KARL M. SELTZER

Curriculum Vitae

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EDUCATION

Duke University *Present*
Ph.D. Candidate - Earth and Ocean Sciences

University of Florida *December 2011*
M.E. in Environmental Engineering & Sciences

University of Florida *December 2009*
B.S. in Environmental Engineering & Sciences

PROFESSIONAL EXPERIENCE

Graduate Research Assistant 2015 - Present
Duke University - Dr. Drew Shindell *Durham, NC*

Research Fellow 2017
International Institute of Applied Systems Analysis *Vienna, Austria*

Koogler and Associates, Inc. 2011 - 2015
Engineer III *Gainesville, FL*

Research Assistant 2013 - 2015
University of Florida - Dr. Barron Henderson *Gainesville, FL*

ORISE Fellow 2014
U.S. Environmental Protection Agency *Durham, NC*

Graduate Research Assistant 2010 - 2011
University of Florida - Dr. John Sansalone *Gainesville, FL*

Student Research Assistant 2008 - 2009
University of Florida - Dr. John Sansalone *Gainesville, FL*

PUBLICATIONS

Seltzer KM, Shindell DT, et al. Methane as an Ozone Driver: A Multi-Model Assessment. in preparation.

Seltzer KM, Shindell DT, Kasibhatla P, Malley CS. Magnitude, Trends, and Impacts of Ambient Long-Term Ozone Exposure in the United States from 2000-2015. in review.

Ru M, Shindell D, **Seltzer KM**, Tao S, Zhong Q. The long-term relationship between emissions and economic growth for CO2, SO2, and BC. Environmental Research Letters, 2018; doi:10.1088/1748-9326/aaece2.

Seltzer KM, Shindell DT, Malley CS. Measurement-Based Assessment of Health Burdens from Long-Term Ozone Exposure in the United States, Europe, and China. Environmental Research Letters, 2018,

13; doi:10.1088/1748-9326/aae29d.

Contributing Author: UN Environment, Air Pollution in Asia and the Pacific: Science-Based Solutions, Nairobi, Kenya, 58 pp., 2018.

Shindell DT, Faluvegi G, **Seltzer KM**, Shindell C. Quantified, Localized Health Benefits of Accelerated Carbon Dioxide Emissions Reductions. Nature Climate Change, 2018, 8:291295; doi:10.1038/s41558-018-0108-y

Seltzer KM, Shindell DT, Faluvegi G, Murray LT. Evaluating modeled impact metrics for human health, agriculture growth, and near-term climate. Journal of Geophysical Research: Atmospheres, 2017, 122; doi: 10.1002/2017JD026780.

Seltzer KM, Nolte CG, Spero TL, Appel KW, Xing J. Evaluation of near surface ozone and particulate matter in air quality simulations driven by dynamically downscaled historical meteorological fields. Atmospheric Environment, 2016, 138:42-54; doi: 10.1016/j.atmosenv.2016.05.010

Seltzer KM, Vizuete W, Henderson BH. Evaluation of updated nitric acid chemistry on ozone precursors and radiative effects. Atmospheric Chemistry and Physics, 2015, 15:1-14; doi: 10.5194/acp-15-1-2015.

Sansalone J, Raje S, Kertesz R, Maccarone K, **Seltzer K**, Siminari M, Simms P, Wood B. Retrofitting impervious urban infrastructure with green technology for rainfall-runoff restoration, indirect reuse and pollution load reduction. Environmental Pollution, 2013, 183:204-212.

PRESENTATIONS/POSTERS

Seltzer KM, Shindell, DT, Kasibhatla, P, Malley, CM. Trends, drivers, and impacts of ozone exposure in the United States from 2000-2015. Poster at the 9th International GEOS-Chem Meeting (IGC9), Harvard University, May 7, 2019.

Seltzer KM, Shindell, DT, Kasibhatla, P, Malley, CM. Application of Machine Learning to Estimate Ozone Metrics Relevant for Human-Health and Agriculture Impact Assessments. Poster at the 2019 Duke Research Computing Symposium. Durham, NC. January 16, 2019.

Seltzer KM, Shindell, DT, Malley, CM. Measurement-Based Assessment of Health Burdens from Long-Term Ozone Exposure in the United States, Europe, and China. Poster at the AGU Fall Meeting in Washington DC. December 10, 2018.

Seltzer KM, Shindell, DT, Kasibhatla, P, Malley, CM. Trends and Dynamics of Ozone Exposure Metrics in the USA and Europe. Poster at the AGU Fall Meeting in Washington DC. December 10, 2018.

Seltzer KM. Air quality and health impacts in China: Ozones emergence in the present and future. Presentation at the Chinese Environmental Scholars Forum at Duke University. May 18, 2018.

Seltzer KM. Future Trends of Air Quality and Health Impacts in the USA and China: Ozone's Emerging Contributions. Presentation at the Nicholas School PhD Symposium at Duke University. February 9, 2018.

Seltzer KM, Heyes C, Borken-Kleefeld J. Sectoral Strategies for Reducing Ozone in China. Presentation at the Young Scientists Summer Program Final Symposium at the International Institute of Applied Systems Analysis in Vienna, Austria. August 21, 2017.

Seltzer KM, Nolte CG, Spero TL, Appel KW, Xing J. Evaluation of CMAQ Driven by Downscaled Historical Meteorological Fields. Presentation at the Community Modeling and Analysis System (CMAS) Conference in Chapel Hill, NC. October 7, 2015.

Henderson BH, **Seltzer KM**. Sensitivity of Radiative Effect to Chemistry. Presentation at the 7th International GEOS-Chem Meeting at Harvard University. May 4, 2015.

Seltzer KM. Historical Evaluation of CMAQ Using Downscaled Meteorology for Future Air Quality Purposes. Presentation at the UF Air Resources Seminar at the University of Florida in Gainesville, FL. January 22, 2015.

Seltzer KM, Henderson BH. Nitric Acid Formation Rates Impact on Climate Forcing. Presentation at the Spring 2014 Air Quality Workshop at the University of Florida in Gainesville, FL. March 26, 2014.

TEACHING EXPERIENCE

Guest Lecturer and/or Teaching Assistant — Spring 2016/17/18/19
EOS355 Global Warming — *Duke University*

Guest Lecturer and/or Teaching Assistant — Fall 2016/17/18/19
EOS550 Climate and Society — *Duke University*

Teaching Assistant — Fall 2015
ENV330 Energy and Environment — *Duke University*

TECHNICAL SKILLS

Computational Modeling	GEOS-Chem, GISS modelE2, CMAQ, TensorFlow (ML)
Visualization & Analysis	matplotlib, Panopoly
Programming Languages	Python, HTML/CSS, LaTeX, FORTRAN (novice)
Miscellaneous	git, Linux, OS X, Windows, bash/c-shell scripting, NetCDF/CDO Operators, 7+ years of laboratory experience

AWARDS

NASA NESSF Fellowship Re-newal (2018), NASA NESSF Fellowship (2017), IIASA Young Scientists Summer Program Fellowship (2017), U.S. Environmental Protection Agency ORISE Fellowship (2014), WEFTEC national student design competition winner and team leader (2010), FWRC statewide student design competition winner and team leader (2009), University Scholars Recipient (2009), University of Florida Undergraduate Outstanding Scholar Award (2009), Passed Fundamentals of Engineering Exam (2009), Florida Bright Futures Scholarship Recipient (2005-2009)