Curriculum Vitae
Marilyn Noreen Raphael

Professor of Geography
University of California, Los Angeles
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EDUCATION

Ph.D., The Ohio State University, 1990. Geography: Climatology

M.A., The Ohio State University, 1986. Geography: Climatology

B.A., Hons., McMaster University, 1984. Geography

PROFESSIONAL POSITIONS

Trustee, Board of University Corporation for Atmospheric Research 2023 -
Past President of the American Association of Geographers 2023 -2024
President of the American Association of Geographers 2022 -2023
Vice President of the American Association of Geographers 2021 -2022
Director, Institute of Environment and Sustainability 2021 – 2024
Interim Director, Institute of Environment and Sustainability 2020 – 2021
Affiliate Scientist, National Center for Atmospheric Research 2019 – present
Chair, UCLA Department of Geography, 2010 – 2013
Full Professor, University of California, Los Angeles, 2006 – present
Affiliate Faculty - Institute of Environment and Sustainability, UCLA
Associate Professor, University of California, Los Angeles, 1998 – 2006
Assistant Professor, University of California, Los Angeles, July 1990 - 1998.

PROFESSIONAL AFFILIATIONS

Association of American Geographers
American Meteorological Society
American Geophysical Union
American Association for the Advancement of Science

RESEARCH INTERESTS

- Climate Change and Variability
- Climate Dynamics
- Southern Hemisphere Climate and Dynamics
- Antarctic Sea ice Variability
- Antarctic Sea ice - Atmosphere Interactions
- The Santa Ana Winds of California

PUBLISHED WORK

Taylor, P., Feldl, N., Boer, G. de, Hanh, L., Nguyen, A., **Raphael, M.**, & Sejas, S. (2025). *Polar Amplification of Climate Change Across Hemispheres and Seasons: A US CLIVAR Workshop Report* (A. Johnson & M. Patterson, Eds.). U.S. CLIVAR Project Office. https://doi.org/10.5065/w89a-4q87 (Original work published 2025)

Raphael, M.N., Maierhofer, T.J., Fogt, R.L. *et al.* A twenty-first century structural change in Antarctica's sea ice system. *Commun Earth Environ* **6**, 131 (2025). https://doi.org/10.1038/s43247-025-02107-5

Raphael, Marilyn N., Maierhofer, Thomas J, Fogt, Ryan L., Hobbs, William R. and Handcock, Mark S. (2025). A Twenty-First Century Structural Change in Antarctica's Sea Ice System: Data and Code Repository. **Zenodo,** version 1.0 https://doi.org/10.1029/2024EA003577.

Maierhofer, T. J., **Raphael, M. N**., Fogt, R. L., & Handcock, M. S. (2024). A Bayesian model for 20th century Antarctic sea ice extent reconstruction. *Earth and Space Science*, 11, e2024EA003577. https://doi.org/10.1029/2024EA003577

Clem, K. R. and **M. N. Raphael**, Eds., 2024: Antarctica and the Southern Ocean [in "State of the Climate in 2023"]. Bull. Amer. Meteor. Soc., 105 (8), S331–S370, https://doi.org/10.1175/BAMS-D-24-0099.1.

Thomas Maierhofer, **Raphael, M.,** & Handcock, M. (2023). 20th Century Antarctic sea ice extent anomaly reconstruction by sector (1.0) [**Data set**]. Zenodo. https://doi.org/10.5281/zenodo.7971734

Clem, K. R. and **M. N. Raphael**, Eds., 2023: Antarctica and the Southern Ocean [in "State of the Climate in 2022"]. Bull. Amer. Meteor. Soc., 104 (9), S322–S365, https://doi.org/10.1175/BAMS-D-23-0077.1.

O'Kane TJ, Scaife AA, Kushnir Y, Brookshaw A, Buontempo C, Carlin D, Connell RK, Doblas-Reyes F, Dunstone N, Förster K, Graça A, Hobday AJ, Kitsios V, van der Laan L, Lockwood J, Merryfield WJ, Paxian A, Payne MR, Reader MC, Saville GR, Smith D, Solaraju-Murali B, Caltabiano N, Carman J, Hawkins E, Keenlyside N, Kumar A, Matei D, Pohlmann H, Power S, **Raphael M**, Sparrow M and Wu B (2023) Recent applications and potential of near-term (interannual to decadal) climate predictions. **Front. Clim.** 5:1121626. doi: 10.3389/fclim.2023.1121626

Clem, K. R. and **M. N. Raphael**, Eds., 2022: Antarctica and the Southern Ocean [in "State of the Climate in 2021"]. Bull. Amer. Meteor. Soc., 103 (8), S307–S340, https://doi.org/10.1175/BAMS-D-22-0078.1.

Lavergne, T., Kern, S., Aaboe, S., Derby, L., Dybkjaer, G., Garric, G., Heil, P., Hendricks, S., Holfort, J., Howell, S., Key, J., Lieser, J. L., Maksym, T., Maslowski, W., Meier, W., Muñoz-Sabater, J., Nicolas, J., Özsoy, B., Rabe, B., Rack, W., **Raphael, M.,** de Rosnay, P., Smolyanitsky, V., Tietsche, S., Ukita, J., Vichi, M., Wagner, P., Willmes, S., and Zhao, X. (2022). A New Structure for the Sea Ice Essential Climate Variables of the Global Climate Observing System.

