Qindan Zhu

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Education

University of California, Berkeley — Berkeley, CA
Ph.D., Earth and Planetary Science — *May 2022*

Peking University — Beijing, China
B.S., Environmental Science & B.S., Mathematics and Applied Mathematics — *Jul 2017*

Honors & Awards

Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS XVII) — 2023
Brookhaven National Laboratory

Civil and Environmental Engineering Rising Stars — 2022
Carnegie Mellon University

NOAA Climate & Global Change Postdoctoral Fellowship — 2022-2024
University Corporation for Atmospheric Research

Houghton Postdoctoral Fellowship — Extended to 2025
Massachusetts Institute of Technology

AGU Outstanding Student Presentation Award — 2021
American Geophysical Union

Peking University Outstanding Student Award — 2013-2017
Peking University

Professional Experience

NOAA Climate & Global Change Postdoctoral Fellow (Host: Arlene Fiore) — Aug, 2022 – Now
Massachusetts Institute of Technology

CIRES Temporary Researcher on Model Development — Jan – Aug, 2022
Cooperative Institute for Research in Environmental Sciences at the University of Colorado Boulder

Graduate Student Researcher (Advisor: Ron Cohen) — Aug 2017 – Dec 2021
University of California, Berkeley

Summer Research Intern (Advisor: Rod Jones) — Jun – Sep 2016
University of Cambridge

Undergraduate Researcher (Advisor: Keding Lu & Qi Chen) — Sep 2014 – Jul 2017
Peking University

Teaching Experience

Summer Research Program, MIT — June - July, 2023
Mentor for a summer intern on an independent research project

EPS 50 Planet Earth, UC Berkeley — Jan - May, 2020
Graduate student instructor for a first-year undergraduate lab class

Atmospheric Chemistry Elite Scholars (ACES) Program, Berkeley — Jul - Aug, 2021
Mentor undergrad students conducting research using atmospheric data collected in the field.

Bay Area Scientists in Schools (BASIS) — Oct 2017 - May 2022
Teaching sciences lessons with elementary students in Bay Area.

Academic Writing in English, Peking University — Jan - May 2017
Teacher Assistant for a graduate-level writing class.

IDL Programming in Atmospheric Sciences, Peking University Jan - May 2016

Teacher Assistant for a graduate-level programming class.

