

CURRICULUM VITAE

May 10, 2023

DR. CLARA DESER

Senior Scientist

Head, Climate Analysis Section

Climate and Global Dynamics Division

National Center for Atmospheric Research (NCAR)

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Educational Information

B.S. Earth and Planetary Sciences

Massachusetts Institute of Technology, 1982

Ph.D. Atmospheric Sciences

University of Washington, 1989

John Michael Wallace, advisor. Dissertation title: *Meteorological Characteristics of the El Nino--Southern Oscillation Phenomenon.*

Professional Experience

National Center for Atmospheric Research: Climate Analysis Section

Section Head (April 2011 – present)

Senior Scientist (July 2005 – present)

Scientist III (2000 – present)

Scientist II (1997 – 2000)

CIRES, University of Colorado

Research Associate (1990 – 1997)

University of Washington, Department of Atmospheric Science

Research Assistant (1983 – 1989)

Woods Hole Oceanographic Institution

Research Assistant (1982 – 1983)

Awards

Editor's Award, *Journal of Climate*, 1996.

Meisinger Award, American Meteorological Society, 1999.

Fellow, American Meteorological Society, 2008.

Fellow, American Geophysical Union, 2014.

Walter Orr Roberts Lecture, American Meteorological Society, 2016.

NCAR Community Earth System Model Distinguished Achievement Award, 2016.

Bjerknes Lecture, American Geophysical Union, 2017.

University of Oslo “Inspiration Award”, 2018.

Charney Award, American Meteorological Society, 2020.

Elected member of the US National Academy of Sciences, 2021.

Roger Revelle Medal, American Geophysical Union, 2022.

Professional Memberships

American Meteorological Society (1987 – present)

American Geophysical Union (1987 – present)

Research Grants Awarded

1. “The relationship between stratiform cloudiness and sea surface temperature gradients in the tropical Pacific” (co-PI: Dr. John Bates, NOAA). Equatorial Pacific Ocean Climate Studies (NOAA/Office of Global Programs). \$80K, FY91.
2. “The relationships among surface wind, stratiform cloudiness and sea surface temperature gradients in the tropical Pacific” (co-PI: Dr. John Bates, NOAA). Equatorial Pacific Ocean Climate Studies (NOAA/Office of Global Programs). \$80K, FY92.
3. “Atmospheric variability and Atlantic climate change” (co-PI Dr. Maurice Blackmon, NOAA). Atlantic Climate Change Program (NOAA/Office of Global Programs). \$90K, FY93.
4. “Decadal climate cycles over the north Atlantic.” Atlantic Climate Change Program (NOAA/Office of Global Programs). \$191K for FY 94-95.
5. “Air-sea interaction in the subpolar north Atlantic” (co-PI Dr. Michael Alexander, CIRES). Atlantic Circulation and Climate Experiment/World Ocean Circulation Experiment (NSF Oceanography Division). \$395K for FY 97-99.
6. “Indo-Pacific climate variability on interdecadal time scales” (co-PI Dr. James Hurrell). NOAA Climate Variability and Predictability Program / CLIVAR-Pacific (NOAA/Office of Global Programs). \$260.3K for FY 00-03.
7. “The annual cycle of climate change over the Tropical and North Atlantic” (co-PI Dr. James Hurrell). CLIVAR Atlantic (NOAA/Office of Global Programs). \$276.2K for FY 00-03.
8. “Sensitivity of the south Atlantic Ocean and climate to Antarctic sea-ice concentration” (co-PIs Dr. Marilyn Raphael, UCLA and Dr. Ilana Wainer, University of Sao Paulo, Brazil). NSF: \$53K to UCAR for FY04-06.
9. “Pacific interdecadal climate variability: modeling and further observational studies” (co-PI Dr. James Hurrell, NCAR). NOAA/OGP CLIVAR-Pacific: \$289K for FY04-06.
10. “Diagnosing oceanic origins of future regional climate change” (PI Dr. James Hurrell, co-PIs Dr. Martin Hoerling and Clara Deser). NOAA/OGP CLIVAR-Atlantic: \$210K for FY04-06.
11. “Coupling an Entraining Ocean Mixed layer Model to CCSM3: A New Tool for the CCSM Community” (PI Dr. Clara Deser, co-PI Dr. Young-Oh Kwon). DOE Office of Science Program Office: \$25K for FY06-FY07.
12. “Climate Response to Future Changes in Arctic Snow Cover and Sea Ice: A New Perspective from the High Resolution NCAR CCSM3” (PI Dr. Clara Deser, co-PIs Dr. Michael Alexander, NOAA/CDC, and Mr. Robert Tomas). NSF Arctic System Science Program: \$477,948 for FY06-FY09
13. “Coupled Atmosphere-Ocean Mixed Layer Response to Extra-tropical Ocean Heat Transport Variations” (PI Dr. Clara Deser, co-PI Dr. Young-Oh Kwon). NOAA/OGP CLIVAR-Pacific: \$300K for FY07-08.
14. “Detecting the Tropical Boundary Layer using COSMIC GPS Radio Occultation Data” (PI Ying-Hwa “Bill” Kuo, co-PIs Dr. Clara Deser, Dr. Donald Lenschow, and Dr. S Sokolovskiy. UCAR Office of Programs STORM Funds, \$35K for 1 January 2007-31 December 2007.

15. "Collaborative research: The seasonal response of the Arctic and global climate system to projected sea ice loss within the context of GHG-induced climate change," C. Deser PI, M. Holland and D. Lawrence co-PIs. NSF Arctic System Science Program \$670,103, 6/09-5/11.
16. "Applying ice cores and climate modeling towards a mechanistic understanding of Antarctic climate variability on interannual to multidecadal time scales over the last 100-200 years," C. Deser PI, Y. Okumura and D. P. Schneider co-PIs. NSF Office of Polar Programs, Antarctic Oceans and Atmospheric Sciences \$495,539, 6/09-5/10.
17. "An Informed Guide to Climate Data Sets with Relevance to Earth System Model Evaluation", C. Deser PI, K. Trenberth, J. Hurrell, A. Dai, D. Shea and J. Fasullo, co-PIs. NSF *Climate Research Investment-Decadal and Regional Prediction using Earth System Models* Solicitation, \$899,973 1/11-12/13.
18. "The Seasonal Atmospheric Circulation and Climate Response to Arctic Sea Ice Loss: Mechanisms and Robustness across Models", C. Deser, PI, R. Tomas co-PI. NSF Office of Polar Programs \$690K, 4/12-3/15.
19. "Collaborative Research: Reconstruction and Understanding of Antarctic Circulation Variability and Trends since 1905", C. Deser (NCAR) and R. Fogt (Ohio U.), co-PIs. NSF Office of Polar Programs, Antarctic Oceans and Atmospheric Sciences \$580K, 4/14-3/16.
20. "Collaborative Research: Towards predicting persistent drought conditions associated with consecutive La Nina years", C. Deser (NCAR), P. DiNezio (U. Hawaii) and Y. Okumura (U. Texas), co-PIs. NOAA OAR Climate Program Office \$547K, 8/14-7/17.
21. "Compensation Between Poleward Energy Transports in the Ocean and Atmosphere". Y-O Kwon (WHOI), PI; C. Deser (NCAR) and J. Lu (PNNL), co-PIs. DOE SciDAC Program \$234K to NCAR, 9/14 – 8/17.
22. "Collaborative Research: Uncertainty in Antarctic climate change projections and the role of sea ice, clouds and ocean structure", C. Deser (NCAR) and J. Kay (U. Colorado), co-PIs. NSF Office of Polar Programs, Antarctic Oceans and Atmospheric Sciences \$410K, 6/17-5/20. [Written largely by D. Schneider, NCAR.]
23. "Developing an experimental predictive framework for climate regime shifts and their impacts within a 2-20 year outlook window". [co-PIs Dr. Matthew Newman and Dr. Michael Alexander, NOAA.] SERDP, \$50K to NCAR, 3/17-4/18.
24. "Collaborative Research: Toward operational predictions of persistent drought driven by multiyear La Niña", C. Deser (NCAR), P. DiNezio (U. Hawaii) and Y. Okumura (U. Texas), co-PIs. NOAA OAR Climate Program Office \$509K (\$125K to NCAR), 9/17 – 8/20.
25. "US CLIVAR Working Group on Large "Initial-Condition" Earth System Model Ensembles", NSF Special Funds through the Climate and Large Scale Dynamics Program (Eric DeWeaver, program manager), Proposal 2018-0281, 3/15/18 - 3/14/21, \$336,994 (C. Deser, PI).
26. "Climate Data Guide 2.0", NSF Special Funds through the Climate and Large Scale Dynamics Program (Eric DeWeaver, program manager), Proposal 2018-0281, 8/1/20 – 7/31/23, \$244K (C. Deser and D. Schneider, co-PIs).
27. "Developing a Process Based Understanding of Marine Heat Waves: Present and Future", NOAA OAR Climate Program Office \$217K to NCAR, M Alexander (NOAA) PI, M. Jacox (NOAA) and C. Deser (NCAR), co-PIs, 9/20 – 8/23.
28. "Large-Scale Atmospheric Circulation Response to Oyashio Extension Frontal Variability", NSF GEO-NERC (AGS), \$861K to WHOI/NCAR, Y-O Kwon (WHOI) PI,

- G. Danabasoglu (NCAR), C. Deser (NCAR) and C. Frankignoul (WHOI), co-PIs, 1/21 – 12/23.
29. “How do internal modes of atmospheric circulation variability respond to changes in external radiative forcing?”, NSF Special Funds through the Climate and Large Scale Dynamics Program (Eric DeWeaver, program manager), Proposal 2018-0281, 4/1/21 – 3/31/22, \$168K (C. Deser, PI).
30. “The Role of Evolving Spatial Patterns of Anthropogenic Aerosol Emissions in the Trajectory of Climate Change” NSFAGS-2235177, C. Deser (NCAR) and G. Persad (U. Texas at Austin), co-PIs, 2/23-1/25, \$985K (\$173K to NCAR).

Publications (*in reverse chronological order*)

215. Jenkins, M. T., A. Dai and C. Deser, 2023: Seasonal variations and spatial patterns of Arctic cloud changes in association with sea-ice loss during 1950-2019 in ERA5. *J. Climate*, in revision.
214. Liang, Y. -C., Y. -O. Kwon, C. Frankignoul, G. Gastineau, K. L. Smith, L. M. Polvani, L. Sun, Y. Peings, C. Deser, R. Zhang and J. Screen, 2023: The Weakening of the Stratospheric Polar Vortex and the Subsequent Surface Impacts as Consequences to Arctic Sea-ice Loss. *J. Climate*, submitted.
213. Yamaguchi, R., Kim, J. -E., K. B. Rodgers, K. Stein, A. Timmermann, S. -S. Lee, L. Huang, M. F. Stuecker, J. T. Fasullo, G. Danabasoglu, C. Deser, J. -F. Lamarque, N. Rosenbloom and J. Edwards, 2023: Persistent ocean anomalies as a response to northern hemisphere heating 3 induced by biomass burning variability. *J. Climate*, in revision.
212. Jain, S., A. A. Scaife, T. G. Shepherd, C. Deser, N. Dunstone, G. A. Schmidt, K. E. Trenberth and T. Turkington, 2023: Ignoring internal variability can lead to misleading conclusions on model fidelity. *NPJ Clim. Atmos. Sci.*, submitted.
211. Schneider, T., S. Behera, G. Boccaletti, C. Deser, K. Emanuel, R. Ferrari, L. R. Leung, N. Lin, T. Muller, A. Navarra, O. Ndiaye, A. Stuart, J. Tribbia, and T. Yamagata, 2023: Harnessing AI and computing to advance climate modeling and prediction. *Nat. Clim. Change*, submitted.
210. Levin, J., S. Pacala, D. Arvizu, C. Deser, J. Dabiri, D. Duffie, K. Emanuel, I. Fung, B. Litterman, T. Schneider, J. Stroebel, K. Sullivan and T. Tao, 2023: President's Council of Advisors on Science and Technology Report to the President "Extreme weather risk in a changing climate: Enhancing prediction and protecting communities". Executive Office of the President of the United States.
209. Klavans, J. M., P. N. DiNezio, A. C. Clement, C. Deser and T. M. Shanahan, 2023: “Human Emissions Drive the Pacific Decadal Oscillation”, *Science*, submitted.
208. Alexander, M. A., J. D. Scott, M. G. Jacox, C. Deser, D. J. Amaya, A. Capotondi and A. S. Phillips, 2022: A survey of coastal conditions around the Continental US using a high-resolution ocean reanalysis. *Prog. Oceanogr.*, submitted.

