

FACULTY PROFILE

Title : Professor
Name : Nguyen Thi Kim Oanh
FOS : Environmental Engineering and Management Program
Affiliation : Professor
Location : Room W101, Academic Building
Phone : 662-524 5641, Ext. 5641
Fax : 662-524 5625
Email : kimoanh@ait.asia

EDUCATIONAL BACKGROUND

1. Dr. Eng. Environmental Technology and Management, Asian Institute of Technology, Bangkok, Thailand; 1994
2. M. Eng. Environmental Technology and Management, Asian Institute of Technology, Bangkok, Thailand; 1991
3. Dipl. Eng. Meteorology, Odessa Hydrometeorology Institute, Odessa, Ukraine; 1978

RESEARCH INTERESTS

1. Short-lived climate forcing pollutants and co-benefit analysis for emission reduction (BC and ozone precursors) of open burning, mobile sources and residential combustion.
2. Agro-residue field/open burning: integrated management strategies using monitoring, emission inventory and modeling tools.
3. Satellite monitoring of Asian regional air quality with consideration on synoptic climatological patterns.
4. Development of VOC emission profiles for refinement of photochemical model results.
5. Enhanced adsorption/catalytic oxidation for VOC treatment by nanoscale metallic particles.

TEACHING

1. Air Pollution Engineering and Management
2. Air Pollution Modeling and Applications
3. Climate and Environment Co-Benefit
4. Design of Air Pollution Control Systems
5. Receptor Modeling for Air Pollution Source Apportionment (shared)
6. Sampling Design (shared)
7. Science of Climate Change and Co-Benefit

SELECTED PUBLICATIONS

70 peer-reviewed journal papers, one book (ed.), 4 major development projects, 23 book chapters, 40 peer-reviewed international proceeding papers, 80 conference abstracts and 60 keynote/invited speeches, and. Citation (October 2013) 1248, h-index = 16.

Book:

1. Integrated air quality management: Asian Case Studies. Kim Oanh N. T. (ed). 2012. ISBN 9781439862254. CRC Press. 440 p. (www.crcpress.com/product/isbn/9781439862254)

Selected peer-reviewed journal papers

1. SR Shrestha, NT Kim Oanh, X Quishi, M Rupakheti, MG Lawrence (2013). Analysis of the vehicle fleet in the Kathmandu Valley for estimation of environment and climate co-benefits of technology intrusions. Atmospheric Environment, 81, 579-590.

