

David M. Rasmussen Jr. (D.J.)

- WORK ADDRESS Program in Science, Tech., & Environ. Policy
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Robertson Hall, Princeton University
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- EDUCATION **Princeton University**, Princeton, New Jersey
Ph.D., Science, Technology and Environmental Policy, *anticipated 2019*
University of California—Davis, Davis, California
M.S., Civil and Environmental Engineering
University of Wisconsin—Madison, Madison, Wisconsin
B.S., Atmospheric and Oceanic Science
- PROFESSIONAL EXPERIENCE
- Rhodium Group**, Oakland, CA
Pre-Doctoral Research Assistant **May 2013 to 2016**
- Prepared high spatial resolution probabilistic projections of future temperature, precipitation, and sea-level rise as part of a national economic climate risk assessment report.
 - Supervisor: Robert E. Kopp
- ENVIRON/ Ramboll Environ**, Novato, CA
Senior Associate Engineer **June 2014 to August 2015**
- Development of an air quality forecasting system using near real time, in-house numerical weather prediction and regional air quality modeling. Data analysis of historical and modeled pollutants and weather variables. Regional air quality modeling and numerical weather prediction for clients in government, energy generation, and oil and gas industries. Report writing. High performance computing and scientific software development.
- California Air Resources Board**, Modeling and Meteorology Branch, Sacramento, CA
Graduate Researcher and Air Resources Engineer **January 2012 to June 2014**
- Improved the computational performance of a numerical dispersion model 4–10x with distributed memory techniques, developed object-oriented Python software to process an emissions inventory with 100,000+ sources, contributed to California State Implementation Plan (SIP) modeling efforts.
- Geophysical Fluid Dynamics Laboratory/ NOAA**, Princeton University, Princeton, NJ
Pre-Doctoral Research Assistant **October 2010 to September 2011**
- Topics: regression modeling, characterizing policy relevant background surface ozone variability over the United States
 - Advisers: Arlene Fiore, Hiram Levy II

Center for Sustainability and the Global Environment, University of Wisconsin—Madison, Madison, WI

Undergraduate Research Assistant

February 2009 to October 2010

- Topics: assessing climate change risks associated with wind energy development and informal wind energy consulting for an energy policy publication
 - Advisers: Tracey Holloway, Greg Nemet

REFEREED
JOURNAL
PUBLICATIONS

- [1] D.J. Rasmussen, K. Bittermann, M.K. Buchanan, S. Kulp, B.H. Strauss, R.E. Kopp and M. Oppenheimer, 2018: Extreme sea level implications of 1.5 °C, 2.0 °C, and 2.5 °C temperature stabilization targets in the 21st and 22nd century. **13** 034040 *Environ. Res. Lett.* doi:10.1088/1748-9326/aaac87
- [2] Hsiang, S.M., R.E. Kopp, A.S. Jina, J. Rising, M. Delgado, S. Mohan, **D.J. Rasmussen**, R. Muir-Wood, P. Wilson, M. Oppenheimer, K. Larsen and T. Houser, 2017: Economic damage from climate change in the United States. *Science*. **356** (6345), 1362-1369 doi:10.1126/science.aal4369
- [3] D.J. Rasmussen, M. Meinshausen, and R.E. Kopp, 2016: Probability-weighted ensembles of U.S. county-level climate projections for climate risk analysis. *J. Appl. Meteorol. Clim.* **55** (10), 2301-2322 doi:10.1175/JAMC-D-15-0302.1
- [4] Kopp, R.E., R. Horton, C.M. Little, J.X. Mitrovica, M. Oppenheimer, **D.J. Rasmussen**, B.H. Strauss, and C. Tebaldi, 2014: Probabilistic 21st and 22nd century sea-level rise projections at a global network of tide gauge sites. *Earth's Future*. **2** (8), 383-406 doi:10.1002/2014EF000239
- [5] D.J. Rasmussen, J. Hu, A. Mahmud, and M.J. Kleeman, 2013: The ozone climate penalty: past, present, and future. *Environ. Sci. Technol.* **47** (24), 14258-14266 doi:10.1021/es403446m
- [6] D.J. Rasmussen, A.M. Fiore, V. Naik, L.W. Horowitz, M.G. Schultz, and S.J. McGinnis. 2012: Surface ozone-temperature relationships in the eastern US: A monthly climatology for evaluating chemistry-climate models. *Atmos. Environ.* **47**, 142-153 doi:10.1016/j.atmosenv.2011.11.021
- [7] D.J. Rasmussen, T. Holloway, and G.F. Nemet, 2011: Opportunities and Challenges in Assessing Climate Change Impacts on Wind Energy—A Critical Comparison of Wind Speed Projections in California. *Environ. Res. Lett.* **6** 024008 doi:10.1088/1748-9326/6/2/024008

BOOKS

- [1] Houser, T, R. Kopp, S. Hsiang, R. Muir-Wood, K. Larsen, **D.J. Rasmussen**, M. Delgado, A. Jina, S. Mohan, P. Wilson, M. Mastrandrea, and J. Rising, 2015: *Economic Risks of Climate Change: An American Prospectus*. New York, NY: Columbia University Press. 384 pp. ISBN: 9780231174565.

