Updated 3/2025

KEVIN M. GRISE

Department of Environmental Sciences
University of Virginia
P.O. Box 400123
Charlottesville, VA 22904-4123 USA
(434) 924-0433
Email: kmg3r@virginia.edu
Website: https://uva.theopenscholar.com/kevin-grise

Education

Ph.D. Atmospheric Science — December 2011
Colorado State University, Fort Collins, CO, USA
- *Dissertation:* "On the structure of climate variability near the tropopause and its relationship to equatorial planetary waves"
- *Advisor:* Dr. David W. J. Thompson

M.S. Atmospheric Science — December 2007
Colorado State University, Fort Collins, CO, USA
- *Thesis:* "Dynamical impacts of Antarctic stratospheric ozone depletion on the extratropical circulation of the Southern Hemisphere"
- *Advisor:* Dr. David W. J. Thompson

B.S. Meteorology with Honors and Highest Distinction — May 2005
The Pennsylvania State University, University Park, PA, USA
- Student marshal for College of Earth and Mineral Sciences
- *Thesis:* "Remote sensing and in situ observations of tropical cyclone structure at landfall"
- *Advisor:* Dr. Jenni L. Evans

Employment

Associate Professor — August 2020–present
Assistant Professor — August 2014–August 2020
Department of Environmental Sciences
University of Virginia, Charlottesville, VA, USA

Postdoctoral Research Scientist — September 2012–August 2014
Lamont-Doherty Earth Observatory
Columbia University, Palisades, NY, USA
Supervisor: Dr. Lorenzo M. Polvani

Postdoctoral Fellow — September 2011–August 2012
Department of Atmospheric and Oceanic Sciences
McGill University, Montreal, QC, Canada
Supervisor: Dr. Seok-Woo Son

Graduate Research Assistant — August 2005–August 2011
Department of Atmospheric Science
Colorado State University, Fort Collins, CO, USA
Supervisor: Dr. David W. J. Thompson

Honors and Awards

University of Virginia
- Jefferson Scholars Foundation Award for Excellence in Teaching 2024
- Maury-Tice Prize for Excellence in Research, Dept. of Environmental Sci. 2019–2020

American Geophysical Union
- Outstanding Reviewer, *Geophysical Research Letters* 2022

National Science Foundation
- NSF CAREER Award, Climate and Large-Scale Dynamics 2018–2023
- NSF Graduate Research Fellowship, Dynamic and Mesoscale Meteorology 2005–2008

Colorado State University
- Herbert Riehl Memorial Award, Department of Atmospheric Science 2009

American Meteorological Society
- Howard T. Orville Scholarship 2004
- AMS/Industry Undergraduate Scholarship 2003–2004

Teaching and Mentoring

Postdocs, Advisor (University of Virginia)
- Daniel Schmidt (2020-2021)
- Swatah Borkotoky (2023-present) (co-advised w/ Kathleen Schiro)
- Liping Wang (2024-present)

Graduate Students, Advisor (University of Virginia)
- Daniel Schmidt (M.S. 2018; Ph. D. 2020)
- Mitchell Kelleher (M.S. 2019; Ph.D. 2023)
- Xinhuiyu Liu (Ph.D., in progress)
- Jun-Jie Chang (Ph.D., in progress) (co-advised w/ Kathleen Schiro)

Graduate Student Committees, Member (University of Virginia)
- David Crowe (Ph.D., in progress)
- Sayali Kulkarni (Ph.D., in progress)
- Preston Thompson (Ph.D., in progress)
- Rebecca Weinstein (Ph.D., in progress)
- Nevio Babic (Ph.D. 2018)
- Emma Dawson (M.S. 2024)
- Ariana Flournoy (M.S. 2024)
- Kathryn Lecroy (Ph.D. 2021)
- Logan Longacre (M.S. 2024)
- Kayla Mitchell (M.S. 2020)
- Ross Palomaki (M.S. 2018)
- Stephanie Roe (Ph.D. 2021)
- Mary Stack (M.S. 2023)

Classes Taught (Department of Environmental Sciences, University of Virginia)

- EVAT 5300 (3 credits): Introduction to Climatology (F16, F18, F20, F22, F23)
- EVAT 5410 (4 credits): Atmospheric Dynamics (S16, S21)
- EVSC 1300 (3 credits): Earth's Weather and Climate (S19)
- EVSC 3300 (3 credits): Atmosphere and Weather (S15, F15, F17, F19, F21, F24)
- EVSC 4390/7390 (3 credits): Climate Modeling and Analysis (F21, S25)
- EVSC 4452 (2 credits): Global Climate Variability Seminar (F14, F15, F16, S17, F18, F19, F20, F23)
- EVSC 4460/EVAT 7460 (4 credits): Synoptic Meteorology (S20, S23, S25)

Teaching Assistant (Department of Atmospheric Science, Colorado State University)

- ATS 601: Atmospheric Dynamics I (F06)
- ATS 602: Atmospheric Dynamics II (S07)
- ATS 655: Objective Analysis in the Atmospheric Sciences (S09)

