

PROFESSIONAL APPOINTMENTS

Assistant Professor—University of Illinois at Urbana-Champaign Department of Civil and Environmental Engineering	2020–present
Research Scientist—University of Washington Department of Civil and Environmental Engineering	2016–2019
Postdoctoral Associate—University of Minnesota Department of Bioproducts and Biosystems Engineering	2015–2016

EDUCATION

Ph.D., Civil, Environmental, and Geo- Engineering (public health minor)— University of Minnesota	2009–2014
B.M.E., Mechanical Engineering (<i>cum laude</i>)—University of Minnesota	2002–2006

SYNERGISTIC ACTIVITIES

Grant Application Reviewer: NSF, Health Effects Institute, and US EPA

Report Peer-Reviewer: US Department of Energy

Journal Peer-Reviewer: *Proceedings of the National Academy of Sciences*, *Nature Sustainability*, *Environmental Science and Technology*, *Atmospheric Environment*, *Environmental Research Letters*, *Proceedings of the Royal Society of London A*, *GeoHealth*, *Journal of Advances in Modeling Earth Systems*

Member: American Geophysical Union (AGU) and Association of Environmental Engineering and Science Professors (AEESP)

PEER-REVIEWED PUBLICATIONS (*=CORRESPONDING AUTHOR)

20. Kelp, M.M., D.J. Jacob, J.N. Kutz, J.D. Marshall, and C.W. Tessum*. Toward stable, general machine-learned models of the atmospheric chemical system. *J. Geophys. Res. Atmos.* [In press](#).
19. Thakrar, S.K., S. Balasubramanian, P.J. Adams, I. Azevedo, N.Z. Muller, S.N. Pandis, S. Polasky, I. Pope, A.L. Robinson, J.S. Apte, C.W. Tessum, J.D. Marshall, and J.D. Hill (2020) Reducing Mortality from Air Pollution in the United States by Targeting Specific Emission Sources. *Environ. Sci. Technol. Lett.* **7**:9 [639–645](#).
18. Thind, M.P., C.W. Tessum, I.L. Azevedo, and J.D. Marshall (2019) Fine Particulate Air Pollution from Electricity Generation in the US: Health Impacts by Race, Income, and Geography. *Environ. Sci. Technol.* **53**:23 [14010–14019](#).
17. Dimanchev, E.G., S. Paltsev, M. Yuan, D. Rothenberg, C.W. Tessum, J.D. Marshall, and N.E. Selin (2019) Health co-benefits of sub-national renewable energy policy in the US. *Environ. Res. Lett.* **14**:8 [085012](#).
16. Gilmore, E.A., J. Heo, N.Z. Muller, C.W. Tessum, J.D. Hill, J.D. Marshall, and P.J. Adams (2019) An inter-comparison of air quality social cost estimates from reduced-complexity models. *Environ. Res. Lett.* **14** [074016](#).
15. Goodkind, A.L., C.W. Tessum, J.S. Coggins, J.D. Hill, and J.D. Marshall (2019) Fine-scale damage estimates of particulate matter air pollution reveal opportunities for location-specific mitigation of

