

RESEARCH INTERESTS

Atmospheric chemistry-vegetation-climate interactions, atmospheric chemistry modeling, satellite-based pollution monitoring

EDUCATION

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| Ph.D. | Department of Earth System Science, Tsinghua University | 2012–2018 |
| B.E. | Department of Environmental Engineering, Sun Yat-sen University | 2008–2012 |
| Exchange | Samueli School of Engineering, University of California, Los Angeles | 2011 |
| Exchange | Department of Civil Engineering, University of Hong Kong | 2010 |

RESEARCH EXPERIENCE

- Associate Research Scholar, Princeton University (2021–present)
Project '*Understanding trend and variability of India's air pollution*'
- Postdoctoral Research Associate, Princeton University/NOAA GFDL (2018–2021)
Project '*Impacts of Biosphere-atmosphere interactions on air pollution extremes*'
- Graduate Research Assistant, Tsinghua University (2012–2018)
Project '*Decadal scale climate change and its impact on atmospheric composition*'
Project '*Satellite-based estimation of air pollution over Beijing*'

AWARDS

- Best Oral Presentation of the 15th Ph.D. Student Forum, Tsinghua University, 2017
- National Scholarship, 2015
- [Xie et al. \(2015\)](#) selected as American Chemical Society (ACS) Editor's Choice paper and [ES&T Cover Article](#), 2015
- Outstanding undergraduate of Sun Yat-sen University, 2012

PUBLICATIONS

Leading works

1. **Xie, Y.**, Lin, M., Decharme, B., Delire, C., Horowitz, L.W., Lawrence, D.M., Li, F. and Séférian, R., (2022). [Tripling of western US particulate pollution from wildfires in a warming climate](#). *Proceedings of the National Academy of Sciences*, 119(14), p.e2111372119.
2. **Xie, Y.**, Lin, M., and Horowitz, L. W. (2020). [Summer PM2.5 pollution extremes caused by wildfires over the western United States during 2017–2018](#). *Geophysical Research Letters*, 47, e2020GL089429.
3. **Xie, Y.**, Y. Wang, W. Dong, J. S. Wright, L. Shen, and Z. Zhao (2019), [Evaluating the response of summertime surface sulfate to hydroclimate variations in the continental US: role of](#)

[meteorological inputs in the GEOS-Chem model](#), *Journal of Geophysical Research: Atmospheres*, 124, 1662–1679.

4. Xie, Y., Y. Wang, M. Bilal, and W. Dong (2019), [Mapping daily PM_{2.5} at 500 m resolution over Beijing with improved hazy day performance](#), *Science of The Total Environment*, 659, 410-418.
5. Wang, Y., Y. Xie, W. Dong, Y. Ming, J. Wang, and L. Shen (2017), [Adverse effects of increasing drought on air quality via natural processes](#), *Atmospheric Chemistry and Physics*, 17(20), 12827-12843.
6. Xie, Y., Y. Wang, K. Zhang, W. Dong, B. Lv, and Y. Bai (2015), [Daily Estimation of Ground-Level PM_{2.5} Concentrations over Beijing Using 3 km Resolution MODIS AOD](#), *Environmental Science & Technology*, 49(20), 12280-12288.
7. Wang, Y., Y. Xie, L. Cai, W. Dong, Q. Zhang, and L. Zhang (2015), [Impact of the 2011 Southern U.S. Drought on Ground-Level Fine Aerosol Concentration in Summertime](#), *Journal of the Atmospheric Sciences*, 72(3), 1075-1093.

