA P-3 and WB-57 aircraft.

Call for Briefing Submissions

Remember to submit your publications, presentations, activities, and awards for the month of November <https://forms.illinois.edu/sec/1767057>

Alum Receptions

Plan to join us at the SESE Reception at the AGU Meeting :

Monday, December 10, 2018
6:00-8:00 PM
Ruth's Chris Steak House
724 9th Street Northwest
Washington, DC 20001

Also join us at the DAS Reception at the AMS Annual Meeting:

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