

國立屏東科技大學環境工程與科學系

永續環境與健康城市研究室

Sustainable Environment and Healthy Cities Lab

主持老師：翁佩詒（Pei-Yi Wong）助理教授

學歷

國立成功大學環境醫學研究所 博士

經歷

國立屏東科技大學環境工程與科學系 助理教授

中央研究院環境變遷研究中心 博士後研究員

專長

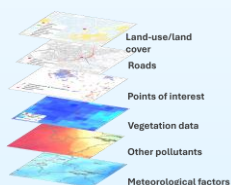
空污暴露評估、Geo-AI、大數據分析、地理資訊系統

研究主題與方向

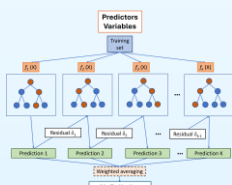
1. 空氣污染濃度時空推估
2. 以數據導向方式解析空氣污染影響因子
3. 環境暴露與兒童健康關聯性研究
4. 環境永續與自然解方



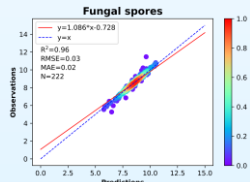
地理資訊系統



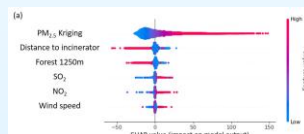
AI人工智慧



模式模擬



影響因子解析



空污濃度時空分布



過去SCI發表成果

■ 第一作者

1. **Wong, P. Y.**, C. Y. Hsu, J. Y. Wu, T. A. Teo, J. W. Huang, H. R. Guo, H. J. Su, C. D. Wu, John D. Spengler. 2021. Incorporating Land-Use Regression into Machine Learning Algorithms in Estimating the Spatial-Temporal Variation of Carbon Monoxide in Taiwan. *Environmental Modelling & Software* (SCI, IF=5.471, **Water Resources**, Rank 16/100, Q1, JIF Percentile 84.50%)
2. **Wong, P. Y.**, H. Y. Lee, Y. T. Zeng, Y. R. Chern, N. T. Chen, S. C. C. Lung, H. J. Su, C. D. Wu. 2021. Using a Land Use Regression Model with Machine Learning to Estimate Ground Level PM_{2.5}. *Environmental Pollution* (SCI, IF=9.988, **Environmental Sciences**, Rank 28/279, Q1, JIF Percentile 90.14%)
3. **Wong, P. Y.**, H. J. Su, H. Y. Lee, Y. C. Chen., Y. P. Hsiao, J. W. Huang, T. A. Teo, C. D. Wu, John D. Spengler. 2021. Using land-use machine learning models to estimate daily NO₂ concentration variations in Taiwan. *Journal of Cleaner Production* (SCI, IF=11.072, **Environmental Sciences**, Rank 24/279, Q1, JIF Percentile 91.58%)
4. **Wong, P. Y.**, H. Y. Lee, L. J. Chen, Y. C. Chen, N. T. Chen, S. C. C. Lung, H. J. Su, C. D. Wu, Jose Guillermo Cedeno Laurent, Gary Adamkiewicz, John D. Spengler. 2022. An alternative approach for estimating large-area indoor PM_{2.5} concentration – A case study of schools. *Building and Environment* (SCI, IF=7.093, **Engineering, Civil**, Rank 10/138, Q1, JIF Percentile 93.12%)
5. **Wong, P. Y.**, H. J. Su, S. C. C. Lung, C. D. Wu. 2023. An ensemble mixed spatial model in estimating long-term and diurnal variations of PM_{2.5} in Taiwan. *Science of The Total Environment* (SCI, IF=10.754, **Environmental Sciences**, Rank 26/279, Q1, JIF Percentile 90.86)
6. **Wong, P. Y.**, H. J. Su, S. C. C. Lung, W. Y. Liu, H. T. Tseng, G. Adamkiewicz, C. D. Wu. 2024. Explainable geospatial-artificial intelligence models for the estimation of PM_{2.5} concentration variation during commuting rush hours in Taiwan. *Environmental Pollution* (SCI, IF=7.6, **Environmental Sciences**, Rank 37/358, Q1, JIF Percentile 89.8%)
7. **Wong, P. Y.**, H. J. Su, H. J. Chao, W. C. Pan, H. J. Tsai, T. C. Yao, W. Y. Liu, S. C. C. Lung, G. Adamkiewicz, C. D. Wu. 2024. An Innovative Geo-AI Approach in Estimating High-Resolution Urban Ambient Fungal Spore Variations. *Earth Systems and Environment* (SCI, IF=5.3, **Geosciences, Multidisciplinary**, Rank 26/254, Q1, JIF Percentile 90.0%)
8. **Wong, P. Y.**, Zeng, Y. T., Su, H. J., Lung, S. C. C., Chen, Y. C., Chen, P. C., Hsiao, T. C., G. Adamkiewicz, C. D. Wu. 2024. Effects of feature selection methods in estimating SO₂ concentration variations using machine learning and stacking ensemble approach. *Environmental Technology & Innovation*, 103996 (SCI, IF=6.7, **Environmental Sciences**, Rank 44/385, Q1, JIF Percentile 87.8%)

