18th World IMACS / MODSIM Congress, Cairns, Australia 13-17 July 2009
http://mssanz.org.au/modsim09

# Assessment of potential climate change impacts on coastal infrastructure assets

**Cechet, R.P. [1], Skene, D. [1], Arthur, W.C. [1], Dunford, M.[1], Nadimpalli, K. [1], and Power L.[1]**

*[1] Risk and Impact Analysis Group, Geoscience Australia, Canberra, Australia*
*Email: bob.cechet@ga.gov.au*

**Abstract:** The impact of projected sea level rise due to climate change on the coastline as well as the increased frequency and intensity of storms and coastal flooding is likely to damage built and natural environments, adversely affecting a significant number of Australian coastal communities. Understanding the potential risk of these coastal hazards is critical to the formulation of adaptation responses and early action is likely to be the most cost effective approach to managing the risk to infrastructure assets.

Geoscience Australia (GA) is assisting the Department of Climate Change to develop a 'first pass' National Coastal Vulnerability Assessment. GA and the University of Tasmania (UTas) are contributing to the assessment by providing fundamental spatial datasets and GIS geo-processing tools to determine a range of indicative but quantitative estimates of climate change impacts across different scenarios and timescales. This work will identify areas of the Australian coast potentially at risk and that require attention with regards to adaptation to climate change impacts.

Spatial datasets used to quantify these impacts include the new national shoreline geomorphic and stability map or "Smartline" developed by UTas, GA's National Exposure Information System (NEXIS) and high resolution coastal digital elevation models along with projected sea level rise and regional storm surge data.

This presentation will provide an initial assessment of the nature and extent of potential impacts of coastal inundation from projected sea level rise and indicative effects of storm surge due to climate change on coastal infrastructure assets within two Local Government Areas. Specifically, the talk will include a description of the vulnerability of different shorelines, likely areas of inundation within the built and natural environments and an initial estimate of the number and value of infrastructure assets affected by the relevant climate change variables.

***Keywords:*** *Climate change, coastal vulnerability, sea level rise, exposure*

*Abstract only*