Justin Staller Mankin

Contact information

Ocean & Climate Physics
Lamont-Doherty Earth Observatory
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NASA Goddard Institute for Space Studies (GISS)
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New York, NY 10025 USA

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Secondary Phone: (212) 678-5549

Research

Climate change, variability, impacts, and uncertainty; hydroclimate; land-atmosphere interactions, hydrology, human and natural systems vulnerability and response to climate variability and change; future water and agriculture

Education

Ph.D., Environment & Resources, 2015
Stanford University, School of Earth, Energy, & Environmental Sciences, Stanford, California

M.P.A., Environmental Science & Policy, 2010
Columbia University, The Earth Institute & SIPA, New York, New York

M.Sc., Global Politics & Development Studies, 2008
The London School of Economics, London, England

B.A., Political Science, 2004
Columbia University, New York, New York

Research appointments

Lamont-Doherty Earth Observatory of Columbia University
NASA Goddard Institute for Space Studies New York, New York USA
Earth Institute Postdoctoral Research Fellow **2015-present**
Design and perform basic and applied research on climate variability, change, and climate impacts using large ensembles of models, observations, and paleoclimatic proxy data.

Emmett Interdisciplinary Program in Environment & Resources
Department of Earth System Science of Stanford University Stanford, California USA
Predoctoral Research Fellow **2010-2015**
Led research on climate variability and its influence on the cryosphere and freshwater availability.

The Earth Institute Water Center of Columbia University New York, New York, USA
Research Assistant **Winter-Spring 2010**
Conducted hydrological research on changes in glacial runoff in Central Asia.

Teaching appointments

Stanford University, Stanford, California USA
Teaching Assistant, EARTHSYS 41N, The Global Warming Paradox **Fall 2013**
Teaching Consultant, BIO/EARTHSYS 147/247, Controlling Climate Change **Spring 2012**

Professional appointments

International Security Assistance Force (ISAF), Kabul, Afghanistan
Senior Anti-Corruption Advisor **Winter 2011-2012**

United States Government, Washington, District of Columbia, USA
Intelligence Officer **2004-2008**

Publications

Manuscripts submitted or in revision

17. **Mankin, J. S.**, J. E. Smerdon, B. I. Cook, A. P. Williams, R. Seager, The curious case of projected 21st-century drying but greening in the American West, *accepted with minor revisions, Journal of Climate*.

16. Cook, B. I., A. P. Williams, **J. S. Mankin**, R. Seager, J. E. Smerdon, D. Singh, Revisiting the leading drivers of Pacific coastal drought variability in the Contiguous United States, *revising, Journal of Climate*

15. Smerdon, J. E. et al., Comparing data and model estimates of hydroclimate variability and change over the Common Era, *revising, Climate of the Past.*

14. Ault, T. R., S. St. George, J. E. Smerdon, S. Coats, **J. S. Mankin**, C. Carrillo, B. I. Cook, A robust null hypothesis for the potential causes of megadrought in western North America, *resubmitted, Journal of Climate*.

13. Trugman, A. T., D. Medvigy, **J. S. Mankin**, W. R. L. Anderegg, Soil moisture drought as a major driver of carbon cycle uncertainty, *revising*.

12. Swain, D. L., D. Singh, D. Horton, **J. S. Mankin**, T. Ballard, N. S. Diffenbaugh, Earth system linkages to anomalous northeastern Pacific atmospheric ridging, *resubmitted, Journal of Geophysical Research - Atmospheres*.

11. Schultz, K. & **J. S. Mankin**, Sources of uncertainty in forecasting the climate-conflict relationship, *revising*.

Published peer-reviewed articles

10. Diffenbaugh, N. S., D. Singh, **J. S. Mankin**, A. Charland, M. Haugen, D. E. Horton, D. L. Swain, D. E. Touma, M. Tsiang, B. Rajaratnam, Quantifying the influence of historical global warming on the probability of unprecedented extreme climate events, *Proceedings of the National Academy of Sciences*, (2017) 10.1073/pnas.1618082114.

9. **Mankin, J. S.**, D. Viviroli, M. M. Mekonnen, A. Y. Hoekstra, R. Horton, J. E. Smerdon, and N. S. Diffenbaugh, Influence of internal variability on population exposure to hydroclimatic changes, *Environmental Research Letters*, (2017) 10.1088/1748-9326.

