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Education

Ph.D., Physics, Stanford University (January 2007)
A.B., History and Science, Harvard College (June 1999)

Professional Appointments

July 2018 – Present	Associate Professor, School of Global Policy & Strategy: Environment and Policy University of California, San Diego
July 2012 – June 2018	Assistant Professor, School of Global Policy & Strategy: Environment and Policy University of California, San Diego
Oct 2010 – June 2012	UC President's Postdoctoral Fellow, Scripps Institution of Oceanography University of California, San Diego
Jan 2008 – Sept 2010	Postdoctoral Fellow; Center on Food Security & the Environment and Department of Earth System Science, Stanford University

Peer-Reviewed Publications

1. S. Heft-Neal, **J. Burney**, E. Bendavid, K. Voss, M. Burke. "Using Saharan dust to estimate the causal impact of pollution exposure on African infant mortality" *Nature Sustainability (accepted).*

2. C. Hong, N. D. Mueller, **J. Burney**, Y. Zhang, A. AghaKouchak, F. C. Moore, Y. Qin, D. Tong, S. J. Davis. "Impacts of ozone and climate change on California perennial crops" *Nature Food* (1) 2020.

3. **J. Burney**. "The downstream air pollution impacts of the United States' coal-to-natural gas transition" *Nature Sustainability*, 3:1 (2020).

4. R. Hernandez, A. Armstrong, **J. Burney**, G. Ryan, K. Moore-O'Leary, I. Diédhiou, S. M. Grodsky, L. Saul-Gershenz, R. Davis, J. Macknick, D. Mulvaney, G. A. Heath, S. B. Easter, M. K. Hoffacker, M. F. Allen, D. M. Kammen. "Techno-ecological synergies of solar energy for global sustainability" *Nature Sustainability*, 2 (2019).

5. H. Alaofè, **J. Burney**, R. Naylor, D. Taren. "The impact of a Solar Market Garden programme on dietary diversity, women's nutritional status and micronutrient levels in Kalalé district of northern Benin" *Public Health Nutrition* (2019).

6. M. Rypdal, V. Rypdal, **J. Burney**, D. Cayan, E. Bainto, S. Skochko, A. Tremoulet, J. Creamean, C. Shimizu, J. Kim, J. Burns. "Clustering and climate associations of Kawasaki Disease in San Diego County suggest environmental triggers" *Scientific Reports*, 8 (2018).

7. J. Proctor, S. Hsiang, **J. Burney**, M. Burke, W. Schlenker. "Estimating the global agricultural impact of geoengineering using volcanic eruptions as natural experiments" *Nature* 560:7719 (2018).

8. S. Heft Neal, **J. Burney**, E. Bendavid, M. Burke. "One in five infant deaths in sub-Saharan Africa attributable to poor air quality" *Nature* 559:7713 (2018).

9. C. Adida, A. Chabi Bouko, A. Verink, G. Chockalingam, **J. Burney**. "Pilot of a Mobile-Based School Fee Payment System in Benin." *PLoS One* (2018).

10. **J. Burney**, S. Phillips, J. Lahl. "Assessing the Productivity and Profitability of the Solar Market Garden" *Development Engineering*, (2018).

11. R. Goldblatt, A. Rivera Ballesteros, **J. Burney***. "High spatial resolution imagery outperforms medium resolution spectral imagery for ecosystem assessment in the semi-arid Brazilian Sertão" *Remote Sensing*, 9:12 (2017).

12. **J. Burney***, H. Alaofe, R. Naylor, & D. Taren. "Impact of a rural solar electrification project on the level and structure of women's empowerment" *Environmental Research Letters* 12:9 (2017).

13. H. Alaofe, **J. Burney**, R. Naylor, & D. Taren. "Association Between Women's Empowerment and Maternal and Child Dietary Diversity and Nutrition Status in Northern Benin" *Public Health & Nutrition* 38:3 (2017).

14. E. Matios & **J. Burney***, "Ecosystem services mapping for sustainable agricultural water management in California's Central Valley" *Environmental Science & Technology* 51:5 (2017).