Research Grants

Sep. 2023 – Aug. 2026	The Role of the Mean-State Atmospheric Circulation in Future Projections of Regional Hydroclimate and Cloud Feedbacks (PI: K.M. Grise, $466,782). Funded by National Science Foundation (NSF) Climate and Large-Scale Dynamics Program.
Sep. 2019 – Aug. 2022	Storylines of Regional and Seasonal Climate Change in the United States in the 21st Century (PI: K.M. Grise, $231,724). Funded by National Oceanic and Atmospheric Administration (NOAA) Modeling, Analysis, Predictions, and Projections (MAPP) Program.
Aug. 2018 – July 2023	CAREER: Understanding the Coupling between Clouds and Midlatitude Dynamics at Synoptic and Global Scales (PI: K.M. Grise, $505,812). Funded by National Science Foundation (NSF) Climate and Large-Scale Dynamics Program.
Aug. 2015 – July 2018	Exploring the Linkages among Mid-Latitude Dynamics, Clouds, and Climate Sensitivity (PI: K.M. Grise, $298,314). Funded by NSF Climate and Large-Scale Dynamics Program.

Publications

Peer-Reviewed Journal Articles
(*graduate student or postdoc advisee)

Simpson, I. R., T. A. Shaw, P. Ceppi, A. C. Clement, E. Fischer, K. M. Grise, A. G. Pendergrass, J. A. Screen, R. C. J. Wills, T. Woollings, R. Blackport, J. M. Kang, and S. Po-Chedley, 2025: Confronting Earth System Model trends with observations. *Sciences Advances*, **11**, eadt8035.

Shaw, T. A., J. M. Arblaster, T. Birner, A. H. Butler, D. I. V. Domeisen, C. I. Garfinkel, H. Garny, K. M. Grise, and A. Yu. Karpechko, 2024: Emerging climate change signals in atmospheric circulation. *AGU Advances*, **5**, e2024AV001297.

Grise, K. M., and G. Tselioudis, 2024: Understanding the relationship between cloud controlling factors and the ISCCP weather states. *J. Climate*, **37**, 5387-5403.

Schmidt, D. F.*, K. M. Grise, and M. L. Pace, 2023: Does the 11-year solar cycle affect lake and river ice phenology? *PLoS ONE*, **18**, e0294995.

Roebber, P. J., K. M. Grise, and J. R. Gyakum, 2023: The histories of well-documented maritime cyclones as portrayed by an automated tracking method. *Mon. Wea. Rev.*, **151**, 2905–2924.

Liu, X.*, and K. M. Grise, 2023: Implications of warm pool bias in CMIP6 models on the Northern Hemisphere wintertime subtropical jet and precipitation. *Geophys. Res. Lett.*, **50**, e2023GL104896.

Kim, S.-Y., Y.-J. Choi, S.-W. Son, K. M. Grise, P.W. Staten, S.-I. An, S.-W. Yeh, J.-S. Kug, S.-K. Min, and J. Shin, 2023: Hemispherically asymmetric Hadley cell response to CO_2 removal. *Science Advances,* **9**, eadg1801.

Kelleher, M. K.*, K. M. Grise, and D. F. Schmidt*, 2023: Variability in projected North American mean and extreme temperature and precipitation trends for the 21st Century: Model-to-model differences vs. internal variability. *Earth's Future*, **11**, e2022EF003161.

Grise, K. M., 2022: Atmospheric circulation constraints on 21st century seasonal precipitation storylines for the southwestern United States. *Geophys. Res. Lett.*, **49**, e2022GL099443.

Kelleher, M. K.*, and K. M. Grise, 2022: Varied midlatitude shortwave cloud radiative responses to Southern Hemisphere circulation shifts. *Atmos. Sci. Lett.*, **23**, e1068.

Liu, X.*, K. M. Grise, D. F. Schmidt*, and R. E. Davis, 2021: Regional characteristics of variability in the Northern Hemisphere wintertime polar front jet and subtropical jet in observations and CMIP6 models. *J. Geophys. Res. Atmos.*, **126**, e2021JD034876.

Schmidt, D. F.*, and K. M. Grise, 2021: Drivers of Twenty-First Century U.S. winter precipitation trends in CMIP6 models: A storyline-based approach. *J. Climate*, **34**, 6875–6889.

Grise, K. M., and M. K. Kelleher*, 2021: Midlatitude cloud radiative effect sensitivity to cloud controlling factors in observations and models: Relationship with Southern Hemisphere jet shifts and climate sensitivity. *J. Climate*, **34**, 5869–5886.

Voigt, A., N. Albern, P. Ceppi, K. Grise, Y. Li, and B. Medeiros, 2021: Clouds, radiation and atmospheric circulation in the present-day climate and under climate change. *WIREs Climate Change*, **12**, e694.

Schmidt, D. F.*, D. J. Amaya, K. M. Grise, and A. J. Miller, 2020: Impacts of shifting subtropical highs on the California and Canary Current systems. *Geophys. Res. Lett.*, **47**, e2020GL088996.

