

JUSTIN STALLER MANKIN

CONTACT INFORMATION

Department of Geography
Dartmouth College
6017 Fairchild
Hanover, NH 03755

Primary Email: mankin@dartmouth.edu
Website: <http://jsmankin.github.io>
Primary Phone: (603) 646-9957

Division of Ocean & Climate Physics
Lamont-Doherty Earth Observatory
61 Route 9W, P.O. Box 1000
Palisades, NY 10964

Primary Email: jsmankin@ldeo.columbia.edu
Website: www.ldeo.columbia.edu
Primary Phone: (845) 365-8373

ACADEMIC APPOINTMENTS

Dartmouth College Hanover, NH
2018 - Assistant Professor, Department of Geography
Adjunct Assistant Professor, Department of Earth Sciences
Assistant Professor, Ecology, Evolution, Environment & Society (EEES)
2017 - 2018 Visiting Professor, Department of Geography
Lamont-Doherty Earth Observatory of Columbia University New York, NY
2018 - Adjunct Research Scientist, Division of Ocean & Climate Physics
2015 - 2018 Postdoctoral Research Fellow, Division of Ocean & Climate Physics
Joint Appointment, NASA Goddard Institute for Space Studies

EDUCATION

Stanford University, Ph.D, Environment & Resources, September 2015 Stanford, CA
Columbia University, M.P.A., Environmental Science & Policy, May 2010 New York, NY
The London School of Economics, M.Sc., Global Politics, October 2008 London, UK
Columbia University, B.A., Political Science, May 2004 New York, NY

PUBLICATIONS

★ Denotes research led by Mankin's group; underlined are: PI-advised (P)ostdoc, (G)rad student, (U)ndergrad

MANUSCRIPTS SUBMITTED OR IN REVISION

33. ★**Mankin, J. S.**, F. Lehner, S. Coats, K. McKinnon, Robust decision-making under uncertainty using initial condition large ensembles, *submitted*.
32. Qin, Y., J. T. Abatzoglou, S. Siebert, L. S. Huning, A. AghaKouchak, **J. S. Mankin**, C. Hong, D. Tong, S. J. Davis, N. D. Mueller, Agricultural vulnerability to changing snowmelt, *submitted*.
31. Winter, J. M., H. Huang (G), E. Osterberg, **J. S. Mankin**, Anthropogenic impacts on the exceptional precipitation of 2018 in the Mid-Atlantic United States, *under review*.
30. Lehner, F., A. W. Wood, J. A. Vano, D. M. Lawrence, M. P. Clark, **J. S. Mankin**, Potential for uncertainty reduction in future regional surface water projections, *resubmitted*.
29. ★He, Y. (P), E. Lee, **J. S. Mankin**, Seasonal tropospheric cooling in Northeast China associated with cropland expansion, *revising*.
28. Raymond, C. (G), & **J. S. Mankin**, Coastal moderation of extreme heat in the United States, *under review*.
- 27 Schultz, K. & **J. S. Mankin**, Sources of uncertainty in forecasting the climate-conflict relationship, *revising*.

2019

26. ★**Mankin, J. S.**, R. Seager, J. E. Smerdon, B. I. Cook, A. P. Williams, Projected vegetation responses to climate change decrease regional freshwater availability, *accepted, Nature Geoscience*.
25. ★**Coffel, E. (P)**, B. Keith, C. Lesk, E. Bower, J. Lee, R. M. Horton, **J. S. Mankin**, More concurrently hot and dry years in the Nile Basin despite increasing precipitation, *Earth's Future* (2019) 10.1029/2019EF001247.
24. ★**Coffel, E. (P)**, R. M. Horton, J. M. Winter, **J. S. Mankin**, Nonlinear increases in extreme temperatures paradoxically dampen increases in extreme humid-heat, *Environmental Research Letters* (2019) 10.1088/1748-9326/ab28b7.
23. Schultz, K. & **J. S. Mankin**, Is temperature exogenous? Conflict Related Uncertainty in the Instrumental Climate Record in Sub-Saharan Africa, , *American Journal of Political Science* (2019) 10.1111/ajps.12425.
22. Bishop, D., A. P. Williams, R. Seager, A. M. Fiore, B. I. Cook, **J. S. Mankin**, D. Singh, J. E. Smerdon, M. P. Rao, Investigating the causes of increased 20th-century precipitation over the southeastern United States, *Journal of Climate* (2019) 10.1175/JCLI-D-18-0244.1.

2018

21. Trugman, A. T., D. Medvigy, **J. S. Mankin**, W. R. L. Anderegg, Soil moisture drought as a major driver of carbon cycle uncertainty, *Geophysical Research Letters* (2018) 10.1029/2018GL078131.
20. Cook, B. I., **J. S. Mankin**, K. Anchukaitis, Climate change and drought: from past to future, *Current Climate Change Reports* (2018) 10.1007/s40641-018-0093-2.
19. ★**Mankin, J. S.**, R. Seager, J. E. Smerdon, B. I. Cook, A. P. Williams, R. M. Horton, Projected blue water tradeoffs with CO₂-enriched ecosystems, *Geophysical Research Letters* (2018) 10.1002/2018GL077051.
18. Skinner, C. B., C. J. Poulsen, **J. S. Mankin**, Amplification of heat extremes by plant CO₂ physiological forcing, *Nature Communications* (2018) 10.1038/s41467-018-03472-w.
17. Diffenbaugh, N. S., D. Singh, **J. S. Mankin**, Probability of unprecedented climate events: comparing historical changes with the UN aspirational targets and NDC commitments, *Science Advances* (2018) 10.1126/sciadv.aao3354.
16. Ault, T. R., S. St. George, J. E. Smerdon, S. Coats, **J. S. Mankin**, C. Carrillo, B. I. Cook, S. Stevenson, A robust null hypothesis for the potential causes of megadrought in western North America, *Journal of Climate* (2018) 10.1175/JCLI-D-17-0154.1.
15. 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, *Journal of Climate* (2018) 10.1175/JCLI-D-17-0172.1.