Bulletin of the American Meteorological Society 103, 6, E1502-E1521, available from: <https://doi.org/10.1175/BAMS-D-21-0227.1

Newman, L., Hancock, M. A., Hofmann, E., Williams, M. J. M., Henley, S. F., et. al., (2022). The Southern Ocean Observing System 2021-2025 Science and Implementation Plan. https://doi.org/10.5281/zenodo.6324359

Raphael, M. N. and Handcock, M.S, A new record sea ice minimum. Comment, *Nature Reviews Earth and Environment,* https://doi.org/10.1038/s43017-022-00281-0

Fogt, R.L., Sleinkofer, A.M., **Raphael, M.N.** and Handcock, M.S. A regime shift in seasonal total Antarctic sea ice extent in the twentieth century. *Nat. Clim. Chang. 12***,** 54–62 (2022). https://doi.org/10.1038/s41558-021-01254-9

Fraser, A. D., Massom, R. A., Handcock, M. S., Reid, P., Ohshima, K. I., **Raphael, M. N.,** Cartwright, J., Klekociuk, A. R., Wang, Z., and Porter-Smith, R.: Eighteen-year record of circum-Antarctic landfast-sea-ice distribution allows detailed baseline characterisation and reveals trends and variability, *The Cryosphere, 15,* 5061–5077, https://doi.org/10.5194/tc-15-5061-2021, 2021.

Xichen Li, Wenju Cai, Gerald Meehl, Dake Chen, Xiaojun Yuan, **Marilyn Raphael**, David Holland, Qinghua Ding, Ryan Fogt, Bradley Markle, Guojian Wang, David Bromwich, John Turner, Shang-Ping Xie, Eric Steig, Sarah Gille, Cunde Xiao, Bingyi WU, Matthew Lazzara, Xianyao Chen, Sharon Stammerjohn, Paul Holland, Marika Holland, Xiao Cheng, Stephen Price, Zhaomin Wang, Cecilia Bitz, Jiuxin Shi, Edwin Gerber, Xi Liang, Hugues Goosse, Changhyun Yoo, Minghu Ding, Lei Geng, Meijiao Xin, Chuanjin Li, Tingfeng Dou, Chengyan Liu, Weijun Sun, Xinyue Wang, and Chentao Song (2021). Tropical teleconnection impacts on Antarctic climate changes. **Nature Reviews Earth & Environment. DOI:** https://doi.org/10.1038/s43017-021-00204-5

Clare Eayrs, Xichen Li, **Marilyn N. Raphael**, and David M. Holland (2021). Recent, rapid Antarctic sea-ice decline points to further change. **Nature-Geoscience. DOI:** 10.1038/s41561-021-00768-3

Morley SA, Abele D, Barnes DKA, Cárdenas CA, Cotté C, Gutt J, Henley SF, Höfer J, Hughes KA, Martin SM, Moffat C, **Raphael MN**, Stammerjohn SE, Suckling CC, Tulloch VJD, Waller CL and Constable AJ (2020) Global Drivers on Southern Ocean Ecosystems: Changing Physical Environments and Anthropogenic Pressures in an Earth System. **Front. Mar. Sci.** 7:547188. **doi:** 10.3389/fmars.2020.547188

Raphael, M. N, Handcock, M. S., Holland, M. M., & Landrum, L. L. (2020). An assessment of the temporal variability in the annual cycle of daily Antarctic sea ice in the NCAR Community Earth System Model, Version 2: A comparison of the historical runs with observations. *Journal of Geophysical Research: Oceans*, 125, e2020JC016459. https://doi.org/10.1029/2020JC016459

Handcock, M. S. and **Raphael, M. N**. (2020): Modeling the annual cycle of daily Antarctic sea ice extent, *The Cryosphere*, https://doi.org/10.5194/tc-2019-203.

Jiping Liu, David Bromwich, Dake Chen, Raul Cordero, Thomas Jung, **Marilyn Raphael**,

John Turner & Qinghua Yang, 2020. Preface to the Special Issue on Antarctic Meteorology and Climate: Past, Present and Future**.** Advances in Atmospheric Sciences, **37**, 421–422.

Raphael, M. N., Hobbs, WH, Marshall, GJ, Stammerjohn, SE. (2020) Recent climate trends. In Past Antarctica: Paleoclimatology and Climate Change. Eds Ruiz-Fernandez and Oliva. ISBN:978-0-12-817925-3. Academic Press- Elsevier.

Lettie A. Roach, Jakob Do□rr, Caroline R. Holmes, Francois Massonnet, Edward W. Blockley, Dirk Notz, Thomas Rackow, **Marilyn N. Raphael,** Siobhan O'Farrell, David A. Bailey, Cecilia M. Bitz (2020) Antarctic Sea Ice Area in CMIP6, *GRL*, 2020, DOI:10.1029/2019GL086729

Mahlon C. Kennicutt, David Bromwich, Daniela Liggett, Birgit Njåstad, Lloyd Peck, Stephen R. Rintoul, Catherine Ritz, Martin J. Siegert, Alan Aitken, Cassandra M. Brooks, John Cassano, Sanjay Chaturvedi, Dake Chen, Klaus Dodds, Nicholas R. Golledge, Céline Le Bohec, Marcelo Leppe, Alison Murray, P. Chandrika Nath, **Marilyn N. Raphael**, Michelle Rogan-Finnemore, Dustin M. Schroeder, Lynne Talley, Tony Travouillon, David G. Vaughan, Lifan Wang, Allan T. Weatherwax, Huigen Yang, Steven L. Chown, Sustained Antarctic Research: A 21st Century Imperative, *One Earth*, Volume 1, Issue 1, 2019, Pages 95-113, ISSN 2590-3322, https://doi.org/10.1016/j.oneear.2019.08.014.