207. Kang, S. M., Y. Yu, C. Deser, X. Zhang, I. -S. Kang, S. -S. Lee and K. B. Rodgers, 2023: Global impacts of recent Southern Ocean cooling. *Proc. Natl. Acad. Sci. U.S.A.*, in revision.
206. Lehner, F. and C. Deser, 2023: Origin, importance, and predictive limits of internal climate variability. *Environ. Res. Clim.*, in press.
205. Tian, Y., S. Hu and C. Deser, 2023: Critical role of biomass burning aerosols in enhanced historical Indian Ocean warming. *Nat. Comm.*, in press.
204. Kim, J. -E., R. Yamaguchi, K. B. Rodgers, A. Timmermann, S. -S. Lee, K. Stein, G. Danabasoglu, J. -F. Lamarque, J. T. Fasullo, C. Deser, N. Rosenbloom, J. Edwards and M. F. Stuecker, 2023: Interannual fires as a source for subarctic summer decadal climate variability mediated by permafrost thawing. *NPJ Clim. Atmos. Sci.*, revised.
203. Simpson, I. R., N. Rosenbloom, G. Danabasoglu, C. Deser, S. G. Yeager, C. S. McCluskey, R. Yamaguchi, J. -F. Lamarque, S. Tilmes, M. J. Mills and K. B. Rodgers, 2023: The CESM2 Single Forcing Large Ensemble and comparison to CESM1: Implications for experimental design. *J. Climate*, in press.
202. Wu, X., S. G. Yeager, C. Deser, N. Rosenbloom and G. A. Meehl, 2023: Volcanic forcing degrades multiyear-to-decadal prediction skill in the tropical Pacific. *Science Advances*, 9, eadd9364(2023).DOI:10.1126/sciadv.add9364
201. Amaya, D. J., M. G. Jacox, M. A. Alexander, J. D. Scott, C. Deser, A. Capotondi and A. S. Phillips, 2023: Bottom marine heatwaves along the continental shelves of North America. *Nat. Comm.*, 14, 1038. <https://doi.org/10.1038/s41467-023-36567-0>.
200. Deser, C. and A. S. Phillips, 2023: A range of outcomes: The combined effects of internal variability and anthropogenic forcing on regional climate trends over Europe. *Nonlin. Processes Geophys.*, **30**, 63–84, doi: 10.5194/npg-30-63-2023. [Selected as a Highlight Paper and Paper-of-the-Month]
199. Deser, C. and A. S. Phillips, 2023: Spurious Indo-Pacific connections to internal Atlantic Multidecadal Variability introduced by the global temperature residual method. *Geophys. Res. Lett.*, **50**, e2022GL100574, doi: 10.1029/2022GL100574.
198. O'Brien, J. P. and C. Deser, 2023: Quantifying and Understanding Forced Changes to Unforced Modes of Atmospheric Circulation Variability over the North Pacific in a Coupled Model Large Ensemble. *J. Climate*, **36**, 17-35, doi: 10.1175/JCLI-D-22-0101.1.
197. Chen, R., I. R. Simpson, C. Deser, B. Wang and Y. Du, 2022: Mechanisms behind the Springtime North Pacific ENSO Teleconnection Bias in Climate Models. *J. Climate*, 35(23), 4091-4110, <https://doi.org/10.1175/JCLI-D-22-0304.1>.

196. Wang, K., L. Wu, H. Liu, B. Dan, H. Dai and C. Deser, 2022: Contrary Responses of the Gulf Stream and the Kuroshio to Arctic Sea Ice Loss. *Atmos.*, 13, 514, doi: 10.3390/atmos13040514.
195. Smith, D. M., R. Eade, M. Andrews, H. Ayres, A. Clark, S. Chripko, C. Deser, N. J. Dunstone, J. Garcia-Serrano, G. Gastineau, L. S. Graff, S. C. Hardiman, B. He, L. Hermanson, T. Jung, J. Knight, X. Levine, G. Magnusdottir, E. Manzini, D. Matei, M. Mori, R. Msadek, P. Ortega, Y. Peings, A. A. Scaife, J. A. Screen, M. Seabrook, T. Semmler, M. Sigmond, J. Streffing, L. Sun, and A. Walsh, 2022: Robust but weak winter atmospheric circulation response to future Arctic sea ice loss. *Nat. Comm.*, 13:727, doi: 10.1038/s41467-022-28283-y.
194. Kay, J. E., P. DeRepentigny, M. M. Holland, D. A. Bailey, A. K. DuVivier, E. Blanchard-Wrigglesworth, C. Deser, A. Jahn, H. Singh, M. M. Smith, M. A. Webster, J. Edwards, S. -S. Lee, K. B. Rodgers and N. Rosenbloom, 2022: Less surface sea ice melt in the CESM2 improves Arctic sea ice simulation with minimal non-polar climate impacts. *Journal of Advances in Modeling Earth Systems*, 14, e2021MS002679. doi: 10.1029/2021MS002679.
193. Hirasawa, H., P. J. Kushner, M. Sigmond, J. Fyfe and C. Deser, 2021: Evolving Sahel rainfall response to anthropogenic aerosols driven by shifting regional oceanic and emission influences. *J. Climate*, 35(11), 3181-3193, doi: 10.1175/JCLI-D-21-0795.1
192. Wu, X., Y. M. Okumura, P. N. DiNezio, S. G. Yeager and C. Deser, 2021: The equatorial Pacific cold tongue bias in CESM1 and its influence on ENSO forecasts. *J. Climate*, 35(11), 3261-3277, doi:10.1175/JCLI-D-21-0470.1.
191. Sun, L., C. Deser, I. Simpson, and M. Sigmond, 2022: Uncertainty in the winter tropospheric response to Arctic Sea ice loss: the role of stratospheric polar vortex internal variability. *J. Climate*, 35(10), 3109-3130, 10.1175/JCLI-D-21-0543.1 .
190. Fasullo, J. T., J. -F. Lamarque, C. Hannay, N. Rosenbloom, S. Tilmes, P. DeRepentigny, A. Jahn and C. Deser, 2022: Spurious late historical-era warming in CESM2 driven by prescribed biomass burning emissions. *Geophys. Res. Lett.*, 49 (2), e2021GL097420. in press.
189. Hay, S., P. J. Kushner, R. Blackport, K. E. McCusker, T. Oudar, L. Sun, M. England, C. Deser, J. A. Screen and L. M. Polvani, 2021: Separating the influences of low-latitude warming and sea-ice loss on Northern Hemisphere climate change. *J. Climate*, 35(8), 2327-2349. doi: 10.1175/JCLI-D-21-0180.1
188. Rodgers, K. B., S. -S. Lee, N. Rosenbloom, A. Timmermann, G. Danabasoglu, C. Deser, J. Edwards, J. -E. Kim, I. Simpson, K. Stein, M. F. Stuecker, R. Yamaguchi, T. Bodai, E. -S. Chung, L. Huang, W. Kim, J. -F. Lamarque, D. Lombardozzi, W. R. Wieder and S. G. Yeager, 2021: Ubiquity of human-induced changes in climate variability. *Earth Sys. Dyn.*, 12, 1393–1411, doi:10.5194/esd-12-1393-2021.

187. Deser, C. and A. S. Phillips, 2021: Defining the internal component of Atlantic Multidecadal Variability in a changing climate. *Geophys. Res. Lett.*, **48**, e2021GL095023, doi: 10.1029/2021GL095023.
186. Oehrlein, J., L. M. Polvani, L. Sun and C. Deser, 2021: How well do we know the surface impact of sudden stratospheric warmings? *Geophys. Res. Lett.*, **48**, doi: 10.1029/2021GL095493.
185. Kang, S. M., S. -P. Xie, C. Deser and B. Xiang, 2021: Zonal mean and shift modes of historical climate response to evolving aerosol distribution. *Sci. Bull.*, **66**, 2405-2411, doi:10.1016/j.scib.2021.07.013.
184. Phillips, A. S., C. Deser, J. Fasullo, D. P. Schneider and I. R. Simpson, 2020: Assessing Climate Variability and Change in Model Large Ensembles: A User’s Guide to the “Climate Variability Diagnostics Package for Large Ensembles”, doi:10.5065/h7c7-f961.
183. Deser, C. and K. Rodgers (guest editors), 2020: New research on climate variability and change using initial-condition Large Ensembles. *US CLIVAR Variations*, **18.2**, 1–44.
182. McKinnon, K. A. and C. Deser, 2021: The inherent uncertainty of precipitation variability, trends, and extremes due to internal variability, with implications for Western US water resources. *J. Climate*, **34**, 9605-9622, doi: 10.1175/JCLI-D-21-0251.1.
181. Zhang, X., C. Deser and L. Sun, 2020: Is there a tropical response to recent observed Southern Ocean cooling? *Geophys. Res. Lett.*, doi: 10.1029/2020GL091235
180. Amaya, D. J., M. A. Alexander, A. Capotondi, C. Deser, K. B. Karnauskas, A. J. Miller and N. J. Mantua, 2021: Are long-term changes in mixed layer depth influencing North Pacific marine heatwaves?. [in “Explaining Extremes of 2019 from a Climate Perspective”]. *Bull. Amer. Meteor. Soc.*, 102 (1), S59–S66, doi: 10.1175/BAMS-D-20-0144.1.
179. Capotondi, A., C. Deser, A. S. Phillips, Y. Okumura and S. M. Larson, 2020: ENSO and Pacific Decadal Variability in the Community Earth System Model Version 2. *J. Adv. Model. Earth Sy.*, **12**, e2019MS002022. doi: 10.1029/2019MS002022.
178. Deser, C., 2020: Certain uncertainty: The role of internal climate variability in projections of regional climate change and risk management. *Earth's Future*, **8**, doi:10.1029/2020EF001854.
177. Fedorov, A., S. Hu, A. Wittenberg, A. Levine and C. Deser, 2020: ENSO low-frequency modulations and mean state interactions. *El Nino Southern Oscillation in a Changing Climate*, M. McPhaden. A. Santoso and W. Cai, Eds., AGU Books, ISBN: 978-1-119-54812-6.
176. Fasullo, J., A. S. Phillips and C. Deser, 2020: Evaluation of Leading Modes of Climate Variability in the CMIP Archives. *J. Climate*, **33**, 5527–5545, doi:10.1175/JCLI-D-19-1024.1.
175. Wills, R. C. J., D. S. Battisti, K. C. Armour, T. Schneider, and C. Deser, 2020: Pattern Recognition Methods to Separate Forced Responses from Internal Variability in Climate Model Ensembles and Observations. *J. Climate*, **33**, 8693–8719, doi: 10.1175/JCLI-D-19-0855.1.