- emissions. *Proc. Natl. Acad. Sci. U.S.A.* **116**:18 [8775–8780](#).
14. Hill, J.D., A.L. Goodkind, C.W. Tessum, S. Thakrar, D. Tilman, S. Polasky, T. Smith, N. Hunt, K. Mullins, M. Clark, and J.D. Marshall (2019) Air-quality-related health damages of maize. *Nat. Sustain.* **2** [397–403](#).
 13. Tessum, C.W., J.S. Apte, A.L. Goodkind, N.Z. Muller, K.A. Mullins, D.A. Paoella, S. Polasky, N.P. Springer, S.K. Thakrar, J.D. Marshall, and J.D. Hill (2019) Inequity in consumption of goods and services adds to racial-ethnic disparities in air pollution exposure. *Proc. Natl. Acad. Sci. U.S.A.* **116**:13 [6001–6006 \(featured article\)](#).
 12. Liu, L., T. Hwang, S. Lee, Y. Ouyang, B. Lee, S.J. Smith, C.W. Tessum, J.D. Marshall, F. Yan, K. Daenzer, and T.C. Bond (2019) Health and climate impacts of future United States land freight modelled with global-to-urban models. *Nat. Sustain.* **2** [105–112 \(cover article\)](#).
 11. Paoella, D., C.W. Tessum*, P. Adams, J.S. Apte, S. Chambliss, J.D. Hill, N. Muller, and J.D. Marshall (2018) Effect of Model Spatial Resolution on Estimates of Fine Particulate Matter Exposure and Exposure Disparities in the United States. *Environ. Sci. Technol. Lett.* **5**:7 [436–441](#).
 10. Thakrar, S.K., A.L. Goodkind, C.W. Tessum, J.D. Marshall, and J.D. Hill (2018) Life cycle air quality impacts on human health from potential switchgrass production in the United States. *Biomass Bioenergy*. **114** [73–82](#).
 9. Chang, K.M., J.J. Hess, J.M. Balbus, J. Buonocore, D.A. Cleveland, M.L. Grabow, R. Neff, R.K. Saari, C.W. Tessum, P. Wilkinson, A. Woodward, and K.L. Ebi (2017) Ancillary health effects of climate mitigation scenarios as drivers of policy uptake: a review of air quality, transportation and diet co-benefits modeling studies. *Environ. Res. Lett.* **12** [113001](#).
 8. Tessum, C.W.*, J.D. Hill, and J.D. Marshall (2017) InMAP: A model for air pollution interventions. *PLoS ONE*. **12**:4 [e0176131](#).
 7. Keeler, B.L., J.D. Gourevitch, S. Polasky, F. Isbell, C.W. Tessum, J.D. Hill, and J.D. Marshall (2016) The social costs of nitrogen. *Science Adv.* **2**:10 [e1600219](#).
 6. Touchaei, A.G., H. Akbari, and C.W. Tessum (2016) Effect of increasing urban albedo on meteorology and air quality of Montreal (Canada) – Episodic simulation of heat wave in 2005. *Atmos. Environ.* **132** [188–206](#).
 5. Tessum, C.W., J.D. Hill, and J.D. Marshall (2015) Twelve-month, 12 km resolution North American WRF-Chem v3.4 air quality simulation: performance evaluation. *Geosci. Model Dev.* **8**:4 [957–973](#).
 4. Tessum, C.W., J.D. Hill, and J.D. Marshall (2014) Life cycle air quality impacts of conventional and alternative light-duty transportation in the United States. *Proc. Natl. Acad. Sci. U.S.A.* **111**:52 [18490–18495](#).
 3. Hu, L., D.B. Millet, M. Baasandorj, T.J. Grif, K.R. Travis, C.W. Tessum, J.D. Marshall, W.F. Reinhart, T. Mikoviny, M. Müller, A. Wisthaler, M. Graus, C. Warneke, and J.D. Gouw (2014) Emissions of C6–C8 aromatic compounds in the United States: Constraints from tall tower and aircraft measurements. *J. Geophys. Res. Atmos.* [826–842](#).
 2. Tessum, C.W., J.D. Marshall, and J.D. Hill (2012) A spatially and temporally explicit life cycle inventory of air pollutants from gasoline and ethanol in the United States. *Environ. Sci. Technol.* **46**:20 [11408–11417](#).
 1. Millet, D.B., E. Apel, D.K. Henze, J. Hill, J.D. Marshall, H.B. Singh, and C.W. Tessum (2012) Natural and anthropogenic ethanol sources in North America and potential atmospheric impacts of ethanol fuel

use. *Environ. Sci. Technol.* **46**:15 [8484–92](#).

PREPRINTS AND MANUSCRIPTS SUBMITTED FOR REVIEW (*=CORRESPONDING AUTHOR)

1. Kelp, M., C.W. Tessum*, and J.D. Marshall. Orders-of-magnitude speedup in atmospheric chemistry modeling through neural network-based emulation. *ArXiv Preprints*.
<https://arxiv.org/abs/1808.03874>.