

Hugo Wai Leung MAK

Publication List (updated in March 2025)

(a) Published Journal Articles & Technical Reports

(i) Journal Articles (Citation No. on Google Scholar (March 2025): 600+)

1. Mwitondi, K.S.* and **Mak, H.W.L.*** (2025) Robust Machine Learning Algorithmic Rules for Detecting Air Pollution in the Lower Parts of the Atmosphere. *To appear in Data Science Journal, Resubmitted after Revision.*
2. Yin, H.H.F.*, M. Tahernia and **H.W.L. Mak*** (2024) Multi-Phase Adaptive Recoding: An Analogue of Partial Retransmission in Batched Network Coding. *Network*, Vol. 4 (4), 468-497.
3. Yin, H.H.F.*, X. Wang, **H.W.L. Mak***, C.S. Au Yong and I.Y.Y. Chan. (2023) Discrete Analogue of Fishburn's Fractional-Order Stochastic Dominance. *Axioms*, Vol. 12 (6), 564. Impact Factor: 1.9 (Q1)
4. **Mak, H.W.L.***, R. Han and H.H.F. Yin* (2023) Application of Variational AutoEncoder (VAE) Model and Image Processing Approaches in Game Design. *Sensors*, Vol. 23 (7), 3457. Impact Factor: 3.4 (Q1)
5. Yin, H.H.F.*, K.H. Ng, S.K. Ma, H.W.H. Wong and **H.W.L. Mak*** (2022) Two-State Alien Tiles: A Coding-Theoretical Perspective. *Mathematics*, Vol. 10 (16), 2994. Impact Factor: 2.3 (Q1)
6. Ul Din, S. and **Mak, H.W.L.*** (2021) Retrieval of Land-Use/Land Cover Change (LUCC) Maps and Urban Expansion Dynamics of Hyderabad, Pakistan via Landsat Datasets and Support Vector Machine Framework. *Remote Sensing*, Vol. 13 (16), 3337. Impact Factor: 4.2 (Q1)
7. Chi, Y.L. and **Mak, H.W.L.*** (2021) From Comparative and Statistical Assessments of Liveability and Health Conditions of Districts in Hong Kong towards Future City Development. *Sustainability*, Vol. 13 (16), 8781. Impact Factor: 3.3 (Q1)
8. **Mak, H.W.L.*** and D.C.Y. Ng (2021) Spatial and Socio-Classification of Traffic Pollutant Emissions and Associated Mortality Rates in High-Density Hong Kong via Improved Data Analytic Approaches. *International Journal of Environmental Research and Public Health*, Vol. 18(12), 6532. Cite Score: 7.3 (Q2)
9. He, Y., C. Ren, **H.W.L. Mak**, C. Lin, Z. Wang, J.C.H. Fung, Y. Li, A.K.H. Lau and E. Ng (2021) Investigations of high-density urban boundary layer under summer prevailing wind conditions with Doppler LiDAR: A case study in Hong Kong. *Urban Climate*, Vol. 38, 100884. Impact Factor: 6.0 (Q1)
10. **Mak, H.W. L.** and N.Y.F. Lam (2021) Comparative Assessments and Insights of Data Openness of 50 Smart Cities in Air Quality aspects. *Sustainable Cities and Society*, Vol. 69, 102868. Impact Factor: 10.5 (Q1)
11. Lin, C.Q., L.D. Labzovskii, **H.W.L. Mak**, J.C.H. Fung, A.K.H. Lau, S.T. Kenea, M. Bilal, J. V. Hey, X. Lu and J. Ma (2020) Observation of PM_{2.5} using a combination of satellite remote sensing and low-cost sensor network in Siberian urban areas with limited reference monitoring. *Atmospheric Environment*, Vol. 227, 117410. Impact Factor: 4.2 (Q1)
12. Liu, Z., J. Barlow, P-W. Chan, J.C.H. Fung, Y. Li, C. Ren, **H.W.L. Mak** and E. Ng (2019) A Review of Progress and Applications of Pulsed Doppler Wind LiDARs. *Remote Sensing*, Vol. 11 (21), 2522. Impact Factor: 4.2 (Q1)
13. Labzovskii, L. D., **H.W.L. Mak**, S.T. Kenea, J-S. Rhee, A. Lashkari, S. Li, T-Y. Goo, Y-S. Oh and Y-H. Byun (2019) What can we learn about effectiveness of carbon reduction policies from interannual variability of fossil fuel CO₂ emissions in East Asia? *Environmental Science & Policy*, Vol. 96, p. 132 – 140. Impact Factor: 4.9 (Q1)
14. **Mak, H.W.L.***, J. L. Laughner, J.C.H. Fung, Q. Zhu and R. C. Cohen (2018) Improved Satellite Retrieval of Tropospheric NO₂ Column Density via Updating of Air Mass Factor (AMF): Case Study of Southern China. *Remote Sensing*, Vol. 10 (11), 1789. Impact Factor: 4.2 (Q1)

