

Curriculum Vitae for David B. Lobell

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A. Academic History

Degrees:

- 2000 Sc.B. Brown University
Department of Applied Mathematics, Magna Cum Laude
- 2005 Ph.D. Stanford University,
Department of Geological and Environmental Sciences
Dissertation: "A remote sensing approach to understand controls
on cropland productivity"

Post-doctoral training:

- 2005-2008 Lawrence Fellow, Lawrence Livermore National Laboratory

B. Employment History:

- 2017 - Present Professor, Earth System Science Department (ESS), Stanford University
Gloria and Richard Kushel Director, Center on Food Security and the
Environment (FSE), as of Sep 2018
William Wrigley Senior Fellow, Woods Institute for the Environment
Senior Fellow, Freeman Spogli Institute for International Studies (FSI)
and Stanford Institute for Economic Policy and Research (SIEPR).
- 2013 – 2017 Associate Professor (ESS) and Senior Fellow (Woods/FSI), Stanford
- 2009 – 2013 Assistant Professor (ESS) and Center Fellow (Woods/FSI), Stanford
- 2008 – 2009 Senior Research Scholar, FSE, Stanford
- 2005 – 2007 Lawrence Postdoctoral Fellow, Lawrence Livermore National Laboratory

C. Public and Professional Service

Advisor, Global Commission on Adaptation. 2018-present

Lead Author, Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report,
Chapter 7 of the Working Group II, "Food Production Systems and Food Security",
2010-2014. Also member of core writing team for "Summary for Policy Makers" and
contributing author for Ch. 18 on "Detection and Attribution of Observed Impacts"

Member of National Academy of Sciences Committee on Stabilization Targets for Atmospheric
Greenhouse Gas Concentrations (August 2009-May 2010) and Assessing the Impact of
Climate Change on Political and Social Stresses (Sep 2011-Sep 2012)

Member of Technical Advisory and Review Panel for World Bank Group activities related to
climate change adaptation, 2012

Editor, Global Change Biology, 2011-2018

Editorial Advisory Board Member, Global Food Security, 2012-2019

Editorial Board Member, Environmental Research Letters, 2009-2013

Associate Editor, Journal of Environmental Quality, 2008 – 2010

Co-organized and Led Meeting of 20 International Scientists on "Adapting Agriculture to Climate
Change: The Role of Crop Wild Relatives" in Bellagio, Italy in September, 2010

Organized and Led Meeting of 17 International Scientists on "Climate extremes and crop
adaptation" at Stanford in June, 2009

Edited special issue of J Environmental Quality on "Remote Sensing of Soil Degradation"

National Academy of Sciences Panel on Climate, Energy, and Security (May-June 2008)

National Academy of Sciences Workshop on Remote Sensing for Human Welfare (January 2006)

NASA Land Cover Land Use Change Grant Review Panel, September 2005

Frequent reviewer for over 25 scientific journals, including Science, Nature and PNAS.

Occasional editor at PNAS (on request of board member).

Numerous invited talks at corporations and business conferences on climate change adaptation

Numerous public lectures throughout the Bay Area on climate change and food

D. Post-Degree Honors and Awards:

Awards:

National Academy of Sciences Food and Agriculture Prize, 2022

Honorary Doctorate, Brown University, 2021

Macarthur Fellow, 2014-2018

Sir Frederick McMaster Fellowship, CSIRO, Australia, 2014

Terman Fellow, Stanford University, 2011-2014

Google Science Communication Fellow, 2011

James B. Macelwane Medal, American Geophysical Union, 2010

Fellow, American Geophysical Union, 2010

NASA New Investigator Program Award, 2008-2010

Lawrence Fellowship, Lawrence Livermore National Laboratory, 2005-2008

Selected invited talks (in past 2 years):

December 2021, Asia Development Bank Institute Annual Meeting “Best bets for a carbon-neutral global food system”

November 2021, UC Santa Barbara and UC Davis, “Crop analytics: can data take agriculture to the next level?”

