Curriculum Vitae

ASSOC. PROF. DR. TAN MOU LEONG

Geography Section
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BIOGRAPHY

Mou Leong Tan is an Associate Professor with the Geoinformatic Unit at the Universiti Sains Malaysia (USM). Dr. Tan received his PhD in remote sensing from Universiti Teknologi Malaysia, with the focus on the application of remote sensing in hydro-climatic modelling. He was awarded a postdoctoral fellowship at the National University of Singapore and held the position of a visiting scholar at University of Exeter, UK, Fudan University and Nanjing Normal University, China. He is also the Vice President of Water Watch Penang (WWP), an NGO that aims to create a water-saving society in Malaysia. Moreover, he is an active member for the International Association for Hydro-Environment Engineering and Research (IAHR), International Association of Hydrological Sciences (IAHS) and a professional member of the Institute of Geospatial and Remote Sensing Malaysia (IGRSM). He currently serves as the academic editor of PLOS One and is on the editorial board of HydroResearch, Geografia, Journal of Asian Geography, etc.

Dr. Tan has served as the principal investigator for numerous national grants, i.e., Long-term Research Grant Scheme (LRGS) and Fundamental Research Grant Scheme (FRGS) by the Ministry of Higher Education Malaysia, and international grants through the Newton-Natural Environment Research Council (NERC) fund, Kurita Water and Environment Foundation (KWEF) and Degrees Modelling Fund (DMF). He has published more than 150 research articles in predominantly Q1 and Q2 journals that have been cited over 3,000 times, with an H-index of 30. He was one of the world's top 2% scientists in environmental science in 2020, 2021 and 2022 based on the report released by Stanford University, and received the Top Research Scientist Malaysia (TRSM) Award in 2023.

AREAS OF EXPERTISE

- Hydrology
- Climatology
- Remote Sensing
- Geographical Information System (GIS)
- Environmental Management

ACADEMIC QUALIFICATION

- **PHD (UTM) (2016), (Remote Sensing)**
  Universiti Teknologi Malaysia (UTM)
- **BSc (HONS) (UTM) (2012), (Remote Sensing)**
  Universiti Teknologi Malaysia (UTM)

ADMINISTRATIVE DUTIES

- **Coordinator of GeoInformatic Unit**

  01 Jan 2021 - present (School of Humanities)

MEMBERSHIPS

- **Member, International Association for Hydro-Environment Engineering and Research (IAHR) (membership no: 89535)**

  2023 to present (International)

- **Member, International Society for Digital Earth (membership no: m-i-2014038).**

  2014 to 2016 (International)

- **Member, International Association of Hydrological Sciences (membership no: 14800)**

  2012 to present (International)

- **President, Malaysian Geographical Association (GeogMalaysia)**

  2024 to present (National)

- **Professional Member, Institution of Geospatial and Remote Sensing Malaysia (IGRSM) (membership no: GM00001-L)**

  2017 to present (National)

- **Vice President, Water Watch Penang** (membership no: LM006)

  2017 to present (State)

AWARDS AND STEWARDSHIP

- **Top Research Scientist Malaysia (TRSM) 2023**

  Academy Science Malaysia. 2023 (National)

- **Top 2% Research Scientist 2022**

  Standford University. 2023 (National)

- **Sanggar Sanjung Publication Award, International Grant Award, Promising Researcher Award**

  Universiti Sains Malaysia, 2022 (University)

- **Sanggar Sanjung Publication Award**

  Universiti Sains Malaysia, 2021 (University)

- **Certificate of Excellent Service**

  University Sains Malaysia, 2020 (University)

- **Sanggar Sanjung Publication Award**

  Universiti Sains Malaysia, 2019 (University)

- **Outstanding Young Researcher Award**

  Universiti Sains Malaysia, 2019 (University)

- **Sanggar Sanjung Publication Award**

  Universiti Sains Malaysia, 2018 (University)

PUBLICATIONS

Article in Journal

WoS

1. Du, H., Tan, M.L., Zhang, F., Chun, K.P., Li, L. and Kabir, M.H. (2024) Evaluating the effectiveness of CHIRPS data for hydroclimatic studies. Theoretical and Applied Climatology. https://doi.org/10.1007/s00704-023-04721-9 (Q2, IF= 3.4)

2. Shamayleh, S.A., Tan, M.L., Samat, N., Rahbeh, M., Zhang, F., 2024. Performance of CHIRPS for estimating precipitation extremes in the Wala Basin, Jordan. Journal of Water and Climate Change. https://doi.org/10.2166/wcc.2024.611 (Q2, IF= 2.8)

3. Cai, Y., Zhang, F., Gao, G., Jim, C.Y., Tan, M.L., Shi, J., Wang, W., Zhao, Q., (2024). Spatio-temporal variability and trend of blue-green water resources in the Kaidu River Basin, an arid region of China. Journal of Hydrology: Regional Studies 51, 101640. (Q1, IF=4.7)

4. Cao, N., Lin, X., Liu, C., Tan, M.L., Shi, J., Jim, C.Y., Hu, G., Ma, X., Zhang, F. (2024). Estimation of Dissolved Organic Carbon Using Sentinel-2 in the Eutrophic Lake Ebinur, China. Remote Sensing, 16(2), 252. (Q2, IF=5.35).

5. Xu, H., Zhang, F., Li, W., Shi, W.P., Johnson, B.A., Tan, M.L. (2024) Spatial-temporal pattern of change in production-living- ecological space of Nanchong City from 2000 to 2020 and underlying factors. Environ Monit Assess 196, 94 (Q3, IF= 3.0)

6. Fan, P.Y., Chun, K.P., Mijic, A., Tan, M.L., Zhai, W. and Yetemen, O. (2024) Identifying the Impacts of Land-Use Spatial Patterns on Street-Network Accessibility Using Geospatial Methods. Geographical Analysis, doi:10.1111/gean.12374 (Q2, IF= 3.6)

7. Samat, N., Goh, K.H., See, K.F., Ibrahim, R.A., Chan, N.W., Tan, M.L., Lee, L.K., Seow, T.W. and Sabjan, M.A. (2024) A meta-analysis of aquaculture technical efficiency studies. Reviews in Aquaculture. doi: 10.1111/raq.12846 (Q1, IF=10.4).

