

Linda O. Mearns

Curriculum Vitae

Spring 2019

Education

- Ph.D. Geography (emphasis climatology), University of California, Los Angeles
- M.A. Geography (emphasis climatology), University of California, Los Angeles
- L.C. Diplôme d'Etudes Françaises 2e degré, from l'Université Paul Valéry, Montpellier, France
- B.A. Philosophy (Honors), University of Wisconsin–Madison

Positions at the National Center for Atmospheric Research

- 10/2009 - present Section Head, Regional Integrated Sciences Collective
- 7/2002 - present Senior Scientist
- 2/2000 - 9/2017 Director, Weather and Climate Impacts Assessment Science Program
- 4/2005 - 4/2008 Director, Institute for the Study of Society and Environment
- 2/2000 - 3/2005 Deputy Director, Institute for the Study of Society and Environment
- 5/1995 - 7/2002 Scientist III
- 7/1992 - 4/1995 Scientist II
- 4/1990 - 6/1992 Scientist I
- 11/1987 - 4/1990 Postdoctoral Fellow, Advanced Study Program
- 10/1982 - 8/1983 Support Scientist

Additional Positions

- 3/2003 - 3/2004 Visiting Scientist, International Center for Theoretical Physics, Trieste, Italy
- 9/1994 - 9/2013 Member of the Graduate Faculty, Department of Agricultural Meteorology, School of Natural Resources, University of Nebraska–Lincoln

Large Interdisciplinary Project Leadership

- **Co-chair**, North American component of the international Coordinated Regional Downscaling Experiment (NA-CORDEX) (2012 - present)
- **Director**, North American Regional Climate Change Assessment Program (NARCCAP) (2005 - present)

Research Areas

Climate scenario formation and quantification of uncertainty, analysis of regional climate projections, application of regional climate modeling, climate downscaling, use of statistics in analysis of climate simulations, crop modeling, effect of climate change on crops, analysis of extreme events, adaptation planning under uncertain future climate.

Professional Awards and Honors

- 2017 American Geophysical Union Stephen Schneider Memorial Lecture
- 2016 Association of American Geographers (AAG) Distinguished Scholarship Award
- 2015 AAG Climate Specialty Group Lifetime Achievement Award
- 2015 NCAR/UCAR Outstanding Scientific and Technical Achievement Award (for NARCCAP science and wide use of resulting data products)
- 2007 Certificate Recognizing Contributions to the Nobel Peace Prize, shared by the IPCC and Albert A. Gore Jr.
- 2006 Fellow, American Meteorological Society
- 1991 Burlington Northern Senior Fellow

Professional and Community Service

United Nations Intergovernmental Panel on Climate Change

In progress - Sixth Assessment Report

Working Group I

- *Contributing Author*, Atlas
- *Member of the Scientific Steering Committee*, Workshop on Regional Climate Projections and their Use in Impacts and Risk Analysis Studies

Working Group II

- *Review Editor*, Chapter on North America
- *Emissary* to Working Group I

2013–2014 - Fifth Assessment Report

Working Group I

- *Review Editor*, Chapter 1, Introduction
- *Co-author*, Expert Meeting Report on Assessing and Combining Multi-Model Climate Projections

Working Group II

- *Lead Author*, Chapter 21, Regional Context
- Technical Summary

2007 - Fourth Assessment Report

Working Group I

- *Lead Author*, Chapter 11, Regional Climate Projections

Working Group II

- *Lead Author*, Chapter 2, New Assessment Methods and the Characterisation of Future Conditions

2001 - Third Assessment Report

Working Group I

- *Coordinating Lead Author*, Chapter 13, Climate Scenario Development;
- *Lead Author*, Chapter 10, Regional Climate Information: Evaluation and Projections
- *Contributing Author*, Chapter 9, Projections of Future Climate Change

Working Group II

- *Lead Author*, Chapter 3, Development and Application of Scenarios in Climate Change Impacts, Adaptation, and Vulnerability Assessment

1995 - Second Assessment Report

Working Group I

- *Contributing Author*, Chapter 6: Climate Models – Projections of Future Climate

1996–2009 - IPCC Task Group on Regional Climate Projections (TGICA)

- *Member of the Task Group*

U.S. National Academy of Sciences

- NAS Decadal Survey: Ecosystems and Resource Management (2016 - present)
- NAS Decadal Survey: Remotely Sensed Information on the Earth System (2015 - 2016)
- A National Strategy for Advancing Climate Modeling (2010 - 2013)
- Adaptation to Climate Change, America's Climate Choices (2008 - 2010)
- Chair, Virtual Cross-Committee Working Group, Human Dimensions of Global Change–Climate Research Committee (2008 – 2010)
- Human Dimensions of Global Change (2005 - 2011)
- Climate Research (2003 - 2009)
- Emerging Microbial Threats to Health in the 21st Century, NAS Institute of Medicine (2001 - 2003)
- Climate, Ecosystems, Infectious Diseases, and Human Health (1999 - 2001)