174. Hirasawa, H., Kushner, P. J., Sigmund, M., Fyfe, J., and Deser, C., 2020: Anthropogenic Aerosols Dominate Forced Multidecadal Sahel Precipitation Change through Distinct Atmospheric and Oceanic Drivers. *J. Climate* 33, 23, 10187-10204, doi: 10.1175/JCLI-D-19-0829.1.
173. Chen, R., I. R. Simpson, C. Deser and B. Wang, 2020: Model biases in the simulation of the springtime North Pacific ENSO Teleconnection. *J. Climate*, 33(23), 9985-10002, doi: 10.1175/JCLI-D-19-1004.1.
172. Deser, C., A. S. Phillips, I. R. Simpson, N. Rosenbloom, D. Coleman, F. Lehner, A. Pendergrass, P. DiNezio and S. Stevenson, 2020: Isolating the Evolving Contributions of Anthropogenic Aerosols and Greenhouse Gases: A New CESM1 Large Ensemble Community Resource. *J. Climate*, **33**, 7835-7858, doi:10.1175/JCLI-D-20-0123.1.
171. Wu, X., Y. M. Okumura, C. Deser and P. N. DiNezio, 2020: Two-year Dynamical Predictions of ENSO Event Duration during 1954-2015. *J. Climate*, doi:10.1175/JCLI-D-20-0619.1..
170. Eyring, V., L. Bock, A. Lauer, M. Righi, M. Schlund, B. Andela, E. Arnone, O. Bellprat, B. Brötz, L.-P. Caron, N. Carvalhais, I. Cionni, N. Cortesi, B. Crezee, E. Davin, P. Davini, K. Debeire, L. de Mora, C. Deser, D. Docquier, P. Earnshaw, C. Ehbrecht, B. K. Gier, N. Gonzalez-Reviriego, P. Goodman, S. Hagemann, S. Hardiman, B. Hassler, A. Hunter, C. Kadow, S. Kindermann, S. Koirala, N. V. Koldunov, Q. Lejeune, V. Lembo, T. Lovato, V. Lucarini, F. Massonnet, B. Müller, A. Pandde, N. Pérez-Zanón, A. Phillips, V. Predoi, J. Russell, A. Sellar, F. Serva, T. Stacke, R. Swaminathan, V. Torralba, J. Vegas-Regidor, J. von Hardenberg, K. Weigel, and K. Zimmermann, 2020: ESMValTool v2.0 – Extended set of large-scale diagnostics for quasi-operational and comprehensive evaluation of Earth system models in CMIP. *Geosci. Model Dev. Discuss.*, **13**, 3383–3438, doi:10.5194/gmd-13-3383-2020.
169. Lehner, F., C. Deser, N. Maher, J. Marotzke, E. Fischer, L. Brunner, R. Knutti and E. Hawkins, 2020: Partitioning climate projection uncertainty with multiple Large Ensembles and CMIP5/6. *Earth Sys. Dyn. Discuss., Special Issue on Large Ensembles*, **11**, 491–508, doi: 10.5194/esd-11-491-2020.
168. Deser, C., F. Lehner, K. B. Rodgers, T. Ault, T. L. Delworth, P. N. DiNezio, A. Fiore, C. Frankignoul, J. C. Fyfe, D. E. Horton, J. E. Kay, R. Knutti, N. S. Lovenduski, J. Marotzke, K. A. McKinnon, S. Minobe, J. Randerson, J. A. Screen, I. R. Simpson and M. Ting, 2020: Insights from earth system model initial-condition large ensembles and future prospects. *Nat. Clim. Change*, doi: 10.1038/s41558-020-0731-2.
167. England, M., L. Polvani, L. Sun and C. Deser, 2020: Tropical climate responses to projected Arctic and Antarctic sea ice loss. *Nat. Geosci.*, doi: 10.1038/s41561-020-0546-9.
166. Sherman, P., E. Tziperman, C. Deser and M. McElroy, 2020: Historical and future roles of internal atmospheric variability in modulating summertime Greenland Ice Sheet melt. *Geophys.*

Res. Lett., doi: 10.1029/2019GL086913.

165. Sun, L., C. Deser, R. Tomas and M. Alexander, 2020: Global coupled climate response to polar sea ice loss: Evaluating the effectiveness of different ice-constraining approaches. *Geophys. Res. Lett.*, doi: 10.1029/2019GL085788.

164. Merrifield, A. L., I. R. Simpson, K. A. McKinnon, S. Sippel, S. -P. Xie and C. Deser, 2019: Local and non-local land surface influence in European heatwave initial condition ensembles. *Geophys. Res. Lett.*, 46, 14082-14092, doi: 10.1029/2019GL083945

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62. Hurrell, J. W., and C. Deser, 2009: North Atlantic climate variability: The role of the North Atlantic Oscillation. *J. Mar. Syst.*, 78, No. 1, 28-41, doi: 10.1016/j.jmarsys.2008.11.026.
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54. Deser, C., and H. Teng, 2008: Recent trends in Arctic sea ice and the evolving role of atmospheric circulation forcing, 1979-2007. Arctic Sea Ice Decline: Observations, Projections, Mechanisms, and Implications, *Geophys. Monogr. Ser.*, 180, E. T. DeWeaver, C. M. Bitz, and L. -B. Tremblay, Eds., AGU, 7-26.

53. Ueyama, R., and C. Deser, 2008: A climatology of diurnal and semidiurnal surface wind variations over the Tropical Pacific Ocean based on the Tropical Atmosphere Ocean moored buoy array. *J. Climate*, 21, 593-607, doi: 10.1175/JCLI1666.1.
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48. Cassou, C., C. Deser, and M. A. Alexander, 2007: Investigating the impact of reemerging sea surface temperature anomalies on the winter atmospheric circulation over the North Atlantic. *J. Climate*, 20, 3510-3526.
47. Kwon, Y. -O., and C. Deser, 2007: North Pacific decadal variability in the Community Climate System Model Version 2. *J. Climate*, 20, 2416-2433.
46. Jochum, M., C. Deser, and A. Phillips, 2007: Tropical atmospheric variability forced by oceanic internal variability. *J. Climate*, 20, 765-771.
45. Park, S., M. A. Alexander, and C. Deser, 2006: The impact of cloud radiative feedback, remote ENSO forcing, and entrainment on the persistence of North Pacific sea surface temperature anomalies. *J. Climate*, 19, 6243-6261.
44. Deser, C., and A. S. Phillips, 2006: Simulation of the 1976/1977 climate transition over the North Pacific: Sensitivity to tropical forcing. *J. Climate*, 19, 6170-6180.
43. Deser, C., A. Capotondi, R. Saravanan, and A. S. Phillips, 2006: Tropical Pacific and Atlantic climate variability in CCSM3. *J. Climate*, 19, 2451-2481.
42. D'Arrigo, R., R. Wilson, C. Deser, G. Wiles, E. Cook, R. Villalba, A. Tudhope, J. Cole, and B. Linsley, 2005: Tropical-North Pacific climate linkages over the past four centuries. *J. Climate*, 18, 5253-5265.
41. Park, S., C. Deser, and M. A. Alexander, 2005: Estimation of the surface heat flux response to sea surface temperature anomalies over the global oceans. *J. Climate*, 18, 4582-4599.

40. Capotondi, A., M. A. Alexander, C. Deser, and M. J. McPhaden, 2005: Anatomy and decadal evolution of the Pacific Subtropical-Tropical Cells (STCs). *J. Climate*, 18, 3739-3758.
39. Capotondi, A., M. A. Alexander, C. Deser, and A. J. Miller, 2005: Low-frequency pycnocline variability in the Northeast Pacific. *J. Phys. Oceanogr.*, 35, 1403-1420.
38. Cassou, C., C. Deser, L. Terray, J. W. Hurrell, and M. Drevillon, 2004: Summer sea surface temperature conditions in the North Atlantic and their impact upon the atmospheric circulation in early winter. *J. Climate*, 17, 3349-3363.
37. Deser, C., A. S. Phillips, and J. W. Hurrell, 2004: Pacific interdecadal climate variability: Linkages between the tropics and North Pacific during boreal winter since 1900. *J. Climate*, 17, 3109-3124.
36. Magnusdottir, G., C. Deser, and R. Saravanan, 2004: The effects of North Atlantic SST and sea-ice anomalies on the winter circulation in CCM3, Part I: Main features and storm-track characteristics of the response. *J. Climate*, 17, 857-876.
35. Deser, C., G. Magnusdottir, R. Saravanan, and A. Phillips, 2004: The effects of North Atlantic SST and sea-ice anomalies on the winter circulation in CCM3, Part II: Direct and indirect components of the response. *J. Climate*, 17, 877-889.
34. Cassou, C., L. Terray, J. W. Hurrell, and C. Deser, 2004: North Atlantic winter climate regimes: Spatial asymmetry, stationarity with time, and oceanic forcing. *J. Climate*, 17, 1055-1068.
33. Capotondi, A., M. A. Alexander, and C. Deser, 2003: Why are there Rossby Wave maxima in the Pacific at 10S and 13N? *J. Phys. Oceanogr.*, 33, 1549-1563.
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31. Hu, A., C. Rooth, R. Bleck, and C. Deser, 2002: NAO influence on sea ice extent in the Eurasian coastal region. *Geophys. Res. Lett.*: 29, No. 2053-2056.
30. Timlin, M. S., M. A. Alexander, and C. Deser, 2002: On the reemergence of North Atlantic SST anomalies. *J. Climate*, 15, 2707-2712.
29. Lysne, J., and C. Deser, 2002: Wind-driven thermocline variability in the Pacific: A model/data comparison. *J. Climate*, 15, 829-845.
28. Deser, C., M. Holland, G. Reverdin, and M. S. Timlin, 2002: Decadal variations in Labrador sea ice cover and North Atlantic sea surface temperatures. *J. of Geophys. Res.*, 107, C5, doi:10.1029/2000JC000683.
27. Lietzke, C. E., C. Deser, and T. H. Vonder Haar, 2001: Evolutionary structure of the Eastern Pacific double ITCZ based on satellite moisture profile retrievals. *J. Climate*, 14, 743-751.