8. Tan, M.L., Armanuos, A.M., Ahmadianfar, I., Demir, V., Heddam, S., Al-Areeq, A.M., Abba, S.I., Halder, B., Cagan Kilinc, H. and Mundher Yaseen, Z. (2023) Evaluation of NASA POWER and ERA5-Land for Estimating Tropical Precipitation and Temperature Extremes. Journal of Hydrology, 129940. (Q1, IF= 6.4)

9. Tan, M.L., Juneng, L., Kuswanto, H., Do, H.X. and Zhang, F. (2023) Impacts of Solar Radiation Management on Hydro- Climatic Extremes in Southeast Asia. Water 15(6), 1089. (Q2, IF=3.53)

10. Wang, J, Zhang, F, Tan, M L, Shi, J, Johnson, V C, and Kung, H-T (2023) Remote sensing evaluation of Chinese mainland's comprehensive natural resources carrying capacity and its spatial-temporal variation characteristics. Environmental Impact Assessment Review, 101, 107104. (Q1, IF=6.12)

11. Duan, P, Zhang, F, Jim, C-Y, Tan, M L, Cai, Y, Shi, J, Liu, C, Wang, W, and Wang, Z (2023) Reconstruction of Sentinel Images for Suspended Particulate Matter Monitoring in Arid Regions. Remote Sensing, 15, 872. (Q2, IF=5.35).

12. Chee, S.Y., Tan, M.L., Tew, Y.L., Sim, Y.K., Yee, J.C. and Chong, A.K.M. (2023) Between the devil and the deep blue sea: Trends, drivers, and impacts of coastal reclamation in Malaysia and way forward. Science of The Total Environment 858, 159889. (Q1, IF=10.75).

13. Jiao, Y., Tan, M.L. and Zhang, F. (2023) Factors Influencing the Roles of Environmental Non-Governmental Organizations (ENGOs) on Environmental Bargaining in Yunnan, China. Sustainability 15(5), 4236. (Q2, IF=3.21)

14. Zhang, F., Duan, P., Jim, C.Y., Johnson, V.C., Liu, C., Chan, N.W., Tan, M.L., Kung, H.T., Shi, J. and Wang, W. (2023) An Advanced Spatiotemporal Fusion Model for Suspended Particulate Matter Monitoring in an Intermontane Lake. Remote Sensing 15(5), 1204. (Q2, IF=5.35).

15. Ahmadianfar, I., Halder, B., Heddam, S., Goliatt, L., Tan, M.L., Sa'adi, Z., Al-Khafaji, Z., Homod, R.Z., Rashid, T.A. and Yaseen, Z.M. (2023) An Enhanced Multioperator Runge-Kutta Algorithm for Optimizing Complex Water Engineering Problems. Sustainability 15(3), 1825. (Q2, IF=3.21)

16. Ran, H., Zhang, F., Chan, N.W., Tan, M.L., Kung, H.T. and Shi, J. (2023) New Composite Nighttime Light Index (NCNTL): A New Index for Urbanization Evaluation Research. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 1-17. doi: 10.1109/JSTARS.2023.3258754 (Q2, IF=4.72)

17. Liang, J., Tan, M.L., Catto, J.L., Hawcroft, M.K., Hodges, K.I. and Haywood, J.M. (2023) Projected near-term changes in monsoon precipitation over Peninsular Malaysia in the HighResMIP multi-model ensembles. Climate Dynamics. 60, 1151- 1171. (Q2, IF=4.9)

18. Duan, P., Zhang, F., Liu, C., Tan, M.L., Shi, J., Wang, W., Cai, Y., Kung, H.T. and Yang, S. (2023) High-Resolution Planetscope Imagery and Machine Learning for Estimating Suspended Particulate Matter in the Ebinur Lake, Xinjiang, China. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing 16, 1019-1032. (Q2, IF=4.72)

19. Zhang, F., Wang, Y., Jim, C.Y., Chan, N.W., Tan, M.L., Kung, H.-T., Shi, J., Li, X. and He, X. (2023) Analysis of Urban Expansion and Human-Land Coordination of Oasis Town Groups in the Core Area of Silk Road Economic Belt, China. Land 12(1), 224. (Q2, IF=3.91)

20. Yang, S., Tan, M.L., Song, Q., He, J., Yao, N., Li, X. and Yang, X. (2023) Coupling SWAT and Bi-LSTM for improving daily- scale hydro-climatic simulation and climate change impact assessment in a tropical river basin. Journal of Environmental Management 330, 117244. (Q1, IF=8.91)

21. Liang, J., Catto, J.L., Hawcroft, M.K., Tan, M.L., Hodges, K.I. and Haywood, J.M. (2023) Borneo Vortices in a warmer climate. npj Climate and Atmospheric Science 6(1), 2. (Q1, IF=9.45)

22. Zhang, F., Li, X., Zhou, X., Chan, N.W., Tan, M.L., Kung, H.T. and Shi, J. (2023) Retrieval of soil salinity based on multi- source remote sensing data and differential transformation technology. International Journal of Remote Sensing 44(4), 1348- 1368. (Q2, IF=3.53)

23. Abba, S.I., Kilinc, H.C., Tan, M.L., Demir, V., Ahmadianfar, I., Halder, B., Heddam, S., Jawad, A.H., Al-Areeq, A.M. and Yaseen, Z.M. (2023) Bio-communal wastewater treatment plant real-time modeling using an intelligent meta-heuristic approach: A sustainable and green ecosystem. Journal of Water Process Engineering 53, 103731. (Q1, IF=7.34)

24. Tao, H., Hashim, B.M., Heddam, S., Goliatt, L., Tan, M.L., Sa'adi, Z., Ahmadianfar, I., Falah, M.W., Halder, B. and Yaseen,
Z.M. (2022) Megacities' environmental assessment for Iraq region using satellite image and geo-spatial tools. Environmental Science and Pollution Research. 30, 30984-31034 (Q2, IF=5.19)

25. Liu, C.J., Zhang, F., Jim, C.Y., Johnson, V.C., Tan, M.L., Shi, J.C. and Lin, X.W. (2023) Controlled and driving mechanism of the SPM variation of shallow Brackish Lakes in arid regions. Science of The Total Environment 878. 163127 (Q1, IF=9.8)

