Thérèse (Tess) S. Carter
Department of Civil & Environmental Engineering, Massachusetts Institute of Technology
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EDUCATION

Ph.D., Atmospheric Chemistry and Physics, *Science and Technology Policy Certificate*
Massachusetts Institute of Technology, Cambridge, MA Expected July 2022
Sc.B., Chemistry with honors
Brown University, Providence, RI 2016

PROFESSIONAL EMPLOYMENT

National Climate Assessment (NCA) Washington, DC, 2013-2017
NCA Program Coordinator, ICF Contractor (Research Analyst) *2016-2017*
- Coordinated 8 NCA4 chapters, including air quality, forests, ecosystems, agriculture, and tribal and indigenous communities

Student Assistant, UCAR/ICF International Contractor *2013-2016*

PUBLICATIONS

Carter, T.S., C.L. Heald, and Selin, N. Large mitigation potential of smoke $PM_{2.5}$ in the US from human-ignited wildfires and agricultural fires, in prep for Environmental Research Letters.

Carter, T.S., C.L. Heald, Kroll, J.H, Apel, E., Blake, D., Coggon, M., Edtbauer, A., Gkatzelis, G., Hornbrook, R.S., Peischl, J., Pfannerstill, E., Reijrink, N., Ringsdorf, A., Warneke, C., and Williams, J. Towards an improved representation of fire non-methane organic gases (NMOGs) in models: emissions to reactivity, in prep for Atmos. Chem & Phys.

Schnitzler, E.G., Gerrebos, N., **Carter, T.S**., Huang, Y., Heald, C.L., Bertram, A.K., and Abbatt, J.P.D. Environmental conditions in the free troposphere lower the reactivity of biomass burning organic aerosol, in review for PNAS.

Pai, S.*, **T.S. Carter***, C.L. Heald, and J.H. Kroll. Updated WHO air quality guidelines highlight importance of non-anthropogenic $PM_{2.5}$, in press for ES&T Letters. *co-first authors

Carter, T.S., C.L. Heald, et al. (2021), Investigating Carbonaceous Aerosol and its Absorption Properties from Fires in the western US (WE-CAN) and southern Africa (ORACLES and CLARIFY), J. Geophys. Res.,126, e2021JD034984.

Carter, T.S., E. Joyce, and M.G. Hastings. (2021), Quantifying Nitrate Formation Pathways in the Equatorial Pacific Atmosphere from the GEOTRACES Peru-Tahiti Transect, ACS Earth and Space Chemistry, doi.org/10.1021/acsearthspacechem.1c00072.

Carter, T.S., C.L. Heald, J.L. Jimenez, P. Campuzano-Jost, Y. Kondo, N. Moteki, J.P. Schwarz, C. Wiedinmyer, A.S. Darmenov, A.M. da Silva, and J.W. Kaiser (2020), How emissions uncertainty influences the distribution and radiative impacts of smoke from fires in North America, Atmos. Chem. Phys., 20, 4, 2073-2097.

Avery, C.W., **T.S. Carter**, K.L.M. Lewis, K. Reeves, and D.R. Reidmiller, 2018: Report Development Process. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA. doi: 10.7930/NCA4.2018.AP1

Carter, T., Clark, C., Fenn, M., Jovan, S., Perakis, S., Riddell, J., Schaberg, P., Greaver, T., and M. Hastings (2017), Mechanisms of nitrogen deposition effects on temperate forest lichens and trees, Ecosphere, 8, 3:e01717.

