

Dien Wu

Division of Geological and Planetary Sciences, California Institute of Technology,

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Education

University of Utah	Ph.D. in Atmospheric Sciences	2016 – 2020	Salt Lake City, USA
	Advisor: Dr. John Lin		
University of Utah	M.S. in Atmospheric Sciences	2014 – 2016	Salt Lake City, USA
	Advisor: Dr. John Lin		
Florida State University (joint with NUIST below)		2012 – 2014	Tallahassee, USA
Nanjing University of Information Science and Technology (NUIST)	B.S. in Meteorology	2010 – 2012	Nanjing, China

Employment

Postdoctoral Scholar Research Associate, Division of Geological and Planetary Sciences, California Institute of Technology, July 2020 – present

Graduate Research Assistant, Dept. of Atmospheric Sciences, University of Utah, Aug 2014 – June 2020

Professional Experience

NASA Orbiting Carbon Observatory (OCO-2) Science Team Member, 2016 – present

List of Peer-Reviewed Publications

Submitted/In review

- Wu, D.**, J. C. Lin, H. F. Duarte, V. Yadav, N. C. Parazoo, T. Oda, and E. A. Kort: A Model for Urban Biogenic CO₂ Fluxes: Solar-Induced Fluorescence for Modeling Urban biogenic Fluxes (SMUrF), submitted to *Geosci. Model Dev.*

Published/Accepted

- Ye, X., T. Lauvaux, E.A. Kort, T. Oda, S. Feng, J.C. Lin, E. Yang, and **D. Wu**: Constraining fossil fuel CO₂ emissions from urban area using OCO-2 observations of total column CO₂. *Journal of Geophysical Research: Atmospheres*, 125, e2019JD030528. <https://doi.org/10.1029/2019JD030528>, 2020.
- Yang, E.G., E.A. Kort, **D. Wu**, J.C. Lin, T. Oda, X. Ye, and T. Lauvaux: Using space-based observations and Lagrangian modeling to evaluate urban carbon dioxide emissions in the Middle East. *Journal of Geophysical Research: Atmospheres*, 125, e2019JD031922. <https://doi.org/10.1029/2019JD031922>, 2020.
- Wu, D.**, J.C. Lin, T. Oda, and E.A. Kort: Space-based quantification of per capita CO₂ emissions from cities, *Environ. Res. Lett.*, <https://doi.org/10.1088/1748-9326/ab68eb>, 2020.
- Hernandez, A.J., Morales-Rincon, L.A., **Wu, D.**, Mallia, D., Lin, J.C. and Jimenez, R.: Transboundary transport of biomass burning aerosols and photochemical pollution in the Orinoco River Basin. *Atmospheric Environment*, <https://doi.org/10.1016/j.atmosenv.2019.01.051>, 2019.

3. **Wu, D.**, Lin, J. C., Fasoli, B., Oda, T., Ye, X., Lauvaux, T., Yang, E. G., and Kort, E. A.: A Lagrangian approach towards extracting signals of urban CO₂ emissions from satellite observations of atmospheric column CO₂ (XCO₂): X-Stochastic Time-Inverted Lagrangian Transport model (“X-STILT v1”), *Geosci. Model Dev.*, 11, 4843-4871, <https://doi.org/10.5194/gmd-11-4843-2018>, 2018.
2. Mallia, D.V., A. Kochanski, **D. Wu**, C. Pennell, W. Oswald, and J.C. Lin: Wind-Blown Dust Modeling Using a Backward-Lagrangian Particle Dispersion Model. *J. Appl. Meteor. Climatol.*, 56, 2845–2867, <https://doi.org/10.1175/JAMC-D-16-0351.1>, 2017.
1. Lin, J. C., Mallia, D. V., **Wu, D.**, and Stephens, B. B.: How can mountaintop CO₂ observations be used to constrain regional carbon fluxes?, *Atmos. Chem. Phys.*, 17, 5561-5581, <https://doi.org/10.5194/acp-17-5561-2017>, 2017.

