Assoc. Prof. Dr. Kasemsan Manomaiphiboon

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EDUCATION

2004 Ph.D. (Environmental Engineering), Georgia Institute of Technology, US
2003 M.Sc. (Industrial Engineering), Georgia Institute of Technology, US
1999 M.Eng. (Environmental Engineering), University of Cincinnati, US
1993 B.Eng. (Environmental Engineering), Chulalongkorn University, Thailand

RESEARCH INTEREST

- Air quality, climate, and weather in Thailand and Mekong subregion at urban and regional scales, and policy-related aspects
- Extreme events and natural hazards related to climate and air pollution
- Data science application to environmental and energy problems
- Ambient energy potentials and associated factors

PUBLICATIONS

International Journals (selected recent 15 out of 48)

1. Aman N, Panyametheekul S, Pawarmart I, Xian D, Gao L, Tian L, **Manomaiphiboon K**, Wang Y (2025) Machine learning-based quantification and separation of emissions and meteorological effects on PM2.5 in Greater Bangkok. Scientific Reports, 15, 14775, doi:10.1038/s41598-025-99094-6.
2. Whaley CH, Butler T, Adame JA, Ambulkar R, Arnold SR, Buchholz RR, Gaubert B, Hamilton DS, Huang M, Hung H, Kaminski JW, Kaiser JW, Knote C, Koren G, Kouassi J-L, Lin M, Liu T, Ma J, **Manomaiphiboon**

K, Masso EB, McCarty JL, Mertens M, Parrington M, Peiro H, Saxena P, Sonwani S, Surapipith V, Tan D, Tang W, Tanpipat V, Tsigaridis K, Wiedinmyer C, Wild O, Xie Y, Zuidema P (2024) HTAP3 Fires: Towards a multi-model, multi-pollutant study of fire impacts. Geoscientific Model Development, 18, 3265-3309, doi:10.5194/gmd-18-3265-2025.

3. Phoo WW, **Manomaiphiboon K**, Jaroonrattanapak N, Yodcum J, Sarinnapakorn K, Bonnet S, Aman N, Junpen A, Devkota B, Wang Y, Wilasang C (2024) Fire activity and fire weather in a Lower Mekong subregion: Association, regional calibration, weather-adjusted trends, and policy implications. Natural Hazards, 120, 13259-13288, doi:10.1007/s11069-024-06743-6. (corresponding author)
4. Wang Y, Ning M, Su Q, Wang L, Jiang S, Feng Y, Wu W, Tang Q, Hou S, Bian J, Huang L, Lu G, **Manomaiphiboon K**, Kaynak B, Zhang K, Chen H, Li L (2024) Designing regional joint prevention and control schemes of PM2.5 based on source apportionment of chemical transport model: A case study of a heavy pollution episode. Journal of Cleaner Production, 455, 142313; doi:10.1016/j.jclepro.2024.142313.
5. Aman N, **Manomaiphiboon K**, Xian D, Gao L, Tian L, Pala-En N, Wang Y, Wangyao K (2024) Spatiotemporal estimation of hourly PM2.5 using AOD derived from geostationary Fengyun-4A and machine learning models for Greater Bangkok. Air Quality, Atmosphere & Health, 17, 1519-1534; doi:10.1007/s11869-024-01524-3.
6. Huang L, Zhu Y, Liu H, Wang Y, Allen DT, Ooi MCG, **Manomaiphiboon K**, Latif MT, Chan A, Li L (2023) Assessing the contribution of open crop straw burning to ground-level ozone and associated health impacts in China and the effectiveness of straw burning bans. Environment International, 171, 107710; doi:10.1016/j.envint.2022.107710.
7. Devkota B, **Manomaiphiboon K**, Trinuruk P, Trang HT, Paton C (2022) Offshore Winds in the Gulf of Thailand: Climatology, wind energy potential, stochastic persistence, tropical cyclone influence, and teleconnection. Asia-Pacific Journal of Atmospheric Sciences, 58, 315-331, doi:10.1007/s13143-021-00259-w. (corresponding author)
8. Chea K, **Manomaiphiboon K**, Aman N, Thepa S, Junpen A, Devkota B (2021) Ambient thermal comfort analysis for four major cities in Thailand, Cambodia, and Laos: Variability, trend, factor attribution, and large-scale climatic influence. ScienceAsia, 47, 618-628, doi:10.2306/SCIENCEASIA1513-1874.2021.067. (corresponding author)
9. Kamma J, **Manomaiphiboon K**, Aman N, Thongkamdee T, Chuangchote S, Bonnet S (2020) Urban heat island analysis for Bangkok: Multi-scale

temporal variation, associated factors, directional dependence, and cool island condition. ScienceAsia, 46, 213-223, doi:10.2306/SCIENCEASIA1513-1874.2020.024. (corresponding author)