Bracegirdle, T.J.; Colleoni, F.; Abram, N.J.; Bertler, N.A.N.; Dixon, D.A.; England, M.; Favier, V.; Fogwill, C.J.; Fyfe, J.C.; Goodwin, I.; Goosse, H.; Hobbs, W.; Jones, J.M.; Keller, E.D.; Khan, A.L.; Phipps, S.J.; **Raphael, M.N.;** Russell, J.; Sime, L.; Thomas, E.R.; van den Broeke, M.R.; Wainer, I. Back to the Future: Using Long-Term Observational and Paleo-Proxy Reconstructions to Improve Model Projections of Antarctic Climate. *Geosciences* 2019, *9*, 255. https://doi.org/10.3390/geosciences9060255

Yochanan Kushnir, Adam A. Scaife, Raymond Arritt, Gianpaolo Balsamo, George Boer, Francisco Doblas-Reyes, Ed Hawkins, Masahide Kimoto, Rupa Kumar Kolli, Arun Kumar, Daniela Matei, Katja Matthes, Wolfgang A. Müller, Terence O'Kane, Judith Perlwitz, Scott Power, **Marilyn Raphael**, Akihiko Shimpo, Doug Smith, Matthias Tuma & Bo Wu (2019) Towards operational predictions of the near-term climate, *Nature Climate Change*. DOI: 10.1038/s41558-018-0359-7

Marika M. Holland, Laura Landrum, **Marilyn N. Raphael**, Ronald Kwok (2018). The Regional, Seasonal, and Lagged Influence of the Amundsen Sea Low on Antarctic Sea Ice Geophysical Research Letters, https://doi.org/10.1029/2018GL080140

Raphael, M.N., Holland, M.M., Landrum, L., Hobbs, W.H. (2018) Links Between the Amundsen Sea Low and sea ice in the Ross Sea: seasonal and interannual relationships. Clim Dyn (2018). https://doi.org/10.1007/s00382-018-4258-4

Schlosser, E., Haumann, F. A., and **Raphael, M. N**.: Atmospheric influences on the anomalous 2016 Antarctic sea ice decay, The Cryosphere, 12, 1103-1119, https://doi.org/10.5194/tc-12-1103-2018, 2018.

Landrum, L. L., Holland, M. M., **Raphael, M. N.,** and Polvani, L. M. (2017). Stratospheric ozone depletion: An unlikely driver of the regional trends in Antarctic sea ice in austral fall in the late

twentieth century. Geophysical Research Letters, 44, 11,062–11,070. https://doi.org/10.1002/2017GL075618

Holland, M.M., L. Landrum, **Raphael M.N.** and S. Stammerjohn (2017) Springtime Winds Drive Ross Sea Ice Variability and Change in the Following Autumn (*Nature Communications*)

Jones, J. M., Gille, S. T., Goosse, H., Abram, N. J., Canziani, P. O., Charman, D. J., Clem, K. R., Crosta, X., de Lavergne, C.,Eisenman, I., England, M. H., Fogt, R. L., Frankcombe, L. M., Marshall, G. J., Masson- Delmotte, V., Morrison, A. K., Orsi, A. J., **Raphael, M. N.,** Renwick, J. A., Schneider, D. P., Simpkins, G. R., Steig, E. J., Stenni, B., Swingedouw, D., and Vance, T. R.: (2016) Assessing recent trends in high-latitude Southern Hemisphere surface climate, Nature Climate Change, 6, 917–926 doi:10.1038/nclimate310

Raphael, M.N., Marshall, G.J., Turner, J., Fogt, R.L., Schneider, D., Dixon, D.A., Hosking, J.S., Jones, J.M. and Hobbs, W.R. (2016). The Amundsen Sea Low: Variability, Change and Impact on Antarctic Climate. B.A.M.S, 97 (1). pp. 111-121.

Schlosser E., B. Stenni, M. Valt, A. Cagnati, J.G. Powers, K.W. Manning, **M. N. Raphael**, M.G. Duda, 2016: Precipitation and synoptic regime in two extreme years 2009 and 2010 at Dome C, Antarctica – implications for ice core interpretation. Atmospheric Chemistry and Physics 16(8):4757-4770 DOI: 10.5194/acp-16-4757-2016

Stammerjohn, S., T. Maksym, R. Massom, K.E. Lowry, KR. Arrigo, X. Yuan, **M. N. Raphael**, E. Randall-Goodwin, R.M. Sherrell, P. Yager, 2015: Seasonal sea ice changes in the Amundsen Sea, Antarctica, over the period of 1979–2014 DOI: 10.12952/journal.elementa.000055

Hobbs W., N. Bindoff, **M. Raphael** 2015: New Perspectives on Observed and Simulated Antarctic Sea Ice Extent Trends Using Optimal Fingerprinting Techniques, Journal of Climate 28(4):1543-1560 DOI: 10.1175/JCLI-D-14-00367.1

Raphael, M.N. 2015 Antarctic Sea Ice: Variability, Trends, Drivers and 21st Century Projections. In Sea Ice Challenges Workshop Report, Council Of Managers of National Antarctic Programs (COMNAP). ISBN 978-0-473-34368-2

Raphael, M.N. 2015 Essentials of the Earth's Climate System, Arctic, *Antarctic, and Alpine Research*. February 2015, Vol. 47, No. 1, pp.4

Raphael, M.N. and W. Hobbs (2014) The influence of the large-scale atmospheric circulation on Antarctic sea ice during ice advance and retreat seasons, *Geophysical Research Letters,* 41, DOI: 10.1002/2014GL060365

Canziani, P. O., O'Neill, A., Schofield, R., **Raphael, M**., Marshall, G. J., and Redaelli, G. (2014) World climate research programme special workshop on climatic effects of ozone depletion in the Southern Hemisphere, B. Am. Meteorol. Soc., 95, ES101–ES105, doi:10.1175/BAMS-D-13-00143.1, 2014.