Oral and Poster Presentations

- Wu, D.**, J.C. Lin, B. Fasoli, T. Oda, E.A. Kort, and Duarte, H., Towards quantifying urban CO₂ emissions for global cities using column CO₂ and SIF data, *AGU Fall Meeting*, San Francisco, CA, 09-13 Dec, **2019** (eLightning).
- Wu, D.**, J.C. Lin, H. Duarte, G. Wei, K. Wu, S. Richardson, N. Miles, K. Davis, E. A. Kort: Towards improving the modeling of urban biosphere using Solar-induced Fluorescence (SIF), *AGU Chapman Conference on understanding carbon climate feedbacks*, San Diego, CA, 26-29 Aug, **2019** (poster).
- Wu, D.**, J. C. Lin, T. Oda, and E. A. Kort: Do denser cities emit less CO₂? A first estimate using a CO₂ satellite, *OCO-2/OCO-3 Science Team telecon*, 14 May, **2019** (oral).
- Wu, D.**, J. C. Lin, Oda, T., Ye, X., Lauvaux, T., Yang, E., and Kort, E. A., Towards Interpreting the Signal of CO₂ Emissions from Megacities by Applying a Lagrangian Receptor-oriented Model to OCO-2 XCO₂ data, *AGU Fall Meeting*, New Orleans, LA, 11-15 Dec, **2017** (oral).
- Wu, D.**, J. C. Lin, Oda, T., Ye, X., Lauvaux, T., Yang, E., and Kort, E. A., Towards interpreting the signal of CO₂ emissions from Megacities by applying a Lagrangian receptor-oriented model (STILT) to OCO-2 XCO₂ data, *OCO-2 Science Team Meeting*, Pasadena, CA, 20-24, March, **2017** (oral and poster).
- Mallia, D. V., A. Kochanski, **D. Wu**, S. Urbanski, and J. C. Lin, Integrating wildfire plume rises within atmospheric transport models, *AGU Fall meeting*, San Francisco, CA, 12-16 Dec, **2016**.
- Wu, D.**, D. V. Mallia, S. P. Urbanski, J. C. Lin, Top-down Constraints on CO Emissions from Wildfire Inventories Using a Receptor-oriented Lagrangian Particle Dispersion Model, *AMS Third Conference on Biogeoscience*, Salt Lake City, UT, 20-25 June **2016** (oral).
- Lin, J. C., B. B. Stephens, D. V. Mallia, **D. Wu**, H. Duarte, S. Urbanski, and J. Ehleringer, How can we constrain regional carbon fluxes in the American Rockies from atmospheric measurements?, *5th NCAP and AmeriFlux Joint Meeting*, Washington, D.C, 26-29 Jan, **2015**.
- Lin, J. C., D. V. Mallia, **D. Wu**, S. Urbanski, and B. B. Stephens, Quantifying the influence of biomass burning on measurements site in the western U.S., *AGU Fall Meeting*, San Francisco, CA, 15-19 Dec, **2014**.

Peer Review Activities

Reviewer for *Environmental Research Letters*, *Remote Sensing*.

Technical Skills

Programming languages: **R**, Fortran, LaTeX; Python (beginner)
 Modeling experience: WRF-ARW, STILT

Professional Association

American Geophysical Union

Scholarships and Honors

- Edward J. Zipser Award, Excellence in Graduate Research, University of Utah, 05/2020
- Pass the Graduate Qualifying Exam with distinction, University of Utah, 05/2015
- Graduate with Magna cum laude, Florida State University, 05/2014
- Dean's List, Florida State University, Fall 2012, Spring 2013, Fall 2013, Spring 2014
- Prize for being one of the excellent class leaders, NUIST, 06/2012
- Second tier scholarship (top 10%), NUIST, 2010, 2011