

ADITI SHESHADRI

Department of Earth System Science, Stanford University, Stanford, CA 94305
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RESEARCH INTERESTS

Atmospheric dynamics (jet and storm tracks, polar vortex, gravity waves, tropical cyclones, monsoons) and climate modeling (subgrid scale parameterization, calibration, ML models).

PROFESSIONAL EXPERIENCE

Stanford University <i>Assistant Professor, Dept. of Earth System Science</i>	<i>Jan 2018 – Present</i>
Columbia University <i>Postdoctoral research scientist, Dept. of Applied Mathematics</i> <i>Junior Fellow of the Simons Foundation Society of Fellows, New York</i>	<i>Jul 2015 – Dec 2017</i>
Massachusetts Institute of Technology <i>Research Assistant, Dept. of Earth, Atmospheric, and Planetary sciences</i>	<i>Sep 2010 – May 2015</i>
Metacomp Technologies <i>Junior Engineer, Development of computational fluid dynamics and computational structural mechanics packages.</i>	<i>Sep 2009 – Aug 2010</i>
Massachusetts Institute of Technology <i>Research Assistant, Dept. of Aeronautics and Astronautics</i>	<i>Jul 2008 – Aug 2009</i>

EDUCATION

Ph.D., Atmospheric Science, Massachusetts Institute of Technology, Cambridge MA (June 2015)

Thesis: Variability of the polar stratospheric vortex and its impact on surface climate patterns
Department of Earth, Atmospheric, and Planetary Sciences (Program in Atmospheres, Oceans and Climate) Advisor: R. Alan Plumb

S.M., Massachusetts Institute of Technology, Cambridge MA (August 2009)

Aeronautics and Astronautics, Master's thesis: Modeling Traveling Waves Using Mode Superposition

B.E., R. V. College of Engineering, Bangalore, India (June 2007)

Mechanical Engineering

AWARDS

- Google Research Scholar Program recipient, 2023
- Junior Fellow of the Simons Foundation, 2015-2018 (PI, \$366,990 award to Columbia University).
- Best student presentation award at the AMS 18th conference on the Middle Atmosphere, 2015.

- Travel award, SPARC Workshop on storm tracks, Grindelwald, Switzerland, 2015.
- Lord Foundation Fellowship, Massachusetts Institute of Technology, 2012-2013.
- Dean of Science Fellowship, Massachusetts Institute of Technology, 2010-2011.
- Travel award, SPARC Fifth General Assembly, Queenstown, New Zealand, 2014.
- Travel award, Latsis symposium, Zurich, Switzerland, 2014.
- J. N. Tata Fellowship, 2007-2008.

GRANTS AND EXTERNAL FUNDING

NSF AGS-1921409: Revisiting the low-frequency variability of the extratropical circulation using non-EOF modes and Linear Response functions, \$435,786

NSF OAC-2004492: Improving the understanding and representation of atmospheric gravity waves using high-resolution observations and machine learning, \$1,189,826 to Stanford (total \$4.6M, co-PIs Joan Alexander, Edwin Gerber, Pedram Hassanzadeh)

Lead PI on “DataWave” – A data-informed framework for the representation of sub-grid scale gravity waves to improve climate prediction, \$7.1M, funded by Schmidt Futures (co-PIs Edwin Gerber, Pedram Hassanzadeh, Joan Alexander, Adam Scaife, Francois Lott, Claudia Stephan, Ulrich Achatz)

