

## Christopher Tessum

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CONTACT INFORMATION	500 Pillsbury Dr. SE Minneapolis, MN 55455	Phone: +1 (612) 986-3941 E-mail: tess0050@umn.edu	Website: www.tc.umn.edu/~tess0050
RESEARCH INTERESTS	Air pollution, energy conversion systems, life cycle assessment, public health, environmental justice, scientific model development, climate change		
ACADEMIC EXPERIENCE	University of Minnesota, Minneapolis, Minnesota USA		
	Doctoral Candidate, Civil Engineering	January 2009 – December 2014 (expected)	
	<ul style="list-style-type: none"><li>• GPA: 3.64/4.0</li><li>• Dissertation: <i>Life Cycle Air Quality and Climate Impacts of Conventional and Alternative Light-Duty Transportation in the United States</i></li><li>• Minor: Public Health</li><li>• Advisor: Julian Marshall</li></ul>		
	B.M.E., Mechanical Engineering	September 2002 – May 2006	
	<ul style="list-style-type: none"><li>• G.P.A. 3.66/4.0</li><li>• <i>cum laude</i></li><li>• G.R.E. verbal: 740, quantitative: 740, analytical writing: 4.5</li><li>• Thesis: <i>The influence of engine load, ignition timing, and fuel-air ratio on the ultrafine particulate emissions from a natural gas spark ignition engine.</i></li></ul>		
PEER-REVIEWED PUBLICATIONS	<div><div>[5]</div><div>Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “Life Cycle Air Quality Impacts of Conventional and Alternative Light-Duty Transportation in the United States”, <i>Submitted</i> (2014).</div></div> <div><div>[4]</div><div>Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “Twelve-Month, 12-km Resolution North American WRF/Chem Air Quality Simulation: Performance Evaluation”, <i>Submitted</i> (2014).</div></div> <div><div>[3]</div><div>Christopher W. Tessum, Julian D. Marshall, and Jason D. Hill, “Spatially Resolved Life Cycle Assessment for Production- and Consumption-Based Accounting of Climate Forcing Agent Emissions from Gasoline, Ethanol, and Electric Motor Vehicles in the United States”, <i>Submitted</i> (2013).</div></div> <div><div>[2]</div><div>Christopher W. Tessum, Julian D. Marshall, and Jason D. Hill, “A Spatially and Temporally Explicit Life Cycle Inventory of Air Pollutants from Gasoline and Ethanol in the United States”, <i>Environ. Sci. Technol.</i> 46.20 (2012), 11408–11417, DOI: 10.1021/es3010514.</div></div> <div><div>[1]</div><div>Dylan B. Millet, Eric Apel, Daven K. Henze, Jason Hill, Julian D. Marshall, Hanwant B. Singh, and Christopher W. Tessum, “Natural and Anthropogenic Ethanol Sources in North America and Potential Atmospheric Impacts of Ethanol Fuel Use”, <i>Environ. Sci. Technol.</i> 46.15 (Aug. 2012), 8484–92, DOI: 10.1021/es300162u.</div></div>		
INVITED PRESENTATIONS	<div><div>[11]</div><div>Christopher W. Tessum, Julian D. Marshall, and Jason D. Hill, “A Reduced-Complexity, Variable Grid Resolution Model for PM<sub>2.5</sub> Transport and Transformation”, in: <i>American Association for Aerosol Research Annual Conference</i>, Orlando, FL, USA, Oct. 2014.</div></div> <div><div>[10]</div><div>Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “Air Pollution, Health, and Environmental Justice Implications of Shifting Transportation Fuels in the United States”, in: <i>Lawrence Berkeley National Laboratory Environmental Energy Technologies Division Seminar Series</i>, Mar. 2014.</div></div> <div><div>[9]</div><div>Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “Air Pollution, Health, and Environmental Justice Implications of Shifting Transportation Fuels”, in: <i>Annual Conference of the International Society for Environmental Epidemiology, International Society for Exposure Science and International Society for Indoor Air Quality</i>, Basel, Switzerland, Aug. 2013.</div></div> <div><div>[8]</div><div>Christopher W. Tessum, Julian D. Marshall, and Jason D. Hill, “Life Cycle Air Pollutant Emission and Impact Accounting for Transportation Fuels”, in: <i>Air and Waste Management Association 106th Annual Conference and Exhibition</i>, Chicago, IL, USA, July 2013.</div></div>		