26. Joyce, T. M., C. Deser, and M. A. Spall, 2000: The relation between decadal variability of subtropical mode water in the North Atlantic and large-scale patterns of air-sea forcing. *J. Climate*, 13, 2550-2569.
25. Deser, C., 2000: On the teleconnectivity of the "Arctic Oscillation". *Geophys. Res. Lett.*, 27, 779-782.
24. Deser, C., M. A. Alexander, and M. S. Timlin, 2000: Reply to Drs. Latif and Venzke comments on "Evidence for a wind-driven intensification of the Kuroshio Current Extension from the 1970s to the 1980s". *J. Climate*, 13, 1995-1995.
23. Deser, C., M. Alexander, and M. Timlin, 2000: Re-emergence of winter SST anomalies in the North Atlantic. World Ocean Circulation Experiment (WOCE), 2000 U.S. WOCE Report, 12, 32-35.
22. Alexander, M. A., J. D. Scott, and C. Deser, 2000: Processes that influence sea surface temperature and ocean mixed layer depth variability in a coupled model. *J. Geophys. Res.*, 105, C7, 16823-16842.
21. Deser, C., J. E. Walsh, M. S. Timlin, 2000: Arctic sea ice variability in the context of recent atmospheric circulation trends. *J. Climate*, 13, 617-633.
20. Alexander, M. A., C. Deser, M. S. Timlin, 1999: The reemergence of SST anomalies in the North Pacific Ocean. *J. Climate*, 12, 2419-2433.
19. Deser, C., Alexander, M. A., and M. S. Timlin, 1999: Evidence for a wind-driven intensification of the Kuroshio Current Extension from the 1970s to the 1980s. *J. Climate*, 12, 1697-1706.
18. Schneider, N., A. J. Miller, M. A. Alexander, and C. Deser 1999: Subduction of decadal North Pacific temperature anomalies: Observations and dynamics. *J. Phys. Oceanogr.*, 29, 1056-1070.
17. Schneider, N., S. Venzke, A. J. Miller, D. W. Pierce, T. P. Barnett, C. Deser, and M. Latif, 1999: Pacific thermocline bridge revisited. *Geophys. Res. Lett.*, 26, 1329-1332.
16. Dai, A., and C. Deser, 1999: Diurnal and semidiurnal variations in global surface wind and divergence fields. *J. Geophys. Res.*, 104, D24, 31109-31125.
15. Deser, C. and C. Smith, 1998: Diurnal and semidiurnal variations of the surface wind field over the Tropical Pacific Ocean. *J. Climate*, 11, 1730-1748.
14. Deser, C., and M. Timlin, 1998: Atmosphere-ocean interaction on weekly timescales in the North Atlantic and Pacific. *J. Climate*, 10, 393-408.

13. Deser, C., M. A. Alexander, and M. S. Timlin, 1996: Upper-Ocean Thermal Variations in the North Pacific during 1970-1991. *J. Climate*, 9, 1840-1855.
12. Deser, C., and M. L. Blackmon, 1995: Surface climate variations over the North Atlantic Ocean during winter: 1900-89. National Academy of Sciences Symposium on Natural Variability of the Climate System on 10-100 Year Time Scales. National Academy Press.
11. Deser, C. and M. L. Blackmon, 1995: On the relationship between Tropical and North Pacific sea surface temperature variations. *J. Climate*, 8, 1677-1680.
10. Alexander, M. A., C. Deser, 1995: A mechanism for the recurrence of wintertime midlatitude SST anomalies. *J. Phys. Oceanogr.*, 25, 122-137.
9. Deser, C., 1994: Daily surface wind variations over the equatorial Pacific Ocean. *J. Geophys. Res.*, 99, D11, 23071-23078.
8. Deser, C., and M. L. Blackmon, 1993: Surface climate variations over the North Atlantic Ocean during winter: 1900-89. *J. Climate*, 6, 1743-1753.
7. Deser, C., S. Wahl, and J. J. Bates, 1993: The influence of sea surface temperature gradients on stratiform cloudiness along the equatorial front in the Pacific Ocean. *J. Climate*, 6, 1172-1180.
6. Deser, C., 1992: Diagnosis of the surface momentum balance over the tropical Pacific Ocean. *J. Climate*, 6, 64-74.
5. Deser, C., and J. M. Wallace 1990: Large-scale atmospheric circulation features of warm and cold episodes in the Tropical Pacific. *J. Climate*, 3, 1254-1281.
4. Wallace, J. M., T. P. Mitchell, and C. Deser 1989: The influence of sea-surface temperature on surface wind in the Eastern Equatorial Pacific: Seasonal and interannual variability. *J. Climate*, 2, 1492-1499.
3. Richey, J. E., C. Nobre, and C. Deser 1989: Amazon River discharge and climate variability: 1903-1985. *Science*, 246, (Oct. 1989), 101-103.
2. Wright, P. B., J. M. Wallace, T. P. Mitchell, and C. Deser 1988: Correlation structure of the El Niño/Southern Oscillation phenomenon. *J. Climate*, 1, 609-625.
1. Deser, C., and J. M. Wallace 1987: El Niño events and their relationship to the Southern Oscillation: 1925-1986. *J. of Geophys. Res.*, 92, C13, 14189-14196.

Ph.D. Thesis

Deser, C, 1989: Meteorological characteristics of the El Niño/Southern Oscillation phenomenon. Ph.D. Thesis. University of Washington, Seattle, WA, 195 pages.

Non-refereed Publications

Reports

1. Deser, C., R. A. Weller, and M. G. Briscoe, 1983: Long Term Upper Ocean Study (LOTUS) at 34°N, 70°W: Meteorological sensors, data and heat fluxes for May–October 1983 (LOTUS-3 and LOTUS-4). Woods Hole Oceanographic Institution Technical Report. #83–32.
2. N. A. Schneider, S. Venzke, A. J. Miller, D. W. Pierce, T. P. Barnett, C. Deser, and M. Latif, 1998: Decadal coupling of northern mid-latitude and equatorial Pacific ocean via the thermocline. Max-Planck-Institut-fur-Meteorologie Report No. 273, August 1998.
3. Deser, C. and A. S. Phillips, 2017: An overview of decadal-scale sea surface temperature variability in the observational record. Invited contribution to CLIVAR-Exchanges.
4. US CLIVAR Working Group on Large Ensembles (co-led by C. Deser and K. Rodgers), 2020: “A summary of the US CLIVAR Large Ensembles Workshop”, March 2020.
5. Deser, C. and K. Rodgers (guest editors) 2020: New research on climate variability and change using initial-condition Large Ensembles. *US CLIVAR Variations*, 18.2, 1–44.
6. Phillips, A. S., C. Deser, J Fasullo, D. P. Schneider and I. R. Simpson, 2020: Assessing Climate Variability and Change in Model Large Ensembles: A User’s Guide to the “Climate Variability Diagnostics Package for Large Ensembles”, doi:10.5065/h7c7-f961

Conference and Workshop Proceedings

7. Deser, C. and J. M. Wallace, 1988: Relationships among observed sea level pressure, sea surface temperature, and surface wind over the Tropical Pacific during warm and cold years. *Proc. 13th Climate Diagnostics Workshop*, Boston, MA.
8. Deser, C., 1990: Surface energy fluxes over the eastern tropical Pacific Ocean during warm and cold episodes. *Proc. U.S.–Japan Workshop on the El Niño/Southern Oscillation Phenomenon*, Seattle, WA.
9. Deser, C., 1990: Diagnosis of the surface momentum balance over the tropical oceans using COADS. *Proc. 15th Climate Diagnostics Workshop*, Asheville, NC.
10. Deser, C., and M. L. Blackmon, 1991: Analysis of low frequency climate variations over the Atlantic basin using COADS. Preprints from the *71st American Meteorological Society annual meeting*, New Orleans, LA.
11. Deser, C., and M. L. Blackmon, 1991: Decadal climate variations over the North Atlantic. Preprints from *the American Meteorological Society's 5th Conference on Climate Variations*, Denver, CO.
12. Deser, C., J. J. Bates, and S. Wahl, 1992: The influence of sea surface temperature gradients upon stratiform cloudiness in the eastern equatorial Pacific. *Proc. 17th Climate Diagnostics Workshop*, Norman, OK.
13. Deser, C., 1993: Decadal climate cycles over the North Atlantic. *Proc. Atlantic Climate Change Program Principal Investigators Meeting*, Princeton, NJ.
14. Deser, C., 1993: Diurnal cycles of surface winds over the equatorial eastern Pacific from the TOGA-TAO array. *Proc. 18th Climate Diagnostics Workshop*, Boulder, CO.
15. Deser, C., and M. L. Blackmon, 1994: Decadal climate cycles over the North Atlantic. Preprints from *the American Meteorological Society's 6th conference on Climate Variations*, Nashville, TN.
16. Deser, C., 1993: Extratropical Air-Sea Interaction on weekly time scales. *Proc. Atlantic Climate Change Program Principal Investigators Meeting*, Miami, FL.

17. Deser, C., M. Alexander, and M. Timlin, 1995: Upper Ocean thermal variability in the North Pacific. *Proc. from the International Union of Geophysics and Geodesy (IUGG)*, Boulder, CO.
18. Deser, C., and C. Smith, 1995: Diurnal cycles of SST and surface winds over the equatorial Pacific from the TOGA-TAO array. *Proc. 20th Climate Diagnostics Workshop*, Seattle, WA.
19. Deser, C., and M. Timlin, 1995: Extratropical Air-Sea Interaction on weekly time scales. *Proc. 20th Climate Diagnostics Workshop*, Seattle, WA.
20. Deser, C., and M. Timlin, 1996: Decadal variations in sea ice, upper ocean salinity and temperature in the subpolar North Atlantic. *Proc. Atlantic Climate Change Program Principal Investigators Meeting*, Woods Hole, MA.
21. Deser, C., M. Alexander, and M. Timlin, 1996: Upper Ocean thermal variability in the North Pacific. *Proc. from the CLIVAR/U. Maryland Workshop on Decadal Climate Variability*, Columbia MD.
22. Deser, C., 1997: Midlatitude atmosphere-ocean variability: governing mechanisms. Extended abstract for the JISAO-University of Washington Workshop on *The cross-validation of proxy climate data and the instrumental record*. PMEL, Seattle, WA., 1997.
23. Deser, C., M. A. Alexander, and M. S. Timlin, 1997: Evidence for a wind-driven intensification of the Kuroshio Current Extension from the 1970s to the 1980s. Extended abstract for the *Twenty-second Annual Climate Diagnostics and Prediction Workshop*, Lawrence Berkeley National Laboratory, Berkeley, CA., October 1997.
24. Deser, C., M. A. Alexander, and M. S. Timlin, 1998: Evidence for a wind-driven intensification of the Kuroshio Current Extension from the 1970s to the 1980s. Extended abstract for the *"Rossby-100" Symposium*, Stockholm, Sweden. June, 1998.
25. Deser, C., J. E. Walsh, and M. S. Timlin, 1998: Arctic sea ice variability in the context of recent wintertime atmospheric circulation trends. NASA workshop on *Decadal Climate Variability*, Williamsburg, VA, September, 1998.
26. Deser, C., 2003: Pacific interdecadal climate variability: Linkages between the tropics and North Pacific during boreal winter since 1900. Proceedings of the 18th Stanstead Seminar on *Climate Variability and Predictability from Seasons to Decades*, Bishop's University, Lennoxville, Québec, 2003.