Raphael, M.N, W. H. Hobbs and I. Wainer (2010) The effect of Antarctic sea ice on the Southern Hemisphere atmosphere during the southern summer, *Climate Dynamics*, 36, 1403-1417, DOI: 10.1007/s00382-010-0892-1

Hobbs W.H. and **M.N. Raphael** (2010). The Pacific zonal asymmetry and its influence on Southern Hemisphere sea ice variability. *Antarctic Science*, 22, pp 559-571 doi:10.1017/S0954102010000283

Hobbs, W.R. and **M.N. Raphael,** 2009: Characterizing the Zonally Asymmetric Component of the Southern Hemisphere Circulation. *Climate Dynamics*, Doi:10.1007/s00382-009-0663-z.

Raphael M. N., 2007: The influence of atmospheric zonal wave three on Antarctic sea ice variability, *J. Geophys. Res*., 112, D12112, doi:10.1029/2006JD007852.

Taschetto, A. S., I. Wainer and **M.N. Raphael,** 2007: Interannual variability associated with Semi-Annual Oscillation in southern high latitudes. *J. Geophys. Res.*, 112, D02106, doi:10.1029/2006JD007648.

Hobbs W. R., **M. N. Raphael,** 2007: A representative time-series for the Southern Hemisphere zonal wave 1, *Geophys. Res. Lett*., 34, L05702, doi:10.1029/2006GL028740.

Finley, J. and **M. Raphael,** 2007: The Relationship between El Niño and the Duration and Frequency of the Santa Ana Winds of Southern California. *The Professional Geographer*, 59:184-192, doi:10.1111/j.1467-9272.2007.00606.x

Raphael, M.N. and Marika Holland, 2006: Twentieth Century Simulation of the Southern Hemisphere Climate in Coupled Models. Part I: Large Scale Circulation Variability, *Climate Dynamics*, 26:217-228, DOI 10.1007/s00382-005-0082-8

Holland M. and **M.N. Raphael,** 2006: Twentieth Century Simulation of the Southern Hemisphere Climate in Coupled Models. Part II: Sea Ice Conditions and Variability, *Climate Dynamics*, 229-243, DOI 10.1007/s00382-005-0082-8

Raphael, M.N., 2004: A zonal wave 3 index for the Southern Hemisphere. *Geophys. Res. Lett.,* **31**, doi:10.1029j2004GL020365.

Raphael, M. N., 2003: Impact of observed sea-ice concentration on the Southern Hemisphere extratropical atmospheric circulation in summer. *J. Geophys. Res.,* **108**, No. D22, 4687, doi:10.1029/2002JD003308.

Raphael, M.N. 2003: A possible influence of the tropical quasi-biennial oscillation on the variability of the extratropical circulation in the Southern Hemisphere. *J. Geophys. Res.,***108**, No. D22, 4694, doi:10.1029/2003JD003862.

Raphael, M.N. 2003: Recent, Large-Scale Changes in the Extratropical Southern Hemisphere Atmospheric Circulation. *J. Clim.*, **16**, No. 17, pp. 2915-2924.

Raphael, M.N. 2003: The Santa Ana Winds of California. *Earth Interactions*, **7**, 1-13.

Raphael, M.N. 2001: Response of the large-scale, Southern Hemisphere extratropical atmospheric circulation to extremes of Antarctic sea-ice concentration in a general circulation model. *Polar Geography,* **25**, 218-238.

Raphael, M.N. and S. Cherry, 2000: Spatial analysis of the factors contributing to the relationship between the transient, meridional eddy sensible, and latent heat flux at 850 mb. *Geographical Analysis,* **32**, 140 - 153.

Milliff, R.F., T.J. Hoar, H. van Loon and **M.N. Raphael**, 1999: Quasi-stationary wave variability in NSCAT winds. *J. Geophys. Res.,* **104**, 11425 - 11435.

Raphael, M.N. and I.K. Cheung, 1998: North Pacific mid-Latitude cyclone characteristics during selected EI Niño/Southern Oscillation events. *Geophysical Research Letters*, **25**, 527-531.

Raphael, M.N., 1998: Quasi-stationary waves in the Southern Hemisphere: An examination of their simulation by the NCAR Climate System Model, with and without an interactive ocean. *J. Climate,* **11**, 1405-1418.

Raphael, M.N., R.F. Milliff, T.J. Hoar and H. van Loon, 1998: Quasi-stationary wave variabilities at the surface and at 500 hPa from NSCAT, ERS and NCEP. *Proceedings of the NASA Scatterometer Science Symposium*, 124-129.

Raphael, M.N. 1997: The relationship between the transient meridional eddy sensible and latent heat flux. *J. Geophys. Res.,* **102**, 13487 - 13494.

Raphael, M.N. 1997: Quasi-stationary waves in the Southern Hemisphere of a GCM with and without an interactive ocean. *NCAR Technical Note, NCAR/TN-433+proc*, 76-89.

