

Jing Wei, Ph.D. (Updated to 12/19/2022)

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Biography

I am focusing on studying atmospheric aerosols, clouds, particulate matter, and trace gases using remote sensing, big data, and artificial intelligence. Up to now, I have authored over **60** SCI papers as first or corresponding authors in leading journals such as *RSE*, *ES&T*, *JGR*, *ACP*, and *TGRS*, including **6 ESI Hot (Top < 0.1%) papers** and **11 ESI Highly Cited (Top < 1%) papers**, and **7** papers have been cited more than 100 times, with the highest one of **271** times. My total citations are more than **3600** times with an H-index of **33** (Google). I was the winner of the **AGU James R. Holton Award (2022)** and selected to Stanford University List of the **World's Top 2% Scientists (2022, 2021)**. I was an Editor of *Earth System Science Data*. I have generated the high-resolution and high-quality datasets of ground-level air pollutants in China, the United States, and the World (i.e., CHAP, USHAP, and GHAP), which have been widely used, leading to more than **120** related publications.

Work Experience

Faculty Research Associate, Department of Atmospheric and Oceanic Science, Earth System Science Interdisciplinary Center, University of Maryland, College Park, USA, 2022–Present.

Postdoctoral Fellow, Department of Chemical and Biochemical Engineering, University of Iowa, USA, 2021–2022.

Research Assistant, Center for Earth System Science, Tsinghua University, China, 2017–2018.

Research Assistant, Institute of Space and Earth Information Science, Chinese University of Hong Kong, China, 2017.

Education

Joint Ph.D. in Atmospheric Physics and Atmospheric Environment, University of Maryland, College Park, USA, 2021/1.

Ph.D. in Global Environmental Change, Beijing Normal University, China, 2021/1.

M.Sc. in Photogrammetry and Remote Sensing, Shandong University of Science and Technology, China, 2017.

B.Sc. in Remote Sensing Science and Technology, Shandong University of Science and Technology, China, 2014.

Research Interests

- Air pollution and chemical composition
- Aerosol and particulate matter remote sensing
- Trace gas remote sensing
- Cloud and cloud shadow detection
- Air pollution modelling and health exposure
- Artificial intelligence (machine and deep learning)
- Big data

Selected Publications [Citations] [Full list at: <https://weijing-rs.github.io/publication.html>]

1. **Wei, J.**, Huang, W., Li, Z., et al. Estimating 1-km-resolution PM_{2.5} concentrations across China using the space-time random forest approach. *Remote Sensing of Environment*, 2019, 231, 111221. [271]
2. **Wei, J.**, Li, Z., et al. Reconstructing 1-km-resolution high-quality PM_{2.5} data records from 2000 to 2018 in China: spatiotemporal variations and policy implications. *Remote Sensing of Environment*, 2021, 252, 112136. [218]
3. **Wei, J.**, Li, Z., et al. Improved 1 km resolution PM_{2.5} estimates across China using enhanced space-time extremely randomized trees. *Atmospheric Chemistry and Physics*, 2020, 20(6), 3273–3289. [188]
4. **Wei, J.**, Li, Z., Peng, Y., and Sun, L. MODIS Collection 6.1 aerosol optical depth products over land and ocean: validation and comparison. *Atmospheric Environment*, 2019, 201, 428–440. [188]
5. **Wei, J.**, Li, Z., et al. Satellite-derived 1-km-resolution PM₁ concentrations from 2014 to 2018 across China. *Environmental Science & Technology*, 2019, 53(22), 13265–13274. [142]