Google award: \$125,000

Stanford data commons (lead PI Ram Rajagopal), \$42K

Google Climate change resilience: \$136K

Google scholar award, \$60K

PUBLICATIONS

*indicates advised student/postdoc

1. Shinde, R., A. Kumar, C. Phillips, A. Gupta*, S. Pfreundschuh, S. Roy, S. Kirkland, V. Gaur, V. Kolluru, A. Lin, P. Trital, A. Sheshadri, U. Nair, M. Maskey, and R. Ramachandran, 2026: WxC-Bench: A Novel Dataset for Weather and Climate Downstream Tasks, *Sci. Data*, **13**, 596.
2. King, R.C.*, B. M. Green* and A. Sheshadri, 2026: Steady source gravity wave parameterizations and the observed momentum flux intermittency, *Geophys. Res. Lett.*, **53(3)**, e2025GL120625.
3. Gupta, A.*, A. Sheshadri, S. Roy, J. Schmude, V. Gaur, W. J. Leong, M. Maskey, and R. Ramachandran, 2025: Finetuning AI Foundation Models to Develop Subgrid-Scale Parameterizations: A Case Study on Atmospheric Gravity Waves, *J. Adv. Model. Earth Sys.* **17(11)**, e2025MS005075.
4. Gupta, A.*, A. Sheshadri, S. Roy, and A. Anantraj, 2025: Offline performance of a nonlocal deep learning parameterization for climate model representation of atmospheric gravity waves, *J. Adv. Model. Earth Sys.* **17(10)**, e2025MS004977.
5. Sun, T., C. Zanocco, J. Flora, A. Sheshadri, and R. Rajagopal, 2025: Unified 0.25-degree gridded infrastructure-critical extreme weather for the United States from 1979 to 2100, *Nat. Sci. Data*, **12(1)**, 1544.
6. Burnett, A. C.*, A. Sheshadri, T. Robinson, and P. Lin, 2025: Connecting tropical cyclones, precursor disturbances, and the ITCZ in aquaplanet simulations, *J. Adv. Model. Earth Sys.*, **17(7)**, e2024MS004868.

7. C-Y Lai, P. Hassanzadeh, A. Sheshadri, M. Sonnewald, R. Ferrari, and V. Balaji, 2025: Machine learning for climate physics and simulations (invited review), *Annu. Rev. Condens. Matter Phys.* **16**.
8. Gupta, A.*, A. Sheshadri, and V. Anantharaj, 2024: Gravity wave momentum fluxes from 1 km global ECMWF Integrated Forecast Sytem, *Sci. Data*, **11(1)**, 903.
9. Gupta, A.*, A. Sheshadri, M. J. Alexander, and T. Birner, 2024: Insights on lateral gravity wave propagation in the extratropical stratosphere from 44 years of ERA5 data, *Geophys. Res. Lett.*, **51(14)**, e2024GL108541.
10. Mansfield, L. A.* and A. Sheshadri, 2024: Uncertainty quantification of a Machine Learning sub-grid scale parameterization for atmospheric gravity waves, *J. Adv. Model. Earth Sys.*, **16(7)**, e2024MS004292.
11. Sun, Y. Q., H. A. Pahlavan, A. Chattopadhyay, S. W. Lubis, P. Hassanzadeh, M. J. Alexander, E. P. Gerber, and A. Sheshadri, 2024: Data imbalance, uncertainty quantification, and transfer learning in data-driven parameterizations: lessons from the emulation of gravity wave momentum transport in WACCM, *J. Adv. Model. Earth Sys.*, **16(7)**, e2023MS004145.
12. King, R. C.*, L. A. Mansfield*, and A. Sheshadri, 2024: Bayesian history matching applied to the calibration of a gravity wave parameterization, *J. Adv. Model. Earth Sys.*, **16(4)**, e2023MS004163.
13. Green, B. M.*, A. Sheshadri, M. J. Alexander, M. Bramberger, and F. Lott, 2024: Gravity wave momentum fluxes estimated from Project Loon balloon data, *J. Geophys. Res. Atmos.*, **129(5)**, e2023JD039927.
14. Achatz, U., A. Alexander, E. Becker, H. Chun, A. Dornbrack, L. Holt, R. Plougonven, I. Polichtchouk, K. Sato, A. Sheshadri, C. C. Stephan, A. van Niekerk, C. J. Wright, 2023: Atmospheric gravity waves: processes and parameterization, *J. Atmos. Sci.*, **81**, 2, 237-262.
15. Mansfield, L. A.*, A. Gupta*, A. C. Burnett*, B. M. Green*, C. Wilka*, and A. Sheshadri, 2023: Updates on model hierarchies for understanding and simulating the climate system: a focus on data-informed methods and usability, *J. Adv. Model. Earth Sys.*, **15**, e2023MS003715.
16. Mansfield, L. A.* and A. Sheshadri, 2022: Calibration and uncertainty quantification of a gravity wave parameterization: a case study of the QBO in an intermediate complexity climate model, *J. Adv. Model. Earth Sys.*, **14**, e2022MS003245.
17. Espinosa, Z. I. *, A. Sheshadri, G. R. Cain, E. P. Gerber, and K. J. DallaSanta, 2022: Machine learning gravity wave parameterization generalizes to capture the QBO and response to increased CO₂, *Geophys. Res. Lett.*, **49(8)**, e2022GL098174.
18. Sheshadri, A., M. Borrus, M. Yoder, and T. Robinson, 2021: Midlatitude error growth in atmospheric GCMs: the role of eddy growth rate, *Geophys. Res. Lett.*, **48 (23)**, e2021GL096126.
19. Burnett, A. C.*, A. Sheshadri, L. G. Silvers, and T. Robinson, 2021: Tropical cyclone frequency under varying SSTs in aquaplanet simulations, *Geophys. Res. Lett.*, **48 (5)**, e2020GL091980.
20. Goss, M.*, E. A. Lindgren*, A. Sheshadri, and N. S. Diffenbaugh, 2021: The Atlantic jet response to stratospheric events: a regime perspective, *J. Geophys. Res. Atmos.*, **126(7)**, e2020JD033358.
21. Lindgren, E. A.*, and A. Sheshadri, 2020: The role of eddy-eddy interactions in sudden stratospheric warming formation, *Weather Clim. Dyn.*, **1**, 93-109.
22. Lindgren, E. A.*, A. Sheshadri, A. Podglajen, and R. W. Carver, 2020: Seasonal and latitudinal variability of the gravity wave spectrum in the lower stratosphere, *J. Geophys. Res. Atmos.*, **125(18)**, e2020JD032850.