U.S. National Climate Assessment

Global Change Research Program (USGCRP)

- *Review Editor*, Climate Change chapter, NCA4, Volume II (2018 - in progress)
- *Review Editor*, Climate Science Special Report (CSSR), NCA4, Volume I (2017)
- *Lead Author*, Research Needs for Climate and Global Change Assessments Chapter 29, NCA3 (2014)
- *Group Member*, Climate Scenarios, NCA3 (2010 - 2013)
- *Blue Ribbon Reviewer*, Impacts of Climate Change Report, NCA2, 2009
- *Co-author*, Chapter 3, Causes of observed changes in extremes and projections of future changes, *Weather and Climate Extremes in a Changing Climate*, U.S. Climate Change Science Program Synthesis & Assessment Product 3.3 (2008)
- *Co-author*, Global change scenarios: Their development and use, U.S. Climate Change Science Program Synthesis & Assessment Product 2.1b (2007)

- *Writing Team*, Climate Change Scenarios, NCA1 (1999-2001)
- *Assessment Team*, National Agriculture Sector, NCA1 (1999-2001)
- *Assessment Teams*, Rocky Mountain/Great Basin and Southwest/Colorado River Basin (1999-2001)

Editorial Service

- Editorial Board, *Climatic Change*, 1990 - present
- Subject Editor, *Climatic Change* (2005 - 2014)
- Editorial Board, *Bulletin of the American Meteorological Society* (1999-2005)
- Editorial Board, *Climate Research* (1989-1999)

Selected Additional Service Examples

- Organizer, multiple special sessions of the AGU Annual Meetings, on NARCCAP and other topics such as Climate Model Confirmation and Uncertainty, Regional Modeling, Climate Impacts
- Member, Vulnerability, Impacts, Adaptation, and Climate Services (VIACS) Advisory Board for the Coupled Model Intercomparison Project (CMIP6) (2017 - present)
- Member, Uncertainty Working Group, Agricultural Model Intercomparison and Improvement Project (AgMIP) (2017 - present)
- Member, Infrastructure & Climate Network Senior Advisory Committee for the NSF Science, Engineering and Education for Sustainability (SEES) project on Civil Engineering and Climate Change (2015 - present)
- Chair, Project Advisory Committee, NSF Decision Making Under Uncertainty (DMUU) Collaborative Group, Argonne National Laboratory–University of Chicago (2014 - present)
- Review Editor, U.S. Global Change Research Program (USGCRP) Climate Science Special Report (2017)
- Member, AGU Global Environmental Change Executive Committee and Honors Selection Committee (2016 - 2017)
- Advisor, NASA project on dynamical downscaling using NU-WRF (2014 - 2015)

- Member, Project Advisory Committee, NSF DMUU Decision Center for a Desert City (DCDC), Arizona State University (2011 - present)
- Member, Scientific Council, Ouranos, Montréal, Canada (2011 - present)
- Member, Executive Board, National Climate Predictions and Projections Platform (NCPP) (2012 - 2013)
- Member, US Department of Energy Climate Change Science Program Product Advisory Committee/Coastal Protection and Development Advisory Committee, 2005-2008.
- Member, Advisory Board, Global Environmental Change and Food Systems (GECAFS), 2000-2005.
- Member, Advisory Board, Ouranos, Quebec, Canada, 2003-present.

Representative Peer-Reviewed Publications

(out of ~100)

Prein, A.F., Bukovsky, M.S., **Mearns, L.O.**, Bruyère, C., and Done, J.M., 2019. Simulating North American Weather Types with Regional Climate Models. *Frontiers in Environmental Science*, 7, 36.

Bukovsky, M.S., Thompson, J.A., and **Mearns, L.O.**, 2019. Weighting a regional climate model ensemble: Does it make a difference? Can it make a difference?. *Climate Research*, 77(1), 23-43.

Carrillo, C.M., Castro, C.L., Garfin, G., Chang, H.I., Bukovsky, M.S., and **Mearns, L.O.**, 2018. Pacific sea surface temperature related influences on North American monsoon precipitation within North American Regional Climate Change Assessment Program models. *Int. J. Climatology*, 38, 4189-4210.

Tingstad, A.H., Lempert, R.J., Moskwik, M., Warren, D.L., Parmesan, C., **Mearns, L.O.**, McGinnis, S. and Ryu, Y., 2017. Demonstrating the Applicability of a Robust Decision Making (RDM) to Conservation Decision-Making Under Uncertain Future Climate: Pilot Study Using the Northern Pygmy Salamander (*Desmognathus organi*). *J. Conservation Planning*, 13, 11–24.

McCrary, R.R., S. McGinnis, and **L.O. Mearns**, 2017. Evaluation of Snow Water Equivalent in NARCCAP Simulations, Including Measures of Observational Uncertainty. *J. Hydrometeorology*, 18, 2425-2452.

