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

ACCESS XVII Invited Participant — 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

Research Experience

NOAA Climate & Global Change Postdoctoral Fellow (Host: Arlene Fiore) — Aug, 2022
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

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

Publications

1. **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. Accepted, Atmospheric Chemistry and Physics.
2. **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.
3. **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 and Technology.
4. **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.
5. 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.

6. 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.
7. 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.
8. Laughner, J. L., **Zhu, Q.**, Cohen, R. C. (2018). The Berkeley High Resolution Tropospheric NO2 product. Earth System Science Data, 10(4), 2069-2095.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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)

Direct observations of NOx emissions over San Joaquin Valley using airborne flux measurements during RECAP-CA 2021 field campaign **(Invited talk)**, NASA Goddard, October, 2022.
Decadal Trends of OH in North American Cities **(Invited talk)**, AGU Fall Meeting, December, 2022.
Decadal Trends of OH in North American Cities **(Invited talk)**, TEMPO Annual Meeting, June, 2022.
Decadal Trends of OH in North American Cities **(Oral)**, AMS Annual Meeting, January, 2022.
Accurately interpreting satellite NO2 observations requires a priori profiles at both high spatial and high temporal resolution **(Poster)**, TEMPO Science Team Meeting, June 2021.
Estimate of Decadal OH Trends over North American Cities using Machine Learning and OMI Satellite Observation **(Invited talk)**, NASA-Goddard Space Flight Center, February, 2021.
Estimate of Urban Hydroxyl Radical (OH) from NO2 Satellite Observations **(Oral)**, AMS Annual Meeting, January 2021.
Machine Learning for efficient prediction of high spatial resolution NO2 a priori profiles **(Oral)**, AGU Fall Meeting, December, 2020.

Teaching Experience

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 - present
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.

Skills

Languages: Matlab, Python, Fortran, Java, SQL
Developer Tools: Linux, Git, Latex, Bash, PyCharm, IntelliJ