## Keynote: Challenges and Solutions for water security in a vulnerable catchment in Coastal Cities

## Keynote speaker: Prof. Hong Zhang, Griffith University

**Abstract:** River catchments are important economic, environmental, and social resources that support aquatic life, fisheries, recreational activities, agriculture, trade, and industry. However, over the past century industrialisation and urbanisation have substantially altered the natural characteristics of many river catchments. Hydrological extremes such as floods and droughts apparently exacerbate water quality issues worldwide. This talk presents a novel holistic modelling framework that is developed based on advanced sensing technologies and computational techniques, to simulate the hydrodynamics and transport processes of complex and dynamic catchment, riverine and estuarine systems. The developed model can be used to identify catchment hotspots such as sources of nutrients and sediments and flood-prone areas, and finally to assess climate change impacts using downscaled climate models. The outcomes of this research will facilitate government agencies for strategic plans to support a resilient, productive, liveable and growing regions.

**Prof. Hong Zhang** received her PhD from the Centre for Water Research, The University of Western Australia. She then worked at the Tropical Marine Science Institute, National University of Singapore for several years before joining Griffith University in 2003. Prof. Zhang has enriched expertise in numerical modelling of complex water resource and coastal systems. She has published over 180 technical articles and led a number of national and international projects to support government agencies for better development and management decisions. She has editorial roles in international journals and is a current member of ARC College of Experts.