Staten, P. W., K. M. Grise, S. M. Davis, K. B. Karnauskas, D. W. Waugh, A. Maycock, Q. Fu, K. Cook, O. Adam, I. R. Simpson, R. J. Allen, K. Rosenlof, G. Chen, C. C. Ummenhofer, X.-W. Quan, J. P. Kossin, N. A. Davis, and S.-W. Son, 2020: Tropical widening: From global variations to regional impacts. *Bull. Amer. Meteor. Soc.*, **101**, E897–E904.

Grise, K. M., and S. M. Davis, 2020: Hadley cell expansion in CMIP6 models. *Atmos. Chem. Phys.*, **20**, 5249–5268.

Schmidt, D. F.*, and K. M. Grise, 2019: Impacts of subtropical highs on summertime precipitation in North America. *J. Geophys. Res. Atmos.*, **124**, 11188–11204.

Kelleher, M. K.*, and K. M. Grise, 2019: Examining Southern Ocean cloud controlling factors on daily time scales and their connections to midlatitude weather systems. *J. Climate*, **32**, 5145–5160.

Grise, K. M., B. Medeiros, J. J. Benedict, and J. G. Olson, 2019: Investigating the influence of cloud radiative effects on the extratropical storm tracks. *Geophys. Res. Lett.*, **46**, 7700–7707.

Menzel, M. E., D. Waugh, and K. Grise, 2019: Disconnect between Hadley cell and subtropical jet variability and response to increased CO_2. *Geophys. Res. Lett.*, **46**, 7045–7053.

Staten, P. W., K. M. Grise, S. M. Davis, K. Karnauskas, and N. Davis, 2019: Regional widening of tropical overturning: Forced change, natural variability, and recent trends. *J. Geophys. Res. Atmos*., **124**, 6104–6119.

Schmidt, D. F.*, K. M. Grise, and M. L. Pace, 2019: High-frequency climate oscillations drive ice-off variability for Northern Hemisphere lakes and rivers. *Climatic Change*, **152**, 517–532.

Grise, K. M., S. M. Davis, I. R. Simpson, D. W. Waugh, Q. Fu, R. J. Allen, K. H. Rosenlof, C. C. Ummenhofer, K. B. Karnauskas, A. C. Maycock, X.-W. Quan, T. Birner, and P. W. Staten, 2019. Recent tropical expansion: Natural variability or forced response? *J. Climate*, **32**, 1551–1571.

Adam, O., K. M. Grise, P. Staten, I. R. Simpson, S. M. Davis, N. A. Davis, D. W. Waugh, T. Birner, and A. Ming, 2018: The TropD software package (v1): Standardized methods for calculating tropical-width diagnostics. *Geosci. Model Dev.*, **11**, 4339–4357.

Zelinka, M. D., K. M. Grise, S. A. Klein, C. Zhou, A. M. DeAngelis, and M. W. Christensen, 2018: Drivers of the low cloud response to poleward jet shifts in the North Pacific in observations and models. *J. Climate*, **31**, 7925–7947.

Waugh, D. W., K. M. Grise, W. J. M. Seviour, S. M. Davis, N. Davis, O. Adam, S.-W. Son, I. R. Simpson, P. W. Staten, A. C. Maycock, C. C. Ummenhofer, T. Birner, and A. Ming, 2018: Revisiting the relationship among metrics of tropical expansion. *J. Climate*, **31**, 7565–7581.

Grise, K. M., S. M. Davis, P. W. Staten, and O. Adam, 2018: Regional and seasonal characteristics of the recent expansion of the tropics. *J. Climate*, **31**, 6839–6856.

Staten, P. W., J. Lu, K. M. Grise, S. M. Davis, and T. Birner, 2018: Re-examining tropical expansion. *Nature Climate Change*, **8**, 768–775.

Seviour, W. J. M., S. M. Davis, K. M. Grise, and D. W. Waugh, 2018: Large uncertainty in the relative rates of dynamical and hydrological tropical expansion. *Geophys. Res. Lett.*, **45**, 1106–1113.

Schmidt, D. F.*, and K. M. Grise, 2017: The response of local precipitation and sea level pressure to Hadley cell expansion. *Geophys. Res. Lett.*, **44**, 10573–10582.

Grise, K. M., and L. M. Polvani, 2017: Understanding the time scales of the tropospheric circulation response to abrupt CO_2 forcing in the Southern Hemisphere: Seasonality and the role of the stratosphere. *J. Climate*, **30**, 8497–8515.

Lipat, B. R., G. Tselioudis, K. M. Grise, and L. M. Polvani, 2017: CMIP5 models' shortwave cloud radiative response and climate sensitivity linked to the climatological Hadley cell extent. *Geophys. Res. Lett.*, **44**, 5739–5748.

Grise, K. M., and B. Medeiros, 2016: Understanding the varied influence of mid-latitude jet position on clouds and cloud-radiative effects in observations and global climate models. *J. Climate*, **29**, 9005-9025.

Grise, K. M., and L. M. Polvani, 2016: Is climate sensitivity related to dynamical sensitivity? *J. Geophys. Res. Atmos.*, **121**, 5159-5176.