REPORTS

- [1] Emery, C., G. Wilson, **D.J. Rasmussen**, G. Yarwood. 2015. *CAMx Speed Improvements*. Prepared for Texas Commission on Environmental Quality, Austin, TX.
- [2] Johnson, J., G. Wilson, **D.J. Rasmussen**, G. Yarwood. 2015. *Daily Near Real-Time Ozone Modeling for Texas*. Prepared for Texas Commission on Environmental Quality, Austin, TX.

- [3] Kemball-Cook, T. Pavlovic, J. Johnson, L. Parker, **D.J. Rasmussen**, J. Zagunis, L. Ma, G. Yarwood. 2014. *Analysis of Wildfire Impacts on High Ozone Days in Houston, Beaumont, and Dallas-Fort Worth During 2012 and 2013*. Prepared for Texas Commission on Environmental Quality, Austin, TX.
- [4] Houser, T, R. Kopp, S. Hsiang, R. Muir-Wood, K. Larsen, **D.J. Rasmussen**, M. Delgado, A. Jina, S. Mohan, P. Wilson, M. Mastrandrea, and J. Rising, 2014: *American Climate Prospectus: Economic Risks in the United States*. Oakland, CA: Rhodium Group, 194 pp. <http://www.climateprospectus.org/>.
- [5] Rasmussen D.J. and M.J. Kleeman, 2012: Acceleration of CALPUFF using MPICH-2. Final Report to the California Air Resources Board. ARB Contract 11-760.
- [6] D.J. Rasmussen, L.M. Keller, and M.A. Lazzara, 2010: A 20-year assessment of the frequency and intensity of McMurdo area high wind events. Preprints, *5th Antarctic Meteorological Observation, Modeling, and Forecasting Workshop*, Columbus, Ohio.

THESES

- [1] D.J. Rasmussen, The ozone climate penalty: Past, present, and future. (Master's thesis) University of California–Davis, Davis, California, 24 pp.
- [2] D.J. Rasmussen, An analysis of climate change impacts on future wind energy production in California (undergraduate thesis) The University of Wisconsin, Madison, Wisconsin, 70 pp.

SELECTED
PRESENTATIONS

- [1] D.J. Rasmussen, M.K. Buchanan, R.E. Kopp and M. Oppenheimer, Coastal flood implications of 1.5 °C, 2.0 °C, and 2.5 °C global mean temperature stabilization targets for small island nations. **American Geophysical Union Fall Meeting**, 15 December 2017, New Orleans, LA.
- [2] D.J. Rasmussen and R.E. Kopp, Probabilistic U.S. county-level climate projections: A new data set for local climate risk analysis **American Geophysical Union Fall Meeting**, poster, 16 December 2015, San Francisco, CA.
- [3] R. E. Kopp, M. Delgado, R.M. Horton, T. Houser, C. M Little, R. Muir-Wood, M. Oppenheimer, **D.J. Rasmussen**, B. Strauss and C.Tebaldi, Probabilistic Projections of Future Sea-Level Change and Their Implications for Flood Risk Management: Insights from the American Climate Prospectus. **American Geophysical Union Fall Meeting**, December 2014, San Francisco, CA.
- [4] R. E. Kopp , S. M. Hsiang, T. Houser, K. Larsen, **D.J. Rasmussen**, A. Jina, J. Rising, M. Delgado, S. Mohan, R. Muir-Wood and P. S. Wilson, Managing U.S. climate risk through mitigation: Insights from the American Climate Prospectus. **American Geophysical Union Fall Meeting**, December 2014, San Francisco, CA.
- [5] D.J. Rasmussen and R.E. Kopp, It's Not Just the Heat, It's the Humidity: Down-scaled Wet-Bulb Temperature Projections and Implication for Future Summer Experiences from the American Climate Prospectus **American Geophysical Union Fall Meeting**, 17 December 2014, San Francisco, CA.
- [6] A. Jina, S.M .Hsiang, R.E. Kopp, **D.J. Rasmussen** and J. Rising. Putting climate impact estimates to work: the empirical approach of the American Climate Prospectus. **American Geophysical Union Fall Meeting**, December 2014, San Francisco, CA.