Other

27. Deser, C., M. A. Alexander, and M. S. Timlin, 2000: Re-emergence of winter SST anomalies in the North Atlantic. *World Ocean Circulation Experiment (WOCE), 2000 U.S. WOCE Report*, **12**, 32–35.
28. Deser, C., and M. Timlin, 1996: Decadal climate variability in the North Atlantic. *Oceanus* magazine, Woods Hole Oceanographic Institution, Woods Hole, MA. 41 pp.
29. Deser, C., 2000: Observed decadal variability in the North Pacific Ocean. NCAR Advanced Study Program 2000 Summer Colloquium. (www.asp.ucar.edu/colloquium/2000/lecturesTOC.html)
30. Deser, C., J. Hurrell and A. Phillips, 2002: An Informed Guide to Climate Data Sets. www.cgd.ucar.edu/cas/guide/

Community Service

Community Projects

1. The CESM1 Large Ensemble Project
<http://www.cesm.ucar.edu/projects/community-projects/LENS/>
2. The CESM Climate Variability and Change Working Group simulations
http://www.cesm.ucar.edu/working_groups/CVC/
3. The Climate Data Guide (<https://climatedataguide.ucar.edu>)
4. The Climate Variability Diagnostics Package
(<http://www2.cesm.ucar.edu/working-groups/cvcwg/cvdp>)
5. The CESM1 Single Forcing Large Ensemble Project
http://www.cesm.ucar.edu/working_groups/CVC/simulations/cesm1-single_forcing_le.html
6. The CESM2 Large Ensemble Community Project
<http://www.cesm.ucar.edu/projects/community-projects/LENS2/>
7. The US CLIVAR Multi-Model Large Ensemble Archive:
<http://www.cesm.ucar.edu/projects/community-projects/MMLEA/>
8. The WCRP Polar Amplification Model Intercomparison Project.
<https://www.wcrp-climate.org/modelling-wgcm-mip-catalogue/cmip6-endorsed-mips-article/1303-modelling-cmip6-pamip>
9. The Climate Variability Diagnostics Package for Large Ensembles
https://www.cesm.ucar.edu/working_groups/CVC/cvdp-le/
10. The CESM2 Large Ensemble Project
<http://www.cesm.ucar.edu/projects/community-projects/LENS2/>
11. *Sounding Climate*, NCAR Sonification Exhibit of the CESM1 Large Ensemble
<https://listentoclimatechange.com/>

Editorships

1. Associate Editor, *Journal of Climate* (1996–2004)
2. Editor, *Journal of Climate* (2005–2008).
3. Subject Editor, *Bulletin of the American Meteorological Society* (2011-2014)
4. Editor, Proceedings of the 2000 NCAR Advanced Study Program Summer Colloquium “Dynamics of Decadal-to-Centennial Climate Variability”. Available from www.asp.ucar.edu/colloquium/2000/lecturesTOC.html.
5. Deser, C. and K. Rodgers (guest editors) 2020: New research on climate variability and change using initial-condition Large Ensembles. *US CLIVAR Variations*, 18.2, 1–44.

External Committees

1. National Research Council Climate Research Committee (2005-2007).
2. American Meteorological Society Awards Committee (2005-2007).
3. CLIVAR-Pacific Implementation Panel (2003-2005).
4. Selection Committee, NOAA Climate and Global Change Postdoctoral Fellowship Program, 2002-2004 (chair 2004).
5. NSF Review panel for the Lower Atmospheric Research Section of the Division of Atmospheric Sciences (2004).
6. Climate Observing System Council, NOAA/OAR (2000–2001).
7. American Meteorological Society Committee on Climate Variations (1994–2000).
8. Steering Group for the Atlantic Circulation and Climate Experiment of the World Ocean Circulation Experiment/Atlantic Climate Change Program (1995–1996).

9. National Research Council Panel on Climate Variability on Decade-to-Century Time Scales (1995).
10. Contributing author, IPCC 4th Assessment Working Group 1 Report, Chapter 3 (2004).
11. IPRC Scientific Advisory Committee (2007–2011).
12. American Meteorological Society Awards Committee (2006-2008).
13. Member, CLIVAR Working Group on Decadal Prediction (2009-2011).
14. NOAA Climate Prediction Program for the Americas Proposal Review Panel, 2009.
15. NOAA Climate Program Office Decadal Variability Proposal Review Panel, 2010.
16. Contributing author, IPCC 5th Assessment Working Group 1 Report, Chapters 9 and 14 (2013).
17. National Research Council Committee on *Linkages between Arctic Warming and Mid-Latitude Weather Patterns: A Workshop*, Board on Atmospheric Sciences and Climate, National Academy of Sciences (2012).
18. International CLIVAR Scientific Steering Committee (2015-2017).
19. Selection Committee, AGU Fellows (Atmospheric Sciences) (2015-2017).
20. Member, CLIVAR Working Group on Arctic-Midlatitude Weather Linkages (2015-2017)
21. Selection Committee, NOAA Climate and Global Change Postdoctoral Fellowship Program, 2016-2019.
22. Member, Scientific Steering Committee, European Union APPLICATE program (2017-2019).
23. Co-lead, CMIP6 “Polar Amplification Model Intercomparison Project” (2017-2019)
24. Co-lead, CLIVAR Working Group on Large “initial-condition” Ensembles (2018-2020).
25. Member, drafting committee for the AMS Information Statement on Climate Change (2017-2018).
26. External evaluator of candidates for the position of professor in climatology at the Swedish Meteorological and Hydrological Institute (2018).
27. Scientific Advisory Board, Max-Planck Institute of Meteorology, Hamburg, Germany (November 5-12, 2020 virtual).
28. Board of Advisors for the NCAR Climate Data Guide (2020-)
29. Scientific Advisory Board, Max Planck Institute for Meteorology (2020-2025)
30. Invited member of the U.S. President’s Council of Advisors on Science and Technology (PCAST) task team on "Extreme Weather and Financial Risk" (2022).
31. Lead author, USGCRP Climate Science Special Report for the Fourth National Climate Assessment (2021-2022).
32. Member, CLIVAR Research Focus Group on Marine Heat Waves (2023-2025).
33. Member, National Academy of Sciences Arthur L. Day Prize and Lectureship Committee (2022-2025)
34. Author, USGCRP Fifth National Climate Assessment (NCA5) Earth System Processes Chapter (2021-2023).
35. Member, CLIVAR Research Focus Group on Marine Heat Waves (2023-2025).

Internal NCAR Committees and Service

1. Organizer, CGD Seminar Series (September 1998 – May 1999)
2. Organizer, NCAR Advanced Study Program Summer Colloquium (2000)
3. Invited speaker at the Workshop on Earth System Education Partnerships with Research Institutions, NCAR (2001)

4. Invited speaker at the 1st Annual Climate and Global Change Geoscience Education Workshop, NCAR Education and Outreach Program (2002)
5. Member of the NCAR Scientist I Selection Committee (2002, 2014)
6. CGD Retreat Committee (2002)
7. SOARS Protégé Mentor (2003, 2004)
8. Co-chair, CESM Climate Variability Working Group (2003–2020)
9. Co-organizer, Bi-annual CCSM Climate Variability Working Group Meetings (2003-2020)
10. Invited speaker at the UCAR COSMIC Retreat (2004)
11. Reviewer, NCAR Advanced Study Program Postdoctoral Applications (ongoing) CGD selection committee, NCAR Advanced Study Program Postdoctoral Fellows (2008-present)
12. NCAR Appointments Review Group (ongoing; chair 2008-2009)
13. Host, ASP Graduate Student Fellows (ongoing)
14. Co-chair, CESM CVCWG Climate Variability working Group (2003 - 2020)
15. Section Head, Climate Analysis Section, CGD (since April 2011)
16. Co-organizer, CESM CVCWG winter and summer meetings (2003 - 2020)
17. Member, NCAR Strategic Planning Council (2011-2012)
18. Scientific lead of the CESM cross-working group CSL project “The CESM Large Ensemble”
19. Invited panel participant, NCAR Women Senior Scientists, NCAR, Boulder CO January 2013
20. Contributions to the POP report and LAR for NESL (ongoing)
21. Contributions to the CGD Strategic Plan
22. Member, NCAR Appointments Review Group (2011-2014, and 2022-2024)
23. Reviewer, ASP Postdoctoral Applications (ongoing)
24. Member, NCAR Strategic Plan Committee (2013)
25. Reviewer, numerous manuscripts for the *Journal of Climate*, *Climate Dynamics*, *Geophysical Research Letters*, *Nature*, *Nature Climate Change*, *Science*, and the *Proceedings of the National Academy of Sciences*.
26. Reviewer, numerous proposals submitted to NSF and NOAA.
27. Co-developer of the CESM Climate Variability Diagnostics Package (2013-present)
28. Co-developer of the NCAR CGD Climate Data Guide (climatedataguide.ucar.edu) (2013-present)
29. Participated in an NCAR congressional briefing on El Nino, Washington DC (February 2015).
30. UVISIT to University of Arizona (March 2015).
31. Member, NCAR ASP Science Advisor Search Committee
32. CGD Exchange, co-facilitator (2021-2022)
33. ARG member and AIC chair (2022)
34. Lead of the CESM1 Single-Forcing Large Ensemble (2018-2019)
35. Co-lead of the CESM2 Large Ensemble (2020-2021).
36. Member of the CGD Director Search Committee (2023).

Professional Meetings

Organizer or Convener

1. Conference on Climate Variations, 77th AMS Annual Meeting, Long Beach CA, January 1997.

2. Committee member, AGU Chapman Conference on the North Atlantic Oscillation, Ourense, Spain, December 2000.
3. NCAR Advanced Study Program Summer Colloquium on the "Dynamics of Decadal Climate Variability" July 2000, Boulder, CO.
4. Committee member, CLIVAR Workshop on Extratropical SST Anomalies (WETS), June 1999, Boulder CO.
5. CCSM Joint Meeting of the Climate Variability and Paleoclimate Working Groups, January 2004, Boulder CO.
6. Climate Variability Working Group Meeting, CCSM Annual Meeting, July 2004, Santa Fe NM.
7. CLIVAR-Pacific Workshop, Spring 2005.
8. Maurice Blackmon Symposium, NCAR, October 2007.
9. Eugene Rasmussen Symposium, AMS Annual Meeting, January 2007, San Antonio, TX.
10. Co-convener, Special Session "The Influence of Sea Ice Variability on the Atmosphere and Ocean" at the joint meeting of the Canadian Meteorological and Oceanographical Society, the Canadian Geophysical Union and the American Meteorological Society, May 28 - June 1 2007, St. John's, Newfoundland, Canada.
11. Co-convener, Joint Symposium "Interannual and Interdecadal Climate Variability and Predictability" at the Joint Assembly of IAMAS, IAPSO and IACS, July 19-29 2007, Montreal, Canada.
12. Organizing Committee, John Michael Wallace Celebration, 2010.
13. Co-convener, two sessions at the WCRP Open Science Conference, Denver CO October 2011.
14. Co-organizer, CESM CVCWG winter and summer meetings (since July 2003).
15. Co-convener, session on the "The Response of the Tropical Pacific to natural and Anthropogenic Forcing," AGU Annual Meeting, San Francisco, CA, December 2012.
16. Co-convener, "Towards Improved Regional Decadal Climate Prediction", Scripps Institute of Oceanography, La Jolla, CA, February 2014.
17. Co-convener, session on "Large Initial Condition Ensembles for Climate Change Research", AGU Annual Meeting, San Francisco, CA, December 2014.
18. Co-convener, session on "ENSO, Tropical Ocean-Atmosphere Interactions, and Global Climatic Impacts: 20 Years after TOGA", AMS Annual Meeting, Phoenix AZ, January 2015.
19. Co-convener, Aspen Global Change Institute Meeting "Understanding the Causes and Consequences of Polar Amplification", June 2017.
20. Co-convener, US CLIVAR Workshop on Large Ensembles, July 24-26 2019, Boulder CO.
21. Co-convener, Polar Amplification Model Intercomparison Workshop, June 2019, Exeter UK.
22. Co-convener, US CLIVAR webinar series "New research on climate variability and change using initial-condition Large Ensembles", September 8, 2020 (virtual).
23. Co-convener, Polar Amplification Model Intercomparison Workshop, March 29 - April 1 2021, NCAR Boulder CO (virtual).
24. Organizing committee and lecturer, ICTP/CLIVAR Summer School on Marine Heatwaves: Global Phenomena with Regional Impacts, July 24-29, 2023, Trieste, Italy.
25. Co-convener, Forced Component Estimation Intercomparison Project (ForceSMIP) Workshop and Hackathon, August 29-31, Boulder CO and Zurich Switzerland.