Tselioudis, G., B. R. Lipat, D. Konsta, K. M. Grise, and L. M. Polvani, 2016: Midlatitude cloud shifts, their primary link to the Hadley cell, and their diverse radiative effects. *Geophys. Res. Lett.*, **43**, 4594-4601.

Grise, K. M., L. M. Polvani, and J. T. Fasullo, 2015: Re-examining the relationship between climate sensitivity and the Southern Hemisphere radiation budget in CMIP models. *J. Climate*, **28**, 9298-9312.

Plante, M., S.-W. Son, E. Atallah, J. Gyakum, and K. Grise, 2015: Extratropical cyclone climatology across Eastern Canada. *Int. J. Climatol.*, **35**, 2759-2776.

Côté, H., K. M. Grise, S.-W. Son, R. de Elía, and A. Frigon, 2015: Challenges of tracking extratropical cyclones in regional climate models. *Climate Dyn.*, **44**, 3101-3109.

Grise, K. M., and L. M. Polvani, 2014: The response of mid-latitude jets to increased CO_2: Distinguishing the roles of sea surface temperature and direct radiative forcing. *Geophys. Res. Lett.*, **41**, 6863–6871.

Grise, K. M., and L. M. Polvani, 2014: Southern Hemisphere cloud-dynamics biases in CMIP5 models and their implications for climate projections. *J. Climate*, **27**, 6074–6092.

Grise, K. M., and L. M. Polvani, 2014: Is climate sensitivity related to dynamical sensitivity? A Southern Hemisphere perspective. *Geophys. Res. Lett.*, **41**, 534–540.

Grise, K. M., S.-W. Son, G. J. P. Correa, and L. M. Polvani, 2014: The response of extratropical cyclones in the Southern Hemisphere to stratospheric ozone depletion in the 20th Century. *Atmos. Sci. Lett.*, **15**, 29–36.

Grise, K. M., S.-W. Son, and J. R. Gyakum, 2013: Intraseasonal and interannual variability in North American storm tracks and its relationship to equatorial Pacific variability. *Mon. Wea. Rev.*, **141**, 3610–3625.

Kim, J., K. M. Grise, and S.-W. Son, 2013: Thermal characteristics of the cold-point tropopause region in CMIP5 models. *J. Geophys. Res.*, **118**, 8827–8841.

Grise, K. M., L. M. Polvani, G. Tselioudis, Y. Wu, and M. D. Zelinka, 2013: The ozone hole indirect effect: Cloud-radiative anomalies accompanying the poleward shift of the eddy-driven jet in the Southern Hemisphere. *Geophys. Res. Lett.,* **40**, 3688–3692.

Grise, K. M., and D. W. J. Thompson, 2013: On the signatures of equatorial and extratropical wave forcing in tropical tropopause layer temperatures. *J. Atmos. Sci.*, **70**, 1084–1102.

Grise, K. M., and D. W. J. Thompson, 2012: Equatorial planetary waves and their signature in atmospheric variability. *J. Atmos. Sci.*, **69**, 857–874.

Thompson, D. W. J., S. Solomon, P. J. Kushner, M. H. England, K. M. Grise, and D. J. Karoly, 2011: Signatures of the Antarctic ozone hole in Southern Hemisphere surface climate change. *Nature Geosci.*, **4**, 741–749.

Grise, K. M., D. W. J. Thompson, and T. Birner, 2010: A global survey of static stability in the stratosphere and upper troposphere. *J. Climate*, **23**, 2275–2292.

Grise, K. M., D. W. J. Thompson, and P. M. Forster, 2009: On the role of radiative processes in stratosphere-troposphere coupling. *J. Climate*, **22**, 4154–4161.

Lee, S., S.-W. Son, K. Grise, and S. B. Feldstein, 2007: A mechanism for the poleward propagation of zonal mean flow anomalies. *J. Atmos. Sci*., **64**, 849–868.

Peer-reviewed Book and Report Chapters

Tselioudis, G., and K. Grise, 2020: Midlatitude Cloud Systems. *Clouds and Climate*, A. P. Siebesma, S. Bony, C. Jakob, and B. Stevens (Ed.), Cambridge University Press, p. 279-296.

Forster, P. M., D. W. J. Thompson, M. P. Baldwin, M. P. Chipperfield, M. Dameris, J. D. Haigh, D. J. Karoly, P. J. Kushner, W. J. Randel, K. H. Rosenlof, D. J. Seidel, S. Solomon, G. Beig, P. Braesicke, N. Butchart, N. P. Gillett, K. M. Grise, D. R. Marsh, C. McLandress, T. N. Rao, S.-W. Son, G. L. Stenchikov, and S. Yoden, 2011: Stratospheric changes and climate. Scientific Assessment of Ozone Depletion: 2010, Global Ozone Research and Monitoring Project Rep. 52, World Meteorological Organization, 4.1–4.60.

