

A comparison of SARAL/Altika coastal altimetry and *in situ* observations across Australasia

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The lack of high resolution and quality observations for coastal zones has created a significant gap not only in our ability to monitor and understand coastal inundation, erosion and sea level changes but also to provide robust constraints and validation for climate model simulations and regional sea level projections. This is particularly an issue for small nations, such as the South Pacific islands, where costly *in situ* instruments (e.g., moorings, radar arrays, etc) will likely never be deployed at a sufficient scale. Coastal satellite altimetry is therefore an invaluable resource for regions like Australasia. Furthermore, Australia's recent investment into coastal monitoring provides a useful resource to validate altimetry data against for the region.

Launched in February 2013, the SARAL/Altika (altimetry in the Ka band) mission promises to provide an unprecedented level of ocean sea surface height (SSH) data as close as 10km from the coast. We examine selective Altika passes over the Maritime Continent (e.g., Langkawi Island, Malaysia), South Pacific islands (e.g., Christmas Island, Kiribati) and the Australian eastern seaboard (Fort Denison, Sydney and Coffs Harbour) and validate against local tide gauge stations. Preliminary results with the limited number of passes currently available suggest that several tide gauge stations in the South Pacific (Tuvalu and Fiji) do not correlate well with the altimeter. In contrast, the Maritime Continent and Australian Eastern Seaboard tide gauges show a good correlation and low RMS error against the altimeter.

Other *in situ* data, such as moorings and HF radar, available through the IMOS portal for the eastern coastal waters of Australia are also examined against altimeter derived surface velocities. Additionally SARAL and Jason 2 cross-over points are used to examine the altimeter waveforms to investigate the impact of land and rainfall as well as the options for waveform retracking to optimize the altimetry data near the coast.