November 2021 Geo for Good Summit, “Science Powering Supply Chain Analysis - Using Google Earth Engine to Improve Agricultural Data”

September 2021, National University of Singapore, “Food security and climate change in Southeast Asia”

August 2021, Google, “Tracking agricultural outcomes at field scales: methods and applications”

August 2021, International Association of Agricultural Economists Annual Meeting “Twice Is Nice: The Benefits of Two Ground Measures for Evaluating Satellite-Based Yield Estimates”

October 2020, CGIAR Standing Panel in Impact Assessment “Remote sensing: State of the science and future applications” Invited Keynote

October 2020, University of Chicago Energy Policy Institute “Air pollution impacts in agriculture: seeing further with satellite data”

September 2020, Stanford Carbon Management Workshop “Can climate smart agriculture deliver food and carbon mitigation solutions?”

March 2020, Interdrought conference, “Is the importance of water-limited environments to global food supply growing?” Invited Keynote

January 2020, UC Giannini Foundation of Agricultural Economics Big Ag Data Conference. “Can we measure agricultural adaptation to climate change?”

September 2019 Millennium Challenge Corporation. “Remote sensing for agricultural monitoring and impact evaluation”

September 2019 African Green Revolution Forum, Accra, Ghana, “Consistent and transparent measurements of regional crop production”

July 2019 Blue River Technologies, “Productivity in US Agriculture”

June 2019 NASA, “Progress on crop area and yield mapping in Eastern Africa”

October 2018 Macarthur Fellows Conference. “Putting data to work for food security and the environment”

September 2018. Climate action summit panel on children’s health. “Climate change, food security, and child health”

July 2018. International Conference of Agricultural Economists, Vancouver. “Eyes in the Sky, Boots on the Ground: Assessing Satellite- and Ground-Based Approaches to Crop Yield Measurement and Analysis in Uganda”

May 2018. Stanford University annual conference on Indian Economic Policy, “Technology and the Productivity of India's Agriculture”

May 2018. MIT, “Pathways to food security in the context of climate change”

February 2018, Stanford Global Health conference, “Impacts of changing climate on food availability and quality”

E. Scholarly Publications

Peer Reviewed Publications (*indicates first author was a student or post-doc):

- *Kluger, D.M., Owen, A.B. and Lobell, D.B., 2022. Combining randomized field experiments with observational satellite data to assess the benefits of crop rotations on yields. *Environmental Research Letters*, in press.
- *Deines, J., Guan, K., Lopez, B., Wang, S., White, C., Zhou, Q., and D.B. Lobell 2022. Recent cover crop adoption is associated with small maize and soybean yield losses in the United States. *Global Change Biology*, in review.
- *Wang, S., Waldner, F. and Lobell, D.B., 2022. Unlocking large-scale crop field delineation in smallholder farming systems with transfer learning and weak supervision. *Remote Sensing of Environment*, in revision.
