

SOMPOKE KINGKAEW

Ph.D. Candidate, Environmental Engineering and Management,
Asian Institute of Technology (AIT), Klong Luang, Pathum Thani 12120,
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EDUCATION

Ph.D. Candidate in Environmental Engineering and Management

2015-Present **Asian Institute of Technology (AIT)**, Thailand. A Special Study: “Development of Near Real-Time Emission Estimation for Northern Thailand”. Ph.D. Dissertation: “Estimation of Biomass Open Burning Emissions for Air Quality Forecast during Haze Pollution in Northern Thailand”.

M.Sc. (The Most Outstanding) in Environmental Engineering and Management

2011-2013 **Asian Institute of Technology (AIT)**, Thailand. Master Thesis: “Application of Photochemical Smog Modeling System for Ozone Air Quality Management in Bangkok Metropolitan Region (BMR) under Transport Fuel Scenarios”.

B.Sc. (The Most Outstanding of Honors) Public Health (Environmental Health Science)

2007-2011 Faculty of Public Health, **Mahidol University**, Bangkok, Thailand. Senior Project: “Application of the AAMA Community Noise Modeling on Traffic Noise Level Estimation in Different Residential Areas of Bangkok Vicinity”.

PROFESSIONAL EXPERIENCE

- Oct 2015 – Sep 2023 **Full-time Lecturer**, Thammasat University (Rangsit Center)
Instructed in the coursework of
- Air Pollution Management and Control
 - Environmental Health Engineering
 - Modeling for Environmental and Occupational Health
 - GIS and Database Applications in Environmental Health Information System
- Jun 2013 - Mar 2015 **Research Associate**, Asian Institute of Technology (AIT)
- Mar-May 2010 **Intern**, TEAM Consulting, Bangkok, Thailand

RESEARCH AREAS

- Air quality and climate modeling (e.g., WRF-Chem, WRF-CAMx, CMIP6)
- Near real-time emission inventory of air pollutants and climate forcers
- Atmospheric remote sensing and GIS with near real-time web-based applications
- Ambient air quality monitoring focusing on fine particulate matter
- Short-lived climate pollutant mitigations and climate adaptation
- Deposition of atmospheric pollutants and effects of marine environment

TECHNICAL SKILLS

- Numerical modeling: WRF, WRF-Chem, WRF-CAMx, MM5
- Programming language: Fortran, Unix, R, Python, HTML, NCL, CDO, NCO
- Operating System: Linux Server, Windows Server, MacOS
- Other Applications: PowerBI, WebApp, LINE Developer, Machine Learning

PAST AND CURRENT RESEARCH PROJECTS

Mar 23-Mar 24 [PI]	Development of thunderstorm and rainfall risk prediction system considering the effects of aerosol-cloud interactions in Thailand using WRF-Chem simulations (Funding: National Research Council of Thailand)
Mar 22-Aug 23 [PI]	Development of air quality management data platform for Bangkok Metropolitan Administration (BMA) (Funding: BMA through Sithiporn Associates Co., Ltd.)
Jul 21-Aug 23 [PI]:	Development of PM2.5 assimilative capacity forecasting system for effectively reducing PM2.5 emission from open burning activities at local administrative levels in Thailand (Funding: National Research Council of Thailand)
Apr 23-Apr 24 [Co-PI]	Evaluation of the implemented measures for PM2.5 reduction and development of the future measures (Funding: National Research Council of Thailand)
July 22-Nov 23 [Co-PI]	New roadmap for Free Haze ASEAN (Funding: ASEAN Secretariate)
Jul 22-Nov 23 [Co-PI]	Prediction of short-term health impacts from PM2.5 pollution in Bangkok (Funding: Thai Health Organization)
May 21-Aug 23 [Co-PI]:	Contribution of Inside and Outside-city Air Pollution Sources to the PM2.5 Concentration of the Mitigation Measures of the