Maraun, D., Shepherd, T.G., Widmann, M., Zappa, G., Walton, D., Gutierrez, J.M., Hagemann, S., Richter, I., Soares, P.M., Hall, A. and **Mearns, L.O.**, 2017: Towards process-informed bias correction of climate change simulations. *Nature Climate Change*, 7, 664-773, doi:10.1038/nclimate3418.

Bukovsky, M. S., R. R. McCrary, A. Seth, and **L. O. Mearns**, 2017: A mechanistically credible, poleward shift in warm-season precipitation projected for the U.S. Southern Great Plains? *J. Climate*, 30, 8275-8298, doi:10.1175/JCLI-D-16-0316.1.

McDermid, S. S., **L. O. Mearns**, and A. C. Ruane, 2017: Representing agriculture in Earth System Models: Approaches and priorities for development. *J. Advances in Modeling Earth Systems*, 9, 2230-2265, doi:10.1002/2016MS000749.

Mearns, L. O., M. S. Bukovsky, and V. J. Schweizer, 2017: Potential value of expert elicitation for determining differential credibility of regional climate change simulations: An exercise with the NARCCAP co-PIs for the southwest monsoon region of North America. *Bulletin of the American Meteorological Society*, 98, 29-35, doi:10.1175/BAMS-D-15-00019.1.

Wallach, D., **L. O. Mearns**, A. C. Ruane, R. P. Rötter, and S. Asseng, 2016: Lessons from climate modeling on the design and use of ensembles for crop modeling. *Climatic Change*, 139, 551-564, doi:10.1007/s10584-016-1803-1.

Johnson, T., Butcher, J., Deb, D., Faizullabhoj, M., Hummel, P., Kittle, J., McGinnis, S., **Mearns, L.O.**, Nover, D., Parker, A. and Sarkar, S., 2015: Modeling streamflow and water quality sensitivity to climate change and urban development in 20 U.S. watersheds. *Journal of the American Water Resources Association*, 51, 1321-1341, doi:10.1111/1752-1688.12308.

Bukovsky, M., C. M. Carrillo, D. J. Gochis, D. Hammerling, R. McCrary, and **L. O. Mearns**, 2015: Toward assessing NARCCAP regional climate model credibility for the North American Monsoon: Future climate simulations. *J. Climate*, 28, 6707-6728, doi:10.1175/JCLI-D-14-00695.1

Steinschneider, S., R. McCrary, **L. O. Mearns**, and C. Brown, 2015: The effects of climate model similarity on probabilistic climate projections and the implications for local, risk-based adaptation planning. *Geophysical Research Letters*, 42, 5014-5044, doi:10.1002/2015GL064529.

Jones, B., B. C. O'Neill, L. McDaniel, S. A. McGinnis, **L. O. Mearns**, and C. Tebaldi, 2015: Future population exposure to US heat extremes. *Nature Climate Change*, 5, 652-655, doi:10.1038/nclimate2631.

Mearns, L. O., D. P. Lettenmaier, and S. A. McGinnis, 2015: Uses of results of regional climate model experiments for impacts and adaptation studies: The example of NARCCAP. *Current Climate Change Reports*, 1, 1-9, doi:10.1007/s40641-015-0004-8.

Loikith, P.C., Waliser, D.E., Lee, H., Kim, J., Neelin, J.D., Lintner, B.R., McGinnis, S., Mattmann, C.A. and **Mearns, L.O.**, 2015: Surface temperature probability distributions in the NARCCAP hindcast experiment: Evaluation methodology, metrics, and results. *J. Climate*, 28, 978-997, doi:10.1175/JCLI-D-13-00457.1.

McGinnis, S. A., D. Nychka, and **L. O. Mearns**, 2015: A new distribution mapping technique for climate model bias correction. *Machine Learning and Data Mining Approaches to Climate Science*, Springer, 91-99 doi:10.1007/978-3-319-17220-0.

Malanson, G. P., L. Scuderi, K. A. Moser, C. J. Willmott, L. M. Resler, T. A. Warner, and **L. O. Mearns**, 2014: The composite nature of physical geography: Moving from linkages to integration. *Progress in Physical Geography*, 38, 3-18, doi:10.1177/0309133313516481.

Bukovsky, M., D. J. Gochis, and **L. O. Mearns**, 2013: Towards assessing NARCCAP regional climate model credibility for the North American monsoon: Current climate simulations. *J. Climate*, 26, 8802-8826, doi:10.1175/JCLI-D-12-00538.1.

Barsugli, J.J., Guentchev, G., Horton, R.M., Wood, A., **Mearns, L.O.**, Liang, X.Z., Winkler, J.A., Dixon, K., Hayhoe, K., Rood, R.B. and Goddard, L., 2013: The practitioner's dilemma: How to assess the credibility of downscaled climate projections. *Eos*, 94, 424-425, doi:10.1002/2013EO460005.