15. **Mak, H.W.L.** (2018) Minimization of Optical Rogue Waves Formation based on Hamiltonian approach. *To Physics Journal*, Vol. **1** (3), 47-58. Impact Factor: 1.96

* Corresponding Author / Co-First Author

(ii) Technical Reports

1. **Mak, H.W.L.** (2021) From COVID-19 Pandemic of Five Selected East Asian Cities to Assessment of Data Openness and Integration for Future City Development. *Joint Lab on Future Cities (JLFC) Report No. 2*. Hong Kong: JLFC. https://www.jlfc.hku.hk/files/ugd/25f7bc_95f36b8043a948a78d066f2eadbb30d6.pdf
2. **Mak, H.W.L.** and K. Koh (2021) Building a Healthy Urban Environment in East Asia. *Joint Lab on Future Cities (JLFC) Report No. 1*. Hong Kong: JLFC. https://www.jlfc.hku.hk/files/ugd/25f7bc_30da455d5b6c4ebe8d8fa1ee465ad6ac.pdf

(b) Conference / Workshops Proceedings & Presentations (updated in Feb 2025)

1. Krause, K., A. Richter, S. Bittner, U. Frieß, S. Ziegler, R. Gilke, T. Wagner,... **H.W.L. Mak**, H.A. Kwon, K. Strong, ..., J. Lampel, H. Bösch (38 international scientists) (2025) CINDI-3 glyoxal intercomparison. *The European Geosciences Union (EGU) General Assembly 2025*, Apr-May 2025 – **Conference Proceedings**: EGU25-16039, <https://doi.org/10.5194/egusphere-egu25-16039>
2. Roozendaal, M.Y., A. Apituley, K. Kreher, D.A. Gouveia, ..., **H.W.L. Mak**, A. Merlaud, S. Morhenn, ..., A. Dehn (43 international scientists) (2024) Overview and First Results From the Third Cabauw Intercomparison of UV-Vis DOAS Instruments. *American Geophysical Union (AGU) Fall Meeting 2024*, Dec 2024 – **Conference Proceedings**
3. **Mak, H.W.L.** (2024) Uncovering and Evaluation of Land Cover Dynamics via Support Vector Machine and Image Classification Framework. *The 7th Asia Conference on Cognitive Engineering and Intelligent Interaction (CEII 2024)*, Dec 2024 – **Invited Oral Presentation & Conference Proceedings**
4. **Mak, H.W.L.** (2024) New Data Documentation Initiative (DDI) Insights acquired from assessing Openness of Air Quality Data in Smart Cities. *16th European DDI Users Conference*, Dec 2024 – **Regular Oral Presentation & Conference Proceedings**
5. **Mak, H.W.L.** (2024) Building a Healthy and Sustainable Urban Environment: Insights from East Asian Planning and Data Analytic Approaches. *EuroScience Open Forum 2024*, Jun 2024 – **Invited Lecture & Conference Proceedings**
6. **Mak, H.W.L.** (2024) Assessment of Spatial Land Cover Dynamics in two major cities of Pakistan via Satellite-based Data Analytic Framework. *International Symposium on Remote Sensing (ISRS) 2024*, Apr 2024 – **Oral Presentation & Conference Proceedings**
7. **Mak, H.W.L.** (2023) Synergies of Satellite Datasets, Modeling and Data Analytic Approaches in Pollutant Retrieval. *International Symposium on Data Science (DSWS-2023)*, Dec 2023 – **Oral Presentation & Conference Proceedings**
8. **Mak, H.W.L.** (2023) Insights obtained for XCO₂ Retrieval within East Asia via inverse modeling and data assimilation approaches. *14th Geostationary Environment Monitoring Spectrometer (GEMS) Science Team Meeting*, Sep 2023 – **Oral Presentation**
9. **Mak, H.W.L.** (2023) The synergy of Machine Learning, Numerical Modeling and Data Analytic Approaches in Environmental Retrieval. *2nd PEGASOS Progress and Milestone Scientific Meeting*, Jun 2023 – **Invited Oral Presentation**
10. **Mak, H.W.L.** (2022) Application of Observational and Satellite Datasets in PM_{2.5} Retrieval and Modelling. *13th Geostationary Environment Monitoring Spectrometer (GEMS) Science Team Meeting*, Nov 2022 – **Invited Oral Presentation**