Raphael, M.N. 1997: Model simulation of quasi-stationary waves in the Southern Hemisphere. *Proceedings of the Fifth International Conference on Southern Hemisphere Meteorology and Oceanography,* 204 - 205.

Raphael, M.N. 1996: The changing interannual variability of temperature, moisture and the meridional wind in the 2XC02 climate. *Proceedings of the 26th Climate Diagnostics Workshop*, 118-121.

Raphael, M.N. and G.M. Mills, 1996: The role of extratropical Pacific cyclones in the precipitation climate of California. *Professional Geographer,* **48**, 251-262.

Raphael, M.N., 1995: Statistical analysis of the relationship between the transient eddy, meridional sensible and latent heat fluxes in the Southern Hemisphere. *Proceedings of the 6th International Meetings of Statistical Climatology*, 251-254.

Raphael, M.N., 1995: Modeling the human impact on nature: Systems analysis of environmental problems. *Professional Geographer*, **47**, 229.

Raphael, M.N., 1994: Comparisons between zonal and meridional eddy sensible heat transport in the Northern Hemisphere winter. *Physical Geography,* **14**, 516-528.

Raphael, M.N., J. Feddema, A.J. Orme and A.R. Orme, 1994: The unusual storms of February 1992 in Southern California. *Physical Geography*, **14**, 442-464.

Raphael, M.N. and J.C. Rogers, 1992: The Meridional Flux of Eddy Sensible Heat at 700 mb in Winter. *Physical Geography,* **13**, 1-14.

Rogers, J.C. and **Raphael, M.N**., 1992: Meridional eddy sensible heat fluxes in the extremes of the Pacific/North American teleconnection pattern. *J. Climate*, **5**, 127-139.

Mills, G., **M.N. Raphael**, J. Feddema and M. Savage, 1991: Monitoring for Sustainable Development: A Research Design for a Case Study of Santa Cruz Island. *1991 Proceedings of American Statistical Association.*

BOOK PUBLICATIONS

Antarctica and the Earth System. Edited By Michael Meredith, Jess Melbourne-Thomas, Alberto Naveira Garabato and Marilyn Raphael. Routledge, London, **Publication date April, 2025**, *352pp.*

Juliane L. Fry, Hans-F Graf, Richard Grotjahn, **Marilyn N. Raphael,** Clive Saunders, and Richard Whitaker: The Encyclopedia of Weather and Climate Change, A Complete Visual Guide, University of California Press, Berkeley, Los Angeles, London, 2010, 512 pp. **Winner of Atmospheric Science Librarian International Most Popular Book Award, 2011**

Co-author: Carbon Dioxide Stabilization Report – *National Academy of Science*, 2010

Co-Author: Future Science Opportunities in the Antarctic and Southern Ocean – *National Academy of Science,* 2011.

COMMENTARY:
Silver Linings in a Mesoscale Convective Complex: https://www.aag.org/silver-linings-in-a-mesoscale-convective-complex/

Towards more Just Geographies: https://www.aag.org/toward-more-just-geographies/

Geography and Geographers in a Changing World: https://www.aag.org/geography-and-geographers-in-a-changing-world/

Climate Justice Demands an Integrated Geography: https://www.aag.org/climate-justice-demands-an-integrated-geography/

Finally, a commitment to mitigate climate change and its effects: https://www.aag.org/finally-a-commitment-to-mitigate-climate-change-and-its-effects/

Confronting the Extremes of Climate Change: https://www.aag.org/confronting-the-extremes-of-climate-change/

Reflections on the State of Geography: https://www.aag.org/author/raphaelgeog-ucla-edu/

How Geography Can Make Climate Science More Just:
https://www.esri.com/about/newsroom/arcnews/how-geography-can-make-climate-science-more-just/

MEDIA ACTIVITIES:

Tipping Point Discussion Series of online discussions convened by AIMES, Future Earth, Earth Commission and WCRP aims to advance the knowledge about tipping points, irreversibility, and abrupt changes in the Earth system. (2024): TPDS: Sea Ice (youtube.com

Discussion with California Governor Gavin Newsom (July, 2021):
https://www.gov.ca.gov/2021/07/09/governor-newsom-holds-virtual-discussion-with-leading-climate-scientists-on-states-progress-toward-carbon-neutrality/

Association of Polar Early Career Scientists (APECS) Webinar "Make your voices heard" Ask the Experts. Antarctica Day 2018.

Carbon Brief (Daisy Dunne) Comment on Science article -
https://www.carbonbrief.org/natural-ocean-fluctuations-help-explain-antarctic-sea-ice-changes

2017 **Podcast** – Forecast - climate conversations with Michael White, Nature Science Editor:
https://forecastpod.org/index.php/2017/08/23/antarctic-sea-ice-with-marilyn-raphael/

2016 **PBS Documentary Interview on the Santa Ana Winds** -
https://www.kcet.org/shows/lost-la/episodes/wild-la

TEACHING INTERESTS

Boundary Layer and Synoptic Climatology, Physical Geography, Climate Change, Tropical Climatology, Polar Climatology