26. Halder, B., Ahmadianfar, I., Heddam, S., Mussa, Z.H., Goliatt, L., Tan, M.L., Sa'adi, Z., Al-Khafaji, Z., Al-Ansari, N., Jawad,
A.H. and Yaseen, Z.M. (2023) Machine learning-based country-level annual air pollutants exploration using Sentinel-5P and Google Earth Engine. Scientific Reports 13(1), 7968. (Q2, IF=4.6)

27. Wang, W., Zhang, F., Zhao, Q., Liu, C., Jim, C.Y., Johnson, V.C. and Tan, M.L. (2023) Determining the main contributing factors to nutrient concentration in rivers in arid northwest China using partial least squares structural equation modeling. Journal of Environmental Management 343, 118249. (Q1, IF=8.7)

28. He, X., Zhang, F., Cai, Y.F., Tan, M.L. and Chan, N.W. (2023) Spatio-temporal changes in fractional vegetation cover and the driving forces during 2001-2020 in the northern slopes of the Tianshan Mountains, China. Environmental Science and Pollution Research 30(30), 75511-75531. (Q1, IF=5.8)

29. Liu, C., Zhang, F., Tan, M.L., Jim, C.-Y., Song, K., Shi, J., Lin, X. and Kung, H.-T. (2023) High spatiotemporal resolution reconstruction of suspended particulate matter concentration in arid brackish lake, China. Journal of Cleaner Production 414, 137673. (Q1, IF=11.1)

30. Wang, Y., Zhang, F., Li, X., Johnson, V.C., Tan, M.L., Kung, H.-T., Shi, J., Bahtebay, J. and He, X. (2023) Methodology for Mapping the Ecological Security Pattern and Ecological Network in the Arid Region of Xinjiang, China. Remote Sensing 15(11), 2836. (Q1, IF=5)

31. Syakira, N., Tan, M.L., Zulkafli, Z., Zhang, F., Tangang, F., Chang, C.K., Ibrahim, W.M.M.W. and Ramli, M.H.P. (2023) Assessment of Three GPM IMERG Products for GIS-Based Tropical Flood Hazard Mapping Using Analytical Hierarchy Process. Water 15(12), 2195. (Q2, IF=3.53)

32. Suhana, L., Tan, M.L., Luhaim, Z., Ramli, M.H.P., Subki, N.S., Tangang, F. and Ishak, A.M. (2023) Spatiotemporal characteristics of hydro-meteorological droughts and their connections to large-scale atmospheric circulations in the Kelantan River Basin, Malaysia. Water Supply 23(6), 2283-2297. (Q4, IF=1.7)

33. Guo, L., Zhang, F., Chan, N.W., Tan, M.L., Kung, H.-T. and Zhang, M. (2023) Spatiotemporal variability of photosynthetic and non-photosynthetic vegetation under climate change in arid and semiarid regions in China. International Journal of Remote Sensing 44(12), 3837-3860. (Q2, IF=3.6)

34. Hashim, M., Baiya, B., Mahmud, M.R., Sani, D.A., Chindo, M.M., Tan., M.L. and Pour, A.B. (2023) Analysis of Water Yield Changes in the Johor River Basin, Peninsular Malaysia Using Remote Sensing Satellite Imagery. Remote Sensing 15(13), 3432. (Q1, IF=5).

35. Cheng, C., Zhang, F., Li, X., Tan, M.L., Kumar, P., Johnson, B.A., Shi, J., Zhao, Q. and Liu, C. (2023) Variations in water storage of Bosten Lake, China, over the last two decades based on multi-source satellite data. Journal of Hydrology: Regional Studies 49, 101496. (Q1, IF=4.7)

36. Al-Areeq, A.M., Abba, S.I., Halder, B., Ahmadianfar, I., Heddam, S., Demir, V., Kilinc, H.C., Farooque, A.A., Tan, M.L. and Yaseen, Z.M. (2023) Flood Subsidence Susceptibility Mapping using Elastic-net Classifier: New Approach. Water Resources Management 37(13), 4985-5006. (Q1, IF=4.2)

37. Alsalal, S., Tan, M.L., Samat, N., Al-Bakri, J.T. and Li, L.H. (2023) Evaluation of CHIRPS and CFSR precipitation products over the Mujib Basin, Jordan. Geografia-Malaysian Journal of Society & Space 19(2), 1-20. (ESCI, IF=0.5)

38. Kabir, M.H., Nur-e-Alam, S.M., Datta, A., Tan, M.L. and Rahman, M.S. (2023) Understanding vegetable farmers' adoption, dis-adoption, and non-adoption decisions of pest management by pheromone trapping. PLoS ONE 18(9), e0292254. (Q2, IF=3.7)

39. Abang Mahmud, D.S., Yin, I., Tan, M.L., Mohamad, D. and S. Muthuveeran, A.A. (2023) Modelling Factor of Built-Up Saturation in The City Centre of Kuala Lumpur and Penang. Planning Malaysia 21(28). 525-537 (Scopus)

40. Mahmud, K., Mitra, B., Uddin, M.S., Hridoy, A.-E.E., Aina, Y.A., Abubakar, I.R., Rahman, S.M., Tan, M.L. and Rahman, M.M. (2023) Temporal assessment of air quality in major cities in Nigeria using satellite data. Atmospheric Environment: X 20, 100227. (ESCI, IF=4.6)

41. Cao, N., Zhang, F., Liu, C., Chan, N.W., Tan, M.L., Shi, J. and Lin, X. (2023) Spatio-temporal analysis of colored dissolved organic matter over Ebinur Lake in Xinjiang, China. Ecological Informatics 78, 102339. (Q1, IF=5.1)

42. Tan, M.L., Zhang, F., Derek, C.J.C., Yu, K.H., Shaharudin, S.M., Chan, N.W. and Rahim, A.A. (2022) Spatio-temporal analysis of precipitation, temperature and drought from 1985 to 2020 in Penang, Malaysia. Water Supply, 22(5), 4757–4768. (Q4, IF=1.27)

43. Bandira, P.N.A., Tan, M.L., Teh, S.Y., Samat, N., Shaharudin, S.M., Mahamud, M.A., Tangang, F., Juneng, L., Chung, J.X. and Samsudin, M.S. (2022) Optimal Solar Farm Site Selection in the George Town Conurbation Using GIS-Based Multi- Criteria Decision Making (MCDM) and NASA POWER Data. Atmosphere 13(12), 2105. (Q3, IF=3.11)

