Qianqian Yang

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EDUCATION

- **Ph.D. in Remote sensing, 09/2017 - now**
  School of Geodesy and Geomatics, Wuhan University, Wuhan, Hubei, 430079, P.R. China
  - *Advisor:* Professor Qiangqiang Yuan
  - *Research direction:* Atmospheric remote sensing
- **Bachelor in Surveying Engineering, 09/2013 - 06/2017**
  School of Geodesy and Geomatics, Wuhan University, Wuhan, Hubei, 430079, P.R. China

PUBLICATIONS

[1] Yang, Q., Wang, B., Wang, Y., Yuan, Q., Jin, C., Wang, J., ... & Zhang, L. (2021). Global air quality change during COVID-19: a synthetic analysis of satellite, reanalysis and ground station data. *Environmental Research Letters*, 16(7), 074052.

[2] Yang, Q., Yuan, Q., Yue, L., Li, T., Shen, H., & Zhang, L. (2020). Mapping $PM_{2.5}$ concentration at a sub-km level resolution: A dual-scale retrieval approach. *ISPRS Journal of Photogrammetry and Remote Sensing*, 165, 140-151.

[3] Yang, Q., Yuan, Q., Li, T., Yue, L. (2020). Mapping $PM_{2.5}$ concentration at high resolution using a cascade random forest based downscaling model: Evaluation and application. *Journal of Cleaner Production*, 277, 123887.

[4] Yang, Q., Yuan, Q., Yue, L., Li, T. (2020). Investigation of the spatially varying relationships of $PM_{2.5}$ with meteorology, topography, and emissions over China in 2015 by using modified geographically weighted regression. *Environmental Pollution*, 262, 114257.

[5] Yang, Q., Yuan, Q., Yue L., Li, T., Shen, H., Zhang, L., 2019. The relationships between $PM_{2.5}$ and aerosol optical depth (AOD) in mainland China: About and behind the spatio-temporal variations. *Environmental pollution*. 248, 526-535.

[6] Yang, Q., Yuan, Q., Li, T., Shen, H., Zhang, L., 2017. The Relationships between $PM_{2.5}$ and Meteorological Factors in China: Seasonal and Regional Variations. *International journal of environmental research and public health*. 14(12), 1510.

[7] Yang, Q., Jin, C., Li, T., Yuan, Q., Shen, H., Zhang, L. Research progress and challenges of data-driven quantitative remote sensing. *National Remote Sensing Bulletin*. DOI：10.11834/jrs.20211410

[8] Wang, B., Yuan, Q., **Yang, Q.**, Zhu, L., Li, T., & Zhang, L. (2021). Estimate hourly $PM_{2.5}$

concentrations from Himawari-8 TOA reflectance directly using geo-intelligent long short-term memory network. *Environmental Pollution*, 271, 116327.

[9] Yuan, Q., Shen, H., Li, T., Li, Z., Li, S., Jiang, Y., Xu, H., Tan, W., **Yang, Q.,** Wang, J., Gao, J., Zhang, L. (2020). Deep learning in environmental remote sensing: Achievements and challenges. *Remote Sensing of Environment*, 241, 111716.

RESEARCH EXPERIENCES

- **The relationships between $PM_{2.5}$ concentration and its impacting factors**
  - Investigating the relationships between $PM_{2.5}$ concentration and meteorological factors, topographical variables, emissions, and aerosol optical depth with consideration of the spatial-temporal heterogeneity.
- **Ultrahigh-spatial-resolution $PM_{2.5}$ retrieval**
  - **Downscaling:** downscaling current low-resolution $PM_{2.5}$ product with machine learning models. *Characteristic: full coverage but low accuracy.*
  - **Dual-scale retrieval:** Retrieving $PM_{2.5}$ concentration with multiple predictors using a dual-scale retrieval frame. *Characteristic: high accuracy but low spatial coverage.*
  - **Top-of-atmosphere reflectance (TOAR)-based retrieval:** Retrieving $PM_{2.5}$ concentration directly from TOAR using deep learning models. *Characteristic: high accuracy and full coverage.*
- **Application of remote sensing $PM_{2.5}$ product**
  - Analyzing the global air quality change during COVID-19 pandemic using the ground measurements and satellite air pollution products, and quantified the impact of lockdown and the confirmation of the first case.

SKILLS

- Proficient in MATLAB
- Familiar with Python
- Familiar with ArcGIS and ENVI
- Familiar with Google Earth Engine

AWARDS AND HONORS

- National Scholarship for 2018, 2019, 2020, and 2021.
- Excellent Report Award of the 3rd National Quantitative Remote Sensing Forum, 2019
- Excellent Report Award of the second National Geology Postgraduate Forum, 2020
- Outstanding postgraduate of Wuhan University, 2019