



Perspectives on Global Climate Change Impacts to the Hydrosphere and the Cryosphere

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ABSTRACT

In recent decades, the world has suffered significant environmental changes such as hydrologic extremes, melting glaciers and ice caps, sea level rise, forest fires, and many natural disasters causing serious damage, massive property losses and even deaths. A warmer climate means the atmosphere will be loaded with more water vapor which is fuel for developing intensive storms and hurricanes. Conversely, rising temperature can also give rise to prolonged moisture deficit or droughts in arid/semi-arid regions, resulting in humanitarian crisis. Besides climate change impact to the hydrosphere, the cryosphere is also undergoing rapid changes during the 20th and the early 21st Century, such as significant retreat of glaciers worldwide; thinning of Arctic sea-ice extent and thickness by about 40% in late summer in recent decades; snow cover of the N. H. decreased by about 10% in area since global observations by satellites began in the late 1960s; degradations of permafrost detected in some polar and sub-polar regions, and the total 20th Century global average sea level rise was about 0.17m. Perspectives on the global energy balance, greenhouse effects and examples of observed changes to the hydrosphere and the cryosphere will be presented. Future climate scenarios projected by general circulation models (GCMs) of the 4th Assessment Report of the Intergovernmental Panel of Climate Change (IPCC, 2007), and that of the 5th Coupled Model Intercomparison Project (CMIP5) of IPCC, and case studies based on regional climate models and land surface schemes will be discussed. The discussions will also include possible implications to the future global climate, hydrology, and water resources under the potential impacts of climate change.

Date: 23 May 2017 (Tuesday)
Time: 10:00 a.m. – 11:00 a.m.
Venue: Room Z414, 4/F, Block Z,
 The Hong Kong Polytechnic University,
 181 Chatham Road South,
 Hung Hom, Kowloon

SPEAKER'S BIOGRAPHY

Prof. Thian Yew Gan is a professor of civil engineering of the University of Alberta specializing in water resources, hydrology, cryosphere, remote sensing, and environmental impact of climate change. He is a research ambassador of DAAD (German Academic Exchange Service), and a fellow of the American Society of Civil Engineers (ASCE). He has published over 100 refereed journal papers, a book by the Cambridge University Press, and has over 3,400 scientific citations. He has been a visiting professor of the Chinese University of Hong Kong (2016); Isaac Manasseh Meyer Fellow of National U. of Singapore (2014), Tan Chin Duan fellow of Nanyang Technological U. of Singapore (2013); visiting professor of Aalto University, Finland (2013); visiting scholar of United Nation University (UNU-FLORES), Germany (2013); Rossby Fellow of Stockholm University, Sweden (2012); Erskine Fellow of University of Canterbury, New Zealand (2011); Visiting professor of Swiss Institute of Technology (EPFL), Lausanne, Switzerland (2010); Research Scientist of Cemagref, France (2009); CIRES Visiting Fellow of University of Colorado-Boulder (2007); Guest university professor (W3) of Technical University of Munich, Germany (2006-07); Adjunct professor of Utah State University, USA (1998-2005); Honorary Professor of Xian University of Technology and Yangtze University of China; JSPS Fellow of Kyoto University (2000) and guest professor of Saga University (1999) of Japan, & assistant professor, Asian Inst. of Technology (1989-1990), Bangkok.

*** All Interested Are Welcome ***

For further information, please contact Prof. Onyx Wai at Tel. 2766 6025.

Free Admission. Please reserve your seat with Ms. Grace Lam by email: grace.lam@polyu.edu.hk

Certificates of attendance will be provided to participants if they attend the whole lecture.