44. Zhang, M., Zhang, F., Chen, D., Tan, M.L. and Chan, N.W. (2022) Urban local surface temperature prediction using the urban gray-green space landscape and vegetation indices. Building and Environment, 223, 109723. (Q1, IF=7.09)

45. Cheng, C., Zhang, F., Tan, M.L., Kung, H.T., Shi, J., Zhao, Q., Wang, W., Duan, P., An, C., Cai, Y. and Li, X. (2022)

46. Characteristics of Dissolved Organic Matter and Its Relationship with Water Quality along the Downstream of the Kaidu River in China. Water 14(21), 3544. (Q2, IF=3.53)

47. Wang, W., Liu, C., Zhang, F., Tan, M.L., Shi, J., Zhang, Z., Duan, P., Kung, H.T. and Xin, H. (2022) Evaluation of impacts of environmental factors and land use on seasonal surface water quality in arid and humid regions using structural equation models. Ecological Indicators 144, 109546. (Q1, IF=6.26)

48. Tew, Y.L., Tan, M.L., Juneng, L., Chun, K.P., Hassan, M.H.b., Osman, S.b., Samat, N., Chang, C.K. and Kabir, M.H. (2022) Rapid Extreme Tropical Precipitation and Flood Inundation Mapping Framework (RETRACE): Initial Testing for the 2021- 2022 Malaysia Flood. ISPRS International Journal of Geo-Information 11(7), 378. (Q2, IF=3.09)

49. Zeng, J., Tan, M.L., Tew, Y.L., Zhang, F., Wang, T., Samat, N., Tangang, F. and Yusop, Z. (2022) Optimization of Open- Access Optical and Radar Satellite Data in Google Earth Engine for Oil Palm Mapping in the Muda River Basin, Malaysia. Agriculture 12(9), 1435. (Q1, IF=3.41).

50. Jiao, Y., Tan, M.L., Yusof, N. and Ghazali, S. (2022) A review of behaviour mechanisms between government and society in bargaining water pollution issues. Geografia - Malaysian Journal of Society and Space 18(3), 57-71. (WOS, ESCI)

51. Zhang, F., Chen, Y., Wang, W., Jim, C.Y., Zhang, Z., Tan, M.L., Liu, C., Chan, N.W., Wang, D., Wang, Z. and Rahman, H.A. (2022) Impact of land-use/land-cover and landscape pattern on seasonal in-stream water quality in small watersheds. Journal of Cleaner Production 357, 131907. (Q1, IF=9.29).

52. Fan, P.Y., Chun, K.P., Mijic, A., Tan, M.L. and Yetemen, O. (2022) Integrating the Budyko framework with the emerging hot spot analysis in local land use planning for regulating surface evapotranspiration ratio. Journal of Environmental Management 316, 115232. (Q1, IF=6.79).

53. Sulaiman, N.A.F., Shaharudin, S.M., Ismail, S., Zainuddin, N.H., Tan, M.L. and Abd Jalil, Y. (2022) Predictive Modelling of Statistical Downscaling Based on Hybrid Machine Learning Model for Daily Rainfall in East-Coast Peninsular Malaysia. Symmetry 14(5), 927. (Q2, IF=2.72).

54. Yang, X., Yang, S., Tan, M. L., Pan, H., Zhang, H., Wang, G., He, R. and Wang, Z. (2022) Correcting the bias of daily satellite precipitation estimates in tropical regions using deep neural network. Journal of Hydrology, 608, 127656. (Q1, IF=5.02).

55. Liu, C., Zhang, F., Wang, X., Chan, N.W., Rahman, H.A., Yang, S. and Tan, M.L. (2022) Assessing the factors influencing water quality using environment water quality index and partial least squares structural equation model in the Ebinur Lake Watershed, Xinjiang, China. Environmental Science and Pollution Research 29(19), 29033-29048. (Q2, IF=4.22)

56. Fan, P. Y., Chun, K. P., Mijic, A., Tan, M. L., Liu, M. S., & Yetemen, O. (2022). A framework to evaluate the accessibility, visibility, and intelligibility of green-blue spaces (GBSs) related to pedestrian movement. Urban Forestry & Urban Greening, 69, 127494. (Q1, IF=4.54)

57. Tao, H., Hameed, M.M., Marhoon, H.A., Zounemat-Kermani, M., Heddam, S., Sungwon, K., Sulaiman, S.O., Tan, M.L., et al. (2022) Groundwater level prediction using machine learning models: A comprehensive review. Neurocomputing 489, 271-308. (Q1, IF=5.71)

58. Liang, J., Tan, M.L., Hawcroft, M., Catto, J.L., Hodges, K.I. and Haywood, J.M. (2022) Monsoonal precipitation over Peninsular Malaysia in the CMIP6 HighResMIP experiments: the role of model resolution. Climate Dynamics. 58, 2783- 2805. (Q1, IF=4.37)

59. Chen, D., Zhang, F., Zhang, M., Meng, Q., Jim, C.Y., Shi, J., Tan, M.L. and Ma, X. (2022) Landscape and vegetation traits of urban green space can predict local surface temperature. Science of The Total Environment 825, 154006. (Q1, IF=10.75)

60. Chen, D., Zhang, F., Tan, M.L., Chan, N.W., Shi, J., Liu, C. and Wang, W. (2022) Improved Na+ estimation from hyperspectral data of saline vegetation by machine learning. Computers and Electronics in Agriculture 196, 106862. (Q1, IF=6.76)

61. Zhang, F., Ju, S., Chan, N.W., Ariken, M., Tan, M.L., Yushanjiang, A. and Wang, Y. (2022) Coupled analysis of new urbanization quality (NUQ) and eco-environmental carrying capacity (EECC) of prefecture-level and above cities in China during 2003–2016. Environment, Development and Sustainability. 24, 8008–8038. (Q2, IF=3.21)

62. Che Mat Nor, S. M., Shaharudin, S. M., Ismail, S., Mohd Najib, S. A., Tan, M. L., & Ahmad, N. (2022). Statistical Modeling of RPCA-FCM in Spatiotemporal Rainfall Patterns Recognition. Atmosphere, 13(1), 145. (Q3, IF = 2.69)

