

Marieta Cristina L. Castillo

EDUCATION

- Oct 2007-Sep 2010 DOCTOR OF ENGINEERING, INTERNATIONAL DEVELOPMENT ENGINEERING
TOKYO INSTITUTE OF TECHNOLOGY, Tokyo, Japan
Kanda Laboratory, International Development Engineering
Graduate School of Science & Engineering
Dissertation: Turbulent Structures of an Urbanized Atmospheric Boundary
Layer Using a Parallelized Large Eddy Simulation Model
UK NARIC Assessment: Comparable to British Doctor of Philosophy degree
(PhD) standard
- Jun 1998-Sep 2001 MASTER OF SCIENCE IN CIVIL ENGINEERING
DE LA SALLE UNIVERSITY, Manila, Philippines
Specialization in Hydraulics & Water Resources
Graduated with Distinction
UK NARIC Assessment: Comparable to British Bachelor (Honours; 2:2) degree
standard
- Jun 1993-Apr 1997 BACHELOR OF SCIENCE IN CIVIL ENGINEERING
DE LA SALLE UNIVERSITY, Manila, Philippines
Specialization in Structural Engineering
Graduated Cum Laude and top of my class; Gold Medal for Best Thesis
UK NARIC Assessment: Comparable to British Bachelor (Ordinary) degree
standard
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EMPLOYMENT

- March 2012-current MATH & SCIENCE TUTOR FOR KS 3-4
YOUNG EDUCATION SERVICES
187 Greenwich High Road, London SE10 8JA
- Nov 2010-January 2012 RESEARCH ASSOCIATE
Environmental Monitoring and Modelling Group
Department of Geography, KING'S COLLEGE LONDON

Responsibilities:

- management of meteorological monitoring database system for research projects of graduate students and research scientists involved in the following studies: surface-atmosphere interactions and fluxes; climate, land and environmental change; eco-hydrology and bio-geomorphology; and natural hazards and environmental management
 - post processing of meteorological observation data for proper interpretation
 - contribution to the European Commission Framework 7 FP7-ENV-2007-1 BRIDGE project for the environment/climate change (Sustainable urban planning decision support accounting for urban metabolism) and the MEGAPOLI project: development and evaluation of a simple and urban energy and water balance model (SUEWS) using KCL's meteorological observation data for central London; such modeling tools are to be used for impact assessment of air quality of megacities and to evaluate the different urban planning options that EU governments may consider
 - supervising PhD, MSc and undergraduate students in the research projects related to the Environmental Monitoring and Modelling Group
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(EMPLOYMENT continued...)

Oct 2004-Sep 2005 UNESCO RESEARCH FELLOW
TOKYO INSTITUTE OF TECHNOLOGY, Tokyo, Japan
Research Program for Development of Human Resources and Research
Network in Natural Science and Technology

Sep 2002-Dec 2002 JSPS RESEARCH FELLOW
TOKYO INSTITUTE OF TECHNOLOGY, Tokyo, Japan
JSPS-DOST Core University Program on Environmental Engineering

Jan 1998-Feb 2007 UNIVERSITY LECTURER IN CIVIL ENGINEERING
DE LA SALLE UNIVERSITY, Manila, Philippines
Civil Engineering Department, College of Engineering
- Assistant Professor (Sep 2001-Feb 2007)
- Instructor (May 1998-Aug 2001)
- Assistant Instructor (Jan-Apr 1998)

Responsibilities:

- lecturer and supervisor for laboratory works for courses in hydraulics and water resources, structural design, civil engineering materials, and engineering mechanics
- advisor for graduate theses in hydraulics and water resources
- research collaboration with Philippine Government agencies (Department of Science & Technology, Regional Development Council-Cordillera Autonomous Region, Philippine Economic Zone Authority), and international scientists (Tokyo Institute of Technology, University of Hannover)
- liaison between the Department and the civil engineering industry, specifically with the alumni

Subjects taught:

Maths: analytical and solid geometry, college and advanced engineering algebra, differential and integral calculus, differential equation, probability and statistics, plane and spherical trigonometry, quantitative methods, solid mensuration, advanced engineering mathematics

Sciences: chemistry, college and engineering physics, statics of rigid bodies, dynamics of rigid bodies, technical mechanics, mechanics of deformable bodies, strength of materials