23. Lindgren, E. A.*, A. Sheshadri, and R. A. Plumb, 2020: Frequency-dependent behavior of zonal jet variability, *Geophys. Res. Lett.*, **47**, 1-8.
24. White, R. H., C. Hilgenbrink, and A. Sheshadri, 2019: The importance of Greenland in setting the northern preferred position of the north Atlantic eddy-driven jet, *Geophys. Res. Lett.*, **46 (23)**, 14126-14134.
25. Maher, P., E. P. Gerber, B. Medeiros, T. Merlis, S. Sherwood, A. Sheshadri, A. H. Sobel, G. Vallis, A. Voigt, and P. Zurita-Gotor, 2019: The values of hierarchies and simple models in atmospheric research, *Rev. Geophysics*, **57**, 250-280.
26. Lindgren, E. A.*, A. Sheshadri, and R. A. Plumb, 2018: Sudden stratospheric warming formation in an idealized GCM using three types of tropospheric forcing, *J. Geophys. Res. Atmos*, **123(18)**, 10,125-10,139.
27. Sheshadri, A., R. A. Plumb, E. A. Lindgren*, and D. I. V. Domeisen, 2018: The vertical structure of annular modes, *J. Atmos. Sci.*, **75**, 3507-3519.
28. White, R.H., D. S. Battisti, and A. Sheshadri, 2018: Orographic impacts on boreal winter stratospheric circulation: Mongolian mountains matter most, *Geophys. Res. Lett.*, **45 (4)**, 2088-2096.
29. Jeevanjee, N., P. Hassanzadeh, S. A. Hill, and A. Sheshadri, 2017: A perspective on climate model hierarchies, *J. Adv. Model. Earth Sys.*, **9**, 1760-1771.
30. Sheshadri, A., and R. A. Plumb, 2017: Propagating annular modes: Empirical Orthogonal Functions, Principal Oscillation Patterns, and timescales, *J. Atmos. Sci.*, **74**, 1345-1361.
31. Ivy, D. J., C. Hilgenbrink, D. Kinnison, R. A. Plumb, A. Sheshadri, S. Solomon, and D. W. J. Thompson, 2017: Observed changes in the Southern Hemisphere circulation in May, *J. Clim.*, **30**, 527-536.
32. Linz, M. K., R. A. Plumb, E. P. Gerber, and A. Sheshadri, 2016: The relationship between age of air and the diabatic circulation of the stratosphere, *J. Atmos. Sci.*, **73**, 4507-4518.
33. Sheshadri, A., and R. A. Plumb, 2016: Sensitivity of the surface responses of an idealized AGCM to the timing of imposed ozone depletion-like polar stratospheric cooling, *Geophys. Res. Lett.*, **43**, doi:10.1002/2016GL067964.
34. Sheshadri, A., R. A. Plumb, and E. P. Gerber, 2015: Seasonal variability of the polar stratospheric vortex in an idealized AGCM with varying tropospheric wave forcing, *J. Atmos. Sci.* **72**, 2248-2266.
35. Sheshadri, A., R. A. Plumb, and D. I. V. Domeisen, 2014: Can the delay in Antarctic polar vortex breakup explain recent trends in surface westerlies? *J. Atmos. Sci.* **71**, 566-573.
36. Jaiswal, V., Sheshadri, A., and J. K. Vandiver, 2010: Modeling traveling waves using mode superposition, *Proc. ASME Ocean, Offshore, and Arctic Engineering*, **1**, 521-527 doi:10.1175/OMAE2010-20807.
37. Vandiver, J. K., Y. Cheng, V. Jaiswal, A. Sheshadri, and A. Yu, 2009: An experimental evaluation of vortex-induced vibration of a riser bundle with gaps, *Proc. ASME Ocean, Offshore, and Arctic Engineering*, **5**, 695-705, doi: 10.1115/OMAE2009-79757.