63. Kabir, M.H., Biswas, S., Rahman, M.S., Islam, M.S. and Tan, M.L. (2022) Determinants of vegetable growers' knowledge and willingness to adopt botanical pesticides. International Journal of Pest Management, doi: 10.1080/09670874.2022.2066733 (Q2, IF = 1.90)

64. Tew, Y.L., Tan, M.L., Samat, N., Chan, N.W., Mahamud, M.A., Sabjan, M.A., Lee, L.K., See, K.F. and Wee, S.T. (2022) Comparison of Three Water Indices for Tropical Aquaculture Ponds Extraction using Google Earth Engine. Sains Malaysiana 51(2), 369-378. (Q4, IF = 1.01)

65. Tew, Y.L., Tan, M.L., Chun, K.P., Samat, N. and Mahamud, M.A. (2022) Analysis of the Relationship between Climate Change and Land Use Change using the ESA CCI Land Cover Maps in Sungai Kelantan Basin, Malaysia. Sains Malaysiana 51(2), 437-449. (Q4, IF = 1.01)

66. Nagamuthu, P., Tan, M.L., Chan, N.W. and Zhang, F. (2022) Spatio-temporal variability of droughts over the Mullaitivu District in Sri Lanka from 1980 to 2020. Geografia - Malaysian Journal of Society and Space 18(1), 15-31.

67. Yin, I., Tan, M.L. Abang Mahmud, D.S., S. Muthuveeran, A.A., Hassan, M.A. and Yi, L.T. (2022) Monitoring Major City Urban Expansion in Kuala Lumpur and Penang City Centre. Planning Malaysia 20(20).

68. Heddam, S., Yaseen, Z.M., Falah, M.W., Goliatt, L., Tan, M.L., Sa'adi, Z., Ahmadianfar, I., Saggi, M., Bhatia, A. and Samui, P. (2022) Cyanobacteria blue-green algae prediction enhancement using hybrid machine learning–based gamma test variable selection and empirical wavelet transform. Environmental Science and Pollution Research. 29, pages 77157–77187 (Q2, IF=4.07)

69. Tan, M.L., Juneng, L., Tangang, F.T., Chung, J.X. and Radin Firdaus, R.B. (2021) Changes in temperature extremes and their relationship with ENSO in Malaysia from 1985 to 2018. International Journal of Climatology. 41(S1), E2564-E2580. (Q2, IF=3.65)

70. Tan, M.L., Gassman, P.W., Liang, J. and Haywood, J.M. (2021) A review of alternative climate products for SWAT modelling: Sources, assessment and future directions. Science of The Total Environment 795, 148915. (Q1, IF = 10.75)

71. Tan, M.L., Tew Y.L., Chun, K.P., Samat, N., Shaharudin, S.M., Mahamud, M.A., Tangang, F. (2021) Improvement of the ESA CCI Land Cover Maps for Water Balance Analysis in Tropical Regions: A Case Study in the Muda River Basin, Malaysia. Journal of Hydrology: Regional Studies. 36, 100837. (Q1, IF=5.44)

72. Tan, M.L., Liang, J., Samat, N., Chan, N.W. Haywood, J.M. and Hodges, K.I. (2021) Hydrological Extremes Responses to Climate Change in the Kelantan River Basin, Malaysia, based on the CMIP6 HighResMIP experiments. Water. 13(11), 1472. (Q2, IF = 3.53)

73. Tan, M.L., Liang, J., Hawcroft, M., Haywood, J.M., Zhang, F., Rainis, R. and Ismail, W.R. (2021) Resolution Dependence of Regional Hydro-Climatic Projection: A Case-Study for the Johor River Basin, Malaysia. Water 13(22), 3158. (Q2, IF = 3.53)

74. Tan, M.L., Shaharudin, S.M., Samat, N., Tew, Y.L. and Mahamud, M.A. (2021) Discovering Dependence of Covid-19 on Weather Variables in Malaysia. Turkish Journal of Physiotherapy Rehabilitation 32(2), 2828-2835. (Scopus)

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Chapter in Books

1. Chan, N.W., Ghani, A.A., Samat, N., Roy, R., Tan, M.L. and Rahman, H.A. (2021) Addressing Water Resources Shortfalls Due to Climate Change in Penang, Malaysia. Water Security in Asia: Opportunities and Challenges in the Context of Climate Change. Babel, M., Haarstrick, A., Ribbe, L., Shinde, V.R. and Dichtl, N. (eds), pp. 239-249, Springer International Publishing, Cham.

2. Chan, N.W., Ghani, A.A., Samat, N., Hasan, N.N.N., Tan, M.L. (2020). Integrating Structural and Non-structural Flood Management Measures for Greater Effectiveness in Flood Loss Reduction in the Kelantan River Basin, Malaysia. In: Mohamed Nazri, F. (eds) Proceedings of AICCE'19. AICCE 2019. Lecture Notes in Civil Engineering, vol 53. Springer, Cham. https://doi.org/10.1007/978-3-030-32816-0_87

3. Chan N.W., Mohamed S.H., Tan, M.L., (2016) Air Pollution, Sustainable Urban Development Textbook, Edition: 1, Chapter: 35, Publisher: Water Watch Penang & Yokohama City University, Editors: Ngai Weng Chan, Hidefumi Imura, Akihiro Nakamura, Masazumi Ao, pp.226-234.

Article in Proceeding

1. Bandira, P. N. A., Tan, M. L., Teh, S. Y., Shaharudin, S. M., Samat, N., & Mahamud, M. A. (2023). Assessment of NASA POWER for Climate Change Analysis using the De Martonne Climate Index in Northern Peninsular Malaysia. IOP Conference Series: Earth and Environmental Science, 1238(1), 012029. https://doi.org/10.1088/1755-1315/1238/1/012029

2. Tew, Y. L., Tan, M. L., Liew, J., Chang, C. K., & Muhamad, N. (2023). A review of the effects of solar radiation management on hydrological extremes. IOP Conference Series: Earth and Environmental Science, 1238(1), 012030. https://doi.org/10.1088/1755-1315/1238/1/012030

3. Rajandran, A., Tan, M.L., Samat, N. and Chan, N.W. (2022) A review of Google Earth Engine application in mapping aquaculture ponds. IOP Conference Series: Earth and Environmental Science 1064(1), 012011.