- *Meng, C., Liu, E., Neiswanger, W., Song, J., Burke, M., Lobell, D. and Ermon, S., 2022. IS-COUNT: Large-scale Object Counting from Satellite Images with Covariate-based Importance Sampling. *arXiv preprint arXiv:2112.09126*.
- *Behrer, A. and Lobell, D.B. Higher levels of no-till agriculture associated with lower PM2.5 in the Corn Belt. 2022. *Environmental Research Letters*, in revision.
- *Stigler, M. and Lobell, D., 2022. Optimal index insurance and basis risk decomposition: an application to Kenya. *American Journal of Agricultural Economics*, in revision
- Lin, C., Zhong, L., Song, X.P., Dong, J., Lobell, D.B. and Jin, Z., 2022. Early-and in-season crop type mapping without current-year ground truth: generating labels from historical information via a topology-based approach. *Remote Sensing of Environment*, 274, p.112994.
- Ishtiaque, A., Singh, S., Lobell, D., Fishman, R. and Jain, M., 2022. Prior crop season management constrains farmer adaptation to warming temperatures: Evidence from the Indo-Gangetic Plains. *Science of The Total Environment*, 807, p.151671.
- *Lee, J.Y., Wang, S., Figueroa, A.J., Strey, R., Lobell, D.B., Naylor, R.L. and Gorelick, S.M., 2022. Mapping Sugarcane in Central India with Smartphone Crowdsourcing. *Remote Sensing*, 14(3), p.703.
- *Campolo, J., Ortiz-Monasterio, I., Guereña, D. and Lobell, D.B., 2022. Evaluating maize yield response to fertilizer and soil in Mexico using ground and satellite approaches. *Field Crops Research*, 276, p.108393.
- *Yeh, C., Meng, C., Wang, S., Driscoll, A., Rozi, E., Liu, P., Lee, J., Burke, M., Lobell, D.B. and Ermon, S., 2021, August. SustainBench: Benchmarks for Monitoring the Sustainable Development Goals with Machine Learning. In *Thirty-fifth Conference on Neural Information Processing Systems*.
- Di Tommaso, S., Wang, S. and Lobell, D.B., 2021. Combining GEDI and Sentinel-2 for wall-to-wall mapping of tall and short crops. *Environmental Research Letters*. <https://doi.org/10.1088/1748-9326/ac358c>
- *Kluger, D.M., Wang, S. and Lobell, D.B., 2021. Two shifts for crop mapping: Leveraging aggregate crop statistics to improve satellite-based maps in new regions. *Remote Sensing of Environment*, 262, p.112488
- Bhattarai, N., Pollack, A., Lobell, D.B., Fishman, R., Singh, B., Dar, A. and Jain, M., 2021. The impact of groundwater depletion on agricultural production in India. *Environmental Research Letters*, 16(8), p.085003.
- Lobell, D.B. and Burney, J.A., 2021. Cleaner air has contributed one-fifth of US maize and soybean yield gains since 1999. *Environmental Research Letters*, 16(7), p.074049.
- Lobell, D.B., Di Tommaso, S., Burke, M. and Kilic, T., 2021. Twice Is Nice: The Benefits of Two Ground Measures for Evaluating the Accuracy of Satellite-Based Sustainability Estimates. *Remote Sensing*, 13(16), p.3160.
- *Lee, J., Grosz, D., Uzgent, B., Zeng, S., Burke, M., Lobell, D. and Ermon, S., 2021, May. Predicting Livelihood Indicators from Community-Generated Street-Level Imagery. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 35, No. 1, pp. 268-276).
- *Lee, J., Brooks, N.R., Tajwar, F., Burke, M., Ermon, S., Lobell, D.B., Biswas, D. and Luby, S.P., 2021. Scalable deep learning to identify brick kilns and aid regulatory capacity. *Proceedings of the National Academy of Sciences*, 118(17).