10. Aman N, **Manomaiphiboon K**, Pengchai P, Suwanathada P, Srichawanae J, Assareh N (2019) Long-term observed visibility in Eastern Thailand: Temporal variation, association with air pollutants and meteorological factors, and trends. Atmosphere 2019, 10, 122; doi:10.3390/atmos10030122. (corresponding author)
11. Christidis N, **Manomaiphiboon K**, Ciavarella A, Stott PA (2018) The hot and dry April of 2016 in Thailand. [in "Explaining Extreme Events of 2016 from a Climate Perspective"]. Bulletin of the American Meteorological Society, 99 (1), S128-S132, doi:10.1175/BAMS-D-17-0071.1.
12. **Manomaiphiboon K**, Paton C, Prabamroong T, Rajpreeja N, Assareh N, Siriwan M (2017) Wind energy potential analysis for Thailand: Uncertainty from wind maps and sensitivity to turbine technology. International Journal of Green Energy, 14, 528-539, doi:10.1080/15435075.2017.1305963. (corresponding author)
13. Assareh N, Prabamroong T, **Manomaphiboon K**, Theramongkol P, Leungsakul S, Mitrjit N, Rachiwong J (2016) Analysis of observed surface ozone in the dry season over Eastern Thailand during 1997-2012. Atmospheric Research, 178-179, 17-30, doi:10.1016/j.atmosres.2016.03.009. (corresponding author)
14. Field RD, Spessa AC, Aziz NA, Camia A, Cantin A, Carr R, de Groot WJ, Dowdy AJ, Flannigan MD, **Manomaiphiboon K**, Pappenberger F, Tanpipat V, Wang X (2015) 1. Development of a global fire weather database. Natural Hazards and Earth System Sciences, 15, 1407-1423, doi:10.5194/nhess-15-1407-2015.
15. **Manomaiphiboon K**, Octaviani M, Torsri K, Towprayoon S (2013) Projected changes in means and extremes of temperature and precipitation over Thailand under three future emissions scenarios. Climate Research, 58, 97-115, doi:10.3354/cr01188. (corresponding author)

National Journals

1. Chankasem P, **Manomaiphiboon K**, Devkota B, Trang HT, Nantawong N, Chotamonsak C, Junpen A (2021) Satellite precipitation characteristics and effects of land cover change in Greater Bangkok. Journal of Sustainable Energy and Environment, 12, 77-85. (corresponding author)
2. Nantawong N, Aman N, **Manomaiphiboon K**, Chankasem P, Surapipith V, Phongphiphat A (2021) Assessment of satellite aerosol optical depth over

Greater Bangkok during 2003-2018. Journal of Sustainable Energy and Environment, 12, 65-76. (corresponding author)

3. Trang H-T, **Manomaiphiboon K**, Singhrattna N, Assareh N (2019) Evaluation of multiple sub-daily satellite precipitation products for Thailand. Journal of Sustainable Energy and Environment, 11, 81-91. (corresponding author)
4. Shokoohinia P, Assareh N, **Manomaiphiboon K**, Chusai C, Kerkkaiwan S, Unapumnuk K, Aman N (2020) Impacts of transboundary smoke haze from biomass burning in Lower Southeast Asia on air quality in Southern Thailand. Journal of Sustainable Energy and Environment, 10, 1-10. (corresponding author)
5. Octaviani M, **Manomaiphiboon K**, Prabamroong T (2015) Wind shear coefficient at 23 wind monitoring towers in Thailand. Journal of Sustainable Energy & Environment, 6, 61-66. (corresponding author)
6. Paton C, **Manomaiphiboon K** (2013) A metropolitan wind resource assessment for Bangkok, Thailand part 1: Wind resource mapping. Journal of Sustainable Energy & Environment, 4, 69-76. (corresponding author)
7. Paton C, **Manomaiphiboon K** (2013) A metropolitan wind resource assessment for Bangkok, Thailand part 2: GIS analysis and technical wind resource potential. Journal of Sustainable Energy & Environment, 4, 89-93. (corresponding author)
8. Pham TBT, **Manomaiphiboon K**, Vongmahadlek C (2007) Updated emission estimates of ozone precursors from energy consumption by power plants and industrial facilities in the central and eastern regions of Thailand. Asian Journal on Energy and Environment, 8, 483-489. (corresponding author)

Book Chapters

1. Tanpipat V, **Manomaiphiboon K**, Field RD, deGroot WJ, Nhuchaiya P, Jaroonrattanapak N, Buaniam C, Yodcum J (2023) An operational fire danger rating system for Thailand and Lower Mekong region: Development, utilization, and experiences. Chapter 34 (pages 575-588), doi:10.1007/978-3-031-29916-2_34, in Vegetation Fires and Pollution in Asia (Editors: Vadrevu, KP, Ohara T, Justice, C), Springer, 640 pages, ISBN 978-3-031-29915-5.

