Yaowei Li

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12 Oxford Street, Link 261, Cambridge, MA, 02138

EDUCATION

Harvard University, John A. Paulson School of Engineering and Applied Sciences (SEAS) Cambridge, US

Ph.D. student in Environmental Sciences & Engineering (Advisor: Prof. Frank N. Keutsch) 09/2018 – present

- Thesis topic: *Microphysical and chemical characterizations of Aerosols in the Stratosphere and Upper Troposphere*

Peking University, College of Environmental Sciences and Engineering (CESE) Beijing, China

B.S. in Environmental Science with honor (class rank: 1/28), and B.A. in Economics 09/2014 - 06/2018

- Thesis title: *Development and Application of Drone-based VOC Monitoring Platform* (Advisor: Prof. Qi Chen)

RESEARCH EXPERIENCE

Research Fellow, Harvard University, Advisor: Prof. Frank N. Keutsch 09/2018 - present

- Aircraft studies of aerosol microphysics and composition in the stratosphere and upper troposphere over North America and the perturbations from deep convections, wildfires, and volcanic activities. Developed and deployed the DCOTSS Portable Optical Particle Spectrometer (DPOPS) instrument and mini-MOUDI particle collection system (Instrument Co-PI, NASA DCOTSS EVS-3 mission & NOAA SABRE mission)
- Laboratory studies of optical properties of organic aerosols formed under and/or exposed to stratospheric conditions with ellipsometry and FTIR techniques.
- Modeling studies of the radiative impacts of organic-constraining aerosols in the stratosphere: combining RRTMG radiative transfer calculation and balloon-borne aerosol profile measurements.
- Laboratory studies of gas-particle partitioning, focusing on the uptake of α-pinene ozonolysis products onto ammonium sulfate/organic particles inside an aerosol flow tube, measured with NH_4^+ CIMS.
- Field studies of urban air quality in Munich, Germany, through ground-based campaigns during summer 2023 (Instrument lead for the Thermal Desorption NH_4^+ CIMS)

Research Assistant, Harvard University, Advisor: Prof. Scot T. Martin 06/2017 - 09/2017

- Development of a drone-based volatile organic compounds (VOCs) sampling apparatus.

Research Fellow, Peking University, Advisor: Prof. Qi Chen 01/2015 - 06/2018

- Field and laboratory studies of VOCs emissions and distributions over a subtropical forest in China. Deployed a self-built drone-based VOC monitoring platform.
- Field studies of the chemical composition and sources of PM_1 and $PM_{2.5}$ in Beijing, China. Deployed an Aerodyne time-of-flight aerosol chemical speciation monitor (ToF-ACSM). (2016 PKU Summer/Fall Campaign & 2017 AIRLESS Winter Campaign)

PUBLICATIONS (published, under review, & submitted)

1. **Li, Y.**, Pedersen, C., Dykema, J., Vernier J.P., et al., 2023. *In situ* measurements of perturbations to stratospheric aerosol and modeled ozone and radiative impacts following the 2021 La Soufrière eruption, *EGUsphere (preprint)*
2. Barber, V., Goss, M., Franco Deloya, L., LeMar, L., **Li, Y.**, Helstrom, E., Canagaratna, M., Keutsch, F., Kroll, J., 2023. Indoor air quality implications of germicidal 222 nm light, *Environmental Science & Technology*
3. **Li, Y.**, Bai, B., Dykema, J., Shin, N., Lambe, A., Chen, Q., et al., 2023. Predicting real refractive index of organic aerosols from elemental composition: implications for atmospheric aging processes, *Geophysical Research Letters*
4. Zheng, Y., Miao, R., Zhang, Q., **Li, Y.**, et al., 2023. Secondary formation of submicron and supermicron organic and inorganic aerosols in a highly polluted urban area, *Journal of Geophysical Research: Atmospheres*
5. Ye, Q., Goss, M.B., Krechmer, J.E., Majluf, F., Zaytsev, A., **Li, Y.,** et al., 2022. Product distribution, kinetics, and

aerosol formation from the OH oxidation of dimethyl sulfide under different RO2 regimes. *Atmospheric Chemistry and Physics*

6. **Li, Y.**, Dykema, J., Deshler, T. and Keutsch, F., 2021. Composition dependence of stratospheric aerosol shortwave radiative forcing in northern midlatitudes. *Geophysical Research Letters*
7. **Li, Y.**, Chen, Q., et al., 2021. Unmanned aerial vehicle measurements of volatile organic compounds over a subtropical forest in China and implications for emission heterogeneity. *ACS Earth and Space Chemistry*
8. Ye, Q., Krechmer, J.E., Shutter, J.D., Barber, V.P., **Li, Y.**, et al., 2021. Real-Time Laboratory Measurements of VOC Emissions, Removal Rates, and Byproduct Formation from Consumer-Grade Oxidation-Based Air Cleaners. *Environmental Science & Technology Letters*.
9. Zheng, Y., Cheng, X., Liao, K., **Li, Y.**, et al., 2020. Characterization of anthropogenic organic aerosols by TOF-ACSM with the new capture vaporizer. *Atmospheric Measurement Techniques*
10. Liu, B., Wu, C., Ma, N., Chen, Q., **Li, Y.**, et al., 2020. Vertical profiling of fine particulate matter and black carbon by using unmanned aerial vehicle in Macau, China. *Science of the Total Environment*