4. Chan, N.W., Tan, M.L., Ghani, A.A., Zakaria, N.A. (2019) Sustainable urban drainage as a viable measure of coping with heat and floods due to climate change. IOP Conference Series: Earth and Environmental Science, 257, 012013.

5. Tan, M.L., Chua, V.P., Tan, K.C. Brindha, K. 2017. Assessment of TRMM 3B43 product for drought monitoring in Singapore. Proc. SPIE 10421, Remote Sensing for Agriculture, Ecosystems, and Hydrology XIX, 104210C (2 November 2017)

6. Paska, J., Lau, A.M.S., Tan, M.L., Tan, K.C., Evaluation of TRMM 3B42V7 product on extreme precipitation measurements over Peninsular Malaysia. Proc. SPIE 10421, Remote Sensing for Agriculture, Ecosystems, and Hydrology XIX, 104210D (2 November 2017);

7. Tan, K.C., Tan, M.L., Lim, H.S., Jafri, M.Z.M. Analysis of ozone observation at atmospheric monitoring network station using Brewer ozone spectrophotometer," Proc. SPIE 10428, Earth Resources and Environmental Remote Sensing/GIS Applications VIII, 104281L (5 October 2017)

8. Rusli, N., Majid, M.R., Yusop, Z., Tan, M.L., Hashim, S., Bohari, S.N. 2016. Integrating manual calibration and auto-calibration of SWAT model in Muar Watershed, Johor. The 7th IEEE Control and System Graduate Research Colloquium, 2016.

9. Tan, M.L., Ibrahim, A.L., Yusop, Z., Rusli, N., Tam, T.H. 2015. Evaluation of satellite precipitation products on SWAT-simulated streamflow in the Kelantan River Basin, Malaysia. The 36th Asian Conference on Remote Sensing 2015, ACRS 2015. 24-25 October 2015.

10. Ibrahim, A.L., Jaw, S.W., Salleh, S.A.A., Tam, T.H., Tan, M.L. 2015. Tree height and total above-ground biomass (TAGB) extraction using airborne LiDAR. The 36th Asian Conference on Remote Sensing 2015, ACRS 2015.

11. Ibrahim, A.L., Jaw, S.W., Abdullah, M.A., Reba, N.M., Tam, T.H., Tan, M.L. 2015. Landslide susceptibility mapping using evidential belief function model. The 36th Asian Conference on Remote Sensing 2015, ACRS 2015.

12. Tan, M.L., Ibrahim, A.L., Pohl, C., Duan, Z., 2014. Streamflow modelling by remote sensing: a contribution to digital earth. IOP Conference Series: Earth and Environmental Science, 18(1): 012060.

13. Tan, M.L., 2014. Free internet datasets for streamflow modelling using SWAT in the Johor river basin, Malaysia. IOP Conference Series: Earth and Environmental Science, 18(1): 012193.

14. Tan, M.L., Ab, Ibrahim, A.L., 2013. Impacts of land use and climate variability on hydrological processes in Johor River basin, Malaysia. 34th Asian Conference on Remote Sensing 2013, ACRS 2013, pp. 1723-1729.

15. Tan, M.L., Ibrahim, A.L., 2012. Remote sensing, geographic information system and hydrological model for rainfall-runoff modelling. 33rd Asian Conference on Remote Sensing 2012, ACRS 2012, pp. 1334-1343.

RESEARCH PROJECT

International

1. **2022 - 2024, DMF (Degrees Modelling Fund) USD70,000**

   Impact of Solar Radiation Management on Hydro-climatic Extremes in Malaysia. Degrees Modelling Fund (DMF). Principal Investigator (PI)

2. **2019 - 2022, NEWTON-Ungku Omar Fund RM250,000**

   IMpacts of PRecipitation from Extreme StormS - Malaysia (IMPRESS - Malaysia). Principal Investigator (PI)

3. **2020 - 2021, Kurita Water and Environment Foundation** ¥400,000

   Impact of land use on water balance in the Muda River Basin, Malaysia. Principal Investigator (PI)

4. **2019 - 2021, State Key Laboratory of Hydrology – Water Resources and Hydraulic Engineering of Nanjing Hydraulic Research Institute, China**

   Impacts of climate change on the hydrological processes and extremes of a typical tropical river basin in Malaysia (Co-PI)

National

1. **2020 - 2025, Fundamental Research Grant Scheme (LRGS) RM420,300**

   Impacts of weather and climate extremes under global warming of 1.5°C and 2.0°C on water balance in the Kelantan and Muda River Basins Principal Investigator (PI)

2. **2019 - 2022, Fundamental Research Grant Scheme (FRGS) RM76,200**

   Framework for assessing Southeast Asia Hydro-Climatic Drought (SEA-HCD) Principal Investigator (PI)

University

1. **2022 - 2024, RUTeam RM85,640**

   Impact of Global Warming 1.5oC and 2oC on Solar Radiation and Other Climate Variables in Penang, Malaysia Principal Investigator (PI)

2. **2022 - 2024, USM Short-term Grant RM25,500**

   Impact of Global Warming 1.5oC and 2oC on Solar Radiation and Other Climate Variables in Penang, Malaysi Spatial and temporal changes in precipitation extremes of the Muda River Basin, Malaysia Principal Investigator (PI)

CONSULTANCY PROJECT

- **Two-day Qualitative Analysis Workshop, Usains Holding Sdn Bhd**

  2023-2024 (International)

- **Tik Tok Competition: Together Saving Our Water & Drone Training, Water Watch Penang**

  2021 - 2024 (National)

- **Development of River Health Index (RHI) for River Basins in Malaysia, Department of Irrigation and Drainage Malaysia**

  2023 (National)

- **Professional Drone Training. KPT-PACE**

  2022 - 2023 (National)

- **Four-Week Basic Research Skills Online Program. HK Gaosheng**

  2021 - 2024 (International)

- **Geocoding of user information of water supply meters in Kelantan State. Air Kelantan Sdn Bhd project**

  2018 - 2019 (National)

- **Detailed design of flood mitigation plan for Teluk Bahang Southwest District, Penang. Department of Irrigation & Drainage Malaysia**

  2020-2024 (National)

- **Review of Integrated River Basin Management (IRBM) for Klang River Basin. Selangor Water Management Board, LUAS**

  2018 - 2019 (National)

PAPER PRESENTED

International (Invited Speaker / Keynote)

1. 2023, Invited Speaker, Assessment the Impacts of Land-use and Climate Change on Tropical River Basins using Remote Sensing and Hydrological Modelling, Xian International Studies University, China. Date: 26-27 Oct 2023.