Submitted and in preparation

1. Gupta, A.*, A. Sheshadri, and D. Suri, An observations-focussed assessment of global AI weather prediction models during the South Asian monsoon, submitted.
2. Green, B. M.*, A. Sheshadri, and A. Podglajen, A broad spectrum of overlapping gravity waves in the lower stratosphere, submitted.

3. Dula Razzolini, I. M.*, B. M. Green*, A. Sheshadri, and M. J. Alexander, Observations of gravity wave packets using a multiple balloon, multiple linear regression technique, submitted.
4. King, R. C.*, A. Gupta, *, and A. Sheshadri: Tropical predictability and error growth in AI weather models, in preparation.
5. King, R. C.*, J. Briant, A. Sheshadri, and S. Guillas: A complete Bayesian calibration of a convective scheme, in preparation.
6. Schmitt, J., B. Delorme, A. Sheshadri, and R. Jain: AI-based weather models with observational data improve skill, especially for extreme precipitation, in preparation.

RESEARCH SUPERVISION

Postdoctoral Scholars

- Aman Gupta, 8/2022-present
- Brian M. Green, 10/2020-present
- Catherine Wilka, 6/2021-5/2024
- Laura A. Mansfield, 10/2021-9/2024
- Michael Goss, 6/2020-11/2021
- Erik A. Lindgren, 9/2018-4/2020

Graduate and undergraduate researchers

- Adam C. Burnett, Ph.D. student, 7/2019-6/2025
- Robert King, Ph.D. student, Fall 2022-present
- Isabella Dula Razzolini, Ph.D. student, Fall 2022-present
- Zachary I. Espinosa, MS student, 1/2019-8/2021
- Douglas Klink UG student, summers 2019, 2020.

Thesis committees

Bertrand Delorme (PhD 2021), Laurel Regibeau-Rockett (PhD 2024), Ipshita Dey (PhD 2024), Yangfan Liu, Sasha Tolstoff

TEACHING EXPERIENCE

Instructor, ESS 102/202, The scientific basis of climate change. Stanford, Spring 2020, Spring 2021, Spring 2022, Spring 2023, Spring 2024, Spring 2025, Winter 2026.

Instructor, ESS 171/271, Climate data and models. Stanford, Winter 2021, Winter 2022, Spring 2026.

Instructor, ESS 348, Dynamics of the atmosphere. Stanford, Winter 2020, Winter 2023.

Instructor, ESS 146/246A, Atmosphere, ocean, and climate dynamics: the atmospheric circulation. Stanford, Winter 2019.