Presentations

Conference Presentations

Dec. 12, 2024 American Geophysical Union Annual Meeting 2024 (Washington, DC, USA): "Constraining 21st Century Regional Precipitation Projections Using Climate Model Biases in the Present-Day Atmospheric Circulation" (poster)

Jun. 3, 2024 CFMIP/CLIVAR Meeting on Clouds, Circulation, & Climate (Boston, MA) "Understanding the relationship between cloud controlling factors and the ISCCP weather states" (poster)

Mar. 13, 2024 US CLIVAR Workshop on Confronting Earth System Model Trends with Observations (Boulder, CO, USA): "Are the tropics expanding faster than models indicate? An updated comparison of model trends with observations" (poster)

Jan. 30, 2024 37th AMS Conference on Climate Variability & Change (Baltimore, MD, USA): "Present-Day Model Stationary Wave Biases Impact 21st Century Seasonal Precipitation Projections for the Southwestern United States" (talk)

Dec. 15, 2023 American Geophysical Union Annual Meeting 2023 (San Francisco, CA, USA): "Can we identify ISCCP weather states using cloud controlling factors?" (poster)

Oct. 9, 2023 SPARC DynVar/SNAP Workshop on the Role of Atmospheric Dynamics for Climate and Extremes (Munich, Germany): "Atmospheric circulation constraints on 21st century seasonal precipitation storylines for the southwestern United States" (talk)

Jul. 11, 2023 Joint CFMIP-GASS Meeting on Cloud, Precipitation, Circulation, and Climate Sensitivity (Paris, France): "Can we identify ISCCP weather states using cloud controlling factors?" (poster)

Dec. 16, 2022 American Geophysical Union Fall Meeting (virtual) "Atmospheric circulation constraints on 21st century seasonal precipitation storylines for the southwestern United States" (talk)

Jul. 19, 2022 CFMIP Meeting on Clouds, Precipitation, Circulation, and Climate Sensitivity (Seattle, WA): "Varied midlatitude shortwave cloud radiative responses to Southern Hemisphere circulation shifts" (poster)

Jun. 14, 2022 23nd AMS Conf. on Atmospheric & Oceanic Fluid Dynamics (Breckenridge, CO) "Is climate sensitivity related to dynamical sensitivity? An update from CMIP6 models?" (poster)

Dec. 16, 2021 American Geophysical Union Fall Meeting (virtual)
"Midlatitude cloud radiative effect sensitivity to cloud controlling factors in observations and CMIP models: Relationship with Southern Hemisphere jet shifts and climate sensitivity" (poster)

Sept. 16, 2021 CFMIP Meeting on Clouds, Precipitation, Circulation, and Climate Sensitivity (virtual): "Midlatitude cloud radiative effect sensitivity to cloud controlling factors in observations and models: Relationship with Southern Hemisphere jet shifts and climate sensitivity" (poster)

Dec. 16, 2020 American Geophysical Union Fall Meeting (virtual)
"An updated view of Hadley cell expansion from CMIP6 models" (poster)

May 8, 2020 European Geosciences Union General Assembly (virtual)
"An updated view of Hadley cell expansion from CMIP6 models" (poster)

Dec. 13, 2019 American Geophysical Union Fall Meeting (San Francisco, CA, USA)
"Decoupling cloud radiative effects and dynamics: Does it affect the extratropical storm tracks?" (talk)

Oct. 22, 2019 SPARC DynVarMIP/DynVar/SNAP Workshop (Madrid, Spain)
"Recent tropical expansion: What we've learned from CMIP5 and early results from CMIP6" (talk)

Jul. 24, 2019 Gordon Research Conference on Radiation and Climate (Lewiston, ME, USA)
"Decoupling cloud radiative effects and dynamics: Does it affect the extratropical storm tracks?" (poster)

Jun. 24, 2019 22nd AMS Conf. on Atmospheric and Oceanic Fluid Dynamics (Portland, ME)
"Decoupling cloud radiative effects and dynamics: Does it affect the extratropical storm tracks?" (talk)

Jan. 7, 2019 32nd AMS Conference on Climate Variability & Change (Phoenix, AZ, USA)
"Recent tropical expansion: Natural variability or forced response?" (talk)

Dec. 14, 2018 American Geophysical Union Fall Meeting (Washington, DC, USA)
"Regional and seasonal characteristics of the recent expansion of the tropics" (poster)

Oct. 17, 2018 CFMIP Meeting on Clouds, Precipitation, Circulation, and Climate Sensitivity (Boulder, CO, USA): "Understanding the role of cloud radiative effects in extratropical subseasonal-to-seasonal variability" (talk)

Aug. 29, 2018 Stormtracks 2018 Workshop (Utö, Stockholm, Sweden)
"Understanding the two-way interactions between cloud radiative effects and the midlatitude storm tracks" (**invited** talk)

Jan. 10, 2018 31st AMS Conference on Climate Variability & Change (Austin, TX, USA)
"The role of the stratosphere in setting the timescales of the tropospheric circulation response to increasing greenhouse gases" (talk)

Jan. 10, 2018 31st AMS Conference on Climate Variability & Change (Austin, TX, USA)
"Regional and seasonal characteristics of the recent expansion of the tropics in the Northern Hemisphere" (poster)

Dec. 15, 2017 American Geophysical Union Fall Meeting (New Orleans, LA, USA)
"Understanding the varying timescales of the tropospheric circulation response to increasing greenhouse gases" (talk)