Professional Reviews for:

Atmosphere-Ocean, Climate Dynamics, Geophysical Research Letters, International Journal of Climatology, Journal of Climate, Journal of Geophysical Research, Journal of the Japanese Meteorological Society, Journal of Physical Oceanography, Nature, Nature, Nature Climate Change, Science, and the Proceedings of the National Academy of Sciences. Science, Tellus, and for proposals submitted to NSF Atmospheric Sciences, Physical Oceanography, NSF Office of Polar Programs and Large-Scale Climate Dynamics, and NOAA Office of Global Programs.

Educational Activities

a. Graduate Students and Post-doctoral Fellows Advised

1. M.S. and Ph.D thesis committee member for Laura Ciasto, Dept. of Atmospheric Science, Colorado State University (2002–2005).
2. M.S. thesis committee member for Rei Ueyama, Dept. of Atmospheric Science, University of Washington (2006–2008)
3. NCAR SOARS fellow Rei Ueyama (2003, 2005).
4. NCAR ASP postdoctoral fellow Dr. Jian Lu (2007–2008).
5. NCAR ASP postdoctoral fellow Dr. Sungsu Park (2002–2004).
6. Postdoctoral fellow Dr. Young-Oh Kwon (2003–2005).
7. Postdoctoral fellow Dr. Christophe Cassou (2001–2003).
8. Postdoctoral fellow Dr. Masha Tsukernik (2007–2009).
9. NOAA Climate and Global Change Postdoctoral Fellow Dr. JoAnn Lysne (1998–2000).
10. NOAA Climate and Global Change Postdoctoral Fellow Dr. Yuko Okumura (2006–2008).
11. Ph.D. thesis committee member for Christopher Lietzke, Dept. of Atmospheric Science, Colorado State University (1997–1998).
12. Graduate student Vincent Bourdette (2009).
13. Postdoctoral fellow Dr. David Schneider (2009-2011).
14. Postdoctoral fellow Dr. Justin Wettstein (2010-2012).
15. NCAR graduate student fellow Catrin Mills (2011).
16. Graduate student Alex Gonzalez (2011).
17. NCAR ASP postdoctoral fellow Toby Ault (2011-2013).
18. Postdoctoral fellow Lantao Sun (2013-2015).
19. NCAR graduate student fellow Honghai Zhang (2013).
20. PhD. thesis committee member for Honghai Zhang, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami (2012-2015).
21. NCAR ASP postdoctoral fellow Angie Pendergrass (2014-2015).
22. Ph.D. thesis committee member for Jie He, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami (2014-2016).
23. Graduate student Tingting Fan (Chinese Science Foundation Fellowship) (2013-2014).
24. Postdoctoral Fellow Flavio Lehner (Swiss Science Foundation Fellowship) (2014-2016).
25. NCAR ASP postdoctoral fellow Karen McKinnon (2015-2016).
26. Graduate student Kun Wang (Chinese Science Foundation Fellowship) (2015-2016).
27. Graduate student Ruixia Guo (Chinese Science Foundation Fellowship) (2016-2018).
28. Ph.D. thesis committee member for Anna Merrifield, Scripps Institution of Oceanography/ University of California at San Diego (2016-2018).

29. University of Washington Department of Atmospheric Sciences Graduate Students' Distinguished Visiting Lecturer for 2018.
30. MIT Program on Atmospheres, Oceans and Climate (PAOC) Sciences Graduate Students' Distinguished Visiting Lecturer for 2018.
31. Moore Lecture, Department of Environmental Sciences at the University of Virginia for 2018-2019 (postponed to 2020).
32. PhD. thesis committee member for Patricia DeRepentigny, ATOC, University of Colorado, Boulder CO (2018-2020).
33. NCAR ASP postdoctoral fellow Sally (Xiyue) Zhang (2018-2020).
34. Postdoctoral fellow Dr. John P. O'Brien (2020-2022)
35. Visiting postdoctoral fellow Dr. Dillon Amaya (2020-2022)
36. NOAA Climate and Global Change Postdoctoral Fellow Dr. Sebastian Milinski (2021–2022).
37. Visiting graduate student Peter Sherman (Harvard University, summer 2019).
38. Georgia Tech School of Earth and Atmospheric Sciences Graduates in Earth and Atmospheric Sciences Keynote Speaker (2019).
39. Lawrence Berkeley National Laboratory (LBNL) Distinguished Scientist Seminar Series Visitor (2020; virtual visit).
40. NCAR ASP postdoctoral fellow Xian Wu (co-mentor) 2020-2022.
41. NCAR ASP postdoctoral fellow Danielle Touma (co-mentor) 2022-2024.
42. NCAR ASP graduate student fellow Matt Jenkins summer 2022.
43. Ph.D. thesis committee member for Matt Jenkins, SUNY-Albany (2022-2024).
44. Ph.D. thesis committee member for Sean Leister, University of Colorado-Boulder (2023-2026).
45. Ph.D. thesis committee member for Kayla White, University of Texas at Austin (2023-2025).

b. Faculty Appointments

1. Faculty Affiliate, Dept. of Atmospheric Science, Colorado State University (2004-2008; 2020-).
2. Faculty Affiliate, Dept. of Atmospheric Science, University of Washington (2006-2008).
3. Adjunct Faculty, Dept. of Atmospheric Science, Colorado State University (1997-2003).
4. Adjunct Faculty, ATOC, University of Colorado at Boulder (2010-present).

c. Supervisor

1. Ms. Susan Wahl, Research Associate, CIRES, University of Colorado (1991-1992)
2. Mr. Michael Timlin, Research Associate, CIRES, University of Colorado (1993-1999)
3. Mr. Adam Phillips, Associate Scientist IV, NCAR (2000-present)
4. Mr. Bruce Briegleb, Associate Scientist IV, NCAR (2004-2005)
5. Dr. Robert Tomas, Associate Scientist III, NCAR (2005-2016)
6. Dr. David Schneider, Project Scientist II, NCAR (2009-present)
7. Mr. Dennis Shea, Associate Scientist IV, NCAR (2011-2018)
8. Dr. Isla Simpson, Scientist II, NCAR (2016-present)
9. Dr. Flavio Lehner, Project Scientist II, NCAR (2018-present)
10. Dr. John Fasullo, Project Scientist III, NCAR (2019-present)

d. Sabbatical Host

1. Professor Shang-Ping Xie, University of Hawaii (2008)
2. Professor Paul Kushner, University of Toronto (2010-2011)
3. Professor Lorenzo Polvani, Columbia University (2011)
4. Professor Laurent Terray, CERFACS (2014-2015)

e. Scientific Host

1. Professor Lorenzo Polvani (Columbia U.) CGD Affiliate Scientist, annual visits (2012-present)
2. Professor Rong Fu (U. Texas at Austin), NCAR ASP Visiting Fellow, 2012
3. NCAR CGD Madden Visitor Dr. Yuko Okumura (U. Texas at Austin), 2013
4. NCAR CGD Madden Visitor Dr. Pedro DiNezio (U. Texas at Austin), 2014
5. Professor Laurent Terray, (CERFACS, France) CGD Affiliate Scientist, annual visits (2016-present)
6. Dr. Yuko Okumura (U. Texas at Austin), annual visits (2015-present)
7. Dr. Pedro DiNezio (U. Texas at Austin), annual visits (2013-present)
8. Dr. Sarah Larson, (U. Wisconsin), 2017
9. Dr. Sarah Kang, (Taiwan National U.), 2018
10. Dr. Christophe Cassou (CERFACS, France), 2019
11. Dr. Sebastian Sippel (ETH, Switzerland), 2019
12. Dr. Nicola Maher (CU) 2022-2023

Oral Presentations

- U.S. - Japan Bilateral Workshop on the El Nino/Southern Oscillation Phenomenon, Seattle, WA, 1990.
- International TOGA Scientific Conference, Honolulu, HI, 1990.
- National Research Council Workshop on Decade-to-Century Time Scales of Climate Variability, Irvine, CA, 1992.
- Pacific Marine Environmental Laboratory, Seattle, WA, 1993.
- Woods Hole Oceanographic Institution, Woods Hole, MA, 1995.
- CLIVAR/University of Maryland Workshop on Decadal Climate Variability, Columbia, MD, 1996.
- CLIVAR Workshop on Decadal-Centennial Climate Variability, Vancouver, Canada, 1996.
- NCAR, Boulder, CO, 1996, 1997, 2000, 2002.
- Texas A&M University, 1997.
- University of Washington, 1997, 2001, 2003, 2005.
- Colorado State University, 1997, 2001, 2003, 2005.
- NASA Workshop on Decadal Climate Variability, Williamsburg, VA, 1998.
- ACVE Planning Workshop, Dallas TX, 1998.
- NOAA Workshop on *El Nino: Past, Present and Future*, Seabrook Is., NC (2000)
- Climate Diagnostics Center, Boulder, CO, 1999.
- University of Maryland, 1999.
- IUGG, University of Birmingham, U.K., 1999.
- Geophysical Fluid Dynamics Laboratory, Princeton University, 2000.
- University of Colorado, 2000.

- Lecturer, NCAR Advanced Study Program Summer Colloquium “Dynamics of Decadal to Centennial Climate Variability”, 2000.
- AGU Chapman Conference on the North Atlantic Oscillation, 2000.
- NOAA Climate and Global Change Postdoctoral Summer Institute, Steamboat Springs, CO, 2000 and 2004.
- AMS 13th Conference on Atmospheric and Oceanic Fluid Dynamics, Breckenridge, CO 2001.
- AGU Spring Meeting, Washington, DC, 2002.
- Scripps Institution of Oceanography, 2002.
- Lamont-Doherty Earth Observatory, 2002.
- NCAR Annual CCSM Workshop, 2002, 2004.
- University of California at Irvine, 2002.
- Lecturer, Swiss National Center for Competence in Research Summer School on Climate Variability, Predictability, and Risks, Sept. 2002.
- AAAS Symposium on Global Warming, Denver, CO, 2003.
- Lecturer, Stanstead Seminar, Bishops University, Quebec, Canada, June 2003.
- AGU Ocean Sciences, Portland, OR, 2004.
- University of California at Berkeley, 2004.
- COSMIC Retreat, Allenspark, CO, 2004.
- University of Toronto, 2005.
- Invited Lecture “Decadal Climate Variability”, 4th International NCCR Climate Summer School, "From the Holocene to the Anthropocene”, Grindelwald, Switzerland, September 2005.
- NCAR IMAGE Theme-of-the-Year Workshop, May 2006, Boulder, CO.
- NRC Scoping Meeting, June 12 2006, Washington, DC.
- NOAA Climate and Global Change Summer Institute, Steamboat Springs, CO, July 2006.
- CLIVAR Workshop, Honolulu, HI, November 2006.
- AGU Special Session, San Francisco, CA, December 2006.
- Approximately 15 lectures for a 700-level advanced graduate student course “Analysis and Diagnosis of Climate Variability,” Department of Atmospheric Sciences, CSU, Fort Collins, CO, August – December 2006.
- AMS Rasmusson Symposium. San Antonio, TX, January 2007.
- CGD Research Report, NCAR, Boulder, CO, February 2007.
- CCSM Polar Climate Working Group Meeting, NCAR, Boulder, CO, March 2007
- CGD Research Report, NCAR, Boulder, CO, May 2007.
- Panel member and presenter, AMS Editor’s Panel: How to Write Publishable Papers, NCAR, Boulder, CO, May 2007.
- Annual meeting of the Canadian Meteorological and Oceanographic Society, the Canadian Geophysical Union and the American Meteorological Society, St. John's, Newfoundland, Canada, May 2007.
- Climate Variability Working Group Meeting, CCSM Workshop, Breckenridge, CO, June 2007.