過去研討會發表成果

1. **Wong P. Y.**, C. D. Wu*, H. J. Su. 2019. A Neural Network-Based Land Use Regression Model to Estimate Spatial-Temporal Variability of Nitrogen Dioxide. The 40th Asian Conference on Remote Sensing (ACRS 2019), Daejeon, Korea (Oral Presentation). October 14-18, 2019 (榮獲"Best Paper Award")
2. **Wong P. Y.**, L. J. Chen, H. J. Su, Y. C. Chen, N. T. Chen, S. C. C. Lung, T. C. Hsiao, C. D. Wu*. 2021. Indoor PM_{2.5} Levels Estimation by Using Low-Cost Sensors with Land-Use Regression Integrated XGBoost Approach. 2021 Conference on Indoor Environmental Quality Health, Infection Prevention and Intelligent Living in Asia (TSIEQ 2021), Tainan, Taiwan (Oral Presentation). June 3-4, 2021. (榮獲"Popularity Award")
3. **Wong P. Y.**, H. J. Su, Y. L. Guo, P. C. Chen, Y. C. Chen, S. C. S. Lung, C. D. Wu. 2022. Comparison of multiple air pollution modelling methods in estimating diurnal PM_{2.5} concentration variations. The 12th Asian Aerosol Conference (AAC), Taipei, Taiwan (Oral Presentation). June 12-16, 2022.
4. **Wong P. Y.**, Y. T. Zeng, H. J. Su, S. C. S. Lung, C. D. Wu*. 2023. The combination effects of feature selection and machine learning on SO₂ spatiotemporal estimation: a case study in Kaohsiung, Taiwan. 35th Annual Conference of International Society for Environmental Epidemiology (ISEE 2023), Kaohsiung, Taiwan (Poster presentation). September 17-21, 2023.
5. **Wong P. Y.**, H. J. Su, C. D. Wu*. 2024. Utilizing Random Forest for the estimation of spatiotemporal distribution of fungal spore concentrations: a case study in Tainan city, Taiwan. The International Society for Environmental Epidemiology Asia and Western Pacific Chapter (ISEE-AWPC) & International Society for Exposure Science Asia Chapter (ISES-AC) Joint Conference 2024 (ISEE-AWPC & ISES-AC 2024), Sabah, Malaysia (Poster presentation). June 23-26, 2024.
6. **Wong P. Y.**, H. J. Su, C. D. Wu*. 2024. A fine resolution Geo-AI model for commute-period PM_{2.5} estimation and its application in healthier route planning. 2024 Asia Conference on Innovative Approaches to Enhance Healthy Indoor Environment (TSIEQ 2024). (Oral Presentation) November 1-2, 2024 (榮獲 Student Paper Competition Awards "First place")



國立屏東科技大學
National Pingtung University of Science and Technology