



Sea level changes at Tenerife Island (NE Tropical Atlantic) since 1927

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Hourly sea level observations from tide gauges located in Tenerife Island and spanning the period 1927-2012 have been quality controlled and analyzed. The original observations, obtained from the digitization of handwritten log books, correspond to three nearby tide gauges with known benchmarks and datum continuity. A single and consistent sea level time series was built using the datum information provided for each tide gauge and the high precision leveling among their benchmarks, resulting in a long, high frequency and high quality new sea level time series in an especially poorly sampled region. The sea level trend is 1.97 mm/yr for the period 1927-2010 in a site where GPS data suggest stability. Low frequency sea level variability was investigated and compared with steric sea level, atmospheric pressure and winds in the region. This time series is especially relevant for the study of extreme sea levels and its temporal variations. It was found that long term changes in high waters are mostly driven by mean sea level rise, in agreement with previous studies in other regions.