IGN-E TIDE GAUGES NETWORK
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Originally, the purpose of measuring the tide was to provide a local reference for setting up the first Spanish Topographic Map. The methodology used was based on a benchmark placed on the deck of a ship, between 1790 and 1792.

On March 1st 1874, the first tide gauge, located in Arenys de Mar, was installed at the coast for the first time.

Since then, IGN has installed continuous recording stations at different locations of the Spanish coast. Currently, the Tides Gauges Network consists of 42 stations.

The stations are composed of two sensors: one angular encoder that records data every 5 minutes, and another radar sensor which transmits every 30 minutes. The TNO2 and TNO3 stations were the first to have a radar sensor. The latter doublet allows the displacement control of the measurement origin.

ACOR1, ALAC1, MLUR1, TNO3, and ALME2 stations transmit the data in real time via Internet. In the rest of stations, a daily download is performed.

ACOR1
ALAC1
MLUR1
TNO3
ALME2

Data query and acquisition

All stations have installed a permanent GNSS antenna for altimeter control, which is part of the ERS-2 AsGa network. Thus, together with the high precision leveling, satellite gravity observations and tide to the geodetic network, it is possible obtaining the differential movement control between the mean sea level and the ground at the tide gauge site.

In 2008, the TNO2 and TNO3 stations were installed in Tenerife island. These stations together with the already historic TNO1 station are part of the Volcanic Monitoring Network of the Canary Islands (SIVV).

Monthly and annual averages

Averages monthly and annual sea level in millimeters with respect to National Levelling Network (NE1M)

Historical series recovery

“Sea Level Changes at Tenerife Island (NE Tropical Atlantic) since 1927”

Abstract: Over the last decades, the world is facing a complex and challenging process of climate change, mainly influenced by the increase in greenhouse gas emissions. This has led to changes in the Earth’s climate, which are causing sea level rise and extreme weather events. Among these changes, the rise in sea level is one of the most significant impacts. The impact of these changes is not only felt locally but also globally, affecting coastal areas, low-lying islands, and even cities. As a result of this, there is a growing interest in understanding and monitoring the effects of climate change on sea level, in order to develop strategies to mitigate and adapt to these changes.

The current sea level rise is a complex and challenging process that involves various factors, such as"..."