GRANTS and AWARDS

2021 – 2024: Understanding Zonal Wave Three and Its Impacts on Southern Hemisphere Climate Extremes – With PI Kyle Clem (VUW) and co-Is Gareth Marshall (BAS), Ryan Fogt (Ohio U), David Schneider (NCAR), Julie Jones (Sheffield), James Renwick VUW), **$300,000**
2020: University of Tasmania Visiting Scholarship- Australian Antarctic Programme, **$8,000**
2019 - 2023: National Aeronautics and Space Administration (NASA) Center for Advanced Measurements in Extreme Environments- *Grant Number: 80NSSC19M0194*. With PIs Hongjie Xi, Stephen Ackley, Kiran Bhaganagar (UTSA), Alberto Mestas-Nunez (UTSA), Christopher Combs (UTSA), John Cassano (CU-Boulder), Tomeka Cross (AU) 2019 **$3,000,000.**
2019 – 2039: Observatory of East Antarctic near-surface atmosphere and cryosphere, Australian Antarctic Science Programme, with PIs Petra Heil (AAD) Ding, Minghu (CAMS), Scott Carpentier (BOM), Jiechen Zhao (NMEFC) **$1,143,498.**
2018 – 2023: Collaborative Research: Understanding Contemporary Variability in Antarctic Sea Ice: Ensemble Reconstruction of Sea Ice Extent and Concentration for the 20th Century,

National Science Foundation, With Dr. Ryan Fogt (Ohio University), Dr. Will Hobbs, (University of Tasmania), Dr Julie Jones (University of Sheffield), Dr. Mark Handcock (UCLA) **NSF $503,000.**
2017: University of Tasmania Visiting Scholarship-_Antarctic Climate and Ecosystems Cooperative Research Center 2017 **$10,000**
2014: University of Tasmania Visiting Scholarship-_Antarctic Climate and Ecosystems Cooperative Research Center 2014 **$10,000**
2013 – 2017: Poles apart: why has Antarctic sea ice increased, and why can't coupled climate models reproduce observations? NERC With PIs Dr. Gareth Marshall (BAS) and Dr. Y. Aksenov (NOC) and Co-Is Dr. P. Holland (BAS), Dr. A. Orr (BAS), Dr. S. Bacon (NOC) and Project Partner Dr. J. Ridley (Met. Office). **$957,225.**
2014 - 2017: Towards an estimate of East Antarctic Sea-Ice Volume and its variability. Australian Antarctic Science Program, **$1,072,622** With PI Dr. Petra Heil, (UTAS) and Co-Is Dr. A. Fraser (UTAS), Dr. G. Hyland (AAD), Dr, J. Lieser (ACECRA) and Dr. R. Massom (AAD).
2014 – 2017 Swings and Roundabouts? What drives opposing trends in sea ice between the Ross and Amundsen Seas? Marsden Fund $**1,000,315** With PI Dr. Jim Renwick (VUW), Dr. S. Dean (NIWA), Dr. A. Kohout (NIWA), Dr. R. Gorman (NIWA), Dr. I. Simmonds (UNIMELB) and Dr. C. Bitz (UW)
2009 – 2012: Track 1: Creating a Diversity Climate Network (D-ClimNet) to enhance the climate sciences pipeline of minority students from high school to graduate levels. Funded by the National Science Foundation. $199,519. With PIs- Dr. L.A. Dupigny-Giroux, (UVM) T. Mote (UGA) and J.M. Shepherd (UGA)**. UCLA Portion $88,000**
2011 - Winner of Atmospheric Science Librarian International Most Popular Book Award, for the book Encyclopedia of Weather and Climate Change. With co-authors Juliane L. Fry, Hans-F Graf, Richard Grotjahn, Clive Saunders, and Richard Whitaker
2009 – UCLA Graduate Student Association Graduate Adviser Award.
2005 - The Marie Tharp Fellowship at The Earth Institute at Columbia University. **$8000.**
2004-2005: SGER: Model Simulation of the Southern Hemisphere Atmospheric Circulation, Antarctic Sea-ice, and their Interaction: An Evaluation. Funded by the National Science Foundation**. $25,000.**
2003-2008: Sensitivity of the South Atlantic Ocean and climate to Antarctic sea-ice concentration. Funded by the National Science Foundation, **$436,709.**

HONORS and RECOGNITION

Member of the American Philosophical Society	2023
Fellow of the American Academy of Arts and Sciences	2021
Named to the Royal Society's Women in Science List of 90 Women	2017
Scientific Committee on Antarctic Research (SCAR) Women in Antarctic Science	2017
Marie Tharpe Fellow	2015

RECENT INVITED PRESENTATIONS

Putting the Recent Antarctic Sea ice Variability into Context Using 20th Century Sea ice Extent Reconstructions. Institute of Marine and Antarctic Science Seminar Series, February 12th 2025.

Is Antarctic Sea ice a Tipping Element? Tipping Point Discussion Series: a series of online discussions convened by AIMES, Future Earth, Earth Commission and WCRP, aims to advance the knowledge about tipping points, irreversibility, and abrupt changes in the Earth system. (2024)

Variability in the Annual Cycle of Daily Antarctic Sea ice Extent Geophysical Fluid Dynamics Laboratory (GFDL) Formal Seminar. Remote, May 23rd, 2024.

Towards a Just Geography: AAG Past President's Address, at Annual Meeting of the American Association of Geographers, Honolulu, Hawaii, April 2024.

Reflections of a career in Geography, Plenary Lecture at the Conference of Irish Geographers, Wexford, Ireland May 2023

Antarctic Sea Ice: Variability, Change, and Linkages with the Atmospheric Circulation, The Miller Lecture at the Department of Geography, Pennsylvania State University, State College, Pennsylvania, April, 2023

Towards a Just Geography: AAG Presidential Plenary, at Annual Meeting of the American Association of Geographers, Denver, Colorado, March, 2023.