- Ishtiaque, A., Singh, S., Lobell, D., Singh, B., Fishman, R. and Jain, M., 2021. Prior crop season management constrains farmer adaptation to warming temperatures: Evidence from the Indo-Gangetic Plains. *Science of The Total Environment*, p.151671.
- Rao, P., Zhou, W., Bhattarai, N., Srivastava, A.K., Singh, B., Poonia, S., Lobell, D.B. and Jain, M., 2021. Using Sentinel-1, Sentinel-2, and Planet Imagery to Map Crop Type of Smallholder Farms. *Remote Sensing*, 13(10), p.1870.
- Ortiz-Bobea, A., Ault, T.R., Carrillo, C.M., Chambers, R.G. and Lobell, D.B., 2021. Anthropogenic climate change has slowed global agricultural productivity growth. *Nature Climate Change*, 11(4), pp.306-312.
- *Ayush, K., Uz Kent, B., Meng, C., Tanmay, K., Burke, M., Lobell, D. and Ermon, S., 2021. Geography-aware self-supervised learning. In *Proceedings of the IEEE/CVF International Conference on Computer Vision* (pp. 10181-10190).
- Burke, M., Driscoll, A., Lobell, D.B. and Ermon, S., 2021. Using satellite imagery to understand and promote sustainable development. *Science*, 371(6535).
- *Deines, J.M., Patel, R., Liang, S.Z., Dado, W. and Lobell, D.B., 2021. A million kernels of truth: insights into scalable satellite maize yield mapping and yield gap analysis from an extensive ground dataset in the US Corn Belt. *Remote Sensing of Environment*, 253, p.112174.
- *Campolo, J., Güereña, D., Maharjan, S. and Lobell, D.B., 2021. Evaluation of soil-dependent crop yield outcomes in Nepal using ground and satellite-based approaches. *Field Crops Research*, 260, p.107987.
- Benami, E., Jin, Z., Carter, M.R., Ghosh, A., Hijmans, R.J., Hobbs, A., Kenduyiwo, B. and Lobell, D.B., 2021. Uniting remote sensing, crop modelling and economics for agricultural risk management. *Nature Reviews Earth & Environment*, pp.1-20.
- *Yeh, C., Perez, A., Driscoll, A., Azzari, G., Tang, Z., Lobell, D., Ermon, S. and Burke, M., 2020. Using publicly available satellite imagery and deep learning to understand economic well-being in Africa. *Nature communications*, 11(1), pp.1-11.
- Newport, D., Lobell, D.B., Srivastava, A.K., Rao, P., Umashaanker, M., Malik, R.K., McDonald, A. and Jain, M., 2020. Factors Constraining Timely Sowing of Wheat as an Adaptation to Climate Change in Eastern India. *Weather, Climate, and Society*, 12(3), pp.515-528.
- *Wang, S., Di Tommaso, S., Deines, J.M. and Lobell, D.B., 2020. Mapping twenty years of corn and soybean across the US Midwest using the Landsat archive. *Scientific Data*, 7(1), pp.1-14.
- Diffenbaugh, N.S., et al., 2020. The COVID-19 lockdowns: a window into the Earth System. *Nature Reviews Earth & Environment*, 1(9), pp.470-481.
- *Wang, S., Di Tommaso, S., Faulkner, J., Friedel, T., Kennepohl, A., Strey, R. and Lobell, D.B., 2020. Mapping crop types in southeast india with smartphone crowdsourcing and deep learning. *Remote Sensing*, 12(18), p.2957.
- *Lin Aung, H., Uz Kent, B., Burke, M., Lobell, D. and Ermon, S., 2020. Farm Parcel Delineation Using Spatio-Temporal Convolutional Networks. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops* (pp. 76-77).
- *Dado, W.T., Deines, J.M., Patel, R., Liang, S.Z. and Lobell, D.B., 2020. High-Resolution Soybean Yield Mapping Across the US Midwest Using Subfield Harvester Data. *Remote Sensing*, 12(21), p.3471.
- Wolski, P., Lobell, D., Stone, D., Pinto, I., Crespo, O. and Johnston, P., 2020. On the role of anthropogenic climate change in the emerging food crisis in southern Africa in the 2019–2020 growing season. *Global Change Biology*, 26(5), pp.2729-2730.
- Lobell, D.B., Deines, J.M. and Di Tommaso, S., 2020. Changes in the drought sensitivity of US maize yields. *Nature Food*, pp.1-7.
- Lobell, D.B., 2020. Principles and priorities for one CGIAR. *Food Policy*, p.101825.
- Lobell, D.B., Di Tommaso, S., You, C., Yacoubou Djima, I., Burke, M. and Kilic, T., 2020. Sight for Sorghums: Comparisons of Satellite-and Ground-Based Sorghum Yield Estimates in Mali. *Remote Sensing*, 12(1), p.100.
- *Wang, S., Chen, W., Xie, S.M., Azzari, G. and Lobell, D.B., 2020. Weakly Supervised Deep Learning for Segmentation of Remote Sensing Imagery. *Remote Sensing*, 12(2), p.207.
- Edreira, J.I.R., Mourtzinis, S., Azzari, G., Andrade, J.F., Conley, S.P., Lobell, D., Specht, J.E. and Grassini, P., 2020. From sunlight to seed: Assessing limits to solar radiation capture and conversion in agro-ecosystems. *Agricultural and Forest Meteorology*, 280, p.107775.
- *Ayush, K., Uz Kent, B., Burke, M., Lobell, D. and Ermon, S., 2020. Generating Interpretable Poverty Maps using Object Detection in Satellite Images. *arXiv preprint arXiv:2002.01612*.
- *Deines, J.M., Wang, S. and Lobell, D.B., 2019. Satellites reveal a small positive yield effect from conservation tillage across the US Corn Belt. *Environmental Research Letters*, 14(12), p.124038.

