Newlyn pier plays a crucial role in understanding climate change

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Saturday May 01 2021, 12.01am, The Times

The Newlyn Tidal Observatory, housed in the shed next to the lighthouse on the fishing village's pier, has sea level measurements dating back 100 years

At the end of a pier at Newlyn harbour in Cornwall is an unassuming red and white concrete shed next to a lighthouse. It could easily be mistaken for part of the lighthouse or a fish shed, but this shabby building hides an observatory so important that it was protected under the Official Secrets Act for many years.

This is Newlyn Tidal Observatory, where sea level measurements have been made for 100 years, and the benchmark "zero elevation" against which the heights of all hills, mountains, buildings and much else on mainland Britain can be measured. The key part of the site is a hole in the floor, where a pipe reaches down to the sea, and as the water rises and falls it moves a float up and down, which is recorded automatically on a chart.

The measurements at Newlyn were begun by Ordnance Survey in 1915, taking sea level readings every hour, as one of three tidal gauges on mainland Britain. In 1921 it was realised that Newlyn should be the sole monitoring station because it was ideally situated alongside the deep waters of the Atlantic and was built on stable Cornish granite.

In fact, the site is so stable that the tide gauge rarely measures anything dramatic. On November 25, 1941, it recorded a small tsunami triggered by a large earthquake west of Portugal. Although the observers manning the station rarely missed measurements, on March 7, 1962, a storm battered Newlyn harbour and no one could reach the observatory. Fishing boats were wrecked and the

observatory was left 4ft deep in water and mud, with starfish and crabs on the floor. Incredibly, the tide gauge was still working and the measuring chart taking measurements.

An electronic tide gauge was installed in the 1980s, and although sea level heights can now be measured more easily using GPS, the records at Newlyn have become crucial for measuring the rise in the sea level over the past century as the climate has changed, with the rise accelerating over the past 25 years.