

Mapping University Climate Change Research in Hong Kong

An initiative of the Climate Change Business Forum

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Executive summary

This report, an initiative of the Climate Change Business Forum, attempts to map the climate change research, which has been completed by the major Hong Kong Universities. Over a period of 6 weeks, a study was undertaken in order to gain insight in climate change research that has been completed or is in progress at the various universities around Hong Kong. Interviews with various academic specialists, phone calls, emails and other various online research tools were used to acquire the appropriate information. While it was found that research conducted exclusively on climate change was rare, there was a substantial quantity of academic investigations concerning related aspects of climate change within the respective universities.

In total, seven universities throughout Hong Kong currently have academics that are participating in various aspects of climate change research. These Universities include: University of Hong Kong, Hong Kong Baptist University, City University of Hong Kong, Hong Kong University of Science and Technology, Hong Kong Polytechnic University, Chinese University of Hong Kong, and finally Lingnam University. The degree to which each university is participating in climate change research varies from institution to institution, as does the relative abstractness of the research as it relates to the field. While some Universities have taken a more direct approach to climate change research, others have chosen a more indirect route to examine the subject matter.

The University of Hong Kong has conducted the greatest amount of research concerning climate change so far. Several academics are currently investigating various aspects of the field including: Prof. Yim and Dr. Switzer, both from the Department of Earth Sciences; Dr. Zhang, Department of Geography; and Dr. Chen, Department of Civil Engineering. While their respective research hasn't solely touched on Climate Change, it is still very pertinent to the subject matter.

Of additional interest at the University of Hong Kong is the new Kadoorie Institute, which lists climate change as one of its primary research objectives, as well the organization of other initiatives such as hosting the Asian Youth Climate Summit.

Having conducted the majority of interviews at HKU it is worth noting a few key recurring points. First of all, there is an overall sentiment that while Climate Change research is being undertaken, the University has been hesitant about delegating too much grant money directly towards climate change research, and instead has opted in favor of related areas such as renewable energy and sustainability. Moreover, the lack of follow up on the 2006 Climate Change Workshop organized at HKU, due to various factors, has put a damper on a more collective approach to climate change research at the University.

The City University of Hong Kong has also provided a substantial body of research on climate change. The focus of the conducted research at the University is directed towards atmospheric impacts of climate change (In particular: the effects of climate change on typhoon intensity). Dr. Johnny Chan has spearheaded the research initiative, and it has taken a positive step forward with the addition of the Guy Carpenter Asia-Pacific Climate Center, which opened in June.

The Hong Kong University of Science and Technology has focused its climate change research through bodies such as the Institute of the Environment (Alexis Lau) and the Center for Sustainable Energy Technology (Tianshou ZHAO). While the majority of the output is not explicitly concerned with climate change, it is relevant in more abstract ways. Of particular importance has been the research conducted by Prof. Zhao on more sustainable and efficient energy, and that of Prof. Lau, who's expertise is slanted towards atmospheric sciences.

The Chinese University of Hong Kong has a much more limited scope in regards to climate change research. Their output focuses climate change as it relates to land-use (Dr. David Chen, Department of Geography and Resource Management) and public health (Dr. Emily Chan, Department of Public Health).

The output at Hong Kong Baptist University is limited to the Department of Geography. In particular, Prof. Yan has focused on climate comfort indices.

Hong Kong Polytechnic University is constrained to research dedicated towards renewable energy. Otherwise, no relevant research is being done.

Finally, Lingnam University's has taken a more alternative approach, and under the guidance of Dr. Paul Harris, has examined the linkages between climate change and political science.

While this summary was meant to give a brief overview of the climate change research being completed at the various universities around Hong Kong, it is by no means all-inclusive. A more detailed overview is available in the subsequent pages. It is quite evident, however, that while substantial applicable research is underway, it is hardly ever explicitly concerned with climate change. Moreover, there is a very disjointed feel to the overall body of research produced. This is not to say that climate change is not of concern as an area of interest to the respective academics; however, there is a serious lack of coordination between universities, as well as academics within universities, when it comes to climate change research. Due to the inherent interdisciplinary nature of climate change research, it is not unexpected that an overall lack of synchronization between academic fields of research and institutions is apparent. However, it is of concern that initiatives that have been taken, such as the 2006 Climate Change Workshop, have faded into obscurity. There needs to be a concerted effort

by the respective universities as well as a commitment by the government to insure a more harmonious academic body of research in the future.