Mearns, L. O., and Coauthors, 2013: Climate change projections of the North American Regional Climate Change Assessment Program (NARCCAP). *Climatic Change*, 120, 965-975, doi:10.1007/s10584-013-0831-3.

Kim, J., Waliser, D.E., Mattmann, C.A., **Mearns, L.O.**, Goodale, C.E., Hart, A.F., Crichton, D.J., McGinnis, S., Lee, H., Loikith, P.C. and Boustani, M., 2013: Evaluation of the surface climatology over the conterminous United States in the North American Regional Climate Change Assessment Program Hindcast Experiment using a regional

climate model evaluation system. *J. Climate*, 26, 5698-5715, doi:10.1175/JCLI-D-12-00452.1.

Mearns, L. O., and Coauthors, 2012: The North American regional climate change assessment program: Overview of phase I results. *Bulletin of the American Meteorological Society*, 93, 1337-1362, doi:10.1175/BAMS-D-11-00223.1.

Salzmann, N., and **L. O. Mearns**, 2012: Assessing the performance of multiple regional climate model simulations for seasonal mountain snow in the Upper Colorado River Basin. *J. Hydrometeorology*, 13, 539-556, doi:10.1175/2011JHM1371.1.

Li, B., Sain, S., **Mearns, L.O.**, Anderson, H.A., Kovats, S., Ebi, K.L., Bekkedal, M.Y., Kanarek, M.S. and Patz, J.A., 2012: The impact of extreme heat on morbidity in Milwaukee, Wisconsin. *Climatic Change*, 110, 959-976, doi:10.1007/s10584-011-0120-y.

Mearns, L. O., 2012: Response to "Uncertainty as a science policy problem". *Climatic Change*, 110, 3-4, doi:10.1007/s10584-011-0051-7.

Benestad, R. E., D. Nychka, and **L. O. Mearns**, 2012: Specification of wet-day daily rainfall quantiles from the mean value. *Tellus Series A: Dynamic Meteorology and Oceanography*, 64.

Gutowski, W. J. and 17 Coauthors including **L. O. Mearns**, 2010: Regional, extreme monthly precipitation simulated by NARCCAP RCMs. *J. Hydrometeorology* 11:1373-1379.

Mearns, L. O., 2010: Quantification of uncertainties of future climate change: Challenges and applications. *Philosophy of Science* 77:998-1127.

Chetri, N. B., W. E. Easterling, A. Terando, and **L. Mearns**, 2010: Modeling path dependence in agricultural adaptation to climate variability and change. *Annals of the Assoc. Amer. Geog.* 100:894-907.

Sain, S.R., D. Nychka, and **L. Mearns**, 2010: Functional ANOVA and regional climate Experiments: A statistical analysis of dynamic downscaling, *Environmetrics*, doi: 10.1002/env.1068.

Mearns, L. O., 2010: The drama of uncertainty. Editorial. *Climatic Change* 100:77-85.

Shamseldin, E. C., R. L. Smith, S. R. Sain, **L. O. Mearns**, and D. Cooley, 2010: Downscaling extremes: A comparison of extreme value distributions in point-source and gridded precipitation data. *Annals of Applied Statistics* 4:484-502.

Mearns, L. O., W. J. Gutowski, R. Jones, L.-Y. Leung, S. McGinnis, A. M. B. Nunes, Y. Qian, 2009: A regional climate change assessment program for North America. *Eos* 90: 311-312.

Smith, R. L., C. Tebaldi, D. Nychka, and **L. O. Mearns**, 2009: Bayesian modeling of uncertainty in ensembles of climate models. *Journal of the American Statistical Association* 104(485):97-116.

Feddema, J., K. Oleson, G. Bonan, **L. Mearns**, L. Buja, G. Meehl, and W. Washington, 2005: How important is land cover change for simulating future climates? *Science* 310:1674-1678.

Tebaldi, C., **L. O. Mearns**, R. Smith, D. Nychka, 2004: Regional probabilities of precipitation change: A Bayesian approach. *Geophys. Res. Lett.* 31: L24213
doi:10.1029/2004GL021276

Giorgi, F., and **L. O. Mearns**, 2003: Probability of regional climate change calculated using the Reliability Ensemble Averaging (REA) Method. *Geophys. Res. Lett.*, 30, 1629,
doi:10.1029/2003GL017130.

Leung, L.R., **L.O. Mearns**, F. Giorgi, and R.L. Wilby, 2003: Regional climate research. *Bulletin of the American Meteorological Society*, 84(1): 89-95.

Mearns, L. O., G. Carbone, E. Tsvetsinskaya, R. Adams, B. McCarl, R. Doherty, 2003: The uncertainty of spatial scale of climate scenarios in integrated assessments: an example from agriculture. *Integrated Assessment* 4(4):225-235.

Mearns, L. O., 2003: Issues in the impacts of climate variability and change on agriculture: applications to the southeastern United States. *Climatic Change* 60:1-7.