	Transport Sector in Bangkok (Funding: National Research Council of Thailand)
2021-2024 [Co-PI]:	e-Asia Project: Health Impacts of Climate Change in Thailand: Current Impacts and Its Implication (Funding: National Research Council of Thailand)
Nov 21-Nov 22 [Co-PI]	Identification of PM Sources in Na Phra Lan Pollution Control Zone, Saraburi Province (Funding: Pollution Control Department of Thailand)
Jul-Sep 20 [PI]:	Compilation of Emission Factors for Crop Residue Open Burning (Funding: Pollution Control Department)
Jul-Aug 20 [PI]:	Automated WRF Processing (Funding: Pollution Control Department of Thailand)
May-Aug 20 [PI]:	The Study of Infectious Waste Management in Thailand and Recommendations on Framework of Management Policy (Funding: Department of Health, Ministry of Public Health)
Jan-Aug 20 [PI]:	Development of Emission Inventory for Transport Sector in Thailand under Scenarios of Alternative National PM2.5 Management Policy (Funding: TDRI)
2019-2020 [Co-PI]:	Development of Air Quality Data Management System for Bangkok Metropolitan Administration (Funding: Sithiporn Associates Co., Ltd.)
2018 [Co-PI]:	Reducing Mercury Emission from Coal Combustion in the Energy Sector in Thailand (Funding: UN Environment)
2012-2014 [RA]:	Study of Ground-level Ozone in Bangkok Metropolitan Region by Advanced Mathematical Modeling for Air Quality Management. Emission reduction scenarios is developed and simulated to identify the most appropriate measures to reduce ozone concentration over the domain. (Funding: PTT Public Co., Ltd.)

SELECTED CONFERENCE PRESENTATIONS:

- **Kingkaew, S.,** Kim Oanh, N. T., Winijkul E. & Pajityotee, K. (2023). Development of top-down FRP-based biomass fire emission inventory for PM2.5 air quality modeling using WRF-Chem modeling system in northern Thailand. In the 20th

Global Emission Initiative (GEIA) Conference: Towards mitigating air pollutant and greenhouse gas emissions, Brussels, Belgium.

- **Kingkaew, S.**, Pajjityotee, K., & Wangwongwatana, S. (2023). Performance of Next Five-day PM_{2.5} Air Quality Forecasting using WRF-Chem Modeling System in Thailand. In the 5th Atmospheric Composition and the Asian Monsoon (ACAM) workshop, Dhaka, Bangladesh.
- **Kingkaew, S.**, Kajonpet P., Pajjityotee, K., Wangwongwatana, S., Winijkul, E. & Kingkaew, K. (2023). Development of PM_{2.5} assimilative capacity forecasting system for effectively reducing PM_{2.5} emission from biomass burning at local administrative levels in Thailand. In the 5th Atmospheric Composition and the Asian Monsoon (ACAM) workshop, Dhaka, Bangladesh.
- Pajjityotee, K. & **Kingkaew, S.** (2023). Estimation of Semi-real-time Bottom-up Traffic Emissions Using GPS Traffic Probe Data for PM_{2.5} Simulation using WRF-Chem Modeling in Bangkok, Thailand. In the 5th Atmospheric Composition and the Asian Monsoon (ACAM) workshop, Dhaka, Bangladesh.
- Saphankaew P., Kamkon, R. & **Kingkaew, S.** (2023). Near Real-time Retrieval of Ground-level PM_{2.5} Concentrations from Different Five MODIS Aerosol Optical Depth Products Over Bangkok, Thailand. In the 5th Atmospheric Composition and the Asian Monsoon (ACAM) workshop, Dhaka, Bangladesh.
- Diwatthanaphong S., Seesoddee T., Suwanrerker S., Pajjityotee K. & **Kingkaew S.** (2019). Roadside Fine Particulate Matter and Its Bounded Heavy Metals in Bangkok and Pathumthani, Thailand. In National Conference on Air Quality in Thailand: PM 2.5, Bangkok.
- **Kingkaew, S.**, Pajjityotee, K. & Eaktasang, N. (2019). Development of a next-day prediction for spatial PM_{2.5} distribution in Bangkok Metropolitan Region, Thailand. In TU-KU-MU-NAVY Conference 2019, Thammasat University, Pathumthani.
- Pajjityotee, K., Rachachan, S. & **Kingkaew, S.** (2019). Fine particulate matter concentrations and size distributions during the post monsoon in northern Bangkok Metropolitan Region, Thailand. In the 2nd National Environmental Conference, Mahasarakham.
- Chommanee, K., Pajjityotee, K. & **Kingkaew, S.** (2019). Health risk assessment of particulate matter exposure from different means of public transport in Bangkok, Thailand. In the 2nd National Environmental Conference, Mahasarakham.