- [7] A. Jina, S. M. Hsiang, R. E. Kopp, **D.J. Rasmussen**, and J. Rising, Estimating the limits of adaptation from historical behaviour: Insights from the American Climate Prospectus. **American Geophysical Union Fall Meeting**, December 2014, San Francisco, CA.
- [8] A. Jina, R. E. Kopp, S. M. Hsiang, T. Houser, K. Larsen, **D.J. Rasmussen**, J. Rising, M. Delgado, S. Mohan, R. Muir-Wood and P. S. Wilson. The American Climate Prospectus: a risk-centered analysis of the economic impacts of climate change. **American Geophysical Union Fall Meeting**, December 2014, San Francisco, CA.
- [9] K. Gordon, R. E. Kopp, S. M. Hsiang, T. Houser, K. Larsen, **D.J. Rasmussen**, A. Jina, J. Rising, M. Delgado, S. Mohan, R. Muir-Wood and P. S. Wilson. Risky Business and the American Climate Prospectus: Economic Risks of Climate Change in the United States. **American Geophysical Union Fall Meeting**, December 2014, San Francisco, CA.
- [10] R.E. Kopp, T. Houser, S. Hsiang, K. Larsen, A. Jina, M. Delgado, R. Muir-Wood, **D.J. Rasmussen**, J. Rising, M. Mastrandrea, and P. Wilson (2014). Climate risks over space and time: Insights from the American Climate Prospectus. **Society for Risk Analysis Annual Meeting**, Denver, CO, December 2014.
- [11] T. Houser, R.E. Kopp, S. M. Hsiang, R. Muir-Wood, K. Larson, M. Delgado, A. Jina, P. Wilson, S. Mohan, **D.J. Rasmussen**, J. Rising, and M. Mastrandrea, U.S. Climate Risk Assessment. **Bloomberg Philanthropies**, 13 May 2014, New York, NY.
- [12] R.E. Kopp, K. Miller, B. Horton, J. Browning, J. X. Mitrovica, C. Hay, E. Morrow, A. Kemp., M. Oppenheimer, C. Little, A. Maloof, F. Simons, R. Horton, **D.J. Rasmussen**, B. Strauss, C. Tebaldi, Uncertainties and risks of regional sea-level change: Past, present and future. **Pardee Center for the Longer-Range Future**, **Boston University**, 10 February 2014, Boston, MA.
- [13] D.J. Rasmussen and M.J. Kleeman, Parallel Acceleration of CALPUFF. **California Air Resources Board, Atmospheric Modeling and Support Section**, 3 December 2012, Sacramento, CA.
- [14] A.M. Fiore, M. Lin, V. Naik, L.W. Horowitz, A.J. Turner, and **D.J. Rasmussen**, Establishing process-oriented constraints on chemistry-climate models for projecting air quality over the next century. **IGAC/SPARC Global Chemistry-Climate Modeling and Evaluation Workshop**, poster, 21 May 2012, Davos, Switzerland.
- [15] D.J. Rasmussen, A.M. Fiore, V. Naik, L.W. Horowitz, M.G. Schultz, and S.J. McGinnis, Evaluating surface ozone-temperature relationships over the eastern US in chemistry-climate models. **American Geophysical Union Fall Meeting**, 5 December 2011, San Francisco, CA.
- [16] D.J. Rasmussen, A.M. Fiore, V. Naik, L.W. Horowitz, M.G. Schultz, and S.J. McGinnis, Evaluating surface ozone-temperature relationships over the eastern US in chemistry-climate models. Lunchtime seminar. **Geophysical Fluid Dynamics Laboratory**, 17 August 2011, Princeton, NJ.
- [17] A.M. Fiore, H. Levy II, M. Lin, V. Naik, L.W. Horowitz, **D.J. Rasmussen**, A.J. Turner, M.D. Schwarzkopf, Y.Fang, and O.Wild, Air pollutants: Drivers or riders on the climate change express? **Gordon Research Conference: Atmospheric Chemistry**, oral presentation, 25 July 2011, West Dover, VT.

- [18] **D.J. Rasmussen**, T. Holloway, and G.F. Nemet, A critical evaluation of wind speed projections for California. **Second Conference on Weather, Climate, and the New Energy Economy**, poster, 26 January 2011, Seattle, WA.
- [19] M.A. Lazzara, L.M. Keller, **D.J. Rasmussen**, and K.E. Willmot, Antarctic meteorological data: access, distribution, and challenges. **27th Conference on Interactive Information Processing Systems (IIPS)**, oral presentation, 27 January 2011, Seattle, WA.
- [20] **D.J. Rasmussen**, L.M. Keller, and M.A. Lazzara, A 20-year assessment of the frequency and intensity of McMurdo area high wind events. **5th Antarctic Meteorological Observation, Modeling, and Forecasting Workshop**, oral presentation, 12 July 2010, Columbus, OH.

HONORS AND
AFFILIATIONS

- Eagle Scout, Boy Scouts of America
- American Meteorological Society, American Geophysical Union

PROFESSIONAL
COMMITTEES

American Meteorological Society, Energy Committee; term 2011—2013

REFEREE
SERVICE

Nature Clim. Change, Atmos. Chem. Phys., Clim. Chang., Atmos. Environ., Atmos. Res.

TEACHING

TA, *The Environment: Science and Policy* (Princeton University, Spring 2017, 2018)

HARDWARE AND
SOFTWARE SKILLS

Computer Programming:

Python, Fortran, R, UNIX shell scripting (BASH and C shell)

High performance computing:

Experience with operating and maintaining “Beowulf” Linux clusters, MPI, some experience with OpenMP, TORQUE, Hadoop, UNIX admin

HOBBIES

Alpine skiing, CrossFit, guitar

CITIZENSHIP

USA