11. **Mak, H.W.L.** (2020) From existing tropospheric and ground NO₂ retrievals and modelling to GEMS validation. *11th Geostationary Environment Monitoring Spectrometer (GEMS) Science Team Meeting*, Nov 2020 – **Invited Oral Presentation**
12. **Mak, H.W.L.** (2020) Statistical Prediction, Modeling and Temporal Analysis of NO₂ Concentration within Greater Bay Area during recent Five-Year Plans and COVID-19 pandemic. *The 6th International Symposium on Regional Air Quality Management (RAQM) & The 2nd Guangdong-Hong Kong-Macao GBA Air Forum*, Oct 2020 – **Poster Presentation & Conference Proceedings**
13. **Mak, H.W.L.** (2019) Several Applications of Satellite Remote Sensing and Statistical Machine Learning Algorithms in Environmental Retrieval. *10th Geostationary Environment Monitoring Spectrometer (GEMS) Science Team Meeting*, Nov 2019 – **Invited Oral Presentation**
14. Labzovskii, L.D., **H.W.L. Mak**, S.T. Kenea, J-S. Rhee, L. Azam, S. Li, T-Y. Goo, Y-S. Oh and Y-H. Byun (2019) What can we learn about effectiveness of carbon reduction policies from interannual variability of carbon emissions? Applying ODIAC emission estimates from East Asia of the 2010s. *15th International Workshop on Greenhouse Gas Measurements from Space (IWGGMS-15)*, June 2019 – **Oral Presentation & Conference Proceedings**
15. **Mak, H.W.L.** and J.C.H. Fung (2019) Assessment of numerous Data Assimilation Approaches in Regional Retrieval of Ground NO₂ Spatial Distribution via Remote Sensing products. *The Japan Geoscience Union Meeting (JpGU) 2019*, May 2019 – **Oral Presentation & Conference Proceedings**
16. **Mak, H.W.L.** and J.C.H. Fung (2018) Comparison of different Kernel-based Probabilistic Models and Regression Methods in retrieving Ground-Level NO₂ Concentrations over Southern China based upon Satellite Remote Sensing datasets. *Big Data Challenges for Predictive Modeling of Complex Systems*, Nov 2018 – **Poster Presentation & Conference Proceedings**
17. Labzovskii, L.D., **H.W.L. Mak**, S.T. Kenea, J-S. Rhee, Y-H. Byun, T-Y. Goo, S. Li, Y-S. Oh and S. Victorov (2018) What interannual variability of CO₂ in East Asia can tell us about effectiveness of carbon reduction policies? A pilot study using CarbonTracker-Asia, emission inventories and satellite observations. *2018 Fall Meeting of Korean Meteorological Society*, Oct 2018 – **Oral Presentation & Conference Proceedings**
18. **Mak, H.W.L.** (2018) From Four-wave resonant process to Minimization of Optical Rogue Waves formation via Hamiltonian approach and Quantum Mechanics formulation. *International Conference on Applied Mathematics (ICAM 2018)*, June 2018 – **Oral Presentation**
19. **Mak, H.W.L.** and J.C.H. Fung (2018) Comparison between spatial profiles of tropospheric NO₂ column with remote sensing techniques and WRF-CMAQ derivation. *International Symposium on Remote Sensing (ISRS) 2018*, May 2018 – **Poster Presentation & Conference Proceedings**
20. **Mak, H.W.L.** (2017) Tracking irregular shaped moving particles via Image Processing techniques and its application in Biology. *2017 Imaging Science Camp*, March 2017 – **Oral Presentation**
21. **Mak, H.W.L.** (2017) Approximation of Offset curves via different numerical algorithms and Elimination of overlapping regions. *Global Young Scientists Summit (GYSS) @one-north Singapore 2017*, Jan 2017 – **Poster Presentation**

(c) Other Research Proceedings

1. **Mak, H.W. L.** (2015) Lunar Study based on Data obtained by the Chang'e Spacecraft: Investigation of Lunar Surface based on Chang'e Data. *HKUST Undergraduate Research Opportunities (UROP) Proceedings (2014-2015)*. (Advisor: **CHAN, Kwing Lam**)
2. **Mak, H.W.L.** (2014) Asymptotic Methods for High Frequency Wave Phenomena: Approximation of Plane Offset curves and Elimination of self-intersections. *HKUST Undergraduate Research Opportunities (UROP) Proceedings (2013-2014)*. (Advisor: **LEUNG, Shing Yu**)