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6. **Wei, J.**, Li, Z., et al. Full-coverage mapping and spatiotemporal variations of ground-level ozone (O₃) pollution from 2013 to 2020 across China. *Remote Sensing of Environment*, 2022, 269, 112775.
7. **Wei, J.**, Huang, W., Li, Z., et al. Cloud detection for Landsat imagery by combining the random forest and super-pixels extracted via energy-driven sampling segmentation approaches. *Remote Sensing of Environment*, 2020, 248, 112005.
8. **Wei, J.**, Liu, S., Li, Z., et al. Ground-level NO₂ surveillance from space across China for high resolution using interpretable spatiotemporally weighted artificial intelligence. *Environmental Science & Technology*, 2022, 56(14), 9988–9998.
9. **Wei, J.**, Li, Z., et al. The ChinaHighPM₁₀ dataset: generation, validation, and spatiotemporal variations from 2015 to 2019 across China. *Environment International*, 2021, 146, 106290.
10. **Wei, J.**, Li, Z., et al. Himawari-8-derived diurnal variations of ground-level PM_{2.5} pollution across China using the fast space-time Light Gradient Boosting Machine (LightGBM). *Atmospheric Chemistry and Physics*, 2021, 21, 7863–7880.
11. **Wei, J.**, Peng, Y., et al. Intercomparison in spatial distributions and temporal trends derived from multi-source satellite aerosol products. *Atmospheric Chemistry and Physics*, 2019, 19, 7183–7207.
12. **Wei, J.**, Sun, L., et al. An improved high-spatial-resolution aerosol retrieval algorithm for MODIS images over land. *Journal of Geophysical Research-Atmospheres*, 2018, 123(21), 12291–12307.
13. **Wei, J.**, Huang, B., et al. A simple and universal aerosol retrieval algorithm for Landsat series images over complex surfaces. *Journal of Geophysical Research-Atmospheres*, 2017, 122(24), 13338–13355.
14. **Wei, J.**, Li, Z., et al. Extending the EOS long-term PM_{2.5} data records since 2013 in China: application to the VIIRS Deep Blue aerosol products. *IEEE Transactions on Geoscience and Remote Sensing*, 2022, 60, 4100412.
15. **Wei, J.**, Li, Z., Peng, Y., Sun, L., and Yan, X. A regionally robust high-spatial-resolution aerosol retrieval algorithm for MODIS images over Eastern China. *IEEE Transactions on Geoscience and Remote Sensing*, 2019, 57(7), 4748–4757.
16. **Wei, J.**, Li, Z., et al. Enhanced aerosol estimations from Suomi-NPP VIIRS images over heterogeneous surfaces. *IEEE Transactions on Geoscience and Remote Sensing*, 2019, 57(12), 9534–9543.
17. **Wei, J.**, Li, Z., et al. Evaluation and uncertainty estimate of the next-generation geostationary meteorological Himawari-8/AHI aerosol products. *Science of the Total Environment*, 2019, 692, 879–891.
18. **Wei, J.**, Li, Z., Peng, Y., and Wang, L. Improved merge schemes for MODIS Collection 6.1 Dark Target and Deep Blue combined aerosol products. *Atmospheric Environment*, 2019, 202, 315–327.
19. **Wei, J.**, Li, Z., et al. MODIS Collection 6.1 3 km resolution aerosol optical depth product: global evaluation and uncertainty analysis. *Atmospheric Environment*, 2020, 240, 117768.
20. **Wei, J.**, Sun, L., et al. Verification, improvement and application of aerosol optical depths in China. Part 1: Inter-comparison of NPP-VIIRS and Aqua-MODIS. *Atmospheric Environment*, 2018, 175, 221–233.

Awards, Honors & Recognitions

- AGU James R. Holton Award (2022)
- World's Top 2% Scientists (2022, 2021)
- ESSIC Annual Best Paper Award (2022)
- Zhou Tingru Geography Youth Award (2021)
- Gao Tingyao Environmental Protection Outstanding Youth Award (2020)
- Li Xiaowen Remote Sensing Science Youth Award (2019)
- ESI Hot Paper, *Remote Sensing of Environment* (2022/2021/2019)
- ESI Hot Paper, *Atmospheric Chemistry and Physics* (2020)
- ESI Hot Paper, *Environmental Science & Technology* (2019)
- ESI Hot Paper, *Atmospheric Environment* (2019)
- ESI Highly Cited Paper, *Remote Sensing of Environment* (2022/2019)
- ESI Highly Cited Paper, *Journal of Cleaner Production* (2022)
- ESI Highly Cited Paper, *Atmospheric Chemistry and Physics* (2021/2020/2019)
- ESI Highly Cited Paper, *Environment International* (2021)
- ESI Highly Cited Paper, *Science of the Total Environment* (2021)
- ESI Highly Cited Paper, *Environmental Science & Technology* (2019)
- ESI Highly Cited Paper, *Atmospheric Environment* (2019)

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- ESI Highly Cited Paper, *Atmospheric Environment* (2018)
- ESI Highly Cited Paper, *Remote Sensing* (2018)
- Most Cited Articles (since 2019), *Remote Sensing of Environment* (2021/2019)
- Most Cited Articles (since 2018), *Remote Sensing of Environment* (2019)
- Most Cited Articles (since 2018), *Atmospheric Environment* (2019)
- 1st Most Cited Paper in *Remote Sensing of Environment* (2021)
- 1st Most Cited Paper and Author in *Atmospheric Environment* (2019)
- Journal High Impact Paper, *Hypertension* (2021)
- Journal Highlight Article, *Atmospheric Chemistry and Physics* (2020)
- Journal Highlight Article, *Journal of Geophysical Research-Atmospheres* (2018)
- Outstanding Graduates, Beijing (Ph.D., 2021)
- Special Prize for Graduate Academic Innovation, Beijing Normal University (2021)
- National Scholarship (Ph.D., 2020/2019; M.Sc., 2016/2015)
- Special Scholarship for Doctoral Freshmen, Beijing Normal University (2018)
- Outstanding Graduates, Shandong Province (M.Sc., 2017; B.Sc., 2014)
- Outstanding Scientific & Technological Innovation Achievement Award, Shandong Province (Second Prize, 2016)

