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Evaluating Satellite Altimetry for Monitoring Caribbean Sea Level Rise

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Abstract: *The global impacts of sea level change is of major interest internationally, especially for small island states, like those in the Caribbean which are amongst the regions that are most at risk from the effects of climate change and sea level rise. This is largely due to their environmental and economic dependence on coastal zones. Previous studies have been conducted in an attempt to investigate and monitor sea level rise in the Caribbean. Unfortunately, these studies were incomplete and deficient owing to limitations in the tide gauge data reliability and a lack of data coverage for the Caribbean region. This paper evaluates the method of satellite altimetry data to determine sea level change in the Caribbean region through a comparative analysis to eight tide gauge stations over a ten-year period. The sea level anomalies derived from the satellite altimetry technique agree with the tide gauge data with a mean RMS (Root Mean Square) of 0.058 m. The sea level change rates are on average ± 0.45 mm/yr within the tide gauge results, confirming the viability of satellite altimetry as a technique to determine sea level variations for the Caribbean region.*

Keywords: *Satellite Altimetry; Sea Level Rise; Caribbean Tide Gauges*