Aug. 28, 2017 Fourth International Conf. on Earth System Modeling (Hamburg, Germany)
"Understanding the varying timescales of the tropospheric circulation response to increasing greenhouse gases" (talk)

Jun. 6, 2017 William B. Rossow Symposium (New York, NY, USA)
"Dynamic and thermodynamic controls on midlatitude clouds: What can the observed satellite record teach us?" (talk)

Feb. 8, 2017 Santa Fe Conference on Global & Regional Climate Change (Santa Fe, NM)
"Is climate sensitivity related to dynamical sensitivity?" (**invited** talk)

Dec. 12, 2016 American Geophysical Union Fall Meeting (San Francisco, CA, USA)
"Understanding the varied influence of midlatitude jet position on clouds and cloud-radiative effects in observations and global climate models" (poster)

Jul. 5, 2016 CFMIP/WCRP/ITCP Conference on Cloud Feedbacks, Circulation & Climate Sensitivity (Trieste, Italy): "Understanding the varied influence of the mid-latitude jet on clouds and cloud-radiative effects in observations and global climate models" (talk)

Jun. 6, 2016 SPARC DynVar Workshop (Helsinki, Finland)
"Is the large-scale circulation response to increasing atmospheric CO_2 related to climate sensitivity? Lessons from CMIP5 models" (talk)

Apr. 27, 2016 CERES Spring 2016 Science Team Meeting (Hampton, VA, USA)
"Using CERES to provide observational constraints on cloud feedbacks and climate sensitivity" (**invited** talk)

Jan. 12, 2016 28th AMS Conference on Climate Variability & Change (New Orleans, LA,USA)
"Is the large-scale circulation response to increasing greenhouse gases related to climate sensitivity? Lessons from CMIP5 models" (talk)

Aug. 26, 2015 SPARC Workshop on Storm Tracks (Grindelwald, Switzerland)
"Coupling of Southern Ocean storm tracks with cloud radiative processes" (**invited** talk)

Jul. 30, 2015 AGU Chapman Conference on The Width of the Tropics (Santa Fe, NM, USA)
"Is tropical expansion related to climate sensitivity? Lessons from CMIP5 models" (talk)

Jun. 9, 2015 CFMIP Meeting on Cloud Processes & Climate Feedbacks (Monterey, CA,USA)
"Re-examining the relationship between climate sensitivity and the Southern Hemisphere radiation budget in CMIP models" (talk)

Dec. 18, 2014 American Geophysical Union Fall Meeting (San Francisco, CA, USA)
"Linkages between Southern Ocean cloud-radiative processes and the large-scale Southern Hemisphere circulation, and their implications for climate model projections" (talk)

Jul. 16, 2014 7th Int'l Conf. on Global Energy & Water Cycle (The Hague, The Netherlands)
"Linkages between cloud-radiative processes and the large-scale Southern Hemisphere circulation in CMIP5 models, and their implications for climate projections" (talk)

Dec. 9, 2013 American Geophysical Union Fall Meeting (San Francisco, CA, USA)
"Is climate sensitivity related to dynamical sensitivity?" (talk)

Jun. 17, 2013 17th AMS Conference on Middle Atmosphere (Newport, RI, USA)
"The ozone hole indirect effect: Cloud-radiative anomalies accompanying the poleward shift of the eddy-driven jet in the Southern Hemisphere" (talk)

Jun. 17, 2013 17th AMS Conference on Middle Atmosphere (Newport, RI, USA)
"On the signatures of equatorial and extratropical wave forcing in tropical tropopause layer temperatures" (poster)

May 15, 2013 2nd International Conf. on GPS Radio Occultation (Taoyuan County, Taiwan)
"Recent COSMIC observations of tropical tropopause layer temperatures and their implications for climate variability and change" (**invited** talk)

Apr. 24, 2013 ISCCP at 30 Workshop (New York, NY, USA)
"The ozone hole indirect effect: Cloud-radiative feedbacks accompanying the poleward shift of the eddy-driven jet in the Southern Hemisphere" (talk)

Dec. 3, 2012 American Geophysical Union Fall Meeting (San Francisco, CA, USA)
"Southern Hemisphere storm track response to recent stratospheric ozone and greenhouse gas changes" (talk)

May 29, 2012 Canadian Meteorological and Oceanographic Soc. Congress (Montreal, Canada)
"Interannual and intraseasonal variability of North American storm tracks" (poster)

Apr. 26, 2012 European Geosciences Union General Assembly (Vienna, Austria)
"Contribution of equatorial planetary waves to the temperature structure near the tropical tropopause" (talk)

Apr. 23, 2012 European Geosciences Union General Assembly (Vienna, Austria)
"Interannual and intraseasonal variability of North American storm tracks" (poster)

Jun. 17, 2011 18th AMS Conf. on Atmospheric and Oceanic Fluid Dynamics (Spokane, WA)
"Equatorial planetary waves and their signature in atmospheric variability" (talk)
- Outstanding Student Oral Presentation Award

Jan. 26, 2011 16th AMS Conference on Middle Atmosphere (Seattle, WA, USA)
"A preferred pattern of variability in the tropical upper troposphere and lower stratosphere and its relationship to recent trends" (talk)