Instructor, ESS 146/246B, Atmosphere, ocean, and climate dynamics: the ocean circulation. Stanford, Spring 2018, Spring 2019.

Teaching assistant (Spring 2013, Spring 2014) and **guest lecturer** (Spring 2015) for MIT course 12.810 (graduate course on the **Dynamics of the Atmosphere**, instructor R. A. Plumb)

Guest lecturer, (September 2016), Columbia University Applied Mathematics Majors' seminar (instructor C. Wiggins)

Teaching assistant for MIT 2.085 (Spring 2008, graduate course on **Structural Impact**, instructor T. Wierzbicki)

INVITED COLLOQUIA

1. Princeton atmospheric dynamics seminar, May 2026.
2. California Institute of Technology ESE seminar, April 2026.
3. University of Washington seminar in atmospheric physics and chemistry, February 2026.
4. Stanford fluid mechanics seminar, January 2026.
5. UCLA AOS seminar, January 2026
6. NCAR ACOM seminar, January 2026.
7. Harvard ClimaTea seminar, December 2025.
8. MIT PAOC seminar, December 2025.
9. NYU Courant Atmosphere ocean science colloquium, September 2025.
10. Indian Institute of Science CAOS seminar, August 2025.
11. University of Chicago colloquium, February 2025.
12. UC Davis Atmospheric science colloquium, April 2023.
13. Harvard University ClimaTea seminar, November 2022.
14. University of Toronto department of physics colloquium, October 2022.
15. International center for theoretical sciences fluid mechanics seminar, October 2022.
16. Columbia University SEAS colloquium in climate science, September 2022.
17. University of Cambridge department of applied mathematics and theoretical physics seminar, September 2022.
18. Princeton AOS seminar, June 2022.
19. California Institute of Technology CliMA seminar, April 2022.
20. University of Maryland Earth System Science Interdisciplinary Center seminar, April 2022.
21. Johns Hopkins University Bromery seminar, February 2022.
22. University of British Columbia department seminar: March 2021.
23. Interagency working group panel on “Nontraditional Earth observations for Research and Societal Applications”, February 2021.
24. Stanford University Fluid Mechanics seminar: September 2020.
25. UC Santa Cruz Earth and Planetary science whole earth seminar: November 2019.
26. National Center for Atmospheric Research Seminar, Boulder CO: October 2019.
27. Geophysical Fluid Dynamics Laboratory seminar: June 2019.
28. JPL Center for Climate Sciences colloquium: April 2019.
29. California Institute of Technology ESE seminar: April 2019.
30. Massachusetts Institute of Technology PAOC colloquium: March 2019.
31. Colorado State University atmospheric sciences colloquium: February 2019.
32. Berkeley Atmospheric Sciences center seminar: September 2018.
33. Stanford Geophysics department seminar: May 2018.
34. UCLA Department of Atmospheric and Oceanic Sciences seminar: March 2018.
35. NYU Courant Institute Center for atmospheric and oceanic sciences colloquium: January 2018.
36. Harvard Earth and Planetary Sciences Department colloquium: April 2017.

37. Stanford Earth System Science colloquium: February 2017.
38. University of Washington Atmospheric Science colloquium: January 2017.
39. University of California Santa Barbara, Mechanical Engineering seminar: May 2016.
40. Princeton/Geophysical Fluid Dynamics Laboratory Seminar: March 2016.
41. California Institute of Technology Environmental Science and Engineering seminar: February 2016.
42. University of Cambridge, Center for Atmospheric Science seminar, Cambridge, UK: January 2016.
43. Pennsylvania State University, Meteorology Colloquium, State College, PA: October 2015.
44. University of Oxford, Atmospheric, Oceanic and Planetary Physics, Oxford, UK: August 2015.
45. National Center for Atmospheric Research Seminar, Boulder, CO: July 2015.
46. NCAS Climate Science Seminar, University of Reading, Reading, UK: April 2015.
47. Yale University Atmosphere, Oceans, and Climate Dynamics, New Haven, CT: February 2015.
48. MIT Atmospheric Science Seminar, Cambridge, MA: December 2014.
49. Harvard Department of Earth and Planetary Sciences seminar, Cambridge, MA: October 2014.
50. Lamont Doherty Earth Observatory, OCP Seminar, Columbia University, NY: September 2014.