2. 2023, Invited Speaker, Geoengineering Model Intercomparison Project (GeoMIP) 13th GeoMIP Workshop, University of Exeter, United Kingdom, Date: 3-7 Jul 2023.

3. 2022, Invited Speaker. The use of CORDEX-SEA data in hydro-climatic simulation in Malaysia, Mandarin Hotel, Bangkok, Thailand, Ramkhamhaeng University, CORDEX-SEA Workshop. Date: 8-10 Nov 2022.

4. 2021, Invited Speaker, Hydroclimatic Modelling, Online, University of the Cordilleras, Philippines, the 2021 National Science and Technology Week (NSTW). Date: 25 Nov 2021

5. 2021, Invited Speaker, Tips for publishing in Q1 and Q2 journals, Online, YMA Research Network, Nigeria (Department of Geography, Bayero University, Kano-Nigeria), Webinar presentation series by Malaysian academics and scholars to YMA Research Network. Date: 14 Dec 2021.

6. 2021, Invited Speaker, Resolution Dependence of Regional Hydro-Climatic Projection: A Case-Study for The Johor River Basin, Malaysia, Disaster Prevention Research Institute, Kyoto University, International Workshop on Adaptation Research for Climate Change in Asia (ARCC2021). Date: 15 – 16 Nov 2021.

7. 2021, Invited Speaker, Southeast Asia Hydro-Meteorological Drought (SEA- HOT) framework, Online, CORDEX (COordinated Regional climate Downscaling EXperiment), CORDEX Southeast Asia Outreach and Capacity Building Workshop. Date: 15 – 17 Nov 2021.

8. 2021, Invited Speaker, Impact of Land Use Land Cover Changes on Water Resources in a Tropical River Basin, Online, Freie Universität Berlin, Germany, World Water Day. Date: 22 Mar 2021

9. 2021, Invited Speaker, Building Climate Resilient Cities in the Anthropocene, Online, Singapore Management University, NLB Public Lecture Series: Emerging Challenges for Cities in Southeast Asia. Date: 9 Sep 2021

10. 2020, Invited Speaker, (Tan Mou Leong) CORDEX Southeast Asia Outreach and Capacity Building Workshop, Online, CORDEX Southeast Asia, CORDEX Southeast Asia Outreach and Capacity Building Workshop. Date: 17 – 19 Nov 2020.

11. 2018: Invited Researcher. 2018 APN Proposal Development Training Workshop. Hanoi, Vietnam. Asia Pacific Network. Date: 28 Feb – 2 Mac 2018.

12. 2018, Invited Speaker, Temperature Variability of Temperature Extremes in the Muda River Basin. Malaysia, Riverside Majestic Hotel, Kuching, Sarawak, Universiti Sains Malaysia, International Conference on Sustainability, Humanities and Civilizations. Date:21 – 22 Nov 2018.

13. 2018, Invited Speaker, The Final Workshop of the First Phase and the Second Technical Workshop of the Second Phase of the Southeast Asia Regional Climate Downscaling (SEACLID)/CORDEX Southeast Asia Project, Conference Hall, Faculty of Science and Technology UKM, Universiti Kebangsaan Malaysia, International Workshop, Date: 7 – 9 May 2018.

National (Invited Speaker / Keynote)

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1. 2022. Invited Speaker, GIS and Remote Sensing in Integrated Water Resources Management (IWRM), USM, Malaysian Water Patnership, Introduction to Integrated Water Resources Management (IWRM). Date: 13-15 June 2022

2. 2022. Invited Speaker, Application of Remote Sensing and GIS for Flood Hazard Mapping, Innovation in Engineering Technology 2022 (iTech 2022), Penang, Malaysia, Date: 23 April 2022

3. 2019, Invited Speaker, Train-the-Trainers (TOT) Programme for Salcon Smart Water Program, Taman Persekutuan Bukit Kiara, TTDI, USM, SALCON & WWP. Date: 16 Nov 2019.

4. 2018, Invited Speaker, Land use Development and Climate Changes: The Sustainable Adaptation Options, Hotel Grand Riverview, Kota Bharu, Air Kelantan Sdn Bhd, Malaysian Water Engineers Action Committee (MYWAC). Date: 26 – 28 Nov 2018

5. 2018, Invited Researcher, Water Study Consultation, Sunway Hotel George Town, Sustainable Development Initiatives [SUDI], Water Study Consultation. Date: 25 Jun 2018

6. 2018, Invited Researcher, Capacity Building in Measuring Ecosystem Services Using The Toolkit For Ecosystem Services Site- Based Assessment (TESSA), Info Hall, Khazanah Nasional Office, Bangunan U.A.B, South East Asia Rainforest Research Partnership (SEARRP). Date: 22 May 2018.

7. 2018, Invited Speaker, Sabah World Water Day Conference & Exhibition 2018 - Nature for Water, Magellan Sutera, Sutera Harbour Resort, Kota Kinabalu, Sabah, Department of Irrigation & Drainage Malaysia, World Water Day. Date: 21 – 22 Mac 2018.