AWARDS AND HONORS

Alternate, NOAA Climate & Global Change Postdoctoral Fellowship	2022
2nd Place, Peter B. Wagner Memorial Award for Women in Atmospheric Sciences	2020
Ida M. Green Fellowship, MIT	2017-2018
Sigma Xi Science Honors Society	May 2016
Voss Undergraduate & Royce Fellowships, Brown University	Summer 2015
Udall Scholarship Honorable Mention	Spring 2015
AGU Student Travel Grant & Research at Brown (RAB) Grant	Fall 2014

PRESENTATIONS

American Geophysical Union (AGU) Annual Meeting (New Orleans, December 2021)

- *Talk*: Towards an Improved Representation of Fire VOCs: Emissions to Reactivity

American Association for Aerosol Research (AAAR) Annual Meeting (Virtual, October 2021)

- *Talk: Investigating Carbonaceous Aerosol and its Absorption Properties from Fires in the Western US (WE-CAN) and Southern Africa (ORACLES and CLARIFY).*

American Geophysical Union (AGU) Annual Meeting (Virtual, December 2020)

- *Talk*: Investigating fire aerosol and its absorption properties in the western US & southern Africa

Co-organizer & Panelist, Brown University IBES Webinar (Virtual, Dec 9, 2020)

- Through the Fire and Smoke: Causes, Consequences, and Solutions to Western U.S. Wildfires

MIT Department of Civil & Environmental Engineering Seminar (Cambridge, MA, April 24, 2020)

- *Invited Talk:* Investigating the representation of smoke and implications for air quality and climate

American Geophysical Union (AGU) Annual Meeting (San Francisco, CA, December 2019)

- *Poster*: Investigating carbonaceous aerosol in the western US (WE-CAN) and in Africa (ORACLES)

9th International GEOS-Chem Conference (Cambridge, MA, May 9, 2019)

- *Talk:* Investigating biomass burning aerosol in North America

American Meteorological Society Conference (Phoenix, AZ, January 10, 2019)

- *Talk*: Investigating biomass burning aerosol in North America

International Global Atmospheric Chemistry (IGAC) Conference (Takamatsu, Japan, Sep. 2018)

- *Poster:* Investigating biomass burning aerosol in North America

MIT Emergency Operations Center (Cambridge, MA, August 2018)

- *Talk* on wildfires and their air quality impacts to MIT emergency managers

And many others prior to 2017 related to the National Climate Assessment and undergrad work, including an invited presentation to the North American Carbon Program's Science Leadership Group

TEACHING EXPERIENCE (Teaching Assistant)

1.092: Travelling Research Environmental eXperience (TREX) for Undergrads, MIT Jan 2020
ENVS 0510: International Environmental Law and Policy, Brown University Fall 2015

SERVICE & PROFESSIONAL ACTIVITIES

MIT Researcher, MIT Climate Grand Challenges Spring 2022
Reviewer, MIT Climate Grand Challenges Fall 2021
Organizer, MIT Science Policy Initiative Executive & Congressional Visit Days 2021-2022
Convener, AGU session: Novel (VOC) Emissions Sources: Observational Constraints and Advances in Understanding Atmospheric Reactivity Dec 2021
Co-organizer, MIT Atmospheric Chemistry Colloquium 2020-2021
Participant, MIT Science Policy Initiative Congressional Visit Days (CVD) March 2020
Research mentor, Undergraduate Research Opportunities Program (UROP) 2019-2020
Associate Editor, Journal of Science Policy and Governance 2019-
Participant, MIT Science Policy Initiative Executive Visit Days (ExVD) Fall 2018
Co-organizer, Mini-Undergraduate Research Opportunities Program (UROP) 2018
Manuscript reviewer for *Atmospheric Chemistry and Physics*, *Journal Geophysical Research*, *Scientific Reports* and *Water Environmental Research*

NCA Convener, National Adaptation Forum session, *Sustained Assessment* 2017

Brown Advisory Council Member, Institute at Brown for Environment and Society 2016-
Co-chair, Chemistry Department Undergraduate Group 2014-2016
Student Roundtable with Secretary of the Interior Sally Jewell 2014
Mentor, Women in Science and Engineering (WiSE) Peer Advising 2013-2016
Mentor, Meiklejohn Peer Advising for Freshmen 2013-2016