



Long Term and Recent Changes in Sea Level in the Falkland Islands

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Mean sea level measurements made at Port Louis in the Falkland Islands in 1981-2, 1984 and 2009, together with values from the nearby permanent tide gauge at Port Stanley, have been compared to measurements made at Port Louis in 1842 by James Clark Ross. The long-term rate of change of sea level is estimated to have been $+0.75 \pm 0.35$ mm/year between 1842 and the early 1980s, after correction for air pressure effects and for vertical land movement due to Glacial Isostatic Adjustment (GIA). The 2009 Port Louis data set is of particular importance due to the availability of simultaneous information from Port Stanley. The data set has been employed in two ways, by providing a short recent estimate of mean sea level itself, and by enabling the effective combination of measurements at the two sites. The rate of sea level rise observed since 1992, when the modern Stanley gauge was installed, has been larger at 2.51 ± 0.58 mm/year, after correction for air pressure and GIA. This rate compares to a value of 2.79 ± 0.42 mm/year obtained from satellite altimetry in the region over the same period. Such a relatively recent acceleration in the rate of sea level rise is consistent with findings from other locations in the southern hemisphere and globally.