- [7] Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “Public Health Implications of Alternative Transportation Fuels in the United States”, in: *Peking University*, Beijing, China, Mar. 2013.
- [6] Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “Public Health Implications of Alternative Transportation Fuels in the United States”, in: *China Center for Disease Control and Prevention*, Beijing, China, Mar. 2013.
- [5] Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “A Spatially and Temporally Explicit Life Cycle Inventory of Air Pollutants from Transportation Fuels in the United States”, in: *Society for Environmental Toxicology and Chemistry North America Annual Conference*, Nov. 2012.
- [4] Christopher W. Tessum, Kristina Wagstrom, Jason D. Hill, and Julian D. Marshall, “Air Quality and Public Health Impacts of Biofuel Production and Use in the United States”, in: *International Society for Environmental Epidemiology Annual Conference*, Barcelona, Spain, Aug. 2011.
- [3] Christopher W. Tessum, Kristina Wagstrom, Jason D. Hill, and Julian D. Marshall, “Air Quality and Public Health Impacts of Biofuel Production and Use in the United States”, in: *Peking University*, Beijing, China, Aug. 2011.
- [2] Christopher W. Tessum and Jason D. Hill, “Assessing Biofuel Sustainability: Lessons from Growth of the U.S. Industry”, in: *Minnesota Academy of Science Annual Meeting*, Minneapolis, MN, USA, Apr. 2011.
- [1] Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “Spatially and Temporally Explicit Life-Cycle Analysis of Biofuels”, in: *First Annual Fulbright US-Brazil Biofuels Short Course*, São Paulo, Brazil, Aug. 2009.

## POSTERS

- [8] Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “Environmental Justice and Equality Aspects of Conventional and Alternative Light-Duty Transportation in the United States”, in: *International Society for Environmental Epidemiology Annual Conference*, Seattle, WA, USA, Aug. 2014.
- [7] Christopher Tessum, Jason Hill, and Julian Marshall, “A reduced-complexity, variable grid resolution model for air pollution transport and transformation”, in: *2014 Natural Capital Annual Meeting and Training*, Stanford, CA, Mar. 2014.
- [6] Christopher W. Tessum, Jason D. Hill, and Julian D. Marshall, “Public Health Implications of Alternative Transportation Fuels: Synergies between Climate and Air Quality Policies”, in: *Minnesota Supercomputing Institute Research Exhibition*, Minneapolis, MN, USA, Apr. 2013.
- [5] Christopher W. Tessum, Kristina Wagstrom, Jason D. Hill, and Julian D. Marshall, “Air Quality and Public Health Impacts of Biofuel Production and Use in the United States”, in: *Initiative for Renewable Energy and the Environment E3 Conference*, Minneapolis, MN, USA, Nov. 2011.
- [4] Christopher W. Tessum, Kristina Wagstrom, Jason D. Hill, and Julian D. Marshall, “Air Quality and Public Health Impacts of Biofuel Production and Use in the United States”, in: *Institute on the Environment Student Sustainability Symposium*, St. Paul, MN, USA, Oct. 2011.
- [3] Christopher W. Tessum, Kristina Wagstrom, Jason D. Hill, and Julian D. Marshall, “Air Quality and Public Health Impacts of Biofuel Production and Use in the United States”, in: *American Center for Life Cycle Analysis Annual Conference*, Chicago, IL, USA, Oct. 2011, **3rd place student poster award**.
- [2] Christopher W. Tessum, Kristina Wagstrom, Jason D. Hill, and Julian D. Marshall, “Air Quality Implications of Alternative Fuels: A Spatially and Temporally Explicit Life Cycle Modeling Approach”, in: *Minnesota Supercomputing Institute Research Exhibition*, Minneapolis, MN, USA, Apr. 2011.
- [1] Christopher W. Tessum, Kristina Wagstrom, Jason D. Hill, and Julian D. Marshall, “Air Quality Implications of Alternative Fuels: A Spatially and Temporally Explicit Life Cycle Modeling Approach”, in: *Initiative for Renewable Energy and the Environment E3 Conference*, St. Paul, MN, USA, Oct. 2010.