General engineering: engineering economy, engineering computer programming and methods, engineering production management, environmental engineering, engineering graphics, computer fundamentals and programming, methods of research

Civil engineering: building design, hydraulics, hydrology, structural design, timber and composite design, fluid mechanics, highway engineering, ethics, laws, contracts and specs, construction materials and testing, transportation engineering, water resource engineering, construction methods and project management, cost engineering, materials science, foundation engineering, geotechnical engineering, coast and river engineering, flood control, irrigation and drainage engineering, water supply, water power, water development and planning, sanitary and wastewater engineering, elementary surveying, higher surveying, engineering surveying, theory of structures, structural design of buildings, bridge engineering, pre-stressed concrete design, reinforced concrete design, earthquake engineering

Jan 2000-Dec 2006 MATH & SCIENCE TUTOR FOR SECONDARY EDUCATION
GREAT DISCOVERY CENTER
Makati, Metro Manila, Philippines

Jun 1992 – Feb 2007 SERVICE FOR HUMAN AND RELIGIOUS EXPERIENCE: VOLUNTEER FACILITATOR
Workshops, training sessions, recollections for secondary schools with
underprivileged children sponsored by De La Salle Brothers Philippine District
(asia.groups.yahoo.com/group/share-lasalle/)

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PUBLICATIONS

- April 2011 *The Effects of Inner- and Outer-Layer Turbulence in a Convective Boundary Layer on the Near-Neutral Inertial Sublayer Over an Urban-Like Surface.* M. C. L. Castillo, A. Inagaki, and M. Kanda. *Boundary-Layer Meteorology*, 140: 453-469 (DOI: 10.1007/s10546-011-9614-4).
- Oct 2011 *Large Eddy Simulation Study of Coherent Flow Structures within a Cubical Canopy.* A. Inagaki, M. C. L. Castillo, Y. Yamashita, M. Kanda, and H. Takimoto. *Boundary-Layer Meteorology*, 142: 207-222 (DOI: 10.1007/s10546-011-9671-8).
- Dec 2010 *The Relationship between the Structure and Flow of Atmospheric Turbulence in the Urban Canopy Layer using Large Eddy Simulation.* A. Inagaki, Y. Yamashita, M. C. L. Castillo, and M. Kanda. *Japan Society of Hydrology and Water Resources*, 23: 196-197.
- Mar 2010 *The Turbulent Characteristics within the Urban Canopy Layer – Effects of the Overlying Turbulent Organized Structure.* Y. Yamashita, A. Inagaki, M. C. L. Castillo, H. Takimoto, and M. Kanda. *Annual Journal of Hydraulic Engineering, Japan Society of Civil Engineers*, 54: 283-288.
- March 2009 *Heat Ventilation Efficiency of Urban Surfaces Using Large-Eddy Simulation.* M. C. L. Castillo, M. Kanda, and M. O. Letzel. *Annual Journal of Hydraulic Engineering, Japan Society of Civil Engineers*, 53: 175-180.
- March 2003 *Influence of Temperature on Chloride Ion Diffusion and Corrosion Rate of Steel Bars in Concrete.* N. Otsuki, W. Yodsudjai, T. Nishida, M. C. L. Castillo, and S. Maruyama. *Civil Engineering Technical Report, Tokyo Institute of Technology*, 67: 39-50.
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CONFERENCES

- Aug 2012 *Very Large Turbulent Organised Structures in the Urban Canopy Layer.* M. C. L. Castillo, A. Inagaki, Y. Yamashita, M. Kanda, and H. Takimoto. The 8th International Conference on Urban Climate, Dublin, Ireland.
- Aug 2012 *Evaluation of Mixing Layer Height Estimates from Ceilometer Backscatter in London.* M. C. L. Castillo, D. Young, T. Smith, and S. Grimmond. The 8th International Conference on Urban Climate, Dublin, Ireland.
- Aug 2012 *Large Aperture Scintillometer Measurements in London.* L. Pauscher, M. Gouvea, S. Kotthaus, C. Wood, J. Barlow, M. C. L. Castillo, P. Smith, and S. Grimmond. The 8th International Conference on Urban Climate, Dublin, Ireland.
- Sep 2011 *Spatial Decomposition for Inner and Outer Layer Turbulence Over Very Rough Surfaces.* M. C. L. Castillo, A. Inagaki, and M. Kanda. The 10th European Conference on Applications of Meteorology, Berlin, Germany.
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(CONFERENCES continued)

