

Zhenyu Luo

Email: luozy20@mails.tsinghua.edu.cn

EDUCATIONS

- Phd in Environmental Science and Engineering
Tsinghua University, China 2020-now
- Research Assistant
School of Environment, Tsinghua University, China 2019-2020
- ME in Communication and Information System
Nanjing Research Institute of Electronics Technology, China 2016-2019
- BE in Information Engineering
Northwestern Polytechnical University, China 2012-2016

RESEARCH

AIR POLLUTION

- Atmospheric chemical and physical transformations of air pollutants
- Sources, emissions and health effects of air pollution
- Air quality policies

MODELLING AND DATA SCIENCE

- Satellite observations (OMI, TROPOMI) and emission inversion
- Multi-scale air pollution modeling (WRF-CMAQ, GeosChem)
- Machine learning and deep learning (CNN)

PRINCIPAL RESEARCH PROJECTS

- Study on the influence of the rapid development of vehicles on air quality in Maotai area 2019-2023
- Tsinghua-Toyota Research Center cooperation project 2019-now
- Pathways to equitable healthy cities 2020-now
- Research on traffic and urban atmospheric environment based on high resolution atmospheric environment simulation and remote sensing system 2020-2023
- China report of the Lancet Countdown 2021-now
- Impacts of vehicle and ship emissions on air quality in Hainan Province 2022-2023

RESEARCH PUBLICATIONS

- [1] **Luo, Z.**, Lv, Z., Zhao, J., Sun, H., He, T., Yi, W., Zhang, Z., He, K., Liu, H., 2024. Shipping-related pollution decreased but mortality increased in Chinese port cities. *Nature Cities*.
- [2] **Luo, Z.**, He, T., Yi, W., Zhao, J., Zhang, Z., Wang, Y., Liu, H., He, K., 2024. Advancing shipping NOx pollution estimation through a satellite-based approach. *PNAS Nexus* 3, pgad430.
- [3] Lv, Z.[#], **Luo, Z.**[#], Deng, F., Wang, X., Zhao, J., Xu, L., He, T., Zhang, Y., Liu, H., He, K., 2022. Development and application of a multi-scale modeling framework for urban high-resolution NO₂ pollution mapping. *Atmospheric Chemistry and Physics*. 22, 15685-15702. [#]Contributed equally to this work.
- [4] **Luo, Z.**, Wang, Y., Lv, Z., He, T., Zhao, J., Wang, Y., Gao, F., Zhang, Z., Liu, H., 2022. Impacts of vehicle emission on air quality and human health in China. *Science of The Total Environment*

813, 152655

- [5] **Luo, Z.**, Xu, H., Zhang, Z., Zheng, S., Liu, H., 2023. Year-round changes in tropospheric nitrogen dioxide caused by COVID-19 in China using satellite observation. ***Journal of Environmental Sciences*** 132, 162-168.
- [6] **Luo, Z.**, Huang, F., Liu, H., 2020. PM2.5 concentration estimation using convolutional neural network and gradient boosting machine. ***Journal of Environmental Sciences*** 98, 85-93.
- [7] **Luo, Z.** et al., Satellite-based estimate of individual ship NOx emissions and global inventory correction. ***iScience***. (Under revision)

ENTERPRISE, ENGAGEMENT AND IMPACTS

- Intern
Anhui Institute of Environmental Science and Technology Co., LTD, China 2021.07-09
- Poster
The 8th Youth Geoscience Forum 2023.05
- *The ninth SOLAS Summer School, Cape Verde* 2023.06
- Oral presentation
The 5th Technical Seminar on Pollutant Source Emission Inventory, China 2023.08