- *Jain, M., Rao, P., Srivastava, A.K., Poonia, S., Blesh, J., Azzari, G., McDonald, A.J. and Lobell, D.B., 2019. The impact of agricultural interventions can be doubled by using satellite data. *Nature Sustainability*, 2(10), pp.931-934.
- Lobell, D.B., Azzari, G., Burke, M., Gourlay, S., Jin, Z., Kilic, T. and Murray, S., 2019. Eyes in the Sky, Boots on the Ground: Assessing Satellite-and Ground-Based Approaches to Crop Yield Measurement and Analysis. *American Journal of Agricultural Economics*.
- *Zaveri, E. and Lobell, D.B., 2019. The role of irrigation in changing wheat yields and heat sensitivity in India. *Nature communications*, 10(1), pp.1-7.
- Gourlay, S., Kilic, T. and Lobell, D.B., 2019. A new spin on an old debate: Errors in farmer-reported production and their implications for inverse scale-Productivity relationship in Uganda. *Journal of Development Economics*, p.102376.
- *Beal Cohen, A.A., Seifert, C.A., Azzari, G. and Lobell, D.B., 2019. Rotation Effects on Corn and Soybean Yield Inferred from Satellite and Field-level Data. *Agronomy Journal*.
- Leakey, A.D., Ferguson, J.N., Pignon, C.P., Wu, A., Jin, Z., Hammer, G.L. and Lobell, D.B., 2019. Water use efficiency as a constraint and target for improving the resilience and productivity of C3 and C4 crops. *Annual review of plant biology*, 70, pp.781-808.
- *Jin, Z., Azzari, G., You, C., Di Tommaso, S., Aston, S., Burke, M. and Lobell, D.B., 2019. Smallholder maize area and yield mapping at national scales with Google Earth Engine. *Remote Sensing of Environment*, 228, pp.115-128.
- *Jin, Z., Archontoulis, S.V. and Lobell, D.B., 2019. How much will precision nitrogen management pay off? An evaluation based on simulating thousands of corn fields over the US Corn-Belt. *Field Crops Research*, 240, pp.12-22.
- *Azzari, G., Grassini, P., Edreira, J.I.R., Conley, S., Mourtzinis, S. and Lobell, D.B., 2019. Satellite mapping of tillage practices in the North Central US region from 2005 to 2016. *Remote sensing of environment*, 221, pp.417-429.
- Cai, Y., Guan, K., Lobell, D., Potgieter, A.B., Wang, S., Peng, J., Xu, T., Asseng, S., Zhang, Y., You, L. and Peng, B., 2019. Integrating satellite and climate data to predict wheat yield in Australia using machine learning approaches. *Agricultural and Forest Meteorology*, 274, pp.144-159.
- *Wang, S., Azzari, G. and Lobell, D.B., 2019. Crop type mapping without field-level labels: Random forest transfer and unsupervised clustering techniques. *Remote Sensing of Environment*, 222, pp.303-317.
- *Perez A, Ganguli S, Ermon S, Azzari G, Burke M, Lobell D. 2019. Semi-supervised multitask learning on multispectral satellite images using wasserstein generative adversarial networks (gans) for predicting poverty. arXiv preprint arXiv:1902.11110. 2019 Feb 13.
- Duffy, P.B., Field, C.B., Diffenbaugh, N.S., Doney, S.C., Dutton, Z., Goodman, S., Heinzerling, L., Hsiang, S., Lobell, D.B., Mickley, L.J. and Myers, S., 2019. Strengthened scientific support for the Endangerment Finding for atmospheric greenhouse gases. *Science*, 363(6427), p.eaat5982.
- *Uzkent, B., Sheehan, E., Meng, C., Tang, Z., Burke, M., Lobell, D. and Ermon, S., 2019. Learning to Interpret Satellite Images in Global Scale Using Wikipedia. arXiv preprint arXiv:1905.02506.
- *Wang, A.X., Tran, C., Desai, N., Lobell, D. and Ermon, S., 2018, June. Deep transfer learning for crop yield prediction with remote sensing data. In *Proceedings of the 1st ACM SIGCAS Conference on Computing and Sustainable Societies* (p. 50). ACM.
- *Zhong, H., Li, X., Lobell, D., Ermon, S. and Brandeau, M.L., 2018. Hierarchical modeling of seed variety yields and decision making for future planting plans. *Environment Systems and Decisions*, 38(4), pp.458-470.
- Oshri, B., Hu, A., Adelson, P., Chen, X., Dupas, P., Weinstein, J., Burke, M., Lobell, D. and Ermon, S., 2018, July. Infrastructure quality assessment in africa using satellite imagery and deep learning. In *Proceedings of the 24th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining* (pp. 616-625). ACM.
- Zhu P, Jin Z, Zhuang Q, Ciais P, Bernacchi C, Wang X, Makowski D, Lobell D. 2018 The important but weakening maize yield benefit of grain filling prolongation in the US Midwest. *Global change biology*. Oct;24(10):4718-30.
- Jean N, Wang S, Azzari G, Lobell D, Ermon S. 2018. Tile2Vec: Unsupervised representation learning for remote sensing data. arXiv preprint arXiv:1805.02855. 2018 May 8.
- Ciscar JC, Fisher-Vanden K, Lobell DB. Synthesis and Review: an inter-method comparison of climate change impacts on agriculture. *Environmental Research Letters*. 2018 Jun 26;13(7):070401.
- *Seifert, C.A., Azzari, G. and Lobell, D.B., 2018. Satellite detection of cover crops and their effects on crop yield in the Midwestern United States. *Environmental Research Letters*, 13(6), p.064033.
- *Weyant, C., Brandeau, M.L., Burke, M., Lobell, D.B., Bendavid, E. and Basu, S., 2018. Anticipated burden and mitigation of carbon-dioxide-induced nutritional deficiencies and related diseases: A simulation modeling study. *PLoS medicine*, 15(7), p.e1002586.