Data Collected

INSTITUTION	AUTHOR	DATE	Department	ARTICLE / STUDY NAME	BRIEF
HKU	Richard Corlett	1998	Division of Ecology and Biodiversity	"Potential impacts of climate change on tropical Asian forests through an influence on phenology"	Climatic Change 39: 439-453. with J.V. LaFrankie
HKU	Richard Corlett	2003	Division of Ecology and Biodiversity	"Climate change and biodiversity in tropical East Asian forests"	In: R.E. Green, M. Harley, L. Miles, J. Scharlemann, A. Watkinson and O. Watts (eds.) Global Climate Change and Biodiversity. RSPB, UK, pp. 9-10
HKU	C.Y. Jim	In Progress	Department of Geography	"School Green Roof Initiative, SGRI"	(Hongkong Bank Foundation)
HKU	C.Y. Jim	In Progress	Department of Geography	"Developing a cost-effective roof greening technology for energy conservation"	CLP Energy Innovation Fund Award
HKU	C.Y. Jim	In Progress	Department of Geography	"Environmental benefits of green roofs on Tai Po Market railway station"	(Kowloon Canton Railway Corporation)
HKU	Dr. D.Y.C. Leung	In Progress	Department of Mechanical Engineering	"Advanced study on the use of biodiesel fuel as a means of reducing vehicular emissions and waste recycling in Hong Kong"	(William Mong Engineering Research Fund \$500,000)
HKU	Dr. D.Y.C. Leung	In Progress	Department of Mechanical Engineering	"Feasibility study of synthesizing alcoholic fuel for vehicular use from biomass syngas"	CRCG \$195,000)
HKU	Prof. Wyss Yim	In Progress	Department of Earth Sciences	"Typhoon risk prediction for Hong Kong and the Pearl River Estuary based on the reconstruction of an 8,000-year record"	(Committee on Research and Conference Grants, The University of Hong Kong)
HKU	Prof. Wyss Yim	In Progress	Department of Earth Sciences	"Sea-level changes during the last 25 ka on the northern South China Sea continental shelf"	(France/Hong Kong joint research scheme and Committee on Research and Conference Grants, The University of Hong Kong)
HKU	Prof. Wyss Yim	In Progress	Department of Earth Sciences	"Impact of future sea-level rise on Victoria Harbour"	(United States Environmental Protection Agency)
HKU	Prof. Wyss Yim	2006	Department of Earth Sciences	"Quaternary sea-level changes "	Special Issue. Quaternary International 145/146: 154p Yim, W.W.-S., Antonioli, F., Hanebuth, T.J.J., Shaw, J. eds.
HKU	Prof. Wyss Yim	2006	Department of Earth Sciences	"The reconstruction of Holocene monsoon history from the Pearl River Estuary, using diatoms and carbon isotope ratios"	Holocene 16/2: 251-263 Zong, Y., Lloyd, J.M., Leng, M.J., Yim, W.W.-S., Huang, G.
HKU	Prof. Wyss Yim	2000	Department of Earth Sciences	"Shelves and Quaternary climatic changes"	Special Symposia C1 Quaternary Climates, Abstracts volume, 31st International Geological Congress, Rio de Janeiro, 4p.

HKU	Prof. Wyss Yim	1997	Department of Earth Sciences	"Recent sea-level changes in Hong Kong and their implications"	Tropical Geography 17/2: 173-178.
HKU	Prof. Wyss Yim	1993	Department of Earth Sciences	"Chapter 22. Future sea-level rise in Hong Kong and possible environmental effects."	In: Warrick, R.A., Barrow, E.M., Wigley, T.M.L. eds., Climate and Sea level Change: Observations, Projections and Implications, Cambridge University Press, Cambridge, 349-376.
HKU	Dr. Frederick Lee	In Progress	Department of Geography	"Transboundary Environmental Problems in the Pearl River Delta Region"	
HKU	Felix Wu	2006	Department of Electrical and Electronic Engineering	"China's Energy and Environment,"	IEEE Power & Energy Magazine, Vol. 4, Aug 2006, pp20-31
HKU	Dr. Ji Chen	In Progress	Department of Civil Engineering	"Two regional climate models for dynamical downscaling climate projections over Hong Kong and its vicinity"	
HKU	Dr. Ji Chen	2007	Department of Civil Engineering	"Case studies of seasonal rainfall forecasts for Hong Kong and its vicinity using a regional climate model."	Natural Hazards , published online on 11 January 2007, doi: 10.1007/s11069-006-9068-z. Hui, D.T.-W., Shum, K.K.-Y., Chen, J., Chen, S.-C., Ritchie, J., and Roads, J.O.
HKU	Dr. Josie Close	1999	Department of Architecture	"Alternative Regulatory Mechanisms for the Establishment of Energy Efficiency Standards for Commercial & Institutional Buildings"	Compendium of Energy Conservation Legislation in Countries of the Asia & Pacific Region, Energy Efficiency, Part Three, pp 83-103, United Nations August 1999.
HKU	Sam Hui	2006	Department of Mechanical Engineering	" Analysis of climatic data for sustainable buildings in Hong Kong"	In Meng, Qinglin, et al. (eds)., Green Building Design and Technologies: Experience in Southern China and Hong Kong, China Architectural and Building Press, Guangzhou, China, pp. 135-143. (in Chinese with an English abstract) [PDF]
HKU	Dr. David Zhang	2007	Department of Geography	"Climate change and war frequency in Eastern China over the last millennium"	http://www.hku.hk/press/news_detail_5664.html , Human Ecology, Springer, DOI 10.1007/s10745-007-9115-8, 2007. Zhang D.D. Zhang J. Lee H.F. and He Y.
HKU	Dr. David Zhang	In Progress	Department of Geography	"Tropical/urban climatology and atmospheric chemistry"	current research field (Peart, Zhang)
HKU	Dr. Adam Switzer	In Progress	Department of Earth Sciences	"Quaternary evolution of the Pearl River Delta"	The Pearl River Delta has a very complex evolutionary history due to the presence of offshore islands and low stand channels that exist as a complex antecedent subsurface stratigraphy that inherently affects the delta's recent evolutionary history. It is apparent that the system which has undergone various transformations in delta form during its Holocene evolution and work is underway to unravel the evolution of the system. Such work will enable us to identify areas of possible subsidence and highlight vulnerability to climate induced sea level rise. with Dr YQ Zong, DES-HKU)
HKU	Dr. Adam Switzer	In Progress	Department of Earth Sciences	"Records of Quaternary environmental change from the Hong Kong continental shelf"	With: Professor Wyss Yim DES-HKU. Details: This project investigates the Quaternary stratigraphy of the continental shelf and has recently focused on the investigating the release of greenhouse gases from the continental shelf during periods of exposure. The global implications of