CONFERENCE PRESENTATIONS

1. Calibration and Uncertainty quantification for atmospheric gravity wave parameterizations in global climate models, SIAM UQ for the geosciences (invited), Baton Rouge, October 2025.
2. Using ML methods to improve the representation of atmospheric gravity waves in climate models (invited), EGU, May 2025.
3. Calibration and uncertainty quantification of physics- and ML-based parameterizations: applicability to the QBO, QSQ workshop, Cambridge, UK, March 2025.
4. Machine learning methods for subgrid scale parameterizations (invited), International Center for theoretical sciences workshop, November 2024.
5. Tropical cyclone frequency and ITCZ dynamics in aquaplanet simulations (invited), International Center for theoretical sciences workshop, November 2024.
6. Calibration and uncertainty quantification for physics- and ML-based subgrid scale parameterizations, Model Uncertainty Workshop, Oxford, September 2024.
7. Towards improving climate projections with AI, Stanford HAI Fall conference 2023, October 2023.
8. Updates from Datawave, Schmidt Futures Virtual Earth system research institute series at the WCRP OSC 2023 (invited), October 2023.
9. Dean's lecture on Data Commons, June 2023.
10. Using data-driven methods towards an improved understanding and representation of atmospheric gravity waves, IMSI workshop on Machine learning for climate and weather applications, Chicago (invited), November 2022.
11. Towards an improved understanding and representation of atmospheric gravity waves, Institute of Computing for Climate science workshop, University of Cambridge (invited), September 2022.
12. Midlatitude error growth in GCMs: the role of eddy growth rate, AMS AOFD meeting, June 2022.
13. Towards an improved understanding and representation of atmospheric gravity waves on climate variability and change, Stanford AI for Energy/Climate innovation meeting, May 2022.
14. Atmospheric dynamics across scales: jet streams and gravity waves, American Physical Society 2022 annual meeting, focus session on the Physics of climate, Chicago (invited), March 2022.

15. Towards an improved understanding and representation of the effects of gravity waves on climate, 2022 SPARC Gravity Wave Symposium, Frankfurt (invited)– March 2022.
16. A machine learning parameterization of gravity wave drag coupled to an atmospheric GCM: Kavli Institute of Theoretical Physics Machine learning in climate conference (invited), Santa Barbara, CA, November 2021.
17. Midlatitude error growth and predictability limits in a range of climates: AGU Fall Meeting 2021, New Orleans, LA, December 2021.
18. Atmospheric dynamics across scales: Gravity waves and tropical cyclones, Simons symposium (invited), New York, NY, October 2019.
19. Propagating annular modes, SPARC workshop on atmospheric circulation in a changing climate, (remote presentation), Madrid, October 2019.
20. Representing stratosphere-troposphere interactions using principal oscillation patterns, AMS Middle Atmosphere Meeting, Phoenix AZ, January 2019.
21. The forcing of the preferred positions of the Atlantic eddy-driven jet: Importance of orography and SSTs, AMS Climate Variability and Change conference, Phoenix AZ, January 2019.
22. Representing stratosphere-troposphere interactions using principal oscillation patterns (invited), AGU Fall meeting 2018, Washington D.C., December 2018.
23. Propagating annular modes, AOGS Annual meeting, Honolulu HI, June 2018.
24. Propagating annular modes of the troposphere and stratosphere (invited), AGU Fall meeting 2017, New Orleans, LA, December 2017.
25. Propagating annular modes, AMS 21st conference on Atmospheric and Oceanic Fluid dynamics, Portland OR, June 2017.
26. Propagating annular modes, AMS 29th Conference on Climate Variability and Change, Seattle, WA, January 2017.
27. Propagating and non-propagating annular modes and principal oscillation patterns, AGU Fall meeting 2016, San Francisco CA, December 2016.
28. Frequency-dependent behavior of the barotropic and baroclinic modes of zonal jet variability, Model Hierarchies Workshop, Princeton, NJ, November 2016.
29. Propagating annular modes, Workshop on the response of global climate to the Antarctic ozone hole, MIT, Cambridge, MA, June 2016.
30. Sensitivity of the surface responses of an idealized AGCM to the timing of imposed ozone depletion-like polar stratospheric cooling, SPARC (Stratosphere-Troposphere Processes and their Role in Climate) Workshop on Stratospheric Change and its Role for Climate Prediction, Berlin, Germany, February 2016.
31. Stratospheric influence on the tropospheric jet: Impacts of stratospheric seasonal variability and ozone depletion, SPARC (Stratosphere-Troposphere Processes and their Role in Climate) Workshop on Storm Tracks, Grindelwald, Switzerland, August 2015.
32. Seasonal variability of the polar stratospheric vortex in an idealized AGCM with varying tropospheric wave forcing, AMS 18th Conference on the Middle Atmosphere, Phoenix, AZ, January 2015.
33. Seasonal variability of the polar stratospheric vortex in an idealized AGCM, Latsis symposium, Zurich, Switzerland, June 2014.