Mearns, L. O., Giorgi, F., Shields, C., L. McDaniel, 2003: Climate scenarios for the Southeast US based on GCM and regional modeling simulations. Special issue of *Climatic Change* 60:7-36.

Stone, M. C., R. H. Hotchkiss, and **L. O. Mearns**, 2003: Water yield responses to high and low spatial resolution climate change scenarios in the Missouri River Basin. *Geophys. Res. Lett.* 30(4):1186, doi:10.1029/2002GL016122.

Reddy, K. R., P. R. Doma, **L. O. Mearns**, M. Boone, H. F. Hodges, A. Richardson, and V. G. Kakani, 2002: Simulating the impacts of climate change on cotton production in the Mississippi Delta. *Climate Research* 22:271-281.

Wettstein, J. J. and **L. O. Mearns**, 2002: Simulating the influence of the North Atlantic-Arctic Oscillation on mean, variance, and extremes of temperature in the Northeastern U.S. and Canada. *J. Climate* 15:3586--3600.

Giorgi, F. and **L. O. Mearns**, 2002: Calculation of best estimate, confidence, and uncertainty in regional climate changes from AOGCM simulations via the reliability ensemble averaging (REA) method. *J. of Climate* 15:1141-1158.

Mearns, L. O., W. Easterling, C. Hays, and D. Marx, 2001: Comparison of Agricultural Impacts of Climate Change Calculated from High and Low Resolution Climate Model Scenarios: Part I. The Uncertainty due to Spatial Scale. *Climatic Change* 51:131-172.

Tsvetsinskaya, E. **L. O. Mearns**, and W. Easterling, 2001: Investigating the Effect of Seasonal Plant Growth and Development in 3-Dimensional Atmospheric Simulations. Part I: Simulation of Surface Fluxes Over the Growing Season. *J. Climate* 14:692--709.

Mearns, L. O., T. Mavromatis, E. Tsvetsinskaya, C. Hays, and W. Easterling, 1999: Comparative Responses of EPIC and CERES Crop Models to High and Low Resolution Climate Change Scenarios. *J. Geophys. Res.* 104(D6):6623--6646.

Giorgi, F., and **L. O. Mearns**, 1999: Regional climate modeling revisited: An introduction to the special issue. *J. Geophys. Res.* 104(D6):6335--6352.

Mearns, L. O., I. Bogardi, F. Giorgi, I. Matyasovszky, and M. Palecki, 1999: Comparison of climate change scenarios generated from regional climate model experiments and statistical downscaling. *J. Geophys. Res. Atmos.*, 104, 6603-6621, doi:10.1029/1998JD200042.

Giorgi, F., **L. O. Mearns**, C. A. Shields, and L. R. McDaniel, 1998: Regional nested model simulations of present day and 2 x CO₂ climate over the Central Plains of the US. *Climatic Change*, 40, 457-493, doi:10.1023/A:1005384803949.

Mearns, L. O., 1997: On the statistical evaluation of climate model experiments; An editorial comment. *Climatic Change*, 37, 443-448, doi:10.1023/A:1017194527851.

Mearns, L. O., C. Rosenzweig, and R. Goldberg, 1997: Mean and variance change in climate scenarios: Methods, agricultural applications, and measures of uncertainty. *Climatic Change*, 35, 367-396, doi:10.1023/A:1005358130291.

Mearns, L. O., C. Rosenzweig, and R. Goldberg, 1996: The effect of changes in daily and interannual climatic variability on CERES-wheat: A sensitivity study. *Climatic Change*, 32, 257-292, doi:10.1007/BF00142465.

Giorgi, F., **L. O. Mearns**, C. A. Shields, and L. R. Mayer, 1996: A regional model study of the importance of local versus remote controls of the 1988 drought and the 1993 flood over the central United States. *J. Climate*, 9, 1150-1162, doi:10.1175/1520-0442(1996)009<1150:ARMSOT>2.0.CO;2.

Mearns, L. O., F. Giorgi, L. R. McDaniel, and C. A. Shields, 1995: Analysis of variability and diurnal range of daily temperature in a nested regional climate model: Comparison with observations and doubled CO₂ results. *Climate Dynamics*, 11, 193-209, doi:10.1007/BF00215007.

Giorgi, F., and **L. O. Mearns**, 1991: Approaches to the simulation of regional climate change: A review. *Reviews of Geophysics*, 29, 191-216, doi:10.1029/90RG02636.

Mearns, L. O., R. W. Katz, and S. H. Schneider, 1984: Extreme high-temperature events: Changes in their probabilities with changes in mean temperature. *J. Climate and Applied Meteorology*, 23, 1601-1613, doi:10.1175/1520-0450(1984)023<1601:EHTECI>2.0.CO;2.

Book Chapters, Edited Volumes, and Reports

Mearns, L. O., M. Bukovsky, S. C. Pryor, and V. Magaña, 2018: Chapter 8: Downscaling of climate information. Updated for: *Climate Modeling: Philosophical and Conceptual Issues*. E. Lloyd and E. Winsberg, Eds., Springer, Switzerland, 199-269.