- Sep 2011 *Very Large Organized Motion of Turbulence within a Modeled Urban Canopy Layer.* M. C. L. Castillo, A. Inagaki, Y. Yamashita, M. Kanda, and H. Takimoto. The 10th European Conference on Applications of Meteorology, Berlin.
- Aug 2010 *Numerical Simulation of Atmospheric Turbulence within and Above a Cubical Canopy.* A. Inagaki, M. C. L. Castillo, Y. Yamashita, and M. Kanda. The 9th Symposium on the Urban Environment, American Meteorological Society, Keystone, Colorado, U.S.A.
- May 2010 *Large Eddy Simulation of Coherent Structures and Canopy Flows within a Near-Neutrally Stratified Urban Boundary Layer.* M. C. Castillo, Y. Yamashita, A. Inagaki, H. Takimoto, and M. Kanda. The 5th International Symposium on Computational Wind Engineering, Chapel Hill, North Carolina, U.S.A.
- Dec 2009 *Large Eddy Simulation of Various Heat Flux Scenarios.* M. C. L. Castillo. The Tokyo Tech-UNESCO Fellows Symposium: for the Development of Human Resources and Research Network in Science and Technology, Tokyo Institute of Technology, Tokyo, Japan.
- Jun 2009 *Coherent Structures of a Neutrally Stratified Urban Boundary Layer Using Large-Eddy Simulation.* M. C. L. Castillo, J. Zhang, M. Kanda, M. O. Letzel, and A. Inagaki. The 7th International Conference on Urban Climate, International Association of Urban Climate, Yokohama, Japan.
- Jan 2009 *Bulk Transfer Coefficients for Various Wall Heating Using Large-Eddy Simulation.* M. C. L. Castillo and M. Kanda. The 6th Regional Symposium on Infrastructure Development, Bangkok, Thailand.
- May 2008 *Understanding the Turbulent Transport Processes within and Above Buildings using Large-Eddy Simulation.* M. C. L. Castillo and M. Kanda. Annual Spring Meeting of the Meteorological Society of Japan, Yokohama, Japan.
- Aug 2005 *Influence of Various Heat Flux Scenarios on the Statistics of Large-Eddy Simulations.* M. C. L. Castillo, A. Inagaki, and M. Kanda. The 16th Regional Conference of Clean Air and Environment in Asia Pacific Area, Tokyo, Japan.
- Dec 2004 *Influence of Temperature on Chloride Ion Diffusion and Corrosion Rate of Steel Bars in Concrete.* N. Otsuki, W. Yodsudjai, M. C. Castillo, T. Nishida, and S. Maruyama. International Scientific Workshop on Cement and Concrete Technology, Tokyo, Japan, 20-26.
- Oct 2004 *Influence of Exposure Temperature on the Chloride Ion Diffusivity in the Minute Region of the Cement Mortar Matrix.* W. Yodsudjai, N. Otsuki, and M. C. Castillo. National Convention on Concrete, Chiangmai, Thailand, 2: 23-26.
- May 2003 *Impact of Temperature on the Chloride Ion Diffusion Coefficient in the Micro Region of Concrete.* T. Nishida, N. Otsuki, W. Yodsudjai, S. Maruyama, and M. C. L. Castillo. Annual Meeting of Japan Society of Civil Engineers, Tokyo, Japan, 52: 369-370.
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OTHER RESEARCHES

