Queensland storm tide inundation modelling and mapping guidelines

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Storm surge and wave action due to extreme meteorological events affect coastlines around the world. The majority of urban development in Queensland lies within the coastal zone and climate change impacts are predicted to increase sea levels and storm intensities as well as change rainfall patterns. Consequently, low-lying areas along the Queensland coast will become more vulnerable to coastal hazard impacts.

In contrast to floodplain management due to freshwater flooding, Australia does not have a best practice technical guideline for storm tide inundation modeling and mapping. As a result, many of the storm tide studies that have been completed along the Queensland Coast have been undertaken using varied methodologies and numerical models. This can create problems for coastal managers, particularly when there are varying results for neighboring Local Government Areas. To appropriately manage coastal communities, a standardized methodology is required to predict the height and extent of coastal inundation. The need for such guidelines has been highlighted by the World Meteorological Organization and has been established in other countries such as the United States of America through the Federal Emergency Management Agency (FEMA).

This presentation will outline a study that the Queensland Government and Griffith University have collaboratively undertaken to produce an Inundation Modeling and Mapping guideline for Queensland. As part of this study, International guidelines, along with the extensive numerical models used to represent coastal inundation processes were reviewed and 'Inundation Regions' were identified for Queensland based on the prevailing coastal geomorphology. The guideline will form a component of the Coastal Hazards Section of the Queensland Coastal Plan and will provide information for local government and private industry regarding the appropriate methodologies for inundation modeling and mapping in the different regions of the Queensland Coast.

Supporting dynamic hypothesis modelling and alerts in marine environments

Lee, Yong Jin* presenting: Myers, Trina[1], Jarrod Trevathan[2] and Ron Johnstone[2]

Refer 'Myers' for abstract.

A generic interface for remote sensor network integration.

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Remote control access to the sensors while in the field and visualisation of the sensed data are vital requirements for both terrestrial and marine-based wireless sensor network deployments. The maintenance of these networks includes travelling to the remote sites to check for damage or to reconfigure equipment which often involves significant expense and sometimes dangerous conditions. The ability to visualise sensed data is important during and post deployment, for quality assurance and/or to discover trends. Most user interfaces are specific to the sensor network they are designed for and practitioners are continually duplicating the basic methods and code for each deployment. This paper presents a web-based user interface developed as part of the *Smart Environmental Monitoring and Analysis Technologies* (SEMAT) project. The interface is designed to be generic in that it offers portal functionality and visualisation for any environmental sensor network regardless of the underling infrastructure. The ultimate goal is to create an open source package that can be downloaded and easily applied by anyone with a sensor network application. Currently, the interface presents the locations of the deployed equipment via Google Maps and provides the user with features for remote power monitoring, error alerting/system status monitoring and graphical visualisation of the collected data. Data from different sensor networks can be visualised concurrently. The system has been successfully used during a five week deployment of a SEMAT sensor network at Heron Island. There, the interface was used to not only visualise data collected from the SEMAT network but at the same time data from the IMOS sensor buoys deployed around Heron Island.