					greenhouse gas formation in muddy continental shelf environments are understudied and relatively unknown. What are the potential impacts of this on global climate change during subaerial exposure of continental shelves and the resulting release of greenhouse gases into the atmosphere?
HKU	Dr. Melissa Hart	In Progress	Department of Geography	"Climate change implications for wind power resources in the Northwest United States. Renewable Energy"	With: Sailor, D.J., Smith, M.
HKU	Dr. MR Peart	2007/08	Department of Geography	"International Union of Geodesy and Geophysics 2007 Hill slope erosion and climate change in Hong Kong"	URC/CRCG - Conference Grants for Teaching Staff
HKU	Richard Corlett	2007/08	Division of Ecology and Biodiversity	"Plant migration potential and climate change on the edge of the tropics"	General Research Fund (GRF)
HKU	FONG, CSY	2007/08	Department of Architecture	"Urban Geometries and Building Environmental Performance for Warm Humid Climate"	Seed Funding Programme for Basic Research
HKU	Richard Corlett	2005/06	Division of Ecology and Biodiversity	"Global Climate Change and Ecosystem Responses"	Seed Funding for Strategic Research Theme. With: Aitchison, JC Chen, J Dudgeon, D Fang, HHP Gu, JD
HKU	Dr. Ji Chen	2005/06	Department of Civil Engineering	"2005 Pearl River Delta Land Cover Change Record and Hong Kong Climate Change Observations"	URC/CRCG - Conference Grants for Teaching Staff Scientific Assembly of the International Association of Meteorology and Atmospheric Sciences (IAMAS)
HKU	LAU, SSY	2007/08	Department of Architecture	"Mediterranean Region The study of Summertime Heat Island, Built Form and Fabric in a Densely Built Urban Environment- Compact Chinese Cities: Hong Kong and Guangzhou"	URC/CRCG - Conference Grants for Teaching Staff International Conference on Sustainable Buildings - SB08
HKU	True, JD	2006/07	Division of Ecology and Biodiversity	"Climate change and corals in a marginal environment"	Living in a Warmer World: Climate Change and Hong Kong
HKU	Dr. Ji Chen	2006/07	Department of Civil Engineering	"Effects of urbanization various land use changes and on regional climate changes over the Pearl River Delta in South China"	Western Pacific Geophysics Meeting. With: Cheng, D Wu, Y Sivakumar, B
HKU	Dr. Ji Chen	2005/06	Department of Civil Engineering	"Pearl River Delta Land Cover Change Record and Hong Kong Climate Change Observations"	Scientific Assembly of the International Association of Meteorology and Atmospheric Sciences of the International Union of Geodesy and Geophysics (IAMAS2005)
HKU	Leung, YC	2006/07	Department of Mechanical Engineering	World Renewable Energy Congress IX and Exhibition Parametric Study on the Transesterification of Neat and Used Frying Oil for Biodiesel Production	URC/CRCG - Conference Grants for Teaching Staff
HKU	Leung, YC	2001/02	Department of Mechanical Engineering	4th CAST Conference of Young Scientists "Biodiesel: Renewable Energy and Waste Recycling"	URC/CRCG - Conference Grants for Teaching Staff