2017

14. Swain, D. L., D. Singh, D. Horton, **J. S. Mankin**, T. Ballard, N. S. Diffenbaugh, Remote linkages to anomalous winter atmospheric ridging over the northeastern Pacific, *Journal of Geophysical Research - Atmospheres* (2017) 10.1002/2017JD026575.
13. Williams, A. P., Cook, B. I., Smerdon, J. E., Bishop, D. A., Seager, R., **Mankin, J. S.**, The 2016 southeastern US drought: an extreme departure from centennial wetting and cooling, *Journal of Geophysical Research - Atmospheres* (2017) 10.1002/2017JD027523.

12. Smerdon, J. E., Luterbacher, J., Phipps, S. J., (alphabetical thereafter), Comparing data and model estimates of hydroclimate variability and change over the Common Era, *Climate of the Past* (2017) 10.5194/cp-2017-37.
11. ★**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, *Journal of Climate* (2017) 10.1175/JCLI-D-17-0213.1.
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.

2016

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.

2015

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) 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) 10.1007/s00382-014-2357-4.

< 2015

2. Siegfried, T., T. Bernauer, R. Guennet, 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).

OTHER PUBLICATIONS

3. Schultz, K. & **J. S. Mankin**, The weather stations that monitor climate change are at risk. This is why., *Washington Post, Monkey Cage*, 22 April 2019.

2. **Mankin, J. S.**, Rotten to the core, *Foreign Policy*, (2011).
1. **Mankin, J. S.**, Preventive semantics, *Foreign Policy*, 146 (2005).

GRANTS

NOAA MAPP, LOI pending, 2019-2021 (\$500,000).

Walter and Constance Burke Research Initiation Awards, Dartmouth College, 2018 (\$25,000).

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).

ADVISEES

Callahan, Christopher, PhD student, EEES program, Dartmouth (2018-present)

Gottlieb, Alex, PhD student, EEES program, Dartmouth (2019-present)

Coffel, Ethan, Postdoctoral Fellow, Neukom Institute, Dartmouth (2018-present)

He, Yaqian, Postdoctoral Fellow, Department of Geography, Dartmouth (2018-present)

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*)

Predocutorial 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

Editor's Citation for Outstanding Reviewing, *Institute of Physics (IOP Publishing)*, 2016.

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**

ACADEMIC SERVICE **Referee:** National Science Foundation, Journal of Climate, Geophysical Research Letters, Journal of Hydrology, Biogeosciences, Environmental Research Letters, Nature Climate Change, Agricultural and Forest Meteorology, Nature Communications, Journal of Geophysical Research-Atmospheres, Earth-Science Reviews, npj Climate Science, PlosOne,

Session Convener: American Meteorological Society (AMS) 2020, The use of large ensembles in understanding climate variability and change, January 2020

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

INVITED
WORKSHOPS

4. *upcoming* Continental Climate Change: Simple Models to Understand the Future, University of St. Andrews, Scotland, UK, *June 15-17, 2020*.

3. United States Climate Modeling Summit (US-CMS) on Land-Atmosphere Interactions and Extremes, NOAA Center for Weather and Climate Prediction, College Park, MD, USA, *April 4, 2018*.

2. NSF-EASM Workshop on Surviving peak drought and warming in the Southwest, University of Arizona, Tucson, AZ, USA, *March 29-30, 2018*.

1. PAGES2K / PMIP3 Hydroclimate Workshop, Lamont-Doherty Earth Observatory, Palisades, NY, USA, *June 1-3, 2016*.

PRESENTATIONS

INVITED TALKS

24. *upcoming* University of St. Andrews, Fife, Scotland, UK *15 June 2020*.

23. *upcoming* Department of Environmental, Earth and Atmospheric Sciences, University of Massachusetts-Lowell, Lowell, MA, USA *17 October 2019*.

22. American Geophysical Union, Washington, D.C., USA, *12 December 2018*.

21. American Geophysical Union, New Orleans, LA, USA, *13 December 2017*.

20. Center for Lifetime Study, Marist College, Poughkeepsie, NY, USA, *3 October 2017*.

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 (1st AUTHOR ONLY)

6. **Mankin, J.S.**, R. Seager, J. E. Smerdon, B. I. Cook, A. P. Williams, Will plants ameliorate or amplify drought risks under global warming? American Geophysical Union Annual Meeting, Washington, D.C., USA, 10 December 2018.
5. **Mankin, J. S.**, Blue water tradeoffs with ecosystems in a CO₂-enriched climate, American Association of Geographers, New Orleans, LA, USA 11 April 2018.
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), Grindelwald, 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. Guennet, 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): NYT, Nature, BBC World News, National Geographic, The Atlantic, The Weather Channel, FSRN, NPR Academic Minute, LA Times, The Christian Science Monitor, Phys.org, CarbonBrief, Environmental Research News, Hurriyet (Turkish), Radio Ecoshock, Salon, China Radio International, SciDev, Columbia Magazine, USA Today

Updated: *June 2019*

<http://jsmankin.github.io>