- **Kingkaew, S.** & Eaktasang, N. (2018). Contribution of Transboundary Emissions of Biomass Open Burning to Haze Pollution in Bangkok Metropolitan Region, Thailand. In The 10th Better Air Quality Conference 2018, Kuching, Malaysia.
- Pajityotee, K., Sithprasert, C., Wootisen, W. & **Kingkaew S.** (2018). Thunderstorm Risk Mapping in Thailand. National Environmental Conference on Environment, Energy, and Health 2018, 76-77.
- **Kingkaew, S.** (2017). Variations of PM_{2.5}-to-PM₁₀ ratios in Bangkok Metropolitan Region, Thailand [Poster]. In The Third Workshop on Atmospheric Composition and Asian Monsoon, Guangzhou, China.
- Permadi D.A., Kim Oanh, N.T., **Kingkaew, S.** & Chatchupong, T. (2016). Photochemical smog modeling for ozone air quality management in Bangkok Metropolitan Region [Poster]. In The International Global Atmospheric Chemistry (IGAC) Project 2016 Science Conference, CO, USA.
- **Kingkaew, S.**, Kim Oanh, N. T. & Permadi, D. A. (2015). Development of a high spatial resolution emission inventory and application of ozone air quality simulation in Bangkok Metropolitan Region, Thailand [Poster]. In The Second Workshop on Atmospheric Composition and the Asian Summer Monsoon (ACAM), Bangkok, Thailand.
- Chatchupong, T., **Kingkaew, S.**, Permadi, D.A. & Oanh, N.T. (2014). Ozone air quality management in Bangkok Metropolitan Region, Thailand: PTT scientifically perspective strategies and plan. In The Air and Waste Management Association's Annual Conference and Exhibition, AWMA, CA, USA. 2, pp. 1345-1349.

REPORT AND BOOK CHAPTERS:

- Watchalayann, P., Soonthornchaikul, N., Laokiat, L., Leelapaiboon, S., Eaktasang, N., Wongsoonthornchai, M., Thitanuwat, B. & **Kingkaew, S.** (2018). Final Report Reducing Mercury Emission from Coal Combustion in the Energy Sector in Thailand: A UN Environment Report. UN environment: Chemicals and Wastes Branch.
- Kim Oanh, N.T., Pongkiatkul, P., **Kingkaew, S.** & Surapipith, V. (2015). Chapter 2: Air quality management in Bangkok Metropolitan Region, Thailand. In Kim Oanh, N.T. (Eds.), Air pollution research network for improving air quality in Asian developing countries: Compilation of findings. NARENCA, ISBN: 978-604-904-410-6, pp. 19-40.

PREVIOUS STUDENT SENIOR PROJECTS:

- Sasina Phasukkam and Fontip Songphram (2021). Protection efficiency of surgical mask on roadside mold and PM2.5 exposure using a designed closed-box manikin experiment
- Siriluk Chairungruengsin and Kalyakorn Pongpikul (2021). Estimation of particulate matter emissions in construction sites using low-cost sensors and mini-volume and personal environmental monitoring air samplers
- Diwatthanaphong S., Seesoddee T., and Suwanrerk S. (2019). Roadside Fine Particulate Matter and Its Bounded Heavy Metals in Bangkok and Pathumthani, Thailand.
- Kantachai Pajjityotee and Satita Rachachan (2019). Fine particulate matter concentrations and size distributions during the post monsoon in northern Bangkok Metropolitan Region, Thailand
- Kanittha Chommanee and Kantachai Pajjityotee (2019). Health risk assessment of particulate matter exposure from different means of public transport in Bangkok, Thailand (Poster presentation in the 2nd National Environmental Conference)
- Kantachai Pajjityotee, Chanpen Sitprasert and Wissuta Woothisen (2018). Thunderstorm Risk Mapping in Thailand (Received the best poster presentation award in the 1st National Environmental Conference in climate change section)
- Racha Samermirt and Rachaya Intarawichai (2017). Health effects of biomass open burning emission on residing students in a university campus of Thailand

AWARDS AND HONORS

- Sep 2019 Received the “First Runner-up” in Entrepreneurship Poster Competition, AIT
- May 2013 Received “The Robert B. Banks Prize” represented the most outstanding student in Environmental Engineering and Management, AIT.
- Jul 2011 The most outstanding student of Faculty of Public Health, Mahidol University.
- Nov 2009 The most outstanding student prize” in Public Health from Prof.Tab Neelaniti’s Foundation, Bangkok, Thailand.

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