8. Ault, T., **J. S. Mankin**, B. I. Cook, J. E. Smerdon, Relative impacts of mitigation, temperature, and precipitation on 21st Century megadrought risk in the American Southwest, *Science Advances*, (2016), 10.1126/sciadv.1600873.

7. Horton, R., **J. S. Mankin**, C. Lesk, E. Coffel, C. Raymond, A review of recent advances in research on extreme heat events, *Current Climate Change Reports*, (2016), 10.1007/s40641-016-0042-x.

6. Coats, S. & **J. S. Mankin**, The challenge of accurately quantifying future megadrought risk in the American Southwest, *Geophysical Research Letters*, (2016), 10.1002/2016GL070445.

5. Singh, D, D. L. Swain, **J. S. Mankin**, D. E. Horton, L. Thomas, N. S. Diffenbaugh, Recent amplification of the North American winter temperature dipole, *Journal of Geophysical Research: Atmospheres*, (2016), 10.1002/2016JD025116.

4. **Mankin, J. S.**, D. Viviroli, D. Singh, A. Y. Hoekstra, and N. S. Diffenbaugh, The potential for snow to supply human water demand in the present and future, *Environmental Research Letters*, (2015), DOI 10.1088/1748-9326/10/11/114016.

3. **Mankin, J. S.**, N. S. Diffenbaugh, Influence of temperature and precipitation variability on near-term snow trends, *Climate Dynamics*, **45** 1099-1116, (2015), DOI 10.1007/s00382-014-2357-4.

2. Siegfried, T., T. Bernauer, R. Guiennet, S. Sellars, A. W. Robertson, **J. S. Mankin**, P. Bauer-Gottwein, Will Climate Change Exacerbate or Mitigate Water Stress in Central Asia?, *Climatic Change*, **112** (3-4), 881 (2012), DOI 10.1007/s10584-011-0253-z.

1. **Mankin, J. S.**, Gaming the system: how Afghan opium underpins local power, *Journal of International Affairs*, **63** (1), 195 (2009).

Peer-reviewed book chapters

1. Moore, F., **J. S. Mankin**, A. H. Becker, Disciplines: Integrating Climate and Social Sciences, Chapter 4 in *Climate Cultures: Anthropological Perspectives on Climate Change*. Jessica Barnes and Michael Dove (eds). New Haven: Yale University Press, (2015).

Manuscripts in preparation (full drafts only)

5. **Mankin, J. S.**, J. E. Smerdon, B. I. Cook, A. P. Williams, R. Seager, Projected runoff loss to CO_2-fertilized ecosystems.

4. Diffenbaugh, N. S., D. Singh, **J. S. Mankin**, Y. Liu, CMIP5 record extemes.

3. Skinner, C. B., C. J. Poulsen, **J. S. Mankin**, Amplification of heat extremes from plant CO2 physiological forcing.

2. **Mankin, J. S.**, M. Tsiang, B. Rajaratnam, and N. S. Diffenbaugh, A model of Afghan poppy farmer decision-making.

1. Schultz, K. & **J. S. Mankin**, Is temperature exogenous? Conflict Related Uncertainty in the Instrumental Climate Record in Sub-Saharan Africa.

Other publications

2. **Mankin, J. S.**, Rotten to the core, *Foreign Policy*, (2011).

1. **Mankin, J. S.**, Preventive semantics, *Foreign Policy*, 146 (2005).

Grants

Earth Institute Fellowship, Columbia University, 2015-2017, ($138,000).

Earth Institute Cross-Cutting Initiative, Assessing farmer vulnerability in India to increasing risks from climate extremes, PI: D. Singh, co PIs: R. DeFries, M. Ting, 2016 ($23,000).

E-IPER Graduate Summer Research Grant, 2012 ($4,000).

McGee Grant, Stanford University, School of Earth Sciences, 2011 ($4,000).

Fellowships

Earth Institute Postdoctoral Fellowship, Lamont-Doherty Earth Observatory & The Center for Climate Systems Research, 2015-2017.

Northeast Climate Science Center Fellowship, The Center for Climate Systems Research & University of Massachusetts, Amherst, 2015-2017.

Geography Postdoctoral Fellowship, Dartmouth College, 2015-2017. (*declined*)

Predoctoral Science Fellowship, Center for International Security and Cooperation (CISAC), Stanford University, tuition and stipend, 2014-2015.

Stanford Center on International Conflict and Negotiation (SCICN) Fellowship, Stanford Law School, 2012-2013.