Publications

25. **Zhu, Q.**, Fiore, A., Correa, G., Lamarque, J. F., Worden, H., (2024). The impact of internal climate variability on OH trends between 2005 and 2014. Environmental Research Letters, in review.
24. Pfannerstill, E. Y., Arata, C., **Zhu, Q.**, Schnell, J., Ward. R., Woods, R., Harkins, C., Schwantes, R. H., Seinfeld, J. H., Bucholtz, A., Cohen, R. C., Goldstein, A. H.(2024), Temperature-dependent emissions dominate aerosol and ozone formation in Los Angeles, Science, 2024, accepted.
23. **Zhu, Q.**, Schwantes, R. H., Coggon, M., Harkins, C., Schnell, J., He, J., ... & McDonald, B. C. (2024). A better representation of VOC chemistry in WRF-Chem and its impact on ozone over Los Angeles. Atmospheric Chemistry and Physics, accepted.
22. Coggon, M. M., Stockwell, C. E., Xu, L., Peischl, J., Gilman, J. B., Lamplugh, A., ..**Zhu, Q.**,.. & Warneke, C. (2024). Contribution of Cooking Emissions to the Urban Volatile Organic Compounds in Las Vegas, NV. Atmospheric Chemistry and Physics, accepted.
21. Fiore, A.; Loretta, M.; **Zhu, Q.**; Baublitz, C. (2024); Climate and Tropospheric Oxidizing Capacity, Annual Reviews of Earth & Planetary Sciences, 52.
20. Schulze, B. C., Ward, R. X., Pfannerstill, E. Y., **Zhu, Q.**, Arata, C., Place, B., ... & Seinfeld, J. H. (2023). Methane emissions from dairy operations in California's San Joaquin Valley evaluated using airborne flux measurements. Environmental Science & Technology, 57(48), 19519-19531.
19. Yu, K. A., Li, M., Harkins, C., He, J., Zhu, Q., Verreyken, B., ... Harley, R. A. (2023). Improved Spatial Resolution in Modeling of Nitrogen Oxide Concentrations in the Los Angeles Basin. Environmental Science Technology, 57(49), 20689-20698.
18. **Zhu, Q.**, Place, B., Pfannerstill, E., Goldstein, A. C., Cohen, R. C. (2023). Direct observations of NOx emissions over San Joaquin Valley using airborne flux measurements during RECAP-CA 2021 field campaign. Atmospheric Chemistry and Physics, 23, 9669–9683.
17. Pfannerstill, E. Y., Arata, C., **Zhu, Q.**, Schulze, B. C., Woods, R., Harkins, C., ... & Goldstein, A. H. (2023). Comparison between Spatially Resolved Airborne Flux Measurements and Emission Inventories of Volatile Organic Compounds in Los Angeles. Environmental Science & Technology, 57(41), 15533-15545.
16. Pfannerstill, E. Y., Arata, C., **Zhu, Q.**, Schulze, B. C., Woods, R., Seinfeld, J. H., ... & Goldstein, A. H. (2023). Volatile organic compound fluxes in the agricultural San Joaquin Valley–spatial distribution, source attribution, and inventory comparison. Atmospheric Chemistry and Physics, 23(19), 12753-12780.
15. Nussbaumer, C. M., Place, B. K., **Zhu, Q.**, Pfannerstill, E. Y., Wooldridge, P., Schulze, B. C., Arata, C., Ward, R., Bucholtz, A., Seinfeld, J. H., Goldstein, A. H., and Cohen, R. C. (2023): Measurement report: Airborne measurements of NOx fluxes over Los Angeles during the RECAP-CA 2021 campaign, Atmos. Chem. Phys., 23, 13015–13028.
14. Romps, D. M., Latimer, K., **Zhu, Q.**, Jurkat-Witschas, T., Mahnke, C., Prabhakaran, T., ... & Wendisch, M. (2023). Air pollution unable to intensify storms via warm-phase invigoration. Geophysical Research Letters, e2022GL100409.
13. **Zhu, Q.**, Laughner, J. L., & Cohen, R. C. (2022). Estimate of OH trends over one decade in North American cities. Proceedings of the National Academy of Sciences, 119(16), e2117399119.
12. **Zhu, Q.**, Laughner, J. L., & Cohen, R. C. (2022). Combining Machine Learning and Satellite Observations to Predict Spatial and Temporal Variation of near Surface OH in North American Cities. Environmental Science & Technology, 56(11), 7362-7371.
11. Li, C., **Zhu, Q.**, Jin, X., & Cohen, R. C. (2022). Elucidating Contributions of Anthropogenic Volatile Organic Compounds and Particulate Matter to Ozone Trends over China. Environmental Science and Technology, 56(18), 12906-12916.
10. Li, C., Xu, X., Liu, X., Wang, J., Sun, K., van Geffen, J., **Zhu, Q.**, Cohen, R. C. (2022). Direct Retrieval of NO2 Vertical Columns from UV-Vis (390-495 nm) Spectral Radiances Using a Neural Network. Journal of Remote Sensing.
9. Jin, X., **Zhu, Q.**, & Cohen, R. C. (2021). Direct estimates of biomass burning NOx emissions and lifetimes using daily observations from TROPOMI. Atmospheric Chemistry and Physics, 21(20), 15569-15587.
8. Delaria, E. R., Place, B. K., Turner, A. J., **Zhu, Q.**, Jin, X., & Cohen, R. C. (2021). Development of a Solar-Induced Fluorescence Canopy Conductance Model and Its Application to Stomatal Reactive Nitrogen Deposition. ACS Earth and Space Chemistry.
7. **Zhu, Q.**, Laughner, J. L., & Cohen, R. C. (2019). Lightning NO_2 simulation over the contiguous US and its effects on satellite NO2 retrievals. Atmospheric Chemistry and Physics. 19. 13067-13078.
6. Laughner, J. L., **Zhu, Q.**, & Cohen, R. C. (2019). Evaluation of version 3.0B of the BEHR OMI NO2 product. Atmospheric Measurement Techniques, 12(1), 129-146.
5. Laughner, J. L., **Zhu, Q.**, & Cohen, R. C. (2018). The Berkeley High Resolution Tropospheric NO2 product. Earth System Science Data, 10(4), 2069-2095.
4. Wang, H., Lu, K., Chen, X., **Zhu, Q.**, Wu, Z., Wu, Y., & Sun, K. (2018). Fast particulate nitrate formation via N 2 O 5 uptake aloft in winter in Beijing. Atmospheric Chemistry and Physics, 18(14), 10483-10495.