HKU	Hui, SCM	2000/01	Department of Architecture	World Renewable Energy Congress - "VI Low Energy Building Design in High Density Urban Cities"	URC/CRCG - Conference Grants for Teaching Staff
City University of Hong Kong	Johnny Chan	2007	Department of Physics and Materials Science	"Decadal variations of intense typhoon occurrence in the western North Pacific"	International Conference on Climate Change, Hong Kong Institution of Engineers, Hong Kong, P R China, 29-31 May 2007
City University of Hong Kong	Johnny Chan	2006	Department of Physics and Materials Science	"Global warming and typhoon intensity. Living in a Warmer World: Climate Change and Hong Kong."	University of Hong Kong, Hong Kong, P R China, 11-12 December 2006.
City University of Hong Kong	Johnny Chan	2006	Department of Physics and Materials Science	"Regional climate prediction for South China"	Workshop on Research Agenda for Energy and the Atmospheric Environment, City University of Hong Kong, Hong Kong, P R China, 3-4 July 2006
City University of Hong Kong	Johnny Chan	2007	Department of Physics and Materials Science	"Applications of a regional climate model to study climate change over southern China",	With: CHOW Kim Chiu, TONG Hang Wai International Conference on Climate Change, Hong Kong Institution of Engineers, Hong Kong, P R China, 29-31 May 2007.
City University of Hong Kong	Johnny Chan	2004	Department of Physics and Materials Science	"Global warming and western North Pacific typhoon activity from an observational perspective"	J. Climate, 17, 4590-4602
City University of Hong Kong	Johnny Chan	2006	Department of Physics and Materials Science	"Global warming and typhoon intensity"	Conference paper: Changing Geography in a Diversified World, Baptist University, Hong Kong, 1-3 June
City University of Hong Kong	Johnny Chan	2006	Department of Physics and Materials Science	"Global warming and typhoon intensity"	Conference paper: Living in a Warmer World: Climate Change and Hong Kong, University of Hong Kong, 11-12 Dec.
City University of Hong Kong	Johnny Chan	Completed	Department of Physics and Materials Science	Regional Climate Prediction for Southern China	Grant Type: RGC Central Allocation (CAV(RGC)) http://aposf02.cityu.edu.hk/%7Emcg/Projects/projects.htm
City University of Hong Kong	Johnny Chan	In Progress	Department of Physics and Materials Science	Guy Carpenter Asia-Pacific Climate Impact Centre	Grant Type: Research Centres (ResCtrs) Dr. Mark WENIG (AP) Dr. Wen ZHOU (AP) http://aposf02.cityu.edu.hk/%7Emcg/Projects/projects.htm
City University of Hong Kong	Johnny Chan	In Progress	Department of Physics and Materials Science	Centre for Atmospheric Research	Grant Type: CityU Research Project - Infrastructure Account of Faculty/School/College (APR)
City University of Hong Kong	Johnny Chan	Completed	Physical Sciences and Pure Mathematics	"Numerical Simulation and Laboratory Study of the Influence of Urban Heat Island on Boundary Layer Dynamics"	Project Number: 7100158, CityU Direct Allocation Grant (DAG)
City University of Hong Kong	Dr. Zhou Wen	2001	Department of Physics and Materials Science	"The characteristics analysis of 150 yrs precipitation over HongKong."	Acta Scientiarum Naturalium Universitatis, 40, 116-119(In Chinese)
City University of Hong Kong	Dr. Zhou Wen	2007	Department of Physics and Materials Science	"NAO, PDO and gradual warming winters over East Asia"	International Conference on Climate Change, Hong Kong Institution of Engineers, Hong Kong, P R China, 29-31 May 2007 With: CHAN Johnny Chung Leung
City University of Hong Kong	Dr. Zhou Wen	On-going	Physical Sciences and Pure Mathematics	"Study on the Sea Level Changes in the Northern South China Sea under the Global Warming Scenario"	Project Number: 7002329, CityU Strategic Research Grant (SRG)
City University of Hong Kong	Dr. Zhou Wen	On-going	Physical Sciences and Pure Mathematics	Climatology of Winter Monsoon Surges over South China	Project Number: 7200098, CityU Start-up Grant for New Staff (SiUp)

City University of Hong Kong	Dr. Tin-tai CHOW (BST)	Completed	Civil Engineering, Building Surveying and Construction	"Ventilated Solar-screen Glazing System for Warm Climate"	Project Number: 7001680 CityU Strategic Research Grant for fundable CERG (SRG-Fd). With: Mr. Square Kwong-fai FONG (BST) Dr. John Zhang LIN (BST) Ms. Anna Suck-ye SHUM (BST)
City University of Hong Kong	Dr. Joseph C LAM	Completed	Civil Engineering, Building Surveying and Construction	"An Analysis of the Interactions between Lightings and Energy Use in Office Buildings in Different Climates in China"	Project Number: 9040799. RGC Competitive Earmarked Research Grant (CERG)
City University of Hong Kong	Dr. Joseph C LAM (BC)	On-going	Civil Engineering, Building Surveying and Construction	"Climate Classification, Building Designs and Energy Use Implications"	Project Number: 9041007. RGC Competitive Earmarked Research Grant (CERG)
City University of Hong Kong	Julia Tao	2007	Department of Public and Social Administration	"Prospects of Innovative Transboundary Governance Regimes in Guangdong-Hong Kong Region: A Case Study of Emission Trading Pilot Scheme for Thermal Power Plants in the Pearl River Delta Region"	in Electric Power Environmental Protection, 2007, Issue 23 (2), State Power Environmental Protection Research Institute (with Xiaoling Ma and Ngar-yin Mah) (In Chinese)
City University of Hong Kong	Julia Tao	2003	Department of Public and Social Administration	"Perception of Environmental Hazards in Hong Kong Chinese"	Journal of Risk Analysis, Vol. 23, No. 4, pp 669-684. (with J. Lai), (2003)
City University of Hong Kong	Julia Tao	2005	Department of Public and Social Administration	"Challenges of Environmental Protection, Environmental Economics, Regional Co-operation and Transboundary Governance"	in Julia Tao et. al. (eds.), Analysis of China Public Policy 2005 (in Chinese), jointly published by Chinese Academy of Social Sciences and City University of Hong Kong Press, 2005. (with Xiaoling Ma, K. C. Ho Kin Chung and Ngar-yin Mah)
Chinese University of Hong Kong	Prof. David Chen	2006-07	Department of Geography and Resource Management	"Assessment of Hydrologic Alternations for Water Resources Management in a Rapidly Changing Environment: A Study of the Pearl River Delta"	RGC Grant, Principal Investigator (with CHEN Xi, CHEN Xiaohong, SHAO Quanxi, XU Chong-yu, (01/06-12/07, HK\$539,616)
Chinese University of Hong Kong	Prof. David Chen	1998-02	Department of Geography and Resource Management	"Impacts of Global Climate Change and Regional Land-Use Alteration on Water Resources in the Dongjiang (East River) Basin"	RGC Earmarked Grant, Principal Investigator (with Profs. Tung Fung, Kin-che Lam, Yee Leung, Junhe Chen and Jun Xia), (09/98-02/02, HK\$978,000).
Chinese University of Hong Kong	Prof. David Chen	2007-08	Department of Geography and Resource Management	"Precipitation in the East River (Dongjiang) Basin: Trends, Extremes and Climate Linkages"	Direct Grant, The Chinese University of Hong Kong, Co-investigator (with YANG Limin, LIN Hui and SHAO Yun), (09/05-08/07, HK\$443,840)
Chinese University of Hong Kong	Prof. David Chen	2005-07	Department of Geography and Resource Management	"An Assessment of Impacts of Land Use and Land Cover Change on Regional Climate in Pearl River Delta of South China"	RGC Grant, Co-investigator (with YANG Limin, LIN Hui and SHAO Yun), (09/05-08/07, HK\$443,840)
Chinese University of Hong Kong	Prof. David Chen	2007	Department of Geography and Resource Management	"Comparison of hydrological impacts of climate change simulated by six hydrological models in the Dongjiang Basin, South China."	Jiang, T., Y.D. Chen, C-Y Xu, X.H. Chen, X. Chen, V.P. Singh, 2007 Journal of Hydrology, 336: 316-333
Chinese University of Hong Kong	Prof. Emily Ying Yang CHAN	2008	School of Public Health	"The role of doctors and health workers in response to climate change".	With: GRIFFITHS Sian Meryl, BMJ vol.336 2008.01.30