Margaret Jonsson Family Foundation Fellowship, School of Earth Sciences, Stanford University, tuition and stipend, 2010-2014.

Environmental Science Academic Fellowship, Columbia University, 2010.

Academic honors and awards

Institute of Physics (IOP Publishing) Outstanding Academic Reviewer Award for 2016,

February 2017.

Environmental Research Letters Editors' Highlight of 2015, April 2016.

Institute of Physics Select Article, "The potential for snow to supply human water demand in the present and future", ERL, November 2015.

Environmental Research Letters Monthly Highlights Collection, November 2015.

Rising Environmental Leadership Program (RELP), Woods Institute for the Environment, Stanford University, 2012-2013.

Andrew Wellington Cordier Essay Winner, Columbia University, 2009.

Distinction, MSc. Thesis, London School of Economics, 2008.

Academic certifications

National Center for Atmospheric Research (NCAR), Boulder, CO, USA
Community Land Model Workshop **September 2016**

National Centre of Competence in Research, Climate (NCCR), Grindewald, Switzerland
NCCR Swiss Climate Research Summer School **Summer 2013**

National Center for Atmospheric Research (NCAR), Boulder, CO, USA
Community Earth System Model (CESM) Workshop **Summer 2012**

Academic service

Journal referee: Journal of Climate, Geophysical Research Letters, Environmental Research Letters, Nature Climate Change, Journal of Geophysical Research-Atmospheres, Earth-Science Reviews

Seminar organizer: Lamont-Doherty Earth Observatory Division of Ocean & Climate Physics Seminar, 2016-2017

Conference organizer: PAGES2k PMIP3 Workshop planning committee, Lamont-Doherty Earth Observatory, June 1-3 2016

PhD student representative: E-IPER Representative to the Executive Committee, Stanford University, 2011-2012.

OSPA Judge: AGU 2016 Fall Meeting

Professional societies: Member, American Geophysical Union (AGU), 2010-present; American Meteorological Society (AMS), 2012-present

Presentations

Invited talks

19. Pacala lab, Princeton University, Princeton, NJ, USA, 3 May 2017.

18. Department of Earth & Planetary Sciences, Brown University, Providence, RI, USA, 1 May 2017.

17. Sustainable Development Program (*guest lecture*), Columbia University, New York, NY, USA, 24 May 2017.

16. School of the Environment, Washington State University, Vancouver, WA, USA, 9 February 2017.

15. Department of Earth Sciences, University of Minnesota, Minneapolis, MN, USA, 6 February 2017.

14. Department of Environmental Science, American University, Washington, DC, USA, 31 January 2017.

13. Department of Geography, Dartmouth College, Hanover, NH, USA, 16 January 2017.

12. Society, Water, and Climate, The University of Utah, Salt Lake City, Utah, USA, 29 November 2016.

11. Urban Ecology Studio, Graduate School of Architecture, Planning, and Preservation, Columbia University, New York, NY, USA, 30 June 2016 and again 28 September 2016.

10. Department of Earth & Planetary Sciences Seminar, Northwestern University, Evanston, IL, USA, 19 February 2016.

9. Earth Matters Series,"A Matter of Degrees", School of Continuing Education, Stanford University, Stanford, CA, USA, 24 February 2015.

8. Ocean & Climate Physics Seminar, Lamont-Doherty Earth Observatory, Palisades, NY, 20 February 2015.

7. Center for International Security and Cooperation (CISAC), Freeman Spogli Institute (FSI), Stanford, CA, USA, 15 January 2015.

6. Stanford Center on International Conflict and Negotiation (SCICN), Stanford, CA, 28 May 2013.

5. Knowledge transfer program (KTP), University of Reading, Reading, UK, 4 May 2012.

4. Policy & Economic Research Roundtable (PERR), Stanford University, Stanford, CA, USA, 27 January 2012.

3. National Conference on Science, Policy and the Environment (NCSE): Environment and Security, Washington, DC, USA, 18 January 2012.

2. Center for International Security and Cooperation (CISAC), Hewlett Foundation, CA, USA, 17 January 2012.

1. NATO ISAF HQ CJIATF-Shafafiyat, Kabul, Afghanistan, 30 January 2011.

Contributed talks (1^{st} author only)

4. **Mankin, J. S.**, J. E. Smerdon, B. I. Cook, A. P. Williams, R. Seager, Transpiration-driven aridification of the American West in 21st century model projections, American Geophysical Union Annual Meeting, San Francisco, CA, USA, 12 December 2016.