Dec. 17, 2010 American Geophysical Union Fall Meeting (San Francisco, CA, USA)
"A preferred pattern of variability in the tropical upper troposphere and lower stratosphere and its relationship to recent trends" (poster)

Dec. 15, 2009 American Geophysical Union Fall Meeting (San Francisco, CA, USA)
"Static stability in the global upper troposphere and lower stratosphere: Observations of long-term mean structure and variability using GPS radio occultation data" (talk)

Oct. 19, 2009 Extratropical UTLS Workshop, NCAR (Boulder, CO, USA)
"Static stability in the extratropical UTLS: Observations of long-term mean structure and variability using GPS radio occultation data" (talk)

Jul. 23, 2009 MOCA-09 IAMAS/IAPSO/IACS 2009 Joint Assembly (Montreal, QC, Canada)
"Observations of variability in the polar upper troposphere and stratosphere using GPS radio occultation data" (talk)

Jun. 8, 2009 AMS 15th Conference on Middle Atmosphere (Stowe, VT, USA)
"Observations of variability in the polar upper troposphere and stratosphere using GPS radio occultation data" (talk)

Dec. 18, 2008 American Geophysical Union Fall Meeting (San Francisco, CA, USA)
"On the role of radiative processes in driving Southern Hemisphere circulation trends" (poster)

Sep. 1, 2008 SPARC 4th General Assembly (Bologna, Italy)
"On the role of stratospheric longwave radiative fluxes in stratosphere-troposphere coupling" (poster)
- Best Poster Award for Dynamical Coupling, Gravity Waves, and Data Assimilation Session

Sep. 25, 2007 AGU Chapman Conference on The Role of the Stratosphere in Climate and Climate Change (Santorini, Greece): "Dynamical impacts of Antarctic stratospheric ozone depletion on the extratropical circulation of the Southern Hemisphere" (talk)

Aug. 22, 2007 AMS 14th Conference on Middle Atmosphere (Portland, OR, USA)
"Dynamical impacts of Antarctic stratospheric ozone depletion on the extratropical circulation of the Southern Hemisphere" (talk)
- Outstanding Student Presentation Award

Jan. 9, 2005 4th American Meteorological Society Student Conference (San Diego, CA, USA) "Remote sensing and in situ observations of tropical cyclone structure at landfall" (poster)

Seminars

Apr. 11, 2024 Department of Applied Physics and Applied Mathematics, Columbia University (New York, NY, USA)

Mar. 11, 2024 NOAA Chemical Sciences Laboratory (Boulder, CO, USA)

Mar. 7, 2024 Pacific Northwest National Laboratory (Richland, WA, USA)

Nov. 21, 2019 Department of Atmospheric, Oceanic, & Earth Sciences, Center for Ocean-Land-Atmosphere Studies, George Mason University (Fairfax, VA, USA) (invited)

Aug. 15, 2019 NOAA Climate Prediction Center (College Park, MD, USA) (invited)

Nov. 1, 2018 Distinguished Early Career Contributions in Coastal and Climate Science, East Carolina University (Greenville, NC, USA) (invited)

Mar. 13, 2018 Climate and Global Dynamics Division, National Center for Atmospheric Research (Boulder, CO, USA) (invited)

Feb. 28, 2018 Chemical Sciences Division, NOAA Earth System Research Laboratory (Boulder, CO, USA) (invited)

Nov. 9, 2017 Department of Earth and Planetary Sciences, Johns Hopkins University (Baltimore, MD, USA) (invited)

Oct. 13, 2017 University Corporation for Atmospheric Research Community Programs (Boulder, CO, USA) (invited public seminar, co-presented with P. Staten)

Nov. 15, 2016 Global Modeling and Assimilation Office, NASA Goddard Space Flight Center (Greenbelt, MD, USA) (invited)

Sep. 23, 2016 Department of Atmospheric Science, Colorado State University (Fort Collins, CO, USA) (invited)

Sep. 22, 2016 Atmospheric Modeling and Predictability Group, National Center for Atmospheric Research (Boulder, CO, USA)

Apr. 13, 2016 Courant Institute of Mathematical Sciences, New York University (New York, NY, USA) (invited)

Feb. 10, 2016 Department of Meteorology, The Pennsylvania State University (University Park, PA, USA) (invited)

Mar. 31, 2014 Program in Atmospheres, Oceans, and Climate, Massachusetts Institute of Technology (Cambridge, MA, USA) (invited)

Mar. 13, 2014 Department of Atmospheric Sciences, University of Illinois (Urbana, IL, USA) (invited)

Feb. 27, 2014 Department of Environmental Sciences, University of Virginia (Charlottesville, VA, USA) (invited)

Feb. 11, 2014 Department of Geography and Earth Sciences, University of North Carolina at Charlotte (Charlotte, NC, USA) (invited)

Apr. 11, 2013 Department of Earth, Atmospheric, and Planetary Sciences, Purdue University (West Lafayette, IN, USA) (invited)

Mar. 30, 2012 Center for Environmental and Applied Fluid Mechanics, Johns Hopkins University (Baltimore, MD, USA)