Hong Kong Poly U	E.H. Chan	2005	Department of Building and Real Estate	"Energy Conscious Building Design for the Humid Subtropical Climate of Southern China", Green Building Design: Experiences in Hong Kong and Shanghai"	With: Lau S S, Chan E & Xu Q (Eds) Architecture and Technology Publisher [Jian-kung], China, 90-113
Hong Kong Poly U	Yang Hongxing Francis Yik	2001	Department of Building Service Engineering	"Study on Hybrid Solar-Wind Power Generation for Renewable Energy Applications in Hong Kong"	PolyU Research Fund
Hong Kong Poly U	Yang Hongxing Yu Zhou	2004	Department of Building Service Engineering	"Developing Effective Use of Small Wind Turbines for Renewable Power Generation in Hong Kong"	PolyU Inter-faculty Fund
Hong Kong Poly U	Lui, W.M. and Hung, W.T.	2006	Department of Civil and Structural Engineering	"Vehicles and the environment: a review of policy evaluation criteria on vehicle emission control measures"	Proceedings of the 11th International Conference of Hong Kong Society for Transportation Studies: Sustainable Transportation, 9-11 December, 2006. pp. 519 – 528
Hong Kong Baptist University	Prof. Yuk Yee YAN	2005	Department of Geography	"Human Thermal Climates in China"	Physical Geography 26: 163-176
Hong Kong Baptist University	Prof. Yuk Yee YAN	2006/07	Department of Geography	"Human Thermal Comfort in Urban Open Space"	CERG Fund: HK\$529,100. With: Prof. K K Wong (Co-I)
Hong Kong Baptist University	Prof. Yuk Yee YAN	2004/05	Department of Geography	"A Study of Summer Human Thermal Stress in Hong Kong"	FRG/03-04/I-51
Hong Kong Baptist University	Prof. Yuk Yee YAN	2005	Department of Geography	"Climate Comfort Indices"	In Oliver, J.E. (ed.), Encyclopedia of World Climate, Dordrecht, the Netherlands: Springer, pp 227-231
HKUST	Alexis Lau	2007	Institute for the Environment	"The relative vorticity of ocean surface winds from the QuikSCAT satellite and its effects on the genesis of tropical cyclones in the South China Sea"	with: Wang, Lei, Lau, Alexis Kai Hon, Fung, Jimmy Chi Hung, Gan, Jian Ping, Tellus A, Online Early Articles, doi: 10.1111/j.1600-0870.2007.00249.x
HKUST	K L Chan	2004-05	Department of Mathematics	"Design of a regional climate model for the simulation of South China summer monsoon rainfall"	With: Chan, JCL, Liu, YM, Chow, KC, Ding, YH, Lau, WKM. Journal of the Meteorological Society of Japan, 82: 1645-1665
HKUST	Dr. Guohua Chen	In Progress	Department of Chemical Engineering	"Science and technologies for a sustainable supply of renewable energy from biomass"	UGC - Targets of Opportunity: HK\$620,000
HKUST	Dr. Chin Tsau HSU	In Progress	Center for Energy and Thermal Systems	"Technology development of energy efficient evaporative condensers for split-type air-conditioners"	Innovation and Technology Commission & Industries: HK\$2,301,000
HKUST	Jianzhen YU	2007	Department of Chemistry	"Gaseous and particulate polycyclic aromatic hydrocarbons (PAHs) emissions from Commercial Restaurants in Hong Kong"	With: Y. Chen, K. F. Ho, S. S.H. Ho, W. K. Ho, S. C. Lee, J. Z. Yu, E. H.L. Sit. J. Envr. Monitoring, 2007, 9, 1402-1409, DOI: 10.1039/b710259c.
HKUST	Jianzhen YU	In Progress	Department of Chemistry	"Chemical characterization of aerosol particles emitted from crop residue burning in the Pearl River Delta region"	RGC - General Research Fund (formerly known as Competitive Earmarked Research Grant) HK\$743,261