Geography and Geographers in a Changing World. Keynote lecture at SEDAAG Annual Meeting, Georgia Tech, November 21, 2022

Geography and Geographers in a Changing World. Keynote lecture at Great Plains/Rocky Mountains Division 2022 Annual Meeting University of Denver, October 14-15, 2022.

Climate Science and Climate Justice. NASA Goddard Applied Sciences Seminar, September 19th, 2022

Antarctic sea ice variability and trends: links with the atmospheric circulation. The Edward J. "Ned" Taaffe Colloquium, Department of Geography, The Ohio State University, April 8th, 2022

Antarctic Sea ice – How important is it? Keynote lecture at the American Pacific Coast Geographers' Annual Conference at San Diego State University October 14th, 2021.

Panelist on AAG: Women in Leadership in Geography", June 3rd, 2021 REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation. California Institute of Technology, May 26th, 2021. REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation Scripps Climate, Atmospheric Science, Physical Oceanography (CASPO) seminar, May 19th, 2021. REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation UCLA Law School March April 12th, REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation Queens University. March 24th, 2021. REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation University of Northern Illinois. 12th February 2021. REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation: Ocean & Climate Physics Seminar, Lamont-Doherty – Columbia. January 29th, 2021 REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation. UCLA Department of Geography Colloquium Seminar Series 16th, November 2020 REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation. USF – CMS Fall Seminar Series November 6th, 2020 REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation. UCSB Climate Seminar Series, October 30th, 2020 REMOTE

Antarctic sea ice variability and trends: links with the atmospheric circulation. Department of Geography, Rutgers University, October 16th, 2020 REMOTE

Modelling the Annual Cycle of Daily Antarctic Sea ice Extent. Presented at the Climate Change Research Centre (CCRC), University of New South Wales (UNSW), Australia, February, 2020.

Panelist on Women in Antarctica Symposium at the Byrd Polar and Climate Research Center, The Ohio State University, October 17-18, 2019

Sea ice variability in the Amundsen-Bellingshausen Seas. Presented at the 1st Workshop of the SOOS Amundsen-Bellingshausen Sea Regional Working Group, Korean Polar Research Institute, Incheon, Korea, May, 2019

Antarctic Sea Ice: Variability, Change, and Linkages with the Atmospheric Circulation. ATOC Distinguished Lecture Series, University of Colorado Boulder, April 17th, 2019

PROFESSIONAL SERVICE

-Past President - American Association of Geographers, 2023- 2024
-President - American Association of Geographers, 2022- 2023
-Vice President-Elect – American Association of Geographers, 2021- 2022
-Guest Editor of Frontiers for Young Minds 2022 - 2024
-Co-Editor of the Bulletin of the American Meteorological Society's State of the Climate for Antarctica and the Southern Ocean Chapter, 2021 - **continuing**
-Guest Editor – of Advances in Atmospheric Sciences (AAS), Special Series "Antarctic Meteorology and Climate: Past, Present and Future" 2018 - 2020

-Chair of Antarctic Sea ice Processes and Climate – Expert Group of the Scientific Committee on Antarctic Research and World Climate Research Programme – Climate and Cryosphere 2011 - **continuing**
-Co-Lead of the World Climate Research Programme's Polar Climate Predictability Initiative 2015- **2024**
-Committee Member of WCRP's Grand Challenge on Near Term Climate Prediction 2016 - 2023
-Member of the Planning committee of the U.S. National Academies of Sciences, Engineering, and Medicine - Polar Research and Ocean Studies Boards – A Workshop on Antarctic sea ice variability and trends, January 11-12 in Boulder, CO. 2015 - 2016
-Member of the Scientific Planning Committee of the IGS, IACS and CliC. Conference: 'The Cryosphere in a Changing Climate, Wellington, NZ. 2016-2017
-Scientific Editor Annals of Glaciology – 2016 - 2017
-Member of the International Association of Cryospheric Sciences – Early Career Scientist Prize Committee – 2015-2016
-Member of the Scientific Organizing Committee planning for the 11th Conference of Southern Hemisphere Meteorology and Oceanography 2015
-Academic Program Review-Geography Department, Hunter College. 2015
-Academic Program Review-Geography Department, Pomona College 2015
-Physical Geography Editorial Board – 2014 - **continuing**
-Member of the AAAS Section Committee on Atmospheric and Hydrology Sciences – representing Geography 2014 - 2018
-AAG Long Range Strategic Planning Committee 2013 - 2016
-AAG Nominating Committee 2015 - 2017
-National Councilor of the Association of American Geographer 2010 - 2013
-Committee Member - National Academy of Science (NRC) – Future Outlook for Antarctic Science 2010-2011
-Committee Member - National Academy of Science (NRC) - CO2 Stabilization committee 2009 – 2010
-Geography and Regional Science Advisory Panel, 2008 - 2010
-Member of American Geophysical Union Meetings Committee, 2006 –2010
-Member of the National Science Foundation Advisory Committee for Government Performance and Results Act, 2005. 2005 – 2006.
-Member of the National Science Foundation Advisory Committee of the Office of Polar Programs, NSF, 2004 - 2008.