- NSF ARCSS Synthesis of the Arctic System Science P.I. Meeting, Alexandria, VA, October 2007.
- California Institute of Technology, Pasadena, CA, October 2007.
- NCAR Symposium in Honor of Dr. Maurice Blackmon, Boulder, CO, October 2007.
- CGD Seminar, NCAR, Boulder, CO, November 2007.
- Bjerknes Lecturer, Bjerknes Centre for Climate Research, Bergen, Norway, June 2008.
- Seminar, Colorado State University, Ft. Collins, CO, October 2008.
- Seminar, GFDL, Princeton, NJ, October 2008.
- AGU Special Session, San Francisco, CA, December 2008.
- Invited seminar, Department of Oceanography and Meteorology, Texas A&M University, College Station, TX, May 2009.
- Invited presentation, IAMAS/IAPSO/IACS 2009 Joint Assembly, Montreal and Québec, Canada, July 2009.
- Invited presentation, NCAR ASP Summer Colloquium “Marine Ecosystems and Climate.” NCAR, Boulder, CO, August 2010.
- Invited seminar, SEAS Colloquium in Climate Science, Columbia University, New York, NY, October 2009.
- Invited talk CLIVAR Workshop “Predicting the Climate of the Coming Decades,” University of Miami, Miami, FL, January 2010.
- Oral presentation, CGD Research Report, NCAR, Boulder, CO, February 2010.
- Invited talk, CCSM Polar Climate Working Group meeting, NCAR, Boulder, CO, February 2010.
- CGD seminar “Uncertainty in future climate projections: Insights from a 40-member coupled model ensemble,” NCAR, Boulder, CO, April 2010.
- Invited seminar, IMAGE Brown Bag Seminar, NCAR, Boulder, CO, April 2010.
- Invited seminar, Goddard Space Flight Center, MD, October 2010.
- Invited seminar, University of Washington, Seattle, WA, June 2011.
- Invited plenary talk, Canadian Meteorological and Oceanographic Society Annual Meeting, Victoria, British Columbia, Canada, June 2011.
- CGD Research Report: “The role of natural variability in future North American Climate,” NCAR, Boulder, CO, May 2012.
- Invited Lecture Series: “Topics in Climate Variability and Change,” Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, June 2012 (four 2.5 hour lectures).
- Invited Seminar: “Uncertainty in climate change projections: The role of natural Variability,” Nanjing University, Nanjing, China, May 2012.
- Invited Seminar “Uncertainty in climate change projections: The role of natural Variability,” Ocean University of China, Qingdao, China, May 2012.
- Invited Lecture: “Climate Variability and Change in CESM.” CESM Tutorial, NCAR, Boulder, CO, July 2012.
- Invited Talk: “Uncertainty in climate change projections over North America: The role of natural variability.” IMAGE/NCAR Theme of the Year Workshop *Uncertainty in Climate Change Research: An Integrated Approach*. NCAR, Boulder, CO, August 2012.

- Invited Talk: “Uncertainty in climate change projections over North America: The role of natural variability.” CIRES 45th Anniversary Celebration, University of Colorado, Boulder, CO, September 2012.
- Invited Colloquium: “Uncertainty in North American Climate Projections over the next 50 years: the role of internal variability.” Department of Atmospheric and Oceanic Sciences, University of Wisconsin, Madison, WI, October 2012.
- Invited Talk, Women in Science and Engineering Leadership Institute, University of Wisconsin, Madison, WI, October 2012.
- Invited Talk: “The Impact of Arctic Sea Ice Loss on Global Climate: Robust Results and Outstanding Issues.” AGU, San Francisco, CA, December 2012.
- Invited Talk: “Accounting for Natural Climate Variability in Future Climate Trends.” AGU, San Francisco, CA, December 2012.
- Seminar “Uncertainty in climate change projections over North America: The role of natural variability,” Climate and Global Dynamics Division, NCAR, Boulder, CO, March 2013.
- Invited Seminar “Uncertainty in climate change projections over North America: The role of natural variability,” Carnegie Institute of Global Ecology, Stanford University, Palo Alto, CA, March 2013.
- Invited Seminar “Uncertainty in climate change projections over North America: The role of natural variability,” Scripps Institution of Oceanography, La Jolla, CA, March 2013.
- Invited Colloquium “Uncertainty in climate change projections over North America: The role of natural variability,” Jackson School of Earth Sciences, University of Texas at Austin, Austin, TX, April 2013.
- Invited Seminar “Projecting climate over North America in the coming decades,” Simons Foundation *Science of Climate* lecture series, New York, NY, May 2013.
- Invited Lecture “Projecting climate over North America in the coming decades,” University of Colorado ATOC graduate seminar course, Boulder, CO, April 2013.
- Invited Lecture “Uncertainty in climate change projections over North America: The role of natural variability”, NCAR ASP Summer Colloquium “Carbon-Climate connections in the Earth System”, Boulder, CO, August 2013.
- Invited Lecture “Modes of Decadal Climate Variability”, 12th International NCCR Climate Summer School, "From Climate Reconstructions to Climate Predictions. Grindelwald, Switzerland, September 2013.
- Invited seminar “Uncertainty in climate change projections over North America: The role of natural variability”, Department of Earth Sciences, University of Southern California, Los Angeles, CA, October 2013.
- Invited lecture “The role of the atmospheric circulation in uncertainty of climate change projections over North America”, Conference on decadal regional climate prediction, Scripps Institution of Oceanography, La Jolla, CA February 2014.
- Invited Speaker, “The role of internal variability in future climate change”, The Latsis Symposium “Atmosphere and Climate Dynamics: From Clouds to Global Circulations”, Zurich, Switzerland, June 2014.

- Invited seminar “Uncertainty in climate change projections over North America: The role of natural variability”, Department of Earth System Science, University of California-Irvine, Irvine, CA, March 2014.
- Invited seminar “Uncertainty in climate change projections over North America: The role of natural variability”, Department of Earth, Atmospheric and Planetary Sciences Distinguished Lecture Series, Massachusetts Institute of Technology, Cambridge, MA, April 2014.
- Invited Lecture “Internal Variability, Climate Models, and Future Climate”, NCAR ASP Colloquium on Uncertainty in Climate Change Research: An Integrated Approach, Boulder, CO, July 2014.
- Invited Lecture “Climate Projections for North America over the next 50 years: Uncertainty due to Internal Variability”, University of Washington Program on Climate Change Summer Institute, Friday Harbor, WA, September 2014.
- Invited Lecture “Uncertainty in climate change projections: the role of internal atmospheric circulation variability”, Department of Meteorology Distinguished Visitor Programme at the University of Reading, Reading UK, October 2014.
- Invited Lecture “Uncertainty in climate change projections: the role of internal atmospheric circulation variability”, Department of Physics, University of Oxford, Oxford UK, October 2014.
- Invited Lecture “Modeling the impact of Arctic sea ice loss on the global atmosphere: current research and outstanding issues”, Forum for Arctic Modeling and Observational Synthesis School, Woods Hole Oceanographic Institution, Woods Hole, MA, October 2014.
- Invited Talk “Global climate response to future Arctic sea ice loss: Role of ocean-atmosphere coupling”, AGU session on Tropical-Polar Linkages, AGU, San Francisco, CA, December 2014.
- Invited Talk “Uncertainty in climate change projections due to internal variability”, AGU session on Climate Change Uncertainty, AGU, San Francisco, CA, December 2014.
- Contributed Talk “Deconstructing the global mean temperature record”, AMS session on the global warming hiatus, AMS, Phoenix, AZ, January 2015.
- Invited seminar “Uncertainty in climate change projections due to internal variability”, Department of Atmospheric Sciences, University of Arizona, Tucson, AZ, March 2015.
- Invited seminar “The role of internal atmospheric circulation variability in past and future climate change”, Department of Earth, Atmospheric and Planetary Sciences, Harvard University, Boston MA, April 2015.
- Invited seminar “The role of internal atmospheric circulation variability in past and future climate change”, GFDL, Princeton, NJ, April 2015.
- Keeling Lecture at the Scripps Institution of Oceanography Birch Aquarium “Natural and human causes of climate change”, La Jolla CA May 2015 (Invited; public evening lecture).
- Invited speaker, Aspen Global Change Institute Workshop on Decadal climate predictions: Improving our understanding of processes and mechanisms to make better predictions. “Deconstructing the global mean temperature record”, Aspen CO June 2015.

- Invited Lecture “Scientific underpinning of the Climate Variability Diagnostics Package”, NCAR ASP Summer Colloquium “Climate, Space Climate, and Couplings Between”, Boulder, CO, August 2015.
- Invited speaker, SPARC Workshop on Stormtracks, “Stormtrack response to projected Arctic sea ice loss: the role of ocean-atmosphere and stratosphere-troposphere coupling”, Grindelwald, Switzerland, September 2015.
- Invited lecture, INSTAAR, “Global climate response to projected Arctic sea ice loss”, University of Colorado, Boulder, CO, September 2015.
- Invited speaker, SPARC Regional Workshop on Chemical and Physical Processes in the Climate System, “Why are climate projections uncertain at regional scales?”, NCAR, Boulder, CO, November 2015.
- Invited speaker, CLIVAR-ICTP International Workshop on Decadal Climate Variability and Predictability: Challenge and Opportunity, “An overview of decadal climate variability in the historical record”, International Centre for Theoretical Physics, Trieste, Italy, November 2015 (talk given remotely).
- Seminar, NCAR Climate and Global Dynamics Division, “Climate response to projected Arctic sea ice loss”, NCAR, Boulder CO, December 2015.
- Invited speaker, National Academy of Sciences Workshop on Antarctic sea ice variability in the southern ocean-climate system, “Modeling approaches to understanding Antarctic sea ice variability and trends”, held at the University of Colorado, Boulder CO, January 2016.
- Invited speaker, Joint session of the CESM Working Group Meeting, “Assessment of variability in CESM1.5”, NCAR, Boulder, CO February 2016.
- Invited speaker, Joint US-Japan Workshop on Climate Change and Variability, “Does ocean- coupling matter for the northern extra-tropical response to projected Arctic sea ice loss?”, Scripps Institution of Oceanography, La Jolla CA, March 2016.
- 2016 Tzvi Gal-Chen Memorial Lecture at the University of Oklahoma, “Climate Projections over North America in the Coming Decades: Uncertainty due to Natural Variability”, Norman OK, April 2016 (Invited).
- 2016 Noble Lecturer at the University of Toronto, “Topics in Climate Variability and Change”. Toronto, Canada, May 2016 (Invited; series of 5 lectures). [Postponed due to health issues.]
- NCAR Climate and Global Dynamics Division Research Report, “The Role of the North Atlantic Oscillation in European Climate Projections”, Boulder CO, January 2017.
- CESM Workshop, “The CESM1 Large Ensemble Project”, Breckenridge, CO June 2016. [CESM Distinguished Achievement Award]
- CESM Tutorial “Interpreting Model Results”, NCAR, Boulder, CO, August 2016.
- CESM Workshop, Climate Variability and Change Working Group, “The relative contributions of tropical Pacific sea surface temperatures and atmospheric internal variability to the recent global warming hiatus”, Boulder, CO June 2017.
- Aspen Global Change Institute Meeting on Understanding the Causes and Consequences of Polar Amplification, “Fast Response of the Tropics to an Abrupt Loss of Arctic Sea Ice via Ocean Dynamics”, Aspen, CO June 2017. [presented remotely]