34. Stratospheric Final Warming Events and their Impact on the Troposphere, SPARC (Stratosphere-Troposphere Processes and their Role in Climate) General Assembly, Queenstown, New Zealand, January 2014.
35. Stratospheric Final Warming Events and their Surface Impact, AMS 17th Conference on the Middle Atmosphere, Newport RI, June 2013.
36. Stratospheric Final Warming Events and their Surface Impact, European Geophysical Union General Assembly, Vienna, Austria, April 2013.
37. Stratospheric Final Warming Events and their Surface Impact, 7th Graduate Climate Conference, Woods Hole MA, November 2013.

INTERNAL SERVICE

Earth system science colloquium committee, 2018-2019, 2022-2023, department awards committee 2020-2022, 2023-2024, graduate admissions committee 2024, 2025.

Climate science cluster search committee, 2022

Provost's advisory committee for postdoctoral affairs, 2022-present

PROFESSIONAL ACTIVITIES

Associate Editor, AMS Journal of the atmospheric sciences, 2021-2024.

Associate Editor, AGU Journal of Advances in Modeling Earth Systems, August 2022-present.

Reviewer for Journal of the Atmospheric Sciences, Geophysical Research Letters, Climate Dynamics, Quarterly Journal of the Royal Meteorological Society, Nature Communications, Journal of Climate, Journal of Geophysical Research-Atmospheres, Atmospheric Chemistry and Physics, Plos One, Scientific Reports, Weather and Climate Dynamics, Proceedings of the National Academy, Science.

Proposal reviewer, European Research Council, US National Science Foundation, served on **NSF panel** for the CSSI program in 2021, **book reviewer** for Princeton University Press.

Advisory board member, University of Cambridge UKRI Centre for Doctoral Training in the Application of Artificial Intelligence to the study of Environmental Risks.

Lecturer at the International Center for Theoretical Sciences program on the moist convective dynamics of monsoons, November 2024 (lectures on Atmospheric Dynamics).

Steering committee member, Stratospheric Network for the Assessment of Predictability.

Organizing committee member for the Model Hierarchies Workshop, Princeton, NJ, November 2-4, 2016, and the SPARC General Assembly, October 2022.

Lead organizer and host for the second Model hierarchies workshop, August 2022 at Stanford.

Session convener and session chair AGU Fall meeting 2016-2017, session on stratosphere-troposphere interactions and climate, AGU Fall meeting 2018-2023, session on extratropical large-scale atmospheric circulation variability, AMS 2023-2024, session on large-scale atmospheric dynamics and climate.

Session chair at various AGU/AMS/SPARC sessions.

Summer schools and workshops: The Fluid Dynamics of Sustainability and the Environment Summer School, University of Cambridge, UK, September 2012, JPL Climate Science Summer School, Jet

Propulsion Laboratory, California Institute of Technology, Pasadena CA, September 2014, Workshop on the Momentum Budget and its Role in Weather and Climate, Eynsham Hall, Oxfordshire, UK, April 2015

Member American Geophysical Union, American Meteorological Society