- *Turner, P.A., Field, C.B., Lobell, D.B., Sanchez, D.L. and Mach, K.J., 2018. Unprecedented rates of land-use transformation in modelled climate change mitigation pathways. *Nature Sustainability*, 1(5), p.240.
- *Jin, Z., Ainsworth, E. A., Leakey, A. D. B., & Lobell, D. B. (2018). Increasing drought and diminishing benefits of elevated carbon dioxide for soybean yields across the US Midwest. *Global Change Biology*, 24(2). <https://doi.org/10.1111/gcb.13946>
- *Turner, P. A., Mach, K. J., Lobell, D. B., Benson, S. M., Baik, E., Sanchez, D. L., & Field, C. B. (2018). The global overlap of bioenergy and carbon sequestration potential. *Climatic Change*. 148(1-2), pp.1-10.<https://doi.org/10.1007/s10584-018-2189-z>
- Tebaldi, C., & Lobell, D. (2018). Estimated impacts of emission reductions on wheat and maize crops. *Climatic Change*, 146(3-4), 533-545.
- *Jin, Z., Azzari, G., & Lobell, D. B. (2017). Improving the accuracy of satellite-based high-resolution yield estimation: A test of multiple scalable approaches. *Agricultural and Forest Meteorology*, 247. <https://doi.org/10.1016/j.agrformet.2017.08.001>
- *Jin, Z., Azzari, G., Burke, M., Aston, S., & Lobell, D. B. (2017). Mapping smallholder yield heterogeneity at multiple scales in eastern Africa. *Remote Sensing*, 9(9). <https://doi.org/10.3390/rs9090931>
- Zhao, C., Liu, B., Piao, S., Wang, X., Lobell, D. B., Huang, Y., ... Asseng, S. (2017). Temperature increase reduces global yields of major crops in four independent estimates. *Proceedings of the National Academy of Sciences of the United States of America*, 114(35). <https://doi.org/10.1073/pnas.1701762114>
- *Guan, K., Wu, J., Kimball, J. S., Anderson, M. C., Frolking, S., Li, B., ... Lobell, D. B. (2017). The shared and unique values of optical, fluorescence, thermal and microwave satellite data for estimating large-scale crop yields. *Remote Sensing of Environment*, 199. <https://doi.org/10.1016/j.rse.2017.06.043>
- *Pryzant, R., Ermon, S., & Lobell, D. (2017). Monitoring Ethiopian Wheat Fungus with Satellite Imagery and Deep Feature Learning. In *IEEE Computer Society Conference on Computer Vision and Pattern Recognition Workshops (Vol. 2017–July)*. <https://doi.org/10.1109/CVPRW.2017.196>
- Roberts, M. J., Braun, N. O., Sinclair, T. R., Lobell, D. B., & Schlenker, W. (2017). Comparing and combining process-based crop models and statistical models with some implications for climate change. *Environmental Research Letters*, 12(9). <https://doi.org/10.1088/1748-9326/aa7f33>
- *Jain, M., Singh, B., Srivastava, A. A. K., Malik, R. K., McDonald, A. J., & Lobell, D. B. (2017). Using satellite data to identify the causes of and potential solutions for yield gaps in India's Wheat Belt. *Environmental Research Letters*, 12(9). <https://doi.org/10.1088/1748-9326/aa8228>
- *Azzari, G., & Lobell, D. B. (2017). Landsat-based classification in the cloud: An opportunity for a paradigm shift in land cover monitoring. *Remote Sensing of Environment*, 202. <https://doi.org/10.1016/j.rse.2017.05.025>
- Lobell, D. B., & Asseng, S. (2017). Comparing estimates of climate change impacts from process-based and statistical crop models. *Environmental Research Letters*, 12(1). <https://doi.org/10.1088/1748-9326/aa518a>
- *Azzari, G., Jain, M., & Lobell, D. B. (2017). Towards fine resolution global maps of crop yields: Testing multiple methods and satellites in three countries. *Remote Sensing of Environment*, 202. <https://doi.org/10.1016/j.rse.2017.04.014>
- *Seifert, C. A., Roberts, M. J., & Lobell, D. B. (2017). Continuous corn and soybean yield penalties across hundreds of thousands of fields. *Agronomy Journal*, 109(2). <https://doi.org/10.2134/agronj2016.03.0134>
- Burke, M. and Lobell, D.B., 2017. Satellite-based assessment of yield variation and its determinants in smallholder African systems. *Proceedings of the National Academy of Sciences*, 114(9), pp.2189-2194. <https://doi.org/10.1073/pnas.1616919114>
- Lobell, D.B. and Azzari, G., 2017. Satellite detection of rising maize yield heterogeneity in the US Midwest. *Environmental Research Letters*, 12(1), p.014014. <https://doi.org/10.1088/1748-9326/aa5371>
- Lobell, D.B. and Asseng, S., 2017. Comparing estimates of climate change impacts from process-based and statistical crop models. *Environmental Research Letters*, 12(1), p.015001.
- *Urban, D. W., Sheffield, J., & Lobell, D. B. (2017). Historical effects of CO₂ and climate trends on global crop water demand. *Nature Climate Change*, 7(12), 901.
- * Heft-Neal, S., Lobell, D.B. and Burke, M., 2017. Using remotely sensed temperature to estimate climate response functions. *Environmental Research Letters*, 12(1), p.014013. <https://doi.org/10.1088/1748-9326/aa5463>
- *Zhao, Y. and D.B. Lobell, 2017. Assessing the heterogeneity and persistence of farmers' maize yield performance across the North China Plain, *Field Crops Research*, 205: 55-66.