- Sep 2005 *Influence of Various Heat Flux Scenarios on the Statistics of Large-Eddy Simulations*, UNESCO-Tokyo Tech Research Program for the Environment, Tokyo Institute of Technology, Tokyo, Japan.
- Aug 2004 *Understanding the Governing Principles and Controlling Processes of the Transport of Contaminants in Groundwater: a case study for the Bases Conversion and Development Authority*. University Research Coordination Office, Department of Civil Engineering, College of Engineering, De La Salle University, Manila, Philippines.
- Apr 2004 *Micro-Hydro: A Hydrologic Study of the River of Barangay Minuli, Carangalan, Nueva Ecija*. University Research Coordination Office, Department of Civil Engineering, College of Engineering, De La Salle University, Manila, Philippines.
- Dec 2002 *Influence of Exposure Temperature on the Chloride Ion Diffusivity in the Minute Region of the Cement Mortar Matrix*. Japan Society for the Promotion of Science-Tokyo Tech Core University Program, Tokyo Institute of Technology, Tokyo, Japan.
- Aug 2001 *Flood Hazard Analysis of the Pasig-Marikina River Basin Using a Hydrologic Approach*. Master of Science Thesis, Department of Civil Engineering, College of Engineering, De La Salle University, Manila, Philippines.
- Apr 2001 *Headloss Comparison of Galvanized Iron, PVC, and Rehau Pipes Due to Pipe Friction*. University Research Coordination Office, Department of Civil Engineering, College of Engineering, De La Salle University, Manila, Philippines.
- Apr 1998 *Flow Estimation of Dupagan River, Abra*. University Research Coordination Office, Department of Civil Engineering, College of Engineering, De La Salle University, Manila, Philippines.
- Apr 1997 *Hydrologic Study and Site Survey for the Proposed Micro-Hydro Power Plant for the Community of Gacab, Abra*. Bachelor of Science Thesis, Department of Civil Engineering, College of Engineering, De La Salle University, Manila, Philippines.
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RESEARCH GRANTS & SCHOLARSHIPS

2010-2011	(Postdoc funding under Environmental Monitoring & Modelling Group, Department of Geography, King's College London) European Commission Framework 7 FP7-ENV-2007-1 Sustainable urban planning decision support accounting for urban metabolism; Megacities: Emissions, urban, regional and global atmospheric pollution and climate effects, and integrated tools for assessment and mitigation.
2007-2010	Mombukagakusho Scholarship, PhD studies at Tokyo Institute of Technology, Ministry of Education, Culture, Sports, Science & Technology, Tokyo, Japan.
2004-2005	UNESCO-Tokyo Tech Research Program for the Environment, Ministry of Education, Culture, Sports, Science & Technology, Tokyo, Japan.
2002	Japan Society for the Promotion of Science, Department of Science and Technology (Philippines), Tokyo Tech Core University Program, Tokyo, Japan.
2001-2003	Engineer Antolin M. Oreta Senior Chair in Engineering, De La Salle University, Manila, Philippines (2 instances).
1998-2001	Faculty Fund Scholarship, MSc studies at the Department of Civil Engineering, De La Salle University Manila, Philippines.
1996-1997	Philippine Council for Industry & Energy Research & Development, and the Cordillera Administrative Region of the Department of Science & Technology (Funding for Bachelor Thesis), Manila, Philippines.

AWARDS

2009	Best Student Paper, The 7 th International Conference on Urban Climate, International Association of Urban Climate, Yokohama, Japan.
2000	Micro-Hydro Research Project - Philippine National Oil Company Most Outstanding Innovative Renewable Research Project, and the Commission on Higher Education Award for Community-Based Project
1998	Placed 5 th on the National Licensure Examinations for Civil Engineering, Philippine Professional Regulation Commission, Manila, Philippines.
1997	Gold Medal for Best Thesis, Department of Civil Engineering, College of Engineering, De La Salle University, Manila, Philippines.

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PROFESSIONAL QUALIFICATIONS

Certification: Licensed Civil Engineer, Philippine Professional Regulation Commission

Enhanced Criminal Records Bureau Disclosure: Applied on 26 March 2012; awaiting results

Computer Skills: Large Eddy Simulation (Parallelized LES Model), MATLAB, R, NCAR Command Language (NCL), Fortran, Unix scripting, Turbo Pascal

Professional Membership: International Association for Urban Climate; Japan Society of Civil Engineers; Philippine Institute of Civil Engineers; ATTUNE – Association of Tokyo Tech UNESCO Research

PERSONAL INFORMATION

Birth: 30 September 1975, Manila, Philippines

Citizenship/Gender: Philippines (Filipino)/Female

UK Visa Status: Residence card of a family member of an EEA national, until 06/04/2016

Interests: Rock climbing, reading, skiing, traveling, guitar, karaoke