Books

1. **Kasemsan Manomaiphiboon**, Titaporn Supasri (2022) Air Quality and Climate Change. [in "A Knowledge Series of Air Pollution Prevention and Solutions", Wongpun Limpaseni, Sirima Panyametheekul, Trakarn

Prapaspongsa, Panwadee Suwattiga (Eds.)], Center of Clean Air Solutions (CCAS), Environmental Engineering Association of Thailand (EEAT), supported by Thai Health Promotion Foundation, 36 pages, ISBN 978-616-94130-1-1. (in Thai)

2. Weerasak Krueathep, Trakoon Meechai, Veerachai Tanpipat, Chamawong Suriyachan, Rattana Somrongthong, **Kasemsan Manomaiphiboon**, Darin Kamphaengphet, Chonnupong Panpuangsri, Unchalee Chavang (2017) Public-Service Standards of Local Administrative Organization: Indicator Development, Empirical Data, and Policy Implication. Chulalongkorn University Press, 244 pages, ISBN 978-616-407-269-5. (in Thai)

Technical Reports

1. **Manomaiphiboon K**, Sarinnapakorn K, Wilasang C, Torsri K, Phoo WW, Sawangwattanaphaibun R, Thodsan T, Chankarn A, Jinvong A, Peangta P (2024) Analysis and Classification of Weather Data to Enhance the Accuracy of Precipitation Forecast. Final report, jointly conducted by Hydro-Informatics Institute (Public Organization) and the Joint Graduate School of Energy and Environment, funded by Hydro-Informatics Institute (Public Organization). (with Thai Abstract)
2. **Manomaiphiboon K**, Aman N, Inerb M, Devkota B, Kokkaew E (2023) Air Pollution Assessment Using Satellite Data: A Case Study of Greater Bangkok. Final report, conducted by the Joint Graduate School of Energy and Environment, funded by Asia Pacific Space Cooperation Organization (China), locally administered by Office of the National Digital Economy and Society Commission.
3. **Manomaiphiboon K**, Pala-En N, Boonyoo T, Pattaramunikul S, Chotamonsak C, Aman N, Inerb M, Devkota B, Assareh N, Kokkaew E (2022) A Study of the Potential of Short-Term Measures on Energy Use in Transportation Sector to Mitigate Severe Fine Particulate Matter Situation for Bangkok Metropolitan. Final report, conducted by the Joint Graduate School of Energy and Environment, funded by Energy Conservation and Promotion Fund (ENCONFUND), Ministry of Energy. (in Thai)
4. **Manomaiphiboon K**, Boonya-Aroonnet S, Sarinnapakorn K, Aman N, Assareh N, Torsri K, Devkota B, Inerb M, Sawangwattanaphaibun R, Jinvong A (2021) Precipitation Modeling in Greater Bangkok with Impact of Urbanized Land Cover and Air Pollution Using WRF-Chem-UCM-GBK. Final report, jointly conducted by Hydro-Informatics Institute (Public Organization) and the Joint Graduate School of Energy and Environment, funded by Hydro-Informatics Institute (Public Organization). (with Thai Abstract)

5. **Manomaiphiboon K**, Boonya-Aroonnet S, Sarinnapakorn K, Aman N, Trang HT, Kokkaew E, Sawangwattanaphaibun R, Jinvong A, Torsri K, Assareh N (2020) Integration of Advanced Input Data for Enhanced Urban & Regional Modeling. Final report, jointly conducted by Hydro-Informatics Institute (Public Organization) and the Joint Graduate School of Energy and Environment, funded by Hydro-Informatics Institute (Public Organization). (with Thai abstract)
6. **Manomaiphiboon K**, Srivichai M, Saphaokham S, Ketphetch S, Yamyuan P, Assareh N (2018) A Study of Drought and Influences of Interaction between Land Surface and Atmosphere and Land Cover Change on Water Cycle: A Case Study of Upper Thailand. Final report, conducted by The Joint Graduate School of Energy and Environment, funded by Agricultural Research Development Agency (Public Organization) and National Research Council of Thailand. (in Thai with English abstract)
7. Faculty of Political Science, Chulalongkorn University (2017) Development of Standard Indicators and Minimum Targets for Public Services by Local Administrative Organizations. Final Report, submitted to Office of the Decentralization to the Local Government Organization Committee (ODLOC), Office of the Permanent Secretary, Prime Minister Office, (including 8 sub-reports which are Data and Analysis of Standard Indicators for Public Services by Local Administrative Organizations for the following areas: Infrastructures; Urban Planning; Public Health, Social Services, and Quality of Life; Community Organization and Peace and Safety Maintenance; Promotion of Economy, Community, Career, Tourism, and Investment; Natural Resources and Environmental Management, and Promotion of Arts, Culture, Folk Wisdom, and Archaeological Sites), Research Team: Krueathep W, Meechai T, Tanpipat V, Suriyachan C, Somrongthong R, **Manomaiphiboon K**, Kamphaengphet D, Panpuangsri C, Chavang U (in Thai)
8. **Manomaiphiboon K**, Boonya-Aroonnet S, Sarinnapakorn K, Chaowiwat W, Assareh N, Aman N, Kamma J, Trang HT, Sawangwattanaphaibun R, Jinvong A (2018) Development of a Numerical Atmospheric Moisture Tracking System to Identify Potential Sources and Its Application to Enhance Rainfall Analysis for Thailand. Final report, jointly conducted by Hydro and Agro Informatics Institute (P:ublic Organization) and the Joint Graduate School of Energy and Environment, funded by Hydro and Agro Informatics Institute (Public Organization). (with Thai abstract)
9. **Manomaiphiboon K**, Boonya-Aroonnet S, Sarinnapakorn K, Assareh N, Aman N, Tantianuparp P, Thodsan T, Pratumthong A (2017) Improvement of Input Spatial Information to Support Meteorological Modeling. Final