HKUST	Jianzhen YU	In Progress	Department of Chemistry	"Size Distribution Characteristics of Elemental Carbon Emitted from Chinese Vehicles: Results of a Tunnel Study and Atmospheric Implications"	With: Huang, Xiao-Feng, Yu, Jian Zhen, He, Ling-Yan, Hu, Min. Environ. Sci. Technol., 40, pp 5355-5360.
HKUST	Harrison, Paul J.	2008	Director AMCE Program	"Ocean urea fertilization for carbon credits poses high ecological risks"	Mar. Poll. Bull, 56: 1049-1056
HKUST	Alexis Lau	On-going	Institute For the Environment	Satellite Informatics System for Surface Particulate Matter Distribution	Prof Moe M S CHEUNG, Prof Paul J HARRISON, Ophelia C W LEE, Arthur P S LAU, Ngai Ting LAU, http://envf.ust.hk/index.html
HKUST	Alexis Lau	On-going	Institute For the Environment	Study of Wind Energy Resources over Hong Kong	Prof Moe M S CHEUNG, Prof Paul J HARRISON, Ophelia C W LEE, Arthur P S LAU, Ngai Ting LAU, http://envf.ust.hk/index.html
HKUST	Alexis Lau	On-going	Institute For the Environment	Removal of Organic Aerosols and Odors in Cooking Exhaust	Prof Moe M S CHEUNG, Prof Paul J HARRISON, Ophelia C W LEE, Arthur P S LAU, Ngai Ting LAU, http://envf.ust.hk/index.html
HKUST	Alexis Lau	On-going	Institute For the Environment	Mobile Real-time Air Monitoring Platform (MAP)	Prof Moe M S CHEUNG, Prof Paul J HARRISON, Ophelia C W LEE, Arthur P S LAU, Ngai Ting LAU, http://envf.ust.hk/index.html
HKUST	Alexis Lau	On-going	Institute For the Environment	Aerosol Generated During Toilet Flushing	Prof Moe M S CHEUNG, Prof Paul J HARRISON, Ophelia C W LEE, Arthur P S LAU, Ngai Ting LAU, http://envf.ust.hk/index.html
HKUST	Alexis Lau	On-going	Institute For the Environment	Integrated Assessment System for Renewable Energy Resources	Prof Moe M S CHEUNG, Prof Paul J HARRISON, Ophelia C W LEE, Arthur P S LAU, Ngai Ting LAU, http://envf.ust.hk/index.html
HKUST	Alexis Lau	On-going	Institute For the Environment	River Estuary Pollution Project (PREPP)	Prof Moe M S CHEUNG, Prof Paul J HARRISON, Ophelia C W LEE, Arthur P S LAU, Ngai Ting LAU, http://envf.ust.hk/index.html
HKUST	Alexis Lau	On-going	Institute For the Environment	Pollution Index Forecast Model (APIFM)	Prof Moe M S CHEUNG, Prof Paul J HARRISON, Ophelia C W LEE, Arthur P S LAU, Ngai Ting LAU, http://envf.ust.hk/index.html
HKUST	Alexis Lau	On-going	Institute For the Environment	Wind Monitoring System (WMS)	Prof Moe M S CHEUNG, Prof Paul J HARRISON, Ophelia C W LEE, Arthur P S LAU, Ngai Ting LAU, http://envf.ust.hk/index.html
HKUST	Arthur Lau	2008	Institute For the Environment	"Bioaerosols - Significance, Assessment and Impact in the Atmosphere"	Conference on Climate and Environment in the Pearl River Delta City Cluster, Guangzhou, PRC, January 7-9, 2008
HKUST	Ming FANG	2006	CBME	"Use of stationary and mobile measurements to study power plant emissions"	with: Yao, Xiaohong, Chan, Chak K., Lau, N.T. J. Air & Waste Manage. Assoc., 56, 144-151
HKUST	See Chun KOT	2007	Department of Mechanical Engineering	"Wind Energy Potential in Guangdong Province"	With: Fung, Jimmy C H, Yim, Steve H L, Lau, Alexis K H, Kot, S C.; International Conference on Climate Change, May 2007, Hong Kong, 29-31 May 2007
HKUST	Tianshou ZHAO	In Progress: Jan 1, 2006	Center for Sustainable Energy Technology	Coupled heat and mass transfer in passive silicon-based direct methanol fuel cells	RGC - General Research Fund (formerly known as Competitive Earmarked Research Grant). HK\$538,836
HKUST	Tianshou ZHAO	In Progress: Jan 1, 2008	Center for Sustainable Energy Technology	Mass transport in the nano-structured electrode of polymer electrolyte-based fuel cells	RGC - General Research Fund (formerly known as Competitive Earmarked Research Grant). HK\$1,222,800
HKUST	Tianshou ZHAO	2006	Center for Sustainable Energy Technology	"Effect of cell orientation on the performance of passive direct methanol fuel cells"	With: Chen, Rong, Zhao, Tianshou, Liu, Jianguo; J. Power Source, 157 (2006) 351-357