2. J Engel-Cox, NT Kim Oanh, A van Donkelaar, RV Martin, E Zell (2013). Toward the next generation of air quality monitoring: Particulate Matter. *Atmospheric Environment*, 80, 584–590.
3. NT Kim Oanh, J Kongpran, NT Hang, P Parkpian, NTQ Hung, SB Lee, GN Bae (2013). Characterization of gaseous pollutants and PM_{2.5} at fixed roadsides and along vehicle traveling routes in Bangkok Metropolitan Region. *Atmospheric Environment*. 77, 674–685.
4. Eric Zusman, Akiko Miyatsuka, Dale Evarts, NT Kim Oanh, Zbigniew Klimont, Markus Amann, Katsunori Suzuki, Arif Mohammad, Hajime Akimoto, Jane Romero, SM Munjurul, Hannan Khan, Johan Kuylenstierna, Kevin Hicks, May Ajero & Kaye Patdu (2013). Co-benefits: taking a multidisciplinary approach (commentary). *Carbon Management*. 4(2), 135–137.
5. Reid, J.S. Hyer, E.J., Johnson, R.S., Holben, et al..., Oanh, N.T.K., et al... (2013). Observing and understanding the Southeast Asian aerosol system by remote sensing: An initial review and analysis for the Seven Southeast Asian Studies (7SEAS) program (Review). *Atmospheric Research*. 122, 403-468
6. Khumsaeng, T., Kim Oanh N. T., Karstensen H. K., Polprasert C. (2013). Emission of dioxins/furans and other U-POPs from test burns of non-POP pesticides in a hazardous waste incinerator. *Waste Management*. 33 (4), 833–841.
7. Permadi, D.A., Kim Oanh, N.T. (2013). Assessment of biomass open burning emissions in Indonesia and potential climate forcing impact. *Atmospheric Environment*. 78, 250–258. Doi: 10.1016/j.atmosenv.2012.10.016.
8. Hai C. D. and Kim Oanh, N.T. (2013). Effects of local, regional meteorology and emission sources on mass and compositions of particulate matter in Hanoi. *Atmospheric Environment*. 78, 105-112. Doi.org/10.1016/j.atmosenv.2012.05.006
9. Kim Oanh, N.T., Phuong, M.T.T., and Permadi, D.A., (2012). Analysis of motorcycle fleet in Hanoi for estimation of air pollution emission and climate mitigation co-benefit of technology implementation. *Atmospheric Environment*. 59, pp. 438-448.
10. Shindell D, Kuylenstierna Johan C. I., et al. , Hicks K, Kim Oanh NT, et al. (2012). Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security. *Science*, 13 January 2012: 183-189. doi:10.1126/science.1210026.
11. Sahu L. K., Y. Kondo, Y. Miyazaki, Prapat Pongkiatkul and N. T. Kim Oanh (2011). Seasonal and diurnal variations of black carbon and organic carbon aerosols in Bangkok. *JGR*, VOL. 116, D15302.
12. Amornpon Changsuphan, Muhammad Ikram and Nguyen Thi Kim Oanh (2011). Removal of benzene by ZnO nanoparticles coated on porous adsorbents in presence of ozone and UV. *Chemical Engineering Journal*. 181-182, pp. 215-221.
13. Nguyen Thi Kim Oanh, Thuy Ly Bich, Danutawat Tipayarom, Bhai R. Manadhar, Pongkiatkul Prapat, Christopher D. Simpson, L-J Sally Liu (2010). Source Characterization of Aerosol Emission from Field Burning of Rice Straw. *Atmospheric Environment*, 45 (2), pp. 493-502.
14. Thongchai Kanabkaew and Nguyen Thi Kim Oanh (2010). Development of spatial and temporal emission inventory for crop residue field burning. *Environmental Modeling and Assessment*. DOI: 10.1007/s10666-010-9244-0.
15. Kim Oanh N. T., Thiansathit Worrarat, Tami C. Bond, R. Subramanian, Winijkul Ekbordin, Pawarmart Ittipol (2010). Compositional characterization of PM_{2.5} emitted from in-use diesel vehicles in Asia. *Atmospheric Environment*. 44 (2010) 15–22. doi:10.1016/j.atmosenv.2009.10.005.
16. Le H. A. and Kim Oanh N. T. (2010). Integrated Monitoring and Modeling for Air Quality Management of Brick Manufacturing Village. *Journal of Environmental Monitoring and Assessment*, 171 (1-4), pp. 381-394. DOI 10.1007/s10661-009-1285-y
17. Kim Oanh N. T., Pongkiatkul P., Upadhyay N., Hopke, P. (2009). Design a Monitoring Program of Ambient Particulate Matter for Source Apportionment Study by Receptor Modeling. *Atmospheric Environment*. 43: 3334-3344.
18. Kondo Y, L Sahu, M Kuwata, Y Miyazaki, N Takegawa, N Moteki, J Imaru, S Han, T Nakayama, NT Kim Oanh, M Hu, YJ Kim, K Kita (2009). Stabilization of the Mass Absorption Cross Section of Black Carbon for Filter-Based Absorption Photometry by the use of a Heated Inlet. *Aerosol Science and Technology*. 43(8), 741-756.