Mar. 28, 2012 Center for Ocean-Land-Atmosphere Studies (COLA) (Calverton, MD, USA)

Mar. 23, 2012 Division of Ocean and Climate Physics, Lamont-Doherty Earth Observatory, Columbia University (Palisades, NY, USA)

Mar. 22, 2012 Courant Institute of Mathematical Sciences, New York University (New York, NY, USA)

Oct. 17, 2011 Department of Atmospheric and Oceanic Sciences, McGill University (Montreal, QC, Canada)

Professional Service

National/International

- World Climate Research Programme (WCRP)
    - Co-leader, Dynamical Variability (DynVar) activity, Atmospheric Processes and their Role in Climate (APARC) project, 2024–present
- United States Climate Variability and Predictability Program (US CLIVAR)
    - Member, Process Study and Model Improvement (PSMI) Panel, 2022–2025
    - Co-chair, Working Group on Changing Width of the Tropical Belt, 2016–2019
- International Space Science Institute
    - Member, Tropical Width Diagnostics Intercomparison Project, 2017–2018
- World Meteorological Organization
    - Co-author, Chapter 4, Scientific Assessment of Ozone Depletion: 2010

Funding Agencies

- Proposal reviewer for National Aeronautics and Space Administration, National Science Foundation, German Research Foundation (Deutsche Forschungsgemeinschaft), Israel Science Foundation, and Natural Environment Research Council (UK)

Journals

- Editor for *Atmospheric Chemistry and Physics*, 2023–present
- Review editor for *Frontiers in Climate* (Predictions and Projections section), 2020–present
- Reviewer for *Advances in Water Resources*, *Annals of the New York Academy of Sciences*, *Atmospheric Chemistry & Physics, Atmospheric Research, Atmospheric Science Letters, Bulletin of the American Meteorological Society, Climate Dynamics, Current Climate Change Reports, Environmental Research Letters, Geoscientific Model Development, Geophysical Research Letters, International Journal of Climatology, Journal of Advances in Modeling Earth Systems, Journal of the Atmospheric Sciences, Journal of Climate, Journal of Geophysical Research-Atmospheres, Nature, Nature Climate Change, Nature Communications, Nature Geoscience, npj Climate and Atmospheric Science, Proceedings of the National Academy of Sciences, Quarterly Journal of the Royal Meteorological Society, Science Advances,* and *Weather and Climate Dynamics*

Scientific Meeting Organization

- United States Climate Variability and Predictability Program (US CLIVAR)
    - Member, Scientific Organizing Committee, Workshop on Confronting Earth System Model Trends with Observations, March 13-15, 2024, Boulder, CO, USA
- American Geophysical Union Fall Meeting
    - Session co-convener (with O. Watt-Meyer, A. Voigt, and Y. Li), "Coupling of Clouds and Moisture with the Large-Scale Atmospheric Circulation", Dec. 11–15, 2017, New Orleans, LA, USA
    - Session lead convener (with A. Voigt and Y. Li), "Coupling of Cloud Processes with the Large-Scale Atmospheric Circulation", Dec. 12–16, 2016, San Francisco, CA, USA
    - Session co-convener (with M. J. Previdi, K. L. Smith, and K. Whittinghill), "Decadal-to-Multidecadal Climate Variability, Climate Change, and Nutrient Cycling at High Latitudes", Dec. 15–19, 2014, San Francisco, CA, USA

    - Session co-convener (with T. Birner, W. J. Randel, and S.-W. Son), "Dynamics and Chemistry of the Coupled Troposphere/Stratosphere System", Dec. 3–7, 2012, San Francisco, CA, USA
- American Meteorological Society Annual Meeting
    - Session co-convener (with P. Staten), "Variability and Change in the Tropical Circulation", 31st Conference on Climate Variability and Change, Jan. 7–11, 2018, Austin, TX, USA

University of Virginia

- University of Virginia
    - Member representative for University of Virginia to University Corporation for Atmospheric Research (UCAR) (2019–present)
- College of Arts and Sciences
    - Advance Fellow, Faculty Led STEM Student Success Initiative (2021-2024)
    - Lower division advising (2014-15, 2015-16, 2016-17, 2021-22, 2022-23 academic years)
- Department of Astronomy
    - External member, Promotion and Tenure Committee (2024-25 academic year)
- Department of Environmental Sciences
    - Co-lead, HHMI Driving Change Initiative (2024–2026)
    - Faculty Search Committee
        - Chair (2024-25 academic year)
        - Member (2014-15, 2015-16, 2019-20, 2022-23 academic years)
    - Graduate Financial Aid Committee
        - Chair (2021-22, 2022-23 academic years)
        - Member (2016-17, 2020-21 academic years)
    - Promotion and Tenure Committee (2024-25 academic year)
    - Graduate Academic Review Committee (2014–present)
    - Third-Year Review Committee (2022-23 academic year)
    - Peer Review Committee (2018-19, 2019-20 academic years)
    - Faculty Awards Committee (2021-22 academic year)
    - Departmental Seminar Organizer (2015-16)
    - Faculty coordinator for department graduation ceremony (2017-19)