report, jointly conducted by Hydro and Agro Informatics Institute (Public Organization) and the Joint Graduate School of Energy and Environment, funded by Hydro and Agro Informatics Institute (Public Organization). (with Thai abstract)

10. **Manomaiphiboon K**, Tanpipat V, Nhuchaiya P, Jaroonrattanapak N, Buaniam C (2017) Development of a Regional Fire Danger Forecast System for Upper Thailand and Lower Mekong River Basin Areas in Support of Forest Fire Management and Control. Final report, conducted by The Joint Graduate School of Energy and Environment, funded by Biodiversity-Based Economy Development Office (Public Organization) and National Research Council of Thailand. (in Thai with English abstract)
11. **Manomaiphiboon K**, Assareh N, Prabamroong T, Aman N (2016) Development of a Short-Term Wind Speed Forecasting System: A Case Study of Lamtakong Reservoir Area. Final report, The Joint Graduate School of Energy and Environment, funded by the Electricity Generating Authority of Thailand. (in Thai with English abstract)
12. **Manomaiphiboon K**, Paton C, and Assareh N (2014) Analysis and Comparison of Overall Wind Resource Potentials from Important Wind Maps of Thailand. Final report, the Joint Graduate School of Energy and Environment, funded by National Science and Technology Development Agency and Electricity Generating Authority of Thailand. (with Thai abstract)
13. **Manomaiphiboon K**, Assareh N (2014) A Climatological Investigation of Heavy Rainfall over Thailand. Final report, The Joint Graduate School of Energy and Environment, funded by Asahi Glass Foundation (Japan).
14. **Manomaiphiboon K**, Octaviani M, Prabamroon T (2012) Study of Potential Climate Change for Thailand Using Regional Climate Model RegCM3 under Multiple Future Scenarios. Final report, The Joint Graduate School of Energy and Environment, funded by Postgraduate Education and Research Development Office. (with Thai abstract)
15. Towprayoon S, **Manomaiphiboon K**, Octaviani M, Torsri K (2011) Study of Potential Regional Climate Change for Thailand Using RegCM3 Model. Final report, The Joint Graduate School of Energy and Environment, funded by Thailand Research Fund. (in Thai with English abstract) http://complabbkt.jgsee.kmutt.ac.th/rcm_proj
16. **Manomaiphiboon K**, Prabamroong A, Chanaprasert W, Rajpreeja N, Phan TT (2010) Dual Database System of Wind Resource for Thailand. Final report of Project: Wind Resource Assessment Using Advanced Atmospheric Modeling and GIS Analysis. Final report, The Joint Graduate School of

Energy and Environment, funded by Thailand Research Fund. (in Thai with English abstract)
http://complabbkt.jgsee.kmutt.ac.th/wind_proj

17. **Manomaiphiboon K**, Surapipith V, Wiwatwattana N, Pengchai P, Thepanondh S, Onchang R, Chusai C, Octaviani M (2009) Development of a Prototype of Smoke-Haze Forecast Modeling System for Upper Northern Thailand and Its Application to Drought Fire Seasons. Final report, The Joint Graduate School of Energy and Environment, funded by National Research Council of Thailand. (in Thai with English abstract)
http://www.aqnis.pcd.go.th/project/northernhaze2551/index.php
18. Pollution Control Department (1994) Emission Database of Vehicles and Industry in Bangkok Metropolitan Region (for the Year 1992). Final report, prepared by Department of Environmental Engineering, Chulalongkorn University. [Researchers: Limpaseni W (PI), Panich S, Reudecha W, Phieu-Nual K, Suwattiga P, Mahatnirunkul V, Poreeyanond T, Phusawang J, **Manomaiphiboon K,** Yachusri C.]