19. Subramanian, R., Bond, T. C., Thiansathit, W., Kim Oanh N. T., Duleep, K. G., Paw-armart, I. and Winijkul, E. (2009). Source characterization to support quantification of co-benefits: a piggyback study in Bangkok, Thailand". *Environmental Science and Technology*. DOI 10.1021/es8032296.
20. Didin Agustian Permadi and Nguyen Thi Kim Oanh (2008). "Episodic ozone air quality in Jakarta in relation to meteorology and precursors emission intensity". *Atmospheric Environment* 42: 6806-6815.
21. Dinh Thi Hai Van, Ishii Satoshi and Nguyen Thi Kim Oanh (2008). Assessment of Ozone Effects on Local Rice Cultivar by Portable Ozone Fumigation System in Hanoi, Vietnam. *Journal of Environmental Monitoring and Assessment*. <http://dx.doi.org/10.1007/s10661-008-0456-6>
22. Le Hoang Nghiem and Nguyen Thi Kim Oanh (2008). Modeling Ground Level Ozone over the South East Asian Region using MM5-CMAQ. *Journal of Air and Waste Management Association*. V. 58: 1341-1350
23. Pentamwa, P. and Kim Oanh, N.T. (2008). Levels of Pesticides and PCBs in Selected Homes in Bangkok Metropolitan Region, Thailand. *Annals of the New York Academy of Sciences*, 1140, Environmental Challenges in the Pacific Basin, V 1140: 91-112.
24. Vo Thi Quynh Truc and Nguyen Thi Kim Oanh (2007). "Roadside BTEX and other gaseous air pollutants in relation to emission sources". *Atmospheric Environment*, 41, 7685-7697.
25. Kim Oanh N. T., Upadhyay N., Zhuang Y-H., Hao Z-P., Murthy D.V.S., Lestari P., Villarin J.T., Chengchua K., H. X. Co., Dung N. T., Lindgren E. S. (2006). Particulate Air Pollution in Six Asian Cities: Spatial and Temporal Distributions, and Associated Sources. *Atmospheric Environment*, 40, 3367-3380.
26. Kim Oanh N T, Albina D O, Li Ping and Wang X-K (2005), Emission of Particulate Matter and Polycyclic Aromatic Hydrocarbons from Select Cookstove-fuel Systems in Asia. *Biomass and Bioenergy*, 28, 579-590.
27. Kim Oanh N T, Nghiem L H and Yin L P (2002), Emission of Polycyclic Aromatic Hydrocarbons, Toxicity and Mutagenicity from Domestic Cooking Using Sawdust Briquettes, Wood and Kerosene. *Environ. Sci. and Technol.*, 36, 833-839
28. Kim Oanh N T, Bætz Reutergårdh L and Dung N T (1999). Emission of Polycyclic Aromatic Hydrocarbons and Particulate Matter from Domestic Combustion of Selected Fuels, *Environ. Sci. and Technol.*, 33, 2703-2709
29. Kim Oanh N T, Bengtsson B-E, Reutergårdh L, Bergqvist P-A, Hynning P-A and Remberger M (1995), Contaminants in Water, Sediment and Biota from Bai Bang, a Vietnamese Bleached Kraft Pulp and Paper Mill, *Archives in Environmental Contamination and Toxicology*, 29: 506-516.

Major development reports

1. UNEP (2011). Near-term climate protection and clean air benefits: actions for controlling short-lived climate forcers, UNEP, Nairobi, Kenya, 78pp, ISBN: 978-92-807-3232-0. (contributing author).
2. WMO (2012). Global Atmospheric Watch (GAW) No. 205; Impacts of Mega Cities on Air Pollution and Climate, WMO, Geneva, Switzerland, 2012. ISBN 978-0-9882867-0-2. (contributing author in Chapter 3: Asia).
3. GEO-5 (2012). Global Environment Outlook 5: Environment for the Future We Want, UNEP, ISBN: 978-92-807-3177-4 (a lead author of Chapter 2- Asia).
4. UNEP-WMO (2011). Integrated Assessment of Black Carbon and Tropospheric Ozone, UNEP and World Meteorological Organization (WMO), Nairobi, Kenya. ISBN: 92-807-3141-6 (vice-chair and lead/contributing author).

