

Perspectives on Global Climate Change Impacts to Hydrosphere and Cryosphere

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In recent years, severe storms have been occurring more frequently and in greater intensity across the world, resulting in serious damage, huge property losses and deaths. Apparently extreme events estimated to be of 100-year return period or higher had been occurring much more frequently. On the other hand, semi-arid and arid regions across the world are prone to prolonged moisture deficit or droughts that lead to loss of multibillion dollar revenues from agriculture, resulted in famine and even countless deaths.

Since the mid-20th century, the Earth has been undergoing potentially rapid changes in all cryospheric components. 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 of the 4th Assessment Report of the Intergovernmental Panel of Climate Change (IPCC, 2007), and that of the 5th Coupled Model Intercomparison Project 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 impacts of climate change.

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Mong Man Wai Building**



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