Kotamarthi, R., **L.O. Mearns**, K. Hayhoe, C.L. Castro, and D. Wuebble, 2016. Use of Climate Information for Decision-Making and Impacts Research: State of Our Understanding. Prepared for the Department of Defense, Strategic Environmental Research and Development Program. 55pp.

Wallach, D., **L. O. Mearns**, M. Rivington, J. M. Antle, and A. C. Ruane, 2015: Chapter 9: Uncertainty in agricultural impact assessment. *Handbook of climate change and agroecosystems: Impacts, Adaptation, and Mitigation*. World Scientific, Hackensack, 223-259.

Mearns, L. O., M. Bukovsky, S. C. Pryor, and V. Magaña, 2014: Chapter 5: Downscaling of climate information. *Climate Change in North America*. G. Ohring, Ed., Regional Climate Studies, Springer, Berlin, 201-250.

Mearns, L. O., 2011: Climate Models for Agricultural Impacts: Scales and Scenarios. Chapter 8 in: C. Rosenzweig and D. Hillel (eds.) *Climate Change and Agroecosystems: Impacts, Adaptation, and Mitigation*. Imperial College Press: London, 161-178.

Jones, R. and **L. O. Mearns**, 2005: Assessing future climate risks. Chapter 5 in Lim, B., and E. Spanger-Siegreid (eds.), *UNDP Adaptation Policy Frameworks for Climate Change*. Cambridge: Cambridge University Press, 119-145.

Mearns, L.O., ed., 2003. *Issues in the Impacts of Climate Variability and Change on Agriculture: Applications to the Southeastern United States*. Springer, Dordrecht, 216pp.

Selected Education Examples

Organizer and Keynote Speaker: NCAR Advanced Study Program Summer Colloquium on Climate and Health, a two-week interdisciplinary program for graduate students and postdocs (2012 and 2014)

Ph.D. Committee of Jane Southworth, Indiana University, Bloomington, IN, May 1999-- May 2000.

Ph.D. Committee (co-advisor) of E. Tsvetsinskaya, Dept. of Agricultural Meteorology, U. of Nebraska, Lincoln, January 1994 -- May 1999.

Ph.D. Committee (as international member) of Z. Kothalava, School of Earth Sciences, Macquarie University, Sydney, Australia, 1997.

Ph.D. Committee (as international member) of W. C. Skelly, School of Earth Sciences, Macquarie University, Sydney, Australia, 1993.

Ph.D. Committee (as international member) of G. Kenny, University of Canterbury, New Zealand, 1990.

External Reviewer of Tenure Application, U. Michigan, October 2011.

External Reviewer of Tenure Application, U. Arizona, September 2011.

External Reviewer of Full Professor Application, Dept. of Geography, Michigan State University, September 2000.

External Reviewer of Full Professor Application, Dept. of Geography, University of Delaware, September 2000.

External Reviewer of Tenure Application, Dept. of Geography, University of North Carolina at Charlotte, September, 1998.

External Reviewer of Tenure Application, Dept. of Geography, U. of S. Carolina, Fall 1995.

External Reviewer of Tenure Application, Dept. of Geography, University of Hawaii, Fall 1994.

Science mentor for the NCAR/UCAR Significant Opportunities in Atmospheric Research & Science (SOARS) internship and mentoring program:

- Christopher Castro, undergraduate, Pennsylvania State University, 1997
- Nicole Ngo, undergraduate, University of California, Irvine, 2005
- Julie Wang, undergraduate, Johns Hopkins University, 2005
- Roque Céspedes, undergraduate, University of Miami, 2009

Many presentations for NCAR/UCAR K-12 national teacher trainings and local student workshops, as well as local science fair judging and other community outreach activities.

Numerous guest lectures and invited talks, on a range of topics, in university settings such as Brown University, Cornell University, Carnegie Mellon University, Naropa University, Stanford University, University of California–Los Angeles, University of Colorado, University of Massachusetts, University of Victoria, University of Vermont, University of Washington, University of Wisconsin, and several international institutions. See examples in the Presentations section, below.

Research Grants & Awards

2010 – present (out of ~45)

DOE – A Hierarchical Evaluation Framework for Assessing Climate Simulations Relevant to the Energy-Water-Land Nexus. W. Gutowski, Iowa State, Lead PI; L. Mearns, NCAR, among 5 co-PIs. 2016-2019.

DoD – SERDP (Strategic Environmental Research and Development Program) – Climate-informed Estimation of Hydrologic Extremes for Robust Adaptation to Non-stationary Climate. C. Brown, U. Mass, Lead PI; L. Mearns, NCAR, 1 of 2 co-PIs, 2015-2018.