Grants

- Co-Investigator: NASA Earth Sciences' Applied Science Program [80NSSC21K1980], *Generation of Integrated Aerosol Fine-Mode Fraction and Surface Particulate Matter from LEO- and GEO Satellites in Asia Using Machine-Learning Models*, 2021–Present
- Co-Investigator: NASA Earth Sciences' Applied Science Program [80NSSC21K0428], *Enrich and enhance the application of TEMPO and GEOS data products for regional air quality and public health management under smoke conditions*, 2021–Present

Editorial and Reviewer Services

- Editor, *Earth System Science Data* (IF = 11.815), 2022–Present
- (Youth) Editorial Board Members, *Remote Sensing* (2022–Present), *International Journal of Digital Earth* (2022–Present), *Big Earth Data* (2021–Present), *Remote Sensing Technology and Application (Chinese)*, 2022–Present), *Journal of Atmospheric and Environmental Optics (Chinese)*, 2022–Present), *Journal of Environmental Hygiene (Chinese)*, 2022–Present)
- Guest Editors: *Atmospheric Measurement Techniques* (2021–Present), *Sustainability* (2021–Present), *Frontiers in Earth Science* (2021–2022), *Frontiers in Environmental Science* (2021–2022), *Atmosphere* (2022), *National Remote Sensing Bulletin (Chinese)* (2021–2022), *Frontiers in Public Health* (2022)
- Journal Reviewers (150+ peer views for 50+ journals): *Remote Sensing of Environment*, *Environmental Science & Technology*, *Journal of Geophysical Research-Atmospheres*, *Geophysical Research Letters*, *Atmospheric Chemistry and Physics*, *IEEE Transactions on Geoscience and Remote Sensing*, *The Lancet Regional Health – Americas*, et al.

Membership and Service

- Co-Chair, Atmospheric Environmental Remote Sensing Society (AERSS) ECPC, 2022–Now
- Co-Convener/Co-Chair, Asia Oceania Geosciences Society (AOGS) Section, 2022 (**Top Conveners**)
- Members: American Geophysical Union (AGU), American Meteorological Society (AMS), Asia Oceania Geosciences Society (AOGS), Chinese-American Oceanic and Atmospheric Association (COAA)

Selected Invited Seminars

- **Wei, J.** University of Maryland, College Park, November 3, 2022. (Invited **Department Seminar**)
- **Wei, J.** University of Science and Technology of China, October 21, 2022.
- **Wei, J.** MDPI Remote Sensing, June 25, 2022. (**Chair**)
- **Wei, J.** China Clean Air Policy Partnership, Tsinghua University, April 6, 2021.
- **Wei, J.** Lanzhou University, China, March 26, 2021.
- **Wei, J.** Nanjing University of Information Science and Technology, December 29, 2020.

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- **Wei, J.** NASA Goddard Space Flight Center, December 1, 2020.
- **Wei, J.** Ministry of Ecology and Environment Center for Satellite Application on Ecology and Environment, November 25, 2020.
- **Wei, J.** Zhejiang University, September 20, 2020.
- **Wei, J.** Peking University, July 8, 2019.

Selected Presentations

- **Wei, J.** Tracking ambient air pollution from space integrating Big Data and artificial intelligence. American Geophysical Union (AGU) Fall Meeting, December 12–16, 2022, Chicago, IL, USA. **(Invited Talk)**
- **Wei, J.** Satellite-derived daily fine-scale surface NO₂ concentrations in China by combining machine and deep learning models. American Geophysical Union (AGU) Fall Meeting, December 12–16, 2022, Chicago, IL, USA.
- **Wei, J.** Hourly PM_{2.5} estimations from Himawari-8/AHI aerosol products across China via machine learning. Advancement of POLarimetric Observations (APOLO), August 9-12, 2022, Washington D.C., USA.
- **Wei, J.** Full-coverage daily ground-level ozone (O₃) estimation from Bigdata using machine learning across China. Asia Oceania Geosciences Society (AOGS), August 1–5, 2022 (Online).
- **Wei, J.** Ground-level NO₂ surveillance derived from the Sentinel-5P TROPOMI satellite across China using remote sensing and machine learning. Asia Oceania Geosciences Society (AOGS), August 1–6, 2021 (Online).

Digital Background

- [Google Scholar](#): *H-index* = 33, *Total Citations* = 3,619
- [Scopus](#): *H-index* = 33, *Total Citations* = 3,487
- [Web of Science](#): *H-index* = 29, *Total Citations* = 2,921