Workshop scientific organizer – within the past 8 years
CLIVAR Workshop on Polar Amplification, Boulder Colorado, January 2024.
Antarctic Sea ice Processes and Climate workshop at the IGS Sea Ice Symposium, Bremerhaven, June, 2023.
Antarctic Sea ice Processes and Climate workshop at the Scientific Committee on Antarctic Research's Open Science Conference. *Previously Hobart, Australia, now ONLINE.* July 2020
Antarctic Sea Ice Processes and Climate Meeting at the IGS Climate Symposium on the Cryosphere in a changing climate, Winnipeg, Manitoba, 2019
Great Antarctic Climate Hack http://www.scar.org/antclim21/climatehack, Scripps, San Diego California 2017
Antarctic Sea Ice Processes and Climate Meeting at the IGS Climate Symposium on the Cryosphere in a changing climate, Wellington New Zealand 2017

Antarctic Sea Ice Processes and Climate Workshop, at the Scientific Committee on Antarctic Research Open Science Conference, Kuala Lumpur, Malaysia 2016
Antarctic Sea ice variability in the Southern Ocean-Climate System, National Academy of Science– Boulder, Colorado 2016
Polar Climate Predictability Initiative's Workshop on – Large-scale climate variability in Antarctica and the Southern Ocean over decades to centuries, and links to extra-polar climate. Scripps, San Diego 2015.

Session Convener – within the past 8 years
American Geophysical Union Annual Fall Meeting 2023, 2024 Antarctic Sea Ice and the Southern Ocean: Coupled Processes, Variability, and Change, co-convened with Lettie Roach and Rebecca Beadling
Scientific Committee for Antarctic Research Open Science Conference, 2020– Antarctic sea ice variability and change: physical links with the Southern Ocean.
American Geophysical Union Fall Meeting 2020, 2019, 2018, 2017 Polar Climate: Processes and Predictability, co-convened with Drs. Amy Solomon and Michael Steele.
12th International Conference of Southern Hemisphere Meteorology and Oceanography, Sydney Australia 2018 – Three Sessions

- Antarctic Sea Ice: Variability, Trends, and Drivers
- Challenges and progress in modelling the Antarctic climate system
- Changes in atmospheric circulation and Southern Hemisphere regional climate.

SCAR/IASC Open Science Conference, Davos Switzerland June 2018.

- Understanding sea ice extent and volume and ice shelves from modern and paleo records.one session

Scientific Committee for Antarctic Research Open Science Conference, 2012, 2014, 2016 – Antarctic Sea ice and Ice Shelves Status and Trends

Frequent Reviewer for:

Climatic Change
Journal of Climate
Monthly Weather Review
Geophysical Research Letters
Journal of Climate Research
National Science Foundation
Journal of Geophysical Research
Physical Geography
International Journal of Climatology
The Professional Geographer
Nature
Nature Climate Change
Nature Geoscience
Science
The Cryosphere
Climate Dynamics

UNIVERSITY SERVICE

Chair Faculty Advisory Committee for UCLA's Academic Advancement Program 2024 -
Deans Advisory Council 2022 - continuing
Search Committee – Executive Vice Chancellor/Provost - 2022
Director of the Institute of the Environment and Sustainability 2021- 2024
Interim Director of the Institute of the Environment and Sustainability 2020-2021
Member - Academic Senate Committee on Undergraduate Admissions and Relations with Schools (CUARS) 2020 – **2023**
Member - Operations Board of the UCLA Center for Diversity in Leadership Science 2018 - **continuing**
Search Committee – Dean of Extension Studies 2019
Administrative 5yr Review Committee for the Dean of Humanities – 2017
UCLA Undergraduate Council 2016 – 2019
UCLA Research Innovation Task Force 2016 – 2017
UCLA Center for Knowledge Infrastructures (CKI) - Sloan Foundation Advisory Board 2015 – 2019
Search Committee – Dean of Physical Sciences Division 2015-2016
UCLA's Bouchet Graduate Honor Society Advisory Committee 2015 - **continuing**
Faculty Advisory Committee for Bunche Center for African American Studies 2013- **continuing**
Doctoral Committee Constitution Workgroup – 2014 - 2016
UCLA Environment and Sustainability Task Force 2013-2014
Search Committee – Dean of Extension Studies 2012-2013
Search Committee Member Vice Provost and Dean of Graduate Division 2010 – 2011
Faculty Advisory Committee for Academic Advancement Program (AAP) 2010 – **continuing**
Member of the Information Technology Planning Board, UCLA, 2007 – 2010.

DEPARTMENTAL SERVICE

Geography Development Committee (Member and Chair) – 2024 - present
Chair of Taskforce on the Advancement of Race and Gender Equity, Inclusiveness and Support 2020 - 2021
Ad hoc Search Committee for Departmental FTE – 2019 -2020
Ad hoc Committees for Advancement and Promotion, Dept. of Geography - **annually**
Department of Geography Graduate Affairs Committee 2015 – 2020
Chair, Department of Geography 2010 - 2013
Vice-Chair, Department of Geography, 2009 - 2010
Chair of the Graduate Affairs Committee, Department of Geography, 2006 – 2010
Chair of the Undergraduate Affairs Committee, Department of Geography, 2001- 2005.
Member of the Department of Geography's Honors Committee, 1995-2000
Undergraduate Affairs Committee Member, Department of Geography, 1994-1995
Graduate Committee Member, Department of Geography, 1992-1994
Library Instructional Equipment Committee Member, Department of Geography, 1992-1993.
Computer Committee Member, Department of Geography, 1990-1992

Steering Committee member, Institute of the Environment, 1994 - 1998
Faculty Sponsor for Student Research Program (1992 - 1998)