NASA JPL – Assessing Regional Downscaling for Climate Modeling. L. Mearns, PI. 2015

NSF – IMEE (Infrastructure Management and Extreme Events Program) – Collaborative Research: Characterizing 21st Century Extremes for Engineering and Evaluating Robust Infrastructure Designs. C. Samaras, Carnegie Mellon, Lead PI; L. Mearns, NCAR, 1 of 2 co-PIs, 2016-2019.

DOD – ESTCP (Environmental Technology Demonstration and Validation Program) – Process, Disseminate and Add Value to the NA-CORDEX Simulations for Use by the Impacts and Adaptation Communities and Perform a Regional Pilot Project Involving Analysis of the Simulations. L. Mearns, Lead PI; R. Webb, NOAA, co-PI. 2016-2018.

NASA – Enabling Regional Climate Model Evaluation: A Critical Use of Observations for Establishing Core NCA Activities. Duane Waliser, NASA Lead PI; L. Mearns, NCAR, among 3 co-PIs, 2011 – 2013.

DoD – SERDP (Strategic Environmental Research and Development Program) – Decision-Scaling: A Decision Framework for DoD Climate Risk Assessment and Adaptation Planning, C. Brown, U. Mass, Lead PI; L. Mearns, NCAR, co-PI, 2012-2015.

DoD – SERDP – Understanding Data Needs for Vulnerability Assessment and Decision-making to Manage Vulnerable DoD Installations to Climate Change, R. Moss, PNNL, Lead PI; L. Mearns, NCAR, among 4 co-PIs, 2012-2015.

NSF EaSM – Type 1 – Integration of decadal climate predictions, ecological models and human decision-making models to support climate-resilient agriculture in the Argentine Pampas. G. Podesta, Lead PI; L. Mearns, among 5 co-PIs, 2011-2014.

NSF EaSM – Type 2 – Informing Climate Related Decisions with Earth System Models. Rob Lempert, RAND, Lead PI; L. Mearns, NCAR, among 4 co-PIs, 2011-2013.

NOAA MAPP – In-depth regional process-level analyses of NARCCAP and AR5 simulations over North America: Toward Establishing Differential Credibility of Future Regional Climate Simulations. Anji Seth, U. Conn, Lead PI; L. Mearns, NCAR, co-PI, 2011-2014.

EPA-ORD Cooperative Agreement - Providing Products and Focused Analysis of Global and Regional Climate Model Results Produced or Used in the North American Climate Change Assessment Program. L. Mearns, PI, 2008-2011.

NSF/NOAA/DOE – NARCCAP (North American Regional Climate Change Assessment Program). L. Mearns, NCAR, Lead PI, with 10 co-PIs, 2006-2011.

EPA-STAR - Health Risks from Climate Variability and Change in the Upper Midwest: a Place-based Assessment of Climate-related Morbidity. J. Patz, Lead PI; L. Mearns, among 9 co-PIs, 2006-2009.

USGS - Developing downscaled climate change simulation data for the Mekong River Basin. J. Powell, USGS, Lead PI; L. Mearns, NCAR, co-PI, 2010.

Selected Professional Presentations (since 2014)

Many invited presentations per year on topics such as: the North American Regional Climate Change Assessment Program (NARCCAP), the North American Coordinated Regional Downscaling Experiment (NA-CORDEX), uncertainty in climate change research, impacts of climate change on agriculture, spatial resolution in climate scenarios, and information needs for adaptation planning.

Talk, Working Group 1 Regional Climate Change Information for Working Group 2, IPCC AR6 Scoping Meeting, Addis Ababa, Ethiopia (2017)

Invited Talk, An Overview of Progress in NA-CORDEX and Comparison with LOCA., ICNET Workshop, New Castle, New Hampshire, (2017)

Talk, Future Fire Occurrence in the US and Development of a Resource Allocation Decision Making Protocol., IMAGE Brown Bag Seminar at NCAR, Boulder, Colorado, United States of America (2017)

Talk, An Overview of Climate Projections Performed for NA-CORDEX., AMS Annual Meeting 2017, Seattle, Washington, United States of America (2017)

Invited Talk, Review of the Weather and Climate Impacts Assessment Science Program, Institute for Mathematics Applied to Geoscience, NCAR, Boulder, Colorado, (2017)

Talk, Lessons from the Climate Modeling Community on the Design and Use of Ensembles for Crop Modeling., AGU Annual Meeting 2016, San Francisco, California (2016)

Invited Talk, Climate-Informed Estimation of Hydrologic Extremes for Robust Adaptation to Non-stationary Climate. Task 2: Characterize Trends and Variability in Precipitation and Hydrologic Extremes from Regional Climate Model Simulations., University of Massachusetts, Amherst, Massachusetts (2016)

Invited Talk, An Overview of Progress in NA-CORDEX, NA-CORDEX-Carnegie Mellon University, Pittsburgh, Pennsylvania (2016)

Invited Talk, An Overview of Progress in NA-CORDEX, Carnegie Mellon University, Pittsburgh, Pennsylvania (2016)