15. H. Alaofe, **J. Burney**, R. Naylor, & D. Taren. "Prevalence of Anemia, Deficiencies of Iron and Vitamin A and Their Determinants in Rural Women and Young Children from Northern Benin," *Public Health & Nutrition* (2017).

16. H. Alaofe, **J. Burney**, R. Naylor, D. Taren, "Solar-powered drip irrigation impacts on crops production diversity and dietary diversity in Northern Benin," *Food and Nutrition Bulletin*, 37:2 (2016).

17. A. Lamb, R. Green, I. Bateman, M. Broadmeadow, T. Bruce, **J. Burney**, P. Carey, D. Chadwick, E. Crane, R. Field, K. Goulding, H. Griffiths, A. Hastings, T. Kasoar, D. Kindred, B. Phalan, J. Pickett, P. Smith, E. Wall, E.K.H.J. zu Ermgassen & A. Balmford, "The potential for land sparing to offset greenhouse gas emissions from agriculture" *Nature Climate Change*, 6 (2016).

18. L. Sanford & **J. Burney***, "Cookstoves illustrate the need for a comprehensive carbon market" *Environmental Research Letters*, 10 (2015).

19. **J. Burney*** & V. Ramanathan, "Recent climate and air pollution impacts on Indian agriculture," *Proceedings of the National Academy of Sciences,* 111:46 (2014).

20. **J. Burney***, D. Cesano, J. Russell, E. L. La Rovere, T. Corral, N. S. Coelho, L. Santos, "Climate change adaptation strategies for smallholder farmers in the Brazilian Sertão," *Climatic Change,* 126:1-2 (2014).

21. S. Davis, **J. Burney**, J. Pongratz, K. Caldeira, "Methods for attributing land-use emissions to products," *Carbon Management* 5:2 (2014).

22. **J. Burney***, S. Postel, R. Naylor, "The case for smallholder irrigation as a development priority in sub-Saharan Africa," *Proceedings of the National Academy of Sciences*, 110:31 (2013).

23. A. Kar, I. H. Rehman, **J. Burney***, P. S. Praveen, R. Suresh, L. Singh, V. K. Singh, T. Ahmed, N. Ramanathan, V. Ramanathan, "Real-time assessment of black carbon pollution in Indian households due to traditional and improved biomass cookstoves," *Environmental Science & Technology*, 46:5 (2012).

24. **J. Burney*** & R. Naylor, "Smallholder Irrigation as poverty alleviation tool in Sub-Saharan Africa," *World Development*, 40:1 (2012).

25. **J. Burney***, S. Davis, D. Lobell, "Greenhouse gas mitigation by agricultural intensification," *Proceedings of the National Academy of Sciences*, 107:26 (2010).

26. **J. Burney***, L. Woltering, M. Burke, R. Naylor, D. Pasternak. "Solar-powered drip irrigation enhances food security in the Sudano-Sahel," *Proceedings of the National Academy of Sciences*, 107:5 (2010).

27. **J. Burney***, T.J. Bay, J. Barral, P.L. Brink, B. Cabrera, J.P. Castle, A.J. Miller, S.W. Nam, D. Rosenberg, R.W. Romani, A. Tomada. "Transition-edge sensor arrays for UV-optical-IR astrophysics," *Nuclear Instruments and Methods in Physics Research Section A*, Volume 559, p. 525-527 (2006).

28. T.J. Bay, **J. Burney**, J. Barral, P.L. Brink, B. Cabrera, J.P. Castle, A.J. Miller, S.W. Nam, R.W. Romani, A. Tomada. "The optical imaging TES detector array: Considerations for a cryogenic imaging instrument," *Nuclear Instruments and Methods in Physics Research Section A*, Volume 559, p. 506-508 (2006).

29. **J. Burney***, T.J. Bay, P. Brink, B. Cabrera, P. Castle, R. Romani, A. Tomada, S. Nam, A. Miller, J. Martinis, E. Wang, T. Kenny, B. Young. "Development and characterization of a TES optical imaging array for astrophysics applications," *Nuclear Instruments and Methods in Physics Research Section A*, Volume 520, p. 533-536 (2004).

