



The impact of sea-level-rise on tidal characteristics around Australasia

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An established tidal model is used to investigate the effect of sea-level rise on tidal characteristics around Australasia. Sea-level rise is implemented through either a uniform depth increase across the model domain or extrapolation from sea-level trend data. For each type of sea-level rise, separate simulations are carried out to allow for inundation of land or vertical walls at the coast. It is found that dissipation from the semi-diurnal tidal constituents drops along the south of the Sahul shelf region as it increases around the channels in the islands to the north. Total dissipation drops, possibly due to sea-level rise moving the semi-diurnal constituents away from resonance with the shelf. The K_1 constituent is found to be amplified within the Gulf of Carpentaria with sea-level rise. The simulations using sea-level rise based off of trend data show little difference from the simulations using uniform sea-level rise. Flooding is found to have a profound impact on tidal amplitudes by creating local regions of increased tidal dissipation.