Invited Talk, Background to IPCC Topic of Risk, Opening Discussion for the Risk Task Group, Future Earth, PROVIA, and IPCC Meeting on Integration in the Next IPCC Reports, IPCC-University of Stockholm, Stockholm, Sweden (2016)

Invited Talk, An Overview of Progress in NA-CORDEX, ICRC-CORDEX Meeting - University of Stockholm, Stockholm, Sweden (2016)

Invited Talk, Establishing the Scientific Value of Multiple GCM-RCM Simulation Programs: The Example of NARCCAP, Cornell University, Ithaca, New York (2016)

Invited Talk, Determining the Impacts of Climate Change: The IPCC Working Group II Experience, IPCC Working Group-Cornell University, Ithaca, New York(2016)

Invited Talk, Climate Change in the 21st Century: How do we Cope, Naropa University, Boulder, Colorado (2016)

Invited Talk, Use of Climate Information for Decision Making and Impacts Research: State of Our Understanding., SERDP/ESTCP DoD, Boulder (online course), Colorado (2016)

Talk, The Value of GCM-RCM Programs for Determining Credible Regional Projections of Climate, AAG Annual Meeting, San Francisco, California (2016)

Invited Talk, Two views of COP21, Naropa Institute, Boulder, Colorado (2016)

Invited Talk, Lessons Learned in the Context of Helping Prepare American Military Bases for Climate Change, SERDP Meeting-University of Arizona, Tucson, Arizona (2016)

Invited Talk, COP21: Some Basics, NCAR Executive Council Mtg, Boulder, Colorado (2016)

Talk, The Value of GCM-RCM Programs for Determining Credible Regional Projections of Climate and their Potential Use in Future NCAs, AMS Annual Mtg, New Orleans, Louisiana (2016)

Talk, Characterization and Quantification of Uncertainty in the NARCCAP Regional Climate Model Ensemble and Application to Impacts on Water Systems, AGU 2015 Fall Meeting, San Francisco, California (2015)

Talk, Establishing the Scientific Value of Multiple GCM-RCM Simulation Programs: The Example of NARCCAP, AGU 2015 Fall Meeting, San Francisco, California (2015)

Talk, Comparison of four methods of downscaling at four sites in North America, ESD-CORDEX Meeting, Cape town, South Africa (2015)

Talk, Development of a Bayesian Joint Probabilistic Model using the NARCCAP RCM Ensemble and Application to a Water Resource Vulnerability Assessment, AGU CGU Joint Assembly, Montreal, Canada (2015)

Invited Talk, Use of NARCCAP Results for Climate Analysis, CISL Work in Progress, Boulder, Colorado (2015)

Talk, The Value of Regional Climate Model Experiments for Impacts and Adaptation Studies; The Example of NARCCAP, 2014 AGU Fall Meeting, San Francisco, California (2014)

Invited Talk, Dynamical Downscaling in Support of Impacts and Adaptation Planning, ICNET, Boulder, Colorado (2014)

Invited Talk, The Use of Climate Model Output for Impact Assessments: The Example of NARCCAP - Preparation, Procedures, and Results, WCRP/WGRC Climate Information Distillation Meeting, Santander, Spain (2014)

Invited Talk, Credibility of Regional Climate Model Projections of future Climate: Issues and Challenges, Symposium on Knowledge and Models in Climate Science, London, Canada (2014)

Invited Talk, The North American Regional Climate Change Assessment Program and the Development of North America CORDEX, Government Accountability Office (GAO) Visit to NCAR/UCAR/UCP, Boulder, Colorado (2014)

Invited Talk, Overview of the IPCC WG1, Chapter 1 (Introduction), CIRES-ATOC Seminar Series on Reading the IPCC Report, Boulder, Colorado (2014)

Invited Talk, Scenarios from Regional Climate Models: More uncertainty or Better Information (or Both?), ASP Summer Colloquium on Uncertainty in Climate Change Research: An Integrated Approach, Boulder, Colorado (2014)

Invited Talk, Establishing the value of Multiple GCM-RCM Simulation programs, 3rd RCM Meeting, Lund, Sweden (2014)

Invited Talk, Climate change in the 21st Century, Seminar - Naropa University, Boulder, Colorado (2014)

Invited Talk, Credibility of Climate Model Projections: Issues and Challenges, Brown University, Page 1 ECI/CES Seminar, Providence, Rhode Island (2014)

Invited Talk, A Research Agenda to Support US Climate and Global Assessments. Panel on the National Climate Assessment II, Annual Meeting of the American Association of Geographers, Tampa, Florida (2014)

Invited Talk, Future Climate Information for Adaptation Planning and Research: What Do We Really Need?, Annual Meeting of the American Association of Geographers, Tampa, Florida (2014)

Invited Talk, Climate of the Mid-Atlantic: State of Knowledge Now and Then, Kick-off Meeting for SERDP RC-2206- Langley Air Force Base, Langley, Virginia (2014)