

Ngar-Cheung Gabriel LAU

Education

- B.Sc. in Physics (1974), The Chinese University of Hong Kong (CUHK), Hong Kong
- Ph.D. in Atmospheric Sciences (1978), University of Washington, Seattle, USA

Professional Experience

- Visiting Scientist, Lecturer, Associate Professor, and Professor, Geosciences and Atmospheric and Oceanic Sciences, Princeton University, USA (Nov 1978 - Aug 2016)
- Research Scientist, Senior Research Scientist, Project Leader, and Acting Director, Geophysical Fluid Dynamics Laboratory (GFDL)/National Oceanic and Atmospheric Administration (NOAA) (May 1984 - July 2013)
- AXA Professor of Geography and Resource Management, Department of Geography and Resource Management, CUHK (Sept 2013 - present)
- Director and Co-Director, Institute of Environment, Energy and Sustainability, CUHK (Sept 2013 - present)
- Co-Director, CUHK/University of Exeter Joint Centre for Environmental Sustainability and Resilience (May 2018 - present)

Research Interests

- Diagnosis of the spatio-temporal characteristics of atmospheric circulation systems, the nature of interactions between different atmospheric features, as well as local and remote impacts of sea surface temperature and other lower-boundary forcings on the atmosphere.
- Investigations on the influences of projected climate change on regional atmospheric circulations.
- Assessment of the fidelity of numerical models in reproducing the observed characteristics of the present-day climate, and the design, implementation and analysis of numerical model experiments aimed at delineating the processes contributing to the evolution of various features in the atmosphere-ocean system.

Publications

Author or co-author of approximately 150 refereed journal articles.

Google Scholar search engine indicates a total citation count of 18,388, and h-index of 56.

A list of publication prior to 2013 is available at
<http://www.gfdl.noaa.gov/bibliography/results.php?author=1064>

Publication from 2013 to present:

- LAU Ngar Cheung Gabriel and PLOSHAY Jeffrey J. "Model Projections of the Changes in Atmospheric Circulation and Surface Climate over North America, the North Atlantic, and Europe in the Twenty-First Century". *Journal of Climate* vol.26 no.23, pp.9603–9620. 2013.
- LAU Ngar Cheung Gabriel and NATH Mary Jo. "Model Simulation and Projection of European Heat Waves in Present-Day and Future Climates". *Journal of Climate* vol.27 no.10, pp.3713–3730. 2014.
- LUO, Ming; KANTZ Holger; LAU Ngar Cheung Gabriel; HUANG Wenwen and ZHOU Yu. "Questionable Dynamical Evidence for Causality Between Galactic Cosmic Rays and Interannual Variation in Global Temperature". *Proceedings of the National Academy of Sciences (PNAS)* vol.112 no.34, E4638-E4639. 2015.
- YANG Yun; XIE Shang-ping; WU Lixin; KOSAKA Yu; LAU Ngar Cheung Gabriel and VECCHI Gabriel A. "Seasonality and Predictability of the Indian Ocean Dipole Mode: ENSO Forcing and Internal Variability". *Journal of Climate* vol.28 pp.8021-8036. 2015.
- CLIFT Peter D.; LAU Ngar Cheung Gabriel; ROLETT Barry V. and GIBSON J. Robert. "Implications of Future Changes in the Asian Monsoon's Intensity". *EOS* vol.97 doi:10.1029/2016EO044551. 2016.
- LAU Ngar Cheung Gabriel. "Model Diagnosis of El Nino Teleconnections to the Global Atmosphere-Ocean System". *Bulletin of American Meteorological Society* vol.97 pp.981-988. 2016.
- LAU Ngar Cheung Gabriel. "Heat waves over East Asia: Model Simulation of Synoptic Characteristics and Projections for the 21st Century". *The Global Monsoon System: Research and Forecast*. 3rd edition vol.9 pp.245-254. Singapore: World Scientific, 2016.

- LUO, Ming and LAU Ngar Cheung Gabriel. "Heat Waves in Southern China: Synoptic Behavior, Long-term Change, and Urbanization Effects". *Journal of Climate* vol.30 no.2 pp.703-720. 2017.
- YE Kunhui and LAU Ngar Cheung Gabriel. "Influences of Surface Air Temperature and Atmospheric Circulation on Winter Snow Cover Variability over Europe". *International Journal of Climatology* vol.37 no.5 pp.2606-2619. 2017.
- LUO, Ming and LAU Ngar Cheung Gabriel. "Synoptic Characteristics, Atmospheric Controls, and Long-term Changes of Heat Waves over the Indochina Peninsula". *Climate Dynamics* vol.51 issue 7-8 pp.2707-2723. 2017.
- LAU Ngar Cheung Gabriel. "The Pioneering Works of Professor Duzheng Ye on Atmospheric Dispersion, Tibetan Plateau Meteorology, and Air–Sea Interaction". *Advances in Atmospheric Sciences* vol.34 no.10 pp.1137-1149. 2017.
- LI Jianfeng, CHEN Yongqin David, GAN Thian Yew and LAU Ngar Cheung Gabriel. "Elevated Increases in Human-Perceived Temperature under Climate Warming". *Nature Climate Change* vol.8 pp.43-47. 2018.
- LUO Ming, HOU Xiangting, GU Yefu, LAU Ngar Cheung Gabriel and YIM Hung Lam Steve. "Trans-Boundary Air Pollution in A City under Various Atmospheric Conditions". *Science of the Total Environment* vol.618 pp.132-141. 2018.
- YE, Kunhui, and LAU Ngar Cheung Gabriel. "Characteristics of Eurasian Snowmelt and Its Impacts on the Land Surface and Surface Climate." *Climate Dynamics* 2018, <https://doi.org/10.1007/s00382-018-4180-9>.
- LUI, Yuk Sing, TAM Chi-yung and LAU Ngar Cheung Gabriel. "Future Changes in Asian Summer Monsoon Precipitation Extremes as Inferred from 20-km AGCM Simulations." *Climate Dynamics* 2018, <https://doi.org/10.1007/s00382-018-4206-3>.
- TONG Cheuk Hei Marcus, YIM Hung Lam Steve, ROTHENBERG Daniel, WANG Chien, LIN Chuan-Yao, CHEN Yongqin David and LAU Ngar Cheung Gabriel. "Assessing the Impacts of Seasonal and Vertical Atmospheric Conditions on Air Quality over the Pearl River Delta Region". *Atmospheric Environment* vol.180 pp.69-78. 2018.
- LIU Zhen, YIM Hung Lam Steve, WANG Chien and LAU Ngar Cheung Gabriel. "The Impact of the Aerosol Direct Radiative Forcing on Deep Convection and Air Quality in the Pearl River Delta Region." *Geophysical Research Letters* vol.45 no.9 pp.4410-4418. 2018.