3. Guan, T., Hu, S., Han, Y., Wang, R., **Zhu, Q.**, Hu, Y., ... & Zhu, T. (2018). The effects of facemasks on airway inflammation and endothelial dysfunction in healthy young adults: a double-blind, randomized, controlled crossover study. Particle and fibre toxicology, 15(1), 1-12.

2. Mak, H. W. L., Laughner, J. L., Fung, J. C. H., **Zhu, Q.**, & Cohen, R. C. (2018). Improved satellite retrieval of tropospheric NO2 column density via updating of air mass factor (AMF): case study of Southern China. Remote Sensing, 10(11), 1789.

1. Wang, H., Lu, K., Chen, X., **Zhu, Q.**, Chen, Q., Guo, S., ... & Zhang, Y. (2017). High N2O5 concentrations observed in urban Beijing: Implications of a large nitrate formation pathway. Environmental Science & Technology Letters, 4(10), 416-420.

Presentations (selected)

2024 University of California, Irvine, *Invited Talk*
2024 Georgia Institute of Technology, *Invited Talk*
2024 University of Washington, *Invited Talk*
2024 AMS Meeting, *Oral*
2023 AGU Fall Meeting, *Oral*
2023 University of HongKong, *Invited Talk*
2023 The 10th Conference on Air Benefit and Cost and Attainment Assessment, *Oral*
2023 Nanjing University *Invited Talk*
2023 Peking University *Invited Talk*
2023 Meteorology and Climate - Modeling for Air Quality Conference, *Oral*
2023 ACCESS XVII, *Invited Talk*
2023 NOAA CSL, *Invited Talk*
2023 Composition Air quality Climate inTeractions Initiative (CACTI) Workshop, *Oral*
2023 2023 SENSE.nano Symposium, *Invited Talk*
2023 CESM Atmosphere / Whole Atmosphere / Chemistry-Climate working group meeting, *Oral*
2022 Statistical Learning in Atmospheric Chemistry, *Invited Talk*
2022 RECAP-SUNVEX field campaign workshop, *Invited Talk*
2022 Atmospheric Mechanisms Conference, *Invited Talk*
2022 Civil and Environmental Engineering Rising Stars, *Invited Talk*
2022 NASA Goddard Space Flight Center, *Invited Talk*
2022 AGU Fall Meeting, *Invited Talk*
2022 TEMPO Annual Meeting, *Invited Talk*
2022 AMS Annual Meeting, *Oral*
2021 NASA Goddard Space Flight Center, *Invited Talk*
2021 TEMPO Science Team Meeting, *Poster*
2021 AMS Annual Meeting , *Oral*
2020 AGU Fall Meeting, *Oral*
2019 AGU Fall Meeting, *Poster*
2018 AGU Fall Meeting, *Poster*

Professional activities

Session Co-Convener: A086. Sources and Fate of Volatile Organic Compounds (VOCs) and NOx in Human-Made Environments,AGU 2022; A098. Multi-scale Air Quality Modelling: Development and Application, AGU 2023

Co-organizer: Statistical Learning in Atmospheric Chemistry (SLAC) group; MIT PAOC Colloquium

Reviewer:ACS Earth and Space Chemistry; Atmospheric Chemistry & Physics; Atmospheric Environment; Atmospheric Measurement Techniques; Environmental Science & Technology; Environmental Research Letters; Environmental Research; Environmental Pollution; Geophysical Research Letters; Journal of Geophysical Research: Atmospheres; Remote Sensing of Environment