3. **Mankin, J. S.**, Climate certainty, uncertainty and human water availability in a warming world, Stanford University, Stanford, CA, USA, 12 June 2015.

2. **Mankin, J. S.**, D. Viviroli, M. M. Mekonnen, A. Y. Hoekstra, and N. S. Diffenbaugh, Quantifying the crucial role of snow in supplying human water demand. American Geophysical Union Annual Meeting, San Francisco, CA, USA, 15 December 2014.

1. **Mankin, J. S.**, M. Scherer, and N. S. Diffenbaugh, Diagnosing the inter-model spread in snow water equivalent over Central and Southwest Asia. Stanford School of Earth Sciences Review, CA, USA, 12 April 2013.

Poster presentations

10. Swain, D. L., D. Singh, D. E. Horton, **J. S. Mankin**, T. Ballard, L. N. Thomas, N. S. Diffenbaugh, Connections between the tropical Pacific Ocean, Arctic sea ice, and anomalous northeastern Pacific ridging, American Geophysical Union Annual Meeting, San Francisco, CA, USA, 16 December 2016.

9. Horton, D. E., **J. S. Mankin**, D. Singh, N. S. Diffenbaugh, D. L. Swain, Cluster classification of mid-latitude summer circulation patterns in the CESM1 Large Ensemble, American Geophysical Union Annual Meeting, San Francisco, CA, USA, 12 December 2016.

8. Horton, D. E., **J. S. Mankin**, D. Singh, D. L. Swain, N. C. Johnson, N. S. Diffenbaugh, Probability of Atmospheric Circulation Pattern Occurrence in Pre-Industrial, Historical, and Future Climates, American Geophysical Union Annual Meeting, San Francisco, CA, USA, 18 December 2015.

7. **Mankin, J. S.** and N. S. Diffenbaugh, Internal variability's influence on future Northern Hemisphere snow accumulation. American Geophysical Union Annual Meeting, San Francisco, CA, USA, 10 December 2013.

6. **Mankin, J. S.** and N. S. Diffenbaugh, Climate controls on future Northern Hemisphere snow-dependent water availability. National Centre of Competence in Research Climate (NCCR), Grindewald, Switzerland, 5 September 2013.

5. **Mankin, J. S.**, M. Scherer, and N. S. Diffenbaugh, Diagnosing the inter-model spread in snow water equivalent over Central and Southwest Asia. Berkeley Atmospheric Science Symposium, Berkeley, CA, USA, 8 February 2013.

4. **Mankin, J. S.**, M. Scherer, and N. S. Diffenbaugh, Diagnosing the inter-model spread in snow water equivalent over Central and Southwest Asia. American Geophysical Union Annual Meeting, San Francisco, CA, USA 7 December 2012.

3. **Mankin, J. S.** and N. S. Diffenbaugh, Socioclimatic exposure of an Afghan poppy farm, American Geophysical Union Annual Meeting, San Francisco, CA, USA, 7 December 2011.

2. **Mankin, J. S.** and N.S. Diffenbaugh, Climate signals in Afghan agricultural decision-making MIT Graduate Climate Conference, Woods Hole, MA, USA, 29 October 2011.

1. T. Siegfried, T. Bernauer, R. Guiennet, S. Sellars, A. W. Robertson, **J. S. Mankin**, P. Bauer-Gottwein, Will Climate Change Exacerbate or Mitigate Water Stress in Central Asia? American Geophysical Union Annual Meeting, San Francisco, CA, USA, 17 December 2010.

Skills & miscellany

Technical: Unix/Linux shell, NCL, R, Matlab, Python/Jupyter, ArcGIS, ENVI, git, HTML, CSS LaTeX

Clearance: Top Secret/Sensitive Compartmented Information (TS/SCI) clearance, granted 2004; NATO Secret as of 2011

Scientific communication & outreach

Media interviews and coverage of research (truncated): NYTimes, Nature, BBC World News, National Geographic, The Atlantic, The Weather Channel, FSRN, NPR Academic Minute, LA Times, The Christian Science Monitor, Phys.org, CarbonBrief, environmentalresearchnews, Hurriyet, Radio Ecoshock, Salon, China Radio International, SciDev, Columbia Magazine, USA Today