REPORTS	<p>[2] Christopher W. Tessum, Julian D. Marshall, and Jason D. Hill, <i>Tank-to-Wheel Emissions of Ethanol and Biodiesel Powered Vehicles as Compared to Petroleum Alternatives</i>, tech. rep., Minneapolis, MN, USA: Center for Transportation Studies, University of Minnesota, 2010.</p> <p>[1] Christopher W. Tessum, Adam M. Boies, Jason D. Hill, and Julian D. Marshall, "Assessing the Sustainability of Biofuels: Metrics, Models, and Tools for Evaluating the Impact of Biofuels", in: <i>Expanding Biofuel Production: Sustainability and the Transition to Advanced Biofuels: Summary of a Workshop</i>, ed. by Patricia Koshel and Kathleen McAllister, National Research Council, 2010, 117–140, URL: <a href="https://download.nap.edu/catalog.php?record%5C_id=12806">https://download.nap.edu/catalog.php?record%5C_id=12806</a>.</p>	
TEACHING EXPERIENCE	<p><b>Civil Engineering 5561: Air Quality Engineering</b>, University of Minnesota  <i>Teaching Assistant</i>  Instructor: Julian Marshall  <ul style="list-style-type: none"> <li>• Graded homework questions and exams</li> <li>• Answered student questions</li> </ul> </p> <p><b>Instituto Cultural Peruano Norteamericano</b>, Chiclayo, Perú  <i>English Teacher</i>  <ul style="list-style-type: none"> <li>• Taught classes of 20-30 students aged 10-20</li> <li>• Designed and graded homework assignments and exams</li> </ul> </p>	<p>Spring 2013</p> <p>October – December 2008</p>
PROFESSIONAL EXPERIENCE	<p><b>CT Consulting LLC</b>, Minneapolis, Minnesota USA  <i>Owner; independent contractor for EcoEngineers LLC</i>  <ul style="list-style-type: none"> <li>• Carried out life cycle assessment for California Low Carbon Fuel Standard permitting</li> </ul> </p> <p><b>CT Consulting LLC</b>, Minneapolis, Minnesota USA  <i>Owner; independent contractor for Smithfield Packing Co.</i>  <ul style="list-style-type: none"> <li>• Specified, justified, and arranged purchase of energy efficient equipment</li> <li>• Worked with plant staff and equipment manufacturers to determine the best energy efficient products for Smithfield</li> <li>• Created air flow and heat transfer model of refrigerated areas</li> </ul> </p> <p><b>Energy Management Solutions, Inc.</b>, Minneapolis, Minnesota USA  <i>Engineer</i>  <ul style="list-style-type: none"> <li>• Performed energy efficiency audits at industrial facilities</li> <li>• Worked with plant staff to implement energy efficiency improvements</li> <li>• Calculated and measured predicted and real energy savings due to the installation of energy efficient equipment</li> </ul> </p> <p><b>Volvo Car Corporation</b>, Gothenburg, Sweden  <i>Aerodynamics Intern</i>  <ul style="list-style-type: none"> <li>• Operated wind tunnel to perform aerodynamic research on scale models</li> <li>• Assisted staff engineers in the setup of project tests</li> <li>• Wrote LabVIEW programs for wind tunnel data acquisition</li> </ul> </p> <p><b>Voith Paper AG</b>, Heidenheim an der Brenz, Germany  <i>Automation Intern</i>  <ul style="list-style-type: none"> <li>• Wrote LabVIEW programs for sensor control</li> </ul> </p>	<p>2012 – Present</p> <p>May – September 2008</p> <p>June 2007 – April 2008</p> <p>August – December 2006</p> <p>May – August 2006</p>
HONORS AND AWARDS	<p>Admission to First Annual Fulbright US–Brazil Biofuels Short Course</p> <p>National Merit Scholarship</p>	<p>2009</p> <p>2002 – 2006</p>