Under Review and In Preparation

30. C. Hong*, **J. Burney***, J. Pongratz, J. Nabel, N. D. Mueller, R. B. Jackson, and S. J. Davis*. "Global and regional drivers of land-use emissions 1961-2017" (*revisions submitted).*

31. P. Zhu & **J. Burney**. "Temperature-driven harvest decisions amplify U.S. winter wheat loss under climate change" (*revisions requested*).

32. P. Zhu & **J. Burney**. " Untangling irrigation effects on maize water and heat stress alleviation using satellite data" (*revisions requested*).

33. M. C. Levy, W. Neely, A. Borsa, **J. Burney**. "Vegetation water demand, subsidence, and groundwater in California's Central Valley" (*revisions requested*).

34. A. Gori Maia, **J. Burney**, D. M. Martinez, D. Cesano. "The benefits of a climate resilience program for livestock and dairy farmers in the Brazilian Sertão" (*under review*).

35. J. Arellano Gonzalez, F. C. Moore, A. AghaKouchak, M. C. Levy, Y. Qin, **J Burney**, S. J. Davis. "Adaptive benefits of agricultural water markets" (*under review*).

36. **J. Burney***, G. G. Persad*, J. Proctor, E. Bendavid, M. Burke, K. Caldeira, S. Heft-Neal. "The physical and social impacts of aerosol emissions from different locations."

37. S. A. Benz and **J. Burney**. "Urbanization's perturbation to the global surface energy balance and its consequences for future temperature exposures."

Other Published Work

1. P. Bharadwaj & **J. Burney**, "Comment on: Association of prenatal Exposure to Sand-and-dust Storms and Children's Cognitive Function in China," *The Lancet Planetary Health*, 2:5 (2018).

2. W. D. Collins, S. J. Davis, R. Bales, J**. Burney**, R. McCarthy, E. Rignot, W. Torre, D. Victor, "Science and Pathways for Bending the Curve," *Collabra*, 2:1 (2016).

3. **J . Burney**, Crop Impacts section author in "India-California Air Pollution Mitigation Program (ICAMP): A joint initiative by The Energy and Resources Institute (TERI) India, University of California at San Diego (UCSD), and the California Air Resources Board (CARB)."

4. **J. Burney** "Creating synergies between water, energy, and food security for smallholders," Chapter 6 in *The Evolving Sphere of Food Security*, R. Naylor (ed.) Oxford University Press (2014).

5. **J. Burney**, C. Kennel, D. Victor, "Getting serious about the new realities of global climate change," *Bulletin of the Atomic Scientists*, 69:4 (2013).

6. R.W. Romani, T.J. Bay, **J. Burney**, B. Cabrera. "Transition-Edge Cameras for Fast Optical Spectrophotometry," in *High Time Resolution Astrophysics*, D. Phelan, O. Ryan, A. Shearer (eds.). Astrophysics and Space Science Library, Vol. 351 (2008).

7. Bay, T.J., **J. Burney**, P.L. Brink, B. Cabrera, J.P. Castle, R.W. Romani, A. Tomada, B.A. Young, S. Nam, A.J. Miller, J. Martinis, T.W. Kenny, E. Wang, "Development of superconducting transition edge sensors for time- and energy-resolved single-photon counters with application to imaging astronomy," *Materials for Infrared Detectors III*. Edited by Longshore, Randolph E.; Sivananthan, Sivalingam. Proceedings of the SPIE, Volume 5209, pp. 192-200 (2003).

8. R.W. Romani, **J. Burney**, P. Brink, B. Cabrera, P. Castle, T. Kenny, E. Wang, B. Young, A.J. Miller, S.W. Nam. "UV-IR Science Prospects with TES Imaging Arrays" in *Hubble's Science Legacy: Future Optical-Ultraviolet Astronomy from Space*, K.R. Sembach, J.C. Blades, G.D. Illingworth, R.C. Kennicutt, Jr. (eds.). ASP Conference Series, Vol. 291 (2003).