- LUO Ming, and LAU Ngar Cheung Gabriel. "Amplifying Effects of ENSO on Heat Waves over China." *Climate Dynamics* 2018, <https://doi.org/10.1007/s00382-018-4322-0>.
- LI Xiuzhen, LAU Ngar Cheung Gabriel and LEE Tsz-Cheung. "An Observational Study of the Diurnal Variation of Precipitation over Hong Kong and the Underlying Processes." *Journal of Applied Meteorology and Climatology* vol.57 no.6 pp.1385-1402. 2018.

Academic Courses Taught

Princeton University

- *Introduction to the Terrestrial Atmosphere*
- *Weather and Climate Dynamics*
- *Special Topics in Data Analysis Methods*

CUHK

- *Advanced Geographical Methodology*
- *Natural Hazards and Human Response*
- *Research Frontiers in Earth and Atmospheric Sciences*
- *Science of Climate Change*
- *Grand Challenges for Global Citizens in the 21st Century*

Honors and Awards

- Clarence Leroy Meisinger Award, American Meteorological Society (1990)
- Fellow, American Meteorological Society (1991)
- Unusually Outstanding Performance Award, U.S. Department of Commerce (1991)
- C.N. Yang Visiting Fellow, CUHK (1993)
- Distinguished Meteorologist, Hong Kong Observatory 120th Anniversary (2003)
- Guest Professor, Peking University (2009)
- Wei Lun Visiting Professor, CUHK (2010)
- AXA Professorship of Geography and Resource Management at CUHK (2013-2019)
- Distinguished Career Award, U.S. Department of Commerce/NOAA (2014)
- NOAA Administrator's Award, U.S. Department of Commerce/NOAA (2014)
- Bernard Haurwitz Memorial Lecturer, American Meteorological Society (2015)
- Fellow, United College, CUHK (2016)

Professional Services (partial list)

- Committee on Climate Variations, American Meteorological Society
- Scientific Advisor, Hong Kong Observatory (1996 - present)
- Editor, *Journal of the Atmospheric Sciences* (1996 - 1999)
- Scientific Advisor, Institute of Atmospheric Physics, Chinese Academy of Sciences (2000-2005)
- Scientific Advisory Board, NOAA Climate Test Bid (2005-2008)
- Advisory Panel, U.S. Climate Variability (CLIVAR) Research Program (2005-2008)
- Contributing (Lead) Author, Fourth (Fifth) Assessment Report of Intergovernmental Panel on Climate Change (2005 - 2013), which was awarded the Nobel Peace Prize
- Co-Chair, Expert Team on Climate Impacts on Monsoon Weather, WMO World Weather Research Program (2007 - present)
- Advisory Board, Climate Forecast System High-Resolution Reanalysis Project, US Climate Prediction Center (2007)
- Assessment Committee, Department of Atmospheric Sciences, National Taiwan University (2009 - present)
- Scientific Advisory Committee, Beijing Climate Center, China Meteorological Administration (2009 - present)
- Advisory Committee, Research Center for Environmental Changes, Academia Sinica, Taiwan (2010 - present)
- World Meteorological Organization Working Group on Tropical Meteorological Research (2010 - present)
- Professor (by courtesy) at CUHK Earth System Sciences (ESSC) Program and Institute for Space and Earth Information Science (ISEIS) (2013 - present)
- Steering Committee for Hong Kong Jockey Club/CUHK Museum for Climate Change (2013 - present)
- International Advisory Committee, Asian Network of Climate Science and Technology (2014 - present)
- Assembly of Fellows, United College, CUHK (2016 - present)
- Search Committee for Dean of Engineering, CUHK (2017 - present)
- International Scientific Advisory Panel, Centre for Climate Research-Singapore (2017 - present)
- Leadership Council for the Hong Kong Chapter of the United Nations Sustainable Development Solutions Network (2018 - present)
- Selection Panel, Lui Che Woo Prize (2018-2019)