



# **International Association for Hydro-Environment Engineering and Research (IAHR)**

## **- Hong Kong Chapter**

### **IAHR-HK LECTURE**

(Jointly organized by Department of Mechanical Engineering, The University of Hong Kong)

## **Major Coastal Hazards Caused by Tropical Cyclone-induced Storm Surges and Large Waves on the Coast of China**

**Prof. Zai-Jin YOU**

Institute of Ports and Coastal Disaster Mitigation, Ludong University, China  
School of Civil Engineering, University of Queensland, Australia

Date: June 22, 2019 (Saturday)

Time: 10:30 a.m. – 12:00 noon

Venue: Lecture Theatre C, LG1/F Chow Yei Ching Building, The University of Hong Kong

### **Abstract**

The mainland coast of China is about 18,000 km long and houses about 70% of China's largest cities and 50% of its population. The coastal land area is less than 14% of the territory of China, but it creates more than 50% of the national wealth, 45% of the state-owned assets, 64% of the township enterprise assets, and 60% of the national social wealth.

For the last few decades, the rapid economic growth in China has resulted in extensive development of coastal infrastructure and property, excessive reclamation of coastal land, huge expansion of coastal ports, and significant increase of coastal population. On the other hand, there is no more other country in the world than China, where TCs strike with higher intensity, and there are about 10 landfall TCs in a typical year on the coast of China and TCs have intensified by 12~15%, with the proportion of storm categories 4 and 5 having doubled or even tripled.

The previous studies have found that TCs-induced storm surges are responsible for 88% of Chinese coastal hazard-caused economic losses (~US\$2.6 billion/year), while TCs-induced large coastal waves are main driver for heavy losses of human lives (~264 deaths/year). The TCs-caused losses are shown to increase spatially from the north to south, peak at the south of the coast, and well correlate to storm wave energy flux. It is also expected that the TCs-caused economic losses and human casualties on the coast of China will increase in response to future intensifying TCs and rising sea level.

This talk will be delivered in two parts: Part 1 is about the fundamental and basic understanding of TCs on the South China Sea, TCs-induced extreme waves, and storm surges, focusing more on the physical aspects. Part 2 is on specific coastal hazards caused by extreme waves and storm surges.

## About the Speaker



Zai-Jin (Bob) YOU (尤再进) is a Distinguished Research Professor and Centre Director in Institute of Ports and Coastal Disaster Mitigation, Ludong University, China. His research interests include physical oceanography, coastal engineering, and coastal hazard.

He was awarded his Ph.D. in Coastal Engineering from the University of New South Wales in 1992. He had worked as Research Fellow in the University of Quebec in Canada, and Senior Research Scientist in Australian Research Institutes for 20 year (1994-2013) before he took his current job in China.

He has been awarded a prestigious research grant “Distinguished Overseas Youth Scholar Research Grant” (国家海外杰出青年基金 2005-07) from China Research Council, several major research grants from Australian federal government, and more recently several large research grants to undertake extensive research on coastal inundation and erosion hazards in China. He is also Adjunct Professor in the University of Queensland and an editorial board member for many international journals.

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