- Seminar, NCAR Climate and Global Dynamics Division, “How well do we know ENSO's teleconnections and climate impacts over North America, and how do we evaluate models accordingly? NCAR, Boulder CO, April 2018.
- AGU Bjerknes Lecture, “New Perspectives on the Role of Internal Variability in Regional Climate Change and Climate Model Evaluation”, New Orleans, LA, December 2017 [presented remotely]
- AMS Walter Orr Roberts Lecture, “New Perspectives on the Role of Internal Variability in Regional Climate Change and Climate Model Evaluation”, Austin, TX, January 2018 [presented remotely.]
- Invited Colloquium, MIT Program on Atmospheres, Oceans and Climate (postponed since 2016 due to health reasons)
- Invited Colloquium, CalTech Division of Geological and Planetary Sciences (postponed since 2016 due to health reasons)
- Invited Colloquium, Columbia University – Lamont Doherty Earth Observatory (postponed since 2016 due to health reasons)
- Invited Colloquium, University of Washington Department of Atmospheric Sciences Graduate Students' Distinguished Visiting Lecturer, “The Northern Hemisphere extra-tropical atmospheric circulation response to ENSO: How well do we know it and how do we evaluate models accordingly?” Seattle WA (June 2019)
- Invited Public Lecture, University of Washington Department of Atmospheric Sciences Graduate Students' Distinguished Visiting Lecture Series Seattle WA “Making Sense of Climate Projections”, Seattle WA (June 2019)
- Invited Moore Lecture, Department of Environmental Sciences at the University of Virginia “New Perspectives on the Role of Internal Variability in Regional Climate Change and Climate Model Evaluation”, (spring 2019; postponed to 2020).
- Presentation, US CLIVAR Workshop on Large Ensembles “Workshop overview and goals”, Boulder CO July 2019
- Invited Colloquium, MIT Program on Atmospheres, Oceans and Climate “The Northern Hemisphere extra-tropical atmospheric circulation response to ENSO: How well do we know it and how do we evaluate models accordingly?”, Cambridge Ma (September 2019)
- Invited Colloquium, Georgia Tech School of Earth and Atmospheric Sciences Graduates in Earth and Atmospheric Sciences Keynote Speaker “The Northern Hemisphere extra-tropical atmospheric circulation response to ENSO: How well do we know it and how do we evaluate models accordingly?”, Atlanta GA (October 2019).
- Seminar, NCAR Climate and Global Dynamics Division “Isolating the Evolving Contributions of Anthropogenic Aerosols and Greenhouse Gases: A New CESM1 Large Ensemble Community Resource”, Boulder CO (October 2019).
- Invited Colloquium, Dept of Atmospheric Sciences, Colorado State University “Isolating the Evolving Contributions of Anthropogenic Aerosols and Greenhouse Gases: A New CESM1 Large Ensemble Community Resource”, Ft. Collins CO (November 2019).
- Invited oral presentation, AGU Fall Meeting 2019 “Atmospheric circulation response to Arctic sea ice loss: sensitivity to background SSTs”, San Francisco CA (Dec 2019).
- Invited oral presentation, AGU Fall Meeting 2019 “Isolating the Evolving Contributions of Anthropogenic Aerosols and Greenhouse Gases in the CESM1 Large Ensemble”, San Francisco CA (Dec 2019).

- Invited Seminar, “Isolating the Evolving Roles of Anthropogenic Aerosols and Greenhouse Gases in Regional Climate Change”, Department of Geography and the Earth Research Institute, University of California Santa Barbara, Santa Barbara, CA (February 2020).
- CESM Climate Variability and Change Working Group meeting, “Isolating the Evolving Contributions of Anthropogenic Aerosols and Greenhouse Gases: A New CESM1 Large Ensemble Community Resource”, Boulder, CO (March 2020).
- Research report, NCAR Climate and Global Dynamics Division, “Atmospheric circulation response to Arctic sea ice loss: sensitivity to background SSTs”, Boulder CO (April 2020).
- Invited Lecture and Visit, Lawrence Berkeley National Laboratory (LBNL) Distinguished Scientist Seminar Series, “Isolating the Evolving Roles of Anthropogenic Aerosols and Greenhouse Gases in Regional Climate Change”, Berkeley CA (April 2020; virtual).
- Seminar, NCAR Climate and Global Dynamics Division (joint with Dr. Flavio Lehner) “Insights from earth system model initial-condition large ensembles and future prospects”, Boulder CO (April 2020).
- Invited virtual seminar, Single Model Initial-condition Large Ensemble (SMILE) community webinar series, “Isolating the Evolving Contributions of Anthropogenic Aerosols and Greenhouse Gases: A New CESM1 Large Ensemble Community Resource” (June 2020).
- Invited Moore Lecture and all-day visit, Department of Environmental Sciences at the University of Virginia “New Perspectives on the Role of Internal Variability in Regional Climate Change and Climate Model Evaluation”, October 2020 (virtual).
- Invited Colloquium and all-day visit, Lamont-Doherty Earth Observatory, “Isolating the Evolving Roles of Anthropogenic Aerosols and Greenhouse Gases in Patterns of Climate Change”, New York NY (October 2020; virtual).
- Seminar, NCAR Climate and Global Dynamics Division (joint with Adam Phillips) the “The NCAR Climate Variability Diagnostics Package for Large Ensembles”, Boulder CO (November 2020; virtual).
- Invited seminar, Atmospheric Physics Group at Imperial College “Isolating the Evolving Roles of Anthropogenic Aerosols and Greenhouse Gases in Patterns of Climate Change”, London UK (November 2020; virtual).
- Oral presentation, AGU Fall Meeting 2020 “Evaluation of Interannual-to-Decadal Climate Variability in CMIP6 Models Using the New Climate Variability Diagnostics Package for Large Ensembles” (December 2020; virtual).
- Oral presentation American Meteorological Society’s 13th Symposium on Aerosol-Cloud-Climate Interactions, “Understanding the evolving global patterns of climate response to anthropogenic aerosols with single-forcing climate model experiments” (January 2021; virtual).
- Oral presentation American Meteorological Society’s 34th Conference on Climate Variability and Change, “Role of Stratospheric Internal Variability in the Tropospheric Response to Arctic sea ice loss” (January 2021; virtual).

- Invited Lecture, Oxford Climate Research Network at the University of Oxford, “Isolating the Evolving Roles of Anthropogenic Aerosols and Greenhouse Gases in Regional Climate Change”, Oxford UK (February 2021; virtual).
- Invited Colloquium and all-day visit, Department of Atmospheric Sciences, University of Washington, “Isolating the Evolving Roles of Anthropogenic Aerosols and Greenhouse Gases in Patterns of Climate Change” Seattle WA (February 2021; virtual).
- CESM Climate Variability and Change Working Group meeting, “Toward an index of Atlantic multi-decadal variability that is robust to climate change” Boulder, CO (February 2021).
- Invited Joint Colloquium and all-day visit, Department of Atmospheric and Environmental Sciences (DAES) and the Atmospheric Sciences Research Center (ASRC) at SUNY-Albany, “Isolating the Evolving Roles of Anthropogenic Aerosols and Greenhouse Gases in Patterns of Climate Change” Albany NY (March 2021; virtual).
- Invited presentation, "Towards more reliable regional climate change projections", CLIVAR Climate Dynamics Panel virtual workshop, July 2021.
- Invited seminar, Duke University (all day virtual visit) "New Perspectives on the Role of Internal Variability in Regional Climate Change and Climate Model Evaluation" Nov 5, 2021
- Invited Presentation, Trenberth Symposium, AMS Annual Meeting "A brief tour of Kevin Trenberth's prolific contributions to climate analysis" Jan 24, 2022
- Contributed presentation, AMS Annual Meeting "Nonlinear effects of anthropogenic aerosols on clouds and climate in CESM2", Jan 26, 2022
- Invited Keynote Presentation and all-day virtual visit, Berkeley Atmospheric Sciences Symposium "The Influence of Anthropogenic Climate Change on Natural Climate Variability", Feb 3 2022.
- CESM CVCWG presentation "Spurious Pacific connections to Atlantic Multidecadal Variability" Feb. 17 2022
- Invited seminar, Scripps Institution of Oceanography "The Influence of Anthropogenic Climate Change on Natural Climate Variability", March 16 2022.
- Invited seminar, Rice University (all day virtual visit) "Quantifying and Understanding Forced Changes to Unforced Modes of Atmospheric Circulation Variability over the North Pacific in a Coupled Model Large Ensemble" Apr 21, 2022
- CGD Seminar "Quantifying and Understanding Forced Changes to Unforced Modes of Atmospheric Circulation Variability over the North Pacific in a Coupled Model Large Ensemble" May 3, 2022
- Invited presentation to the NOAA Marine Ecosystem Task Force, “Future Changes in Marine Heat Waves: Insights from Coupled Model Large Ensembles” June 10, 2022 (virtual)
- Invited lecture, CESM Annual Tutorial, “Spurious Indo-Pacific connections to internal Atlantic Multidecadal Variability introduced by the global temperature residual method” Aug 9 2022 (virtual)
- Invited presentation, CLIVAR Climate Dynamics Panel Annual Workshop, “Spurious Indo-Pacific connections to internal Atlantic Multidecadal Variability introduced by the global temperature residual method” Aug 9 2022 (virtual)

- Invited Seminar, NASA Global Modeling and Assimilation Office (GMAO) Seminar Series on Earth System Science, "Projected changes in unforced modes of atmospheric circulation variability over the North Pacific in a coupled model Large Ensemble" Nov 1 2022 (virtual)
- Invited Seminar, University of Maryland Earth System Science Interdisciplinary Center (ESSIC) Seminar Series, "Projected changes in unforced modes of atmospheric circulation variability over the North Pacific in a coupled model Large Ensemble" Nov 14 2022 (virtual)
- Presentation, American Meteorological Society Annual Meeting, "Projected changes in unforced modes of atmospheric circulation variability over the North Pacific in a coupled model Large Ensemble" Jan 9 2023.
- Presentation, American Meteorological Society Annual Meeting, "Spurious Indo-Pacific connections to internal Atlantic Multidecadal Variability introduced by the global temperature residual method" Jan 11 2023.
- Invited Presentation, "Evaluating Climate Variability in Models: Challenges and Tools". PAGES Climate Variability Across Scales Workshop "Role of scaling in the future of prediction and emerging themes", Mar 6, 2023 Potsdam, Germany March (virtual).
- Invited seminar, Scripps Institution of Oceanography, "Future Changes in Marine Heat and Cold Waves: Insights from Initial-Condition Model Large Ensembles". Mar 24, 2023.
- Northrup Distinguished Lecturer, Earth and Planetary Sciences Department, University of New Mexico. "A range of outcomes: The combined effects of internal variability and anthropogenic influences on regional climate trends". April 14, 2023, Albuquerque NM.
- Invited presentation, "Southern Ocean SST impacts on the Tropics in CESM1 and CESM2", ECS and Cloud Feedbacks Virtual Symposium, Apr 17, 2023.
- Robert Cess Symposium Distinguished Speaker, School of Marine and Atmospheric Sciences, Stony Brook University "Quantifying and Understanding Forced Changes to Unforced Modes of Atmospheric Circulation Variability over the North Pacific in a Coupled Model Large Ensemble", Apr 26, 2023 (postponed to Fall 2023).