Fellowships & Awards

2017: American Geophysical Union Global Environmental Change Early Career Award Recipient
2017: UC San Diego campus-wide diversity award recipient
2014: Named Kavli Frontiers of Science Fellow
2014: Named Hellman Fellow
2011: Named National Geographic Emerging Explorer
2010: University of California President's Postdoctoral Fellow (through 2012)
2006: Joseph R. McMicking Fellow, Stanford Physics Department
2003: NASA Graduate Student Research Program Fellowship (through 2006)
1999: Hoopes Prize for "Outstanding Senior Thesis" (Harvard College)
1999: Rothschild Prize for "Best Written Thesis" (Harvard History of Science Department)
1999: Phi Beta Kappa (Harvard College)
1998: Ernest Coleman Award for Scholarship and Citizenship (Stanford Linear Accelerator Center)

Grants and Funding (current & past 5 Years)

2019: Robert Wood Johnson Foundation: Health Co-benefits of Climate Change Mitigation (co-PI)
2018: Russell Sage Foundation: Measuring Local Economic Activity Using Neural Networks Trained on Satellite Imagery (co-I)

2017: NSF CNH-L (Dynamics of Coupled Human and Natural Systems): "The Coupled Climate and Institutional Dynamics of Short-Lived Local Pollutants and Long-Lived Global Greenhouse Gases" (PI)
2017: Bill and Melinda Gates Foundation Grand Challenges Explorations Phase II: "Mobile Money, Schooling and the Poor" (co-PI)
2016: Inter-American Development Bank (IADB): "Climate Resilience of Financial Institutions" (co-PI)
2016: NSF-INFEWS (Innovations at the Nexus of Food, Energy, and Water Systems): "INFEWS/T1: Monitoring and managing food, energy, and water systems under stress: California " (co-PI)
2015: Bill and Melinda Gates Foundation Grand Challenges Explorations Round 14 (co-PI)
2014, 2015: Frontiers of Innovation Scholars Grant Recipient (x3)
2014: Qualcomm CSRO Grant Recipient
2014: Hellman Grant Recipient

Selected Invited Presentations (scheduled & recent)

[European Geophysical Union talks (x2) cancelled due to COVID-19 pandemic]
Physics Department Colloquium Lecture, LMU Munich (01/2020)
UC Environmental Economics Seminar (12/2019)
UC San Diego Environmental Economics Seminar Speaker (04/2019)
Scripps Institution of Oceanography CASPO Seminar Speaker (03/2019)
NASA AMES Invited Seminar Speaker, Aerosol impacts, Mountain View CA (02/2019)
American Geophysical Union Fall Meeting Invited Presenter, Air pollution impacts in India and Conducting interdisciplinary research, Washington DC (12/2018)
Invited Seminar Speaker (w/ Craig McIntosh), Inter-American Development Bank, Washington D.C. (10/2018)
UCLA Geography Department, Invited Speaker (05/2018)
American Economics Association Annual Meeting, Invited Speaker (New Methods for Measuring Poverty and Welfare), Philadelphia, PA (01/2018)
CEGA Research Retreat, Berkeley CA, Invited Speaker (10/2017)
UNICAMP Brazil Invited Seminar Speaker, Campinas, Brazil (09/2017)
CEGA Geospatial Analytics for International Development, Berkeley CA, Invited Speaker (09/2017)
2nd International Solar Fuels Conference, Invited Keynote Speaker, San Diego CA (07/2017)
Energy Policy Institute at Chicago (EPIC) Invited Seminar Speaker, University of Chicago (06/2017)
UC San Diego Deep Decarbonization Seminar Speaker (02/2017)
UC San Diego Ledden Memorial Lecture Series, Invited Speaker (01/2017)
Harvard University Center for the Environment, Invited Speaker (11/2016)
Chapman University Science Forum, Invited Speaker (04/2016)
UC Center in Sacramento, Invited Speaker (02/2016)
Aiddata Workshop, Invited Speaker, Duke University, Durham NC (02/2016)
UC Berkeley Environment and Resources Group (ERG) Colloquium, Invited Speaker, Berkeley CA (01/2016)
UC San Diego Mechanical and Aerospace Engineering Seminar, Invited Talk (06/2015)
IPCC Expert Meeting on Climate, Food, and Agriculture, Invited Speaker, Dublin, Ireland (05/2015)
US-Iran National Academies Symposium on Climate Change, Invited Speaker, Irvine CA (03/2015)
Stanford Earth System Science Department Colloquium, Invited Speaker, Stanford CA (03/2015)
Kavli Frontiers of Science Symposium, Invited speaker, Tokyo, Japan (12/2014)
Policy Design and Evaluation Laboratory (PDEL) Public Seminar (12/2014)
5th International Conference on Deserts, Drylands & Desertification, Invited Keynote, Sdeh Boker, Israel (11/2014)
Our Energy Future lecture series, invited lecture recorded for MOOC, UC San Diego, San Diego CA (10/2013)
"Recent Air Pollution Impacts on Indian Agriculture" invited presentation, India California Air Pollution Mitigation Program (ICAMP) workshop, Oakland CA (10/2013)
Air Quality and Climate Impacts: Towards a methodology for stress-testing metrics" Invited workshop participant, University College London and Institute for Advanced Sustainability Studies, London UK (09/2013)
"Can land-sparing mitigate climate change?" Invited workshop participant, Conservation Science Group, University of Cambridge, Cambridge UK (09/2013)
Workshop on Health, Agricultural and Water Risks Associated with Air Quality and Climate in Asia, Invited Keynote Speaker, National Center for Atmospheric Research (NCAR), Boulder CO (07/2013)
Global Food Policy and Food Security Symposium, Invited Discussant, Stanford University, Stanford CA (05/2013)
UC San Diego Center for Global Justice, Forum on Energy and Climate Justice, Invited Speaker (04/2013)
United Nations Environment Programme Atmospheric Brown Clouds (ABC) International Science Team meeting, invited lecture, Beijing China (09/2012)