ONGOING PROJECTS

Totally 30 projects handled in the capacity of PI or Co-PI of which over 10 are/were regional networks (ARRPET and ARRPEEC research programs). Currently 4 on-going projects of which 3 regional networks, as follows.

1. PEER-NSF (2012-2014). Assessment of impacts of the emission reduction measures of short-lived climate forcers on air quality and climate in Southeast Asia (SLCP-SEA). Two countries, Indonesia and Vietnam, were selected for the emission inventory and pilot scale projects.

Research partners: HUS and NLU, Vietnam and ITB, Indonesia, and CU, USA. Sponsored by USAID, USA.

2. AIT-PTT (2012-2014). Study of Ground-level Ozone in Bangkok Metropolitan Region by Advance 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. Sponsored by PTT Public Company Limited.
3. AIT-France (2010-2013). Assessment of co-benefits on air quality and climate resulted from various control strategies in Southeast Asia. This project focuses on black carbon emission in the base year and different control scenarios. Simulation of the impacts on air quality and climate is done using a regional chemical-climate modeling. PI, in cooperation with Royal University of Phnom Penh, Cambodia, Laboratoire des Sciences du Climat et de l'Environnement, Gif/Yvette, France Institut de Combustion, Aérothermique, Réactivité et Environnement (ICARE), France. Sponsored by SDCC / AIT - France Network.
4. AIT-SINTEF (2006-2014). Hazardous Chemical Management (AIT-SINTEF cooperation): This project deals mainly obsolete pesticides and stockpile PCB, dioxin contaminated sites. The project aims at capacity building for the region to handle hazardous chemicals. PI, in cooperation with Prof. P. Chongrak and Dr. K. Karstensen (SINTEF). Donor: NORAD, phase 1 (2006-2008) and phase 2 (2012-2014).

AWARDS AND HONOURS

1. Dec. 2010, "Air quality hero" award, by Better Air Quality 2010 (BAQ2010)
2. Nov. 2008, "EXTRA MILE" award, by Better Air Quality 2008 (BAQ2008)
3. Jan. 2004, "Fogarty Research Grant" by the Fogarty Foundation, USA
4. June 2003, Teaching Award, by SERD, AIT
5. August 1998, Teaching Award, by SERD, AIT
6. April 1991, Yohei Mimura Prize (Graduation Award), by AIT
7. 20 AIT Master and Ph D students got the best paper awards by WSC of AWMA, since 2001

PROFESSIONAL AFFILIATIONS

1. 2009-Present: Professor, Environmental Engineering and Management, Asian Institute of Technology, Thailand
2. July-Sept 2012: Visiting Scholar, Institute for Sustainability Studies (IASS), Potsdam, Germany
3. 2001-Oct. 2009: Associate Professor, Environmental Engineering and Management, Asian Institute of Technology, Thailand
4. Feb-April 2004: Forgyat Visiting Scholar, University of Washington, Seattle, WA, USA
5. May-July 2004: Visiting Scholar, University of Illinois, Urbana-Champaign, IL, USA
6. May-July 2004: Short-term consultant at World Bank Institute, Washington DC, USA
7. 2000-2010: Associated/guest faculty member, Faculty of Environment Sciences, Hanoi University of Science
8. 1997-2000: Assistant Professor, Environmental Engineering Program, Asian Institute of Technology, Bangkok, Thailand
9. 1994-1997: Research specialist, AIT-SIDA Environment Programme
10. 1979-1989: Lecturer, Department of Meteorology, Vietnam National University, Hanoi, Vietnam

RESEARCH KEYWORDS

1. Air pollution
2. Atmospheric science
3. Environmental monitoring and modeling
4. Short-lived climate forcing pollutants
5. Industrial environment management