HKUST	Tianshou ZHAO	2006	Center for Sustainable Energy Technology	"Analysis of mass transport of methanol at the anode of a direct methanol fuel cell"	With: Xu, Chao, He, Yaling, Zhao, Tianshou, Chen, Rong, Ye, Qiang; Xu, Chao, He, Yaling, Zhao, Tianshou, Chen, Rong, Ye, Qiang
HKUST	Tianshou ZHAO	2007	Center for Sustainable Energy Technology	"A two-dimensional, two-phase mass transport model for liquid-fed DMFCsY"	With: Yang, W W; Electrochimica Acta 52, 6125-6140. (IF: 2.955)
HKUST	Tianshou ZHAO	In Progress: Jan 1, 2007	Center for Sustainable Energy Technology	Bubble dynamics and mass transport in microfluidic direct methanol fuel cells	RGC - General Research Fund (formerly known as Competitive Earmarked Research Grant). HK\$734,000
HKUST	Tianshou ZHAO	In Progress: Dec 1, 2007	Center for Sustainable Energy Technology	Direct ethanol fuel cell	Sumitomo Corporation: HK\$200,000
Lingnam University	Paul Harris	2005	Department of Political Science	"Confronting Environmental Change in East and Southeast Asia: Eco-Politics, Foreign Policy, and Sustainable Development"	(editor and contributor). New York: United Nations University Press/ London: Earthscan, 2005 (287 pages)
Lingnam University	Paul Harris	2003	Department of Political Science	"Global Warming and East Asia: The Domestic and International Politics of Climate Change"	(editor and contributor). London: Routledge, 2003 (283 pages)
Lingnam University	Paul Harris	2007	Department of Political Science	"Collective Action on Climate Change: The Logic of Regime Failure"	Natural Resources Journal, vol. 47, no. 2 (Winter 2007): 195-224
Lingnam University	Paul Harris	2007	Department of Political Science	"Hong Kong and Climate Change: A Question of Justice"	Hong Kong Journal, vol. 2, no. 2 (April 2007): http://www.hkjjournal.org/archive/2007_summer/harris.htm
Lingnam University	Paul Harris	2005	Department of Political Science	"Environmental Change and Asia-Pacific: China Responds to Global Warming"	(co-author). Global Change, Peace, and Security, vol. 17, no. 1 (February 2005): 45-58
Lingnam University	Paul Harris	2003	Department of Political Science	"Fairness, Responsibility, and Climate Change"	(commissioned essay). Ethics and International Affairs, vol. 17, no. 1 (2003): 149-156
Lingnam University	Paul Harris	2002	Department of Political Science	"Global Warming in Asia-Pacific: Environmental Change vs. International Justice."	Asia-Pacific Review, vol. 9, no. 2 (November 2002): 130-149
Lingnam University	Paul Harris	2001	Department of Political Science	"Assessing Climate Change: International Cooperation and Predictions of Environmental Change"	Politics, vol. 21, no. 1 (February 2001): 11-21
Lingnam University	Paul Harris	2007	Department of Political Science	"Hong Kong's Climate Responsibility"	South China Morning Post (9 March 2007), p. A10

Appendix: Research Grant Types

Research Grants Council: Established under the support of the University Grants Committee, the RGC funds research via block grants and/or earmarked/indicated grants. The RGC advises SAR government through the UGC of the research needs for higher education institutions. In 2006/07, HK\$ 605.9 million was made available for the Earmarked Research

Grant, which is advised by the RGC. The RGC essentially advises grant providers where the money should be allocated.

University Grants Committee: The UGC is an advisory committee responsible for helping the government allocate money appropriately to the various higher education institutions around Hong Kong. The UGC funds institutions through Recurrent Grants (supporting institutions academic work and related administrative activities) and Capital Grants (major capital works projects). The UGC was established in 1965.

Hong Kong Bank Foundation: Charitable trust established in 1981 is funded by a combination of endowment and ongoing contributions. One of its principle interests is funding environmental projects. In total, HKD765 has been donated to different causes.

CLP Energy Innovation Fund: Started in 2003, the CLP Energy Innovation Fund has donated HK\$ 5 million to various community projects, all of which have been selected by an independent committee made up of CLP members

Hong Kong Environmental Protection Fund (Environmental and Conservation Fund): Established in 1994, the ECF has committed approximately \$200 million to over 1,000 projects, providing financial support to educational, research, technology demonstrations and other projects and activities related to environmental and conservation initiatives.

William Mong Engineering Research Fund of the University of Hong Kong: Set up by the Shun Hing Education and Charity Fund, the WMERF of HKU commenced in 1991. It has been established to finance academic and scientific research.

PROCORE - France / Hong Kong Joint Research Scheme: Formed through a collaboration between the Research Grants Council (RGC) and the Consulate General of France (CGF) in 1998, PROCORE provides 1 to 2 year grants to facilitate exchanges between the 2 areas. Both the RGC and the CGF have agreed on a dollar for dollar matching policy.

Interviews:

- 1.) Dr. Ji Chen, Associate Professor of Civil Engineering, Hong Kong University – Interview took place on June 24th, 2008
- 2.) Dr. Johnny Chan, Department of Physics & Math Sciences: City University of Hong Kong – Interview took place on June 25, 2008
- 3.) Dr. Adam Switzer, Department of Earth Sciences, Hong Kong University – Interview took place on July 4th, 2008
- 4.) Dr. Bill Barron, Hong Kong University of Science and Technology, Interview took place on July 11th, 2008

5.) Dr. Josie Close, University of Hong Kong – Interview took place on July 15th, 2008