Current / Recent Service

[On Sabbatical / Change of Work Location AY 2019-2020 in Lyon, France]

Journal Reviewer (past 5 years): *Agriculture Ecosystems & Environment, Agricultural Systems, Agricultural Water Management, Energy and Environmental Science, Environmental Research Letters, Environmental Science & Technology, Food Security, Global Environmental Change, Nature, Nature Climate Change, Nature Communications, Pest Management Science, PLOS One, PNAS, Scientific Reports, World Development*

UC System
- Reviewer for UC President's Postdoctoral Fellowship Program Applications (2012-present)

UC San Diego
- Chancellor's Advisory Committee on Gender Identity and Sexual Orientation Issues (January 2012-2019, Faculty chair August 2015-August 2017)
- Faculty Equity Adviser (March 2014-September 2017)
- Understanding and Protecting the Planet: Faculty Search Committee (2015-2016), Advisory Board (2019-present)
- SIO Director / A.V.C. Marine Sciences Review Committee (2018-2019)

School of Global Policy and Strategy
- Infrastructure Committee (January 2012-present), Status of Women Committee (2013-present), Deans Fellows Selection Committee (2013-present), Queer Student Group Faculty Mentor (2013-present)
- Faculty Search Committee Chair, Jacobs Endowed Chair in Science, Technology, Policy (2018-2019)

Current / Recent University Teaching

IRCO 454: Quantitative Methods II, Core Requirement – Winter Quarter (2013 – 2018)
IRGN 468: Evaluating Technological Innovation, Capstone – Winter Quarter (2014 – 2019)
IRGN 490: Food Security, Seminar – Spring Quarter (2013-2014, 2016, 2017-2019)
Coming Fall 2020: Modeling Environmental Systems
Faculty Director, GPS Science Policy Fellows Program (2014 – present)
(List of postdocs, students available upon request or on research group website.)

Other

UC San Diego Policy Design and Evaluation Laboratory (PDEL) Faculty Affiliate (2014-present)
Center for Climate Change Impacts and Adaptation (CCCIA) Faculty Affiliate (2018-present)
UC San Diego Center for Energy Research (CER) Faculty Affiliate (2015-present)
Center for Effective Global Action (CEGA) Faculty Affiliate (2016-present)

National Geographic Explorer (2011-present)
Aspen Global Change Institute (AGCI) Member, Board of Directors (2019-present)
DNC Environmental and Climate Crisis Council Scientific Advisor (2020)
Member: American Geophysical Union, American Physical Society
Languages: Near-fluent French and Spanish, intermediate Hebrew