INVITED TALKS

- Earth, Atmospheric, and Planetary Sciences (EAPS) Seminar at Purdue University, West Lafayette, IN, April 2023
- The Department of Atmospheric Sciences at Texas A&M University, College Station, TX, January 2023

SELECTED CONFERENCE PRESENTATIONS

- **Li, Y.**, et al., August 2023, Organic-containing Aerosols in the Upper Troposphere and Lower Stratosphere (UT/LS): Climate and Chemical Impacts. **Atmospheric Chemistry Gordon Research Conference 2023**, Newry, ME
- **Li, Y.**, et al., December 2022, Microphysical and Chemical Characterization of Aerosols in the Stratosphere and Upper Troposphere: Influence of Biomass Burning. **AGU Fall Meeting 2022**, Chicago, IL
- **Li, Y.** et al., October 2022, Volcanic and Wildfire Perturbations of Aerosols in the Stratosphere and Upper Troposphere during the NASA DCOTSS Airborne Mission. **the 7th SPARC General Assembly**, Boulder, CO
- **Li, Y.**, et al., December 2021, Estimation of the elemental composition of organic aerosols in the mid-latitude lower stratosphere over the continental US. **AGU Fall Meeting 2021**
- **Li, Y.**, et al., April 2021, Composition Dependence of Stratospheric Aerosol Radiative Forcing. **EGU General Assembly 2021**
- **Li, Y.**, et al., December 2020, Unmanned Aerial Vehicle Measurements of Volatile Organic Compounds over a Subtropical Forest in China and Implications for Emission Heterogeneity. **AGU Fall Meeting 2020**
- **Li, Y.**, et al., December 2019, Measurements of α-Pinene Ozonolysis Products Uptake to Submicron Aerosols at A Broad Range of Tropospheric Temperatures. **AGU Fall Meeting 2019**, San Francisco, CA

SELECTED AWARDS & HONORS

- Fiscal Year 2024 EMSL Large-Scale Research (LSR) Award (as an Investigator), Department of Energy 2023
- AAAR 41st Annual Conference Student Travel Grant, American Association for Aerosol Association 2023
- AGU 2022 Outstanding Student Presentation Award (OSPA), American Geophysical Union 2023
- GSAS Professional Development Fund, Harvard University 2022
- Certificate of Distinction in Teaching, Harvard University 2020
- Clare Marie Doris Innovation Fund in Engineering and Applied Sciences, Harvard University 2018-2019
- Tang Xiaoyan Environmental Science and Innovation Scholarship 2018
- Best Poster Award, 5th International Conference on Environment Simulation and Pollution Control 2017
- National Scholarship, Chinese Ministry of Education 2016 & 2017
- Chongto Environmental Science Scholarship, Peking University 2016
- Robin Li Scholarship, Peking University 2015

TEACHING & ADVISING EXPERIENCE

Teaching Fellow:

- GENED 1137- The Challenge of Human Induced Climate Change: Transitioning to a Post Fossil Fuel Future (Spring 2023, Harvard University)
- EPS/ESE162-Hydrology (Fall 2020, Harvard University)
- 12730070-China's Energy and Environmental Challenges (Spring 2016, Peking University)

Guest Lecturer:

- PUM6306-Energy, Climate Change and Sustainable Development in China (Spring 2023, Shanghai Jiao Tong University)

Student Mentor:

- Research mentor for 2 Harvard undergraduate students: Bella Nesti, Ploy Assawaphadungsit
- Academic mentor for 1 Harvard graduate student: Mona Dai

PROFESSIONAL ACTIVITIES & SERVICE

- **Organizer** of the 22nd Conference on Middle Atmosphere (AMS meeting) 2023-2024
- **Committee member**: AMS Middle Atmosphere committee 2023-present
- **Instrument Co-PI** (mini-MOUDI instrument) for NOAA SABRE airborne mission 2022-present
- **Instrument Co-PI** (DPOPS & mini-MOUDI instruments) for NASA DCOTSS airborne mission 2019-present
- **Session chair** for AAAR 2023 Annual Conference 2023
- **Session chair** for NASA DCOTSS Science Team Meetings 2021 and 2023
- **Harvard GASA Student Group Leader** 2021-2022
- **Vice President** of the Harvard Chinese Students and Scholars Association (HCSSA) 2021-2022
- **Organizer** of the Harvard Stratospheric Supergroup Meeting series 2021-present
- **Host** for the Harvard Atmospheric & Environmental Chemistry (AEC) Seminar series 2019-present
- **Peer reviewer** for *JGR-Atmosphere, Atmospheric Chemistry and Physics, Environmental Health Perspectives, Atmospheric Environment, Urban Climate, Meteorological Applications*
- **Professional Memberships**: AGU, AMS, AAAR, EGU
- **Member of the Standing Committee**, 35th Student Union, Peking University 2016-2017
- **President** of the Youth Volunteer Association of CESE, Peking University 2015-2016