ACADEMIC/PROF. SERVICES

Evaluation

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1. 2024. Noraidah binti Keling (Universiti Sains Malaysia): High-Speed Octree Data Structure for 3D GIS Spatial Analysis in Slope Stability Application. (Ph.D. thesis – Internal Examiner)

2. 2023. Ogunyemi Omotayo Fatai (Universiti Sains Malaysia): Road Traffic Congestion at Oloko-Irese-Agbogbo Junctions on Ilesa-Benin Highway Akure Ondo State, Nigeria. (Ph.D. thesis – Internal Examiner)

3. 2019. George Zayeqa Ndhlovu (Central University of Technology, South Africa): Impact of Climate Change on Hydrology and Water Resources in the Upper Zambezi River Basin. (Ph.D. thesis – External Examiner)

4. 2023: Farah Nuralissa Binti Muhammad (Universiti Kebangsaan Malaysia): Analisis Perubahan Litupan Kawasan Hutan Di Semenanjung Malaysia Bagi Tahun 1990 Hingga 2020 Menggunakan Aplikasi Google Earth Engine. (MSc. thesis – External Examiner)

5. 2023: Nurul Farhana Binti Juahari (Universiti Sains Malaysia): Pulau Pinang Residents Readiness Towards Usage of Rainwater Harvesting System. (MSc. thesis – Internal Examiner)

6. 2023: Leong Ming Qi (Universiti Kebangsaan Malaysia). Changes of the ENSO-Rainfall and IOD-Rainfall Relationships in Southeast Asia Under Global Warming. (MSc. thesis – External Examiner)

7. 2022. Mukhtar Jibril Abdi (Universiti Putra Malaysia): Weather Index Insurance for Climatic Risk Management in The Muda Irrigation Area: An Evaluation of Spatial Basis Risk. (MSc. thesis – External Examiner)

8. 2021. Zureen Norhaizatul binti Che Hassan (Universiti Kebangsaan Malaysia): Extreme Rainfall Return Period Assessment for Design Rainfall in Kuala Lumpur. (MSc. thesis – External Examiner)

9. 2021. Fadila Jasmin Binti Fakaruddin (Universiti Kebangsaan Malaysia): Climatological Features of Squall Line at The Borneo Coastline During Southwest Monsoon and Its Formation Factor. (MSc. thesis – External Examiner)

10. 2021: Li Xiaopeng (Universiti Sains Malaysia): Factors Affecting the Effectiveness of China's Youth in Face Mask Waste Management and Disposal During The COVID-19 Pandemic. (MSc. thesis – Internal Examiner)

SUPERVISION

PhD

1. 2021 – 2023. Jiao Yijuan: Factors Influencing the Roles of Environmental NGOs in the Bargaining of P-Xylene and Water Issues in Yunnan, China (Ph.D. – Completed)

2. 2020 – 2023. Zeng Ju: Optimization of Optical and Radar Satellite Data in Google Earth Engine for Monitoring Oil Palm Changes in Tropical River Basins. (Ph.D. – Completed)

3. 2020 – 2022. Piratheeparajah Nagamuthu: Impact of climate change on the surface water management of the Northern Province of Sri Lanka. (Ph.D. – Completed)

4. 2017 – 2021. Sim Lay Mei: Stakeholders' participation towards sustainable river basin management: A case study of Muda River Basin. (Ph.D. – Completed)

5. 2017 – 2021. Norsyuhada binti Anua: Adaptation and resilience of Kelantan communities toward monsoon floods. (Ph.D. – Completed)

6. 2023 – to date. Feng Zeqian: Impacts of Solar Radiation Management on Precipitation and Temperature in Southeast Asia..

7. 2022 – to date. Hou Chenglei: Soil Moisture Retrieval from Remote Sensing in Semi-Humid Zone Based on Machine Learning.

8. 2021 – to date. Safaa Taha Mohammad Al Shamayleh: Impact of Climate Change on Water Resources in Jordan.

9. 2021 – to date. Nurul Syakira Binti Samsuri: Basin-Scale Flood Hazard Assessment under Global Warming 1.5 and 2oC in the Muda and Kelantan River Basins.

10. 2021 – To Date. Du Hongrong. Performance Evaluation of Open-source Climate Data for Hydro-climatic Modelling in the Kelantan River Basin.

11. 2021 – To Date, Sidi Yusuf Dawa. Spatio-temporal Analysis of Drought Characteristics in Yobe State, Nigeria.

12. 2021 – To Date, Alsalal Suheir Adnan Kamel. Impact of climate change on surface water sources in the Mujib Basin.

13. 2021 – To Date, Qatawneh Hamza Bassam Mahmoud. Potential Water Harvesting Sites Identification in The Wadi Al-Mujib Basin by Integrating Remote Sensing, GIS and RUSLE Model.

14. 2019 – to date. Zhang DanDan: Assessment of climate change impacts on water resources of the Muda River Basin, Malaysia.

15. 2019 – to date. Tew Yi Lin: Improvement of SWAT for flood risk simulation under various land use scenarios in the Kelantan River Basin, Malaysia.

Master

1. 2022 – 2024. Puteri Nur Atiqah Binti Bandira: Optimal Site Selection for Solar Farms Using GIS-Based Fuzzy Multi Criteria Evaluation (MCE) And NASA Power Data in the Georgetown Conurbation. (Masters – Completed)

2. 2020 – 2022. Arvinth A/L Rajandran: Mapping of Aquaculture Ponds using satellite images and Google Earth Engine. (Masters – Completed)

3. 2022 – 2024. Zeng Yi: Public Acceptance and Perception of Driverless Buses in Yichang, China. (Masters – Completed)

4. 2022 – 2024. Zibeon bin Luhaim: Spatio-temporal analysis of hydro-meteorological droughts in the Muda River Basin, Malaysia (Masters – Completed)

5. 2022 – 2024. Lily Suhana Binti Mohamed Rosli: Performance Evaluation of Nasa-Power Data for Drought Monitoring in the Kelantan River Basin, Malaysia. (Masters – Completed)

6. 2022 – 2024. Zibeon bin Luhaim: Spatio-temporal analysis of hydro-meteorological droughts in the Muda River Basin, Malaysia

TEACHING

Master

1. HGT516: Fundamental of GIS and Remote Sensing
2. HGT517: Geodatabase and Web GIS

Bachelor

1. HGF 222: Physical Geography
2. HGF 225: Environmental Processes
3. HGF 227: Weather and Climate
4. HGF 429: Hydrology
5. HGT 222: Technique in Geography
6. HGT 219: Quantitative Method and Spatial Analysis
7. HGT 321: Geographical Information System
8. HGT 342: Research Methodology and Field Work
9. HGP 309: Geography Project
10. HPA 101: Learning Skill
11. HPA 103: Basic Statist

SOCIAL RESPONSIBILITY ACTIVITIES

- World Water Day
- Drone-based Climate Awareness Program
- Tik Tok Water Saving Competition