- *Seifert, C., Roberts, M., and Lobell, D.B. 2017. Continuous Corn and Soybean Yield Penalties Across Hundreds of Thousands of Fields, *Agronomy Journal*, 109(2): 541-548.
- *You, J., X. Li, M. Low, D. Lobell and S. Ermon (2017) Deep Gaussian Process for Crop Yield Prediction Based on Remote Sensing Data, *AAAI Conference on Artificial Intelligence (AAAI-17)*, 4559-4566.
- *Guan, K., Sultan, B., Biasutti, M., Baron, C., & Lobell, D. B. (2017). Assessing climate adaptation options and uncertainties for cereal systems in West Africa. *Agricultural and Forest Meteorology*, 232, 291–305. doi:10.1016/j.agrformet.2016.07.021
- Asseng, S., Cammarano, D., Basso, B., Chung, U., Alderman, P. D., Sonder, K., ... & Lobell, D. B. (2017). Hot spots of wheat yield decline with rising temperatures. *Global change biology*, 23(6), 2464-2472.
- *Jain, M., Srivastava, A.K., Joon, R.K., McDonald, A., Royal, K., Lisaius, M.C. and Lobell, D.B., 2016. Mapping Smallholder Wheat Yields and Sowing Dates Using Micro-Satellite Data. *Remote Sensing*, 8(10), p.860. doi:10.3390/rs8100860
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