Co-authored works

7. Lin, M., L. W. Horowitz, Y. Xie, F. Paulot, S. Malyshev, E. Shevliakova, A. Finco, G. Gerosa, D. Kubistin, and K. Pilegaard (2020), Vegetation feedbacks during drought exacerbate ozone air pollution extremes in Europe, *Nature Climate Change*, 10(5), 444-451.
8. Dong, W., Y. Lin, J. S. Wright, Y. Xie, X. Yin, and J. Guo (2019), Precipitable water and CAPE dependence of rainfall intensities in China, *Climate Dynamics*, 52(5-6), 3357-3368.
9. Dong, W., Y. Lin, J. S. Wright, Y. Xie, F. Xu, K. Yang, X. Li, L. Tian, X. Zhao, and D. Cao (2018), Connections Between a Late Summer Snowstorm Over the Southwestern Tibetan Plateau and a Concurrent Indian Monsoon Low-Pressure System, *Journal of Geophysical Research: Atmospheres*, 123(24), 13,676-613,691.
10. Dong, W., Y. Lin, J. S. Wright, Y. Xie, Y. Ming, H. Zhang, R. Chen, Y. Chen, F. Xu, and N. Lin (2018), Regional disparities in warm season rainfall changes over arid eastern–central Asia, *Scientific reports*, 8(1), 1-11.
11. Zhao, Z., Y. Wang, M. Qin, Y. Hu, Y. Xie, and A. G. Russell (2018), Drought Impacts on Secondary Organic Aerosol: A Case Study in the Southeast United States, *Environmental Science & Technology*, 53(1), 242-250.
12. Lin, Y., W. Dong, M. Zhang, Y. Xie, W. Xue, J. Huang, and Y. Luo (2017), Causes of model dry and warm bias over central US and impact on climate projections, *Nature communications*, 8(1), 1-8.
13. Dong, W., Y. Lin, J. S. Wright, Y. Xie, F. Xu, W. Xu, and Y. Wang (2017), Indian Monsoon Low-Pressure Systems Feed Up-and-Over Moisture Transport to the Southwestern Tibetan Plateau, *Journal of Geophysical Research: Atmospheres*, 122(22), 12,140-112,151.
14. Dong, W., Y. Lin, J. S. Wright, Y. Ming, Y. Xie, B. Wang, Y. Luo, W. Huang, J. Huang, and L. Wang (2016), Summer rainfall over the southwestern Tibetan Plateau controlled by deep convection over the Indian subcontinent, *Nature communications*, 7(1), 1-9.
15. Wang, Y., B. Jia, S.-C. Wang, M. Estes, L. Shen, and Y. Xie (2016), Influence of the Bermuda High on interannual variability of summertime ozone in the Houston-Galveston-Brazoria region, *Atmospheric Chemistry and Physics*, 16(23), 15265-15276, doi: 10.5194/acp-16-15265-2016.
16. Zhang, Q. Q., Wang, Y., Ma, Q., Yao, Y., Xie, Y., and He, K. (2015). Regional differences in Chinese SO₂ emission control efficiency and policy implications, *Atmospheric Chemistry and Physics*, 15, 6521–6533, <https://doi.org/10.5194/acp-15-6521-2015>.

17. Jia, B., Wang, Y., Yao, Y., and **Xie, Y.** (2015). A new indicator on the impact of large-scale circulation on wintertime particulate matter pollution over China, *Atmos. Chem. Phys.*, 15, 11919–11929, <https://doi.org/10.5194/acp-15-11919-2015>.
18. Wang, Y., Q. Zhang, J. Jiang, W. Zhou, B. Wang, K. He, F. Duan, Q. Zhang, S. Philip, and **Y. Xie** (2014), Enhanced sulfate formation during China's severe winter haze episode in January 2013 missing from current models, *Journal of Geophysical Research: Atmospheres*, 119(17), 10,425-410,440.
19. Yang, X., Chen, F., Meng, F., **Xie, Y.**, Chen, H., Young, K., Luo, W., Ye, T., Fu, W. (2013): Occurrence and fate of PPCPs and correlations with water quality parameters in urban riverine waters of the Pearl River Delta, South China. *Environ. Sci. Pollut. Res. Int.*, 20, 5864–5875.

CONFERENCE & PRESENTATIONS

- Dec 2021, Tripling of western US particulate pollution from wildfires in a warming climate, American Geophysical Union (AGU) Fall Meeting, Oral, New Orleans
- Nov 2020, Summer PM_{2.5} pollution extremes caused by wildfires over the western United States during 2017–2018, Atmospheric Chemical Mechanisms Conference
- May 2020, Severe impacts of wildfires on fine particulate air quality in present and future climate. GFDL Lunchtime Seminar
- Dec 2019, The unprecedented 2017/18 fire and PM 2.5 extremes over the US Pacific Northwest, American Geophysical Union (AGU) Fall Meeting, Poster, San Francisco
- Jun 2017, Impact of precipitation on ground-level PM_{2.5} concentration'. Atmospheric Composition and the Asian Monsoon (ACAM), Poster, Guangzhou
- May 2017, Adverse effect of increasing drought on surface air quality, 4th Global Change Studies—Big Data and Global Change, Poster, Jiaxing
- Apr 2017, Estimation of Beijing pollution at daily scale and population exposure evaluation, 15th PhD Student Forum of Tsinghua, Oral presentation, Beijing
- Aug 2016, Daily estimation of ground-level PM_{2.5} over Beijing at 3 km resolution using MODIS, Asia–Oceania Geosciences Society (AOGS), Oral presentation, Beijing
- Dec 2014, Impact of the 2011 Southern US Drought on Ground-Level Particulate Matters (PM) in Summertime and Implication for Drought-Driven PM Response in Future Climate, American Geophysical Union (AGU) Fall Meeting, Poster, San Francisco

ACADEMIC SERVICE

Reviewer for *Environmental Science & Technology*, *Journal of Geophysical Research: Atmospheres*, *Geophysical Research Letter*, *Atmospheric Pollution Research*, *Atmospheric Environment*, *One Earth*, *Chemosphere*