Transcript of meeting: Dr. Ji Chen - June 24, 2008

Associate Professor of Civil Engineering

- Dr. Chen is advising a PHD student who is researching climate change
 - o The area covered is South China, Hong Kong is deemed too small
 - o Much of the data has been received by the HK observatory, and used 21 stations around to PDR to monitor climactic changes
- The Study focuses on regional climate Variations and the difference between that and climate change
 - o Unsure whether the warming is caused by variation or climate change
 - It is unsure about climate change as the capabilities of the earth are beyond our means.
 - Climate change is much different, and has different implications then regional climate variations.
- Uses Tmax
- 1984-2005 most relevant data
 - o 1984 lowest year, also when rapid urbanization began
 - Urbanization is important as it has an effect on climate variation and must be taken into account
- While daily change, mean temp and max's and min's were taken, the most striking data came from seasonal Variations
 - o Seasonal change, he argued, is important for climate change.
 - Seasonal change is not due to urbanization effects, which can be identified in all seasons, but seasonal change was vastly more helpful in understanding overall trends in climate change: spring was particularly striking
 - o As well: DTR max and min temps were taken to see the difference between urban and rural areas in terms of climate variability and analyse the effects that urbanization has on temperature max and mins.
 - The results showed that it was very fast in quickly developing areas such as Shenzhen and Guangzhou
 - This meant that DTR was more of an effect of urbanization than climate change in the PRD
 - In addition though, Tmin was increasing faster than Tmax
 - It was also found that precipitation and humidity changes were due to urbanization
 - o The seasonal data, however, consistently pointed to climate change as spring was constantly great changing than any other season
 - There is also a correlation between climate variations and ENSO

Global Climate Model: Physical processes of climate change

2006 HKU hosted a climate change workshop:

<http://www.hku.hk/ecology/climatechange/index.htm>

Through the department of Ecology and Richard Corlett

The idea behind it was not to assess necessarily global climate change, but to understand it as a strategic regional cooperation

- This initiative disappeared as there were to be joint efforts inter-faculty, but Richard Corlett, who was headlining the initiative, has moved to Singapore

Mainland China has been completing extensive work on Climate change

- lots of people who it will effect and they have lots of money to commission research

Regional Climate Model

- While global climate change analyses the bigger picture, regional is important to downscale the research so it fits a region and more specific regional statistics can be obtained
 - o While the regional model cannot change the global patterns, it can help to show greater detail of the effects

HKU has no specific funding allocated to Climate Change

- There is however strategic research being done which is funded by the university in two areas:
 - o Sustainable water, and;
 - o Clean Energy
 - Both are related to climate change

Big Picture

- We really don't know much
 - o There needs to be a significant increase in resources to be fully able to understand the extent to which climate change and variations are taking place
- When it comes to nature, we can't change too much
 - o Must be careful, proceed with caution
- Should be careful that we are not necessarily looking for a resolution of the problem, the world doesn't look like that
 - o Nature is very powerful and volatile
 - o Have to understand global climate change as different form regional climate variations

Philosophy of Climate Change:

- Ying and yang
- There are positives and negatives to everything...including climate change.

Transcript of meeting Johnny Chan Interview – June 25, 2008
Department of Physics & Math Sciences: City University of Hong Kong

Interview took place on June 25, 2008

- Research Grant Council of each university should list the appropriate grant information
 - RGC & Innovation Tech Fund are both government sponsored
 - RGC Pannels
 - Public policy: might be some Climate change stuff on there
 - Community Grants
 - Environment Conservancy Fund
 - Wheelock
 - Big grants for educational projects
 - WWF, Friends of the Earth, CLP are all worth checking out

Do People Care about Climate Change in Hong Kong?

- Generally speaking: NO
- Much different then in Japan
 - There is much news on different climate change initiatives in Japan, not so much in Hong Kong
 - Such as: Governmental Targets as proposed through the Kyoto Protocol
 - An example is instead of heaters in the glass of refrigerators at 7/11s to keep the condensation down, there is instead glass that can eliminate the mist. No heat necessary
 - Saves resources
 - As Well offices are kept at 28C in the summer
 - Conforming culture
 - Instead of air-conditioning there is a policy that formal wear does not include Jacket or Tie in the summer months
 - In Hong Kong it is much different
 - Government not promoting CC
 - Think that contributing is useless
 - The 0.2% figure that gets thrown around does not include the PRD, where most of the production of Hong Kong goods comes from.
 - Media doesn't care because the government doesn't promote it
 - Have to make it more public – more ownership of issue

- Gov't not taking the lead

What are the Universities doing?

- Universities are doing more Data research
 - Public awareness groups have to be sponsored by media and govt
- 2006 was a great start
 - Start strategic research initiatives
 - HKU however doesn't give any money, and Richard Cortlett who pioneered the initiative has moved to Singapore
 - Without money to fund the projects and joint coalitions, obtaining the research is useless

Proposal with Dr. Ji Chen: Urbanization and Climate Change

- water conditions would change, affects urbanization
 - PRD grassland, how would it be if there was not the extent of urbanization there is now
 - What happens if development continues

Important People

- Jane Nichols: HONG KONG POLY U
 - GIS to look at changing urban environment
 - Thermal emission
 - SCMP picture
- Prof. LIN, Hui and CHIU, long: Chinese U
 - Remote sensing
 - Geoinformatics
- Baptist U:
 - Yuk Yec YAN
 - Larry CHOW: Energy
 - LIN, Hui institute of space and science information
 - Climate and Human comfort in the department of geography
- HKUST
 - Alexis Lau
 - Air Pollution and Climate change
- CITY U
 - Julia TAO: Environmental Ethics
 - Policy side
- HKU
 - Hedly

There has been much research done in China and Korea

- APEC climate center in Busan

- Korea supports most of the funding

Malaysia: National University: Prof. Tangang

GCCA Center trying to do something

- Idea to make Hong Kong the regional hub because of the diversity of language and the abundance of English which is spoken here
- Bring people in to do regional research, it is important to understand the effects of climate change on the region.
- Bring in people to help in the region
 - Mitigation and adaptation