Abstract: The National Institute of Cartography and Remote Sensing by its main activity is responsible for implementing over the national territory basic geodetic networks: GNSS, gravity and leveling networks. The heights of the Algerian leveling network are related to several origins, level deduced from the indications of the Medimeter of la Goullette (Tunisia), height of the landmark of “Porte De France” (Tunisia), or the altitude of the console placed at the Sidi El Henessi station (Tunisia) in 1914. Aware about the importance to provide the national territory with a precise altimetric reference, the INCT has invested in the implementation of automatic acquisition tide gauges along the Algerian coast in collaboration with the Hydrographic Service of the Naval Forces in order to observe the sea level in the Mediterranean sea, first to bring the bathymetric surveys to a stable reference, the hydrographic zero or zero of the nautical charts, then to predict the tide or to define reference levels. Through this poster, we present an overview of the current Algerian tide-gauges network and the exploitation of data from acoustic tide-gauges recently installed at the ports of Algiers, Jijel, Oran, Ghazaouet, Ténès and Annaba, in the perspective to a vertical datum determination.

Stability Analysis: Estimation of the Mean Sea Level relative to Hydrographic Zero.


Harmonic Analysis : Determination of the Mean Sea Level relative to Hydrographic Zero.

Conclusion: The implementation of six automatic tide-gauging stations along the Algerian coast (Ghazaouet, Oran, Ténès, Algiers, Jijel and Annaba) is of great interest, particularly for the monitoring of sea level variations and the definition of the national reference. As part of a development project for the definition of the new altimetric reference, a first processing of tide-gauge data from the oldest stations by harmonic analysis was carried out in collaboration with scientists from the CTS, leading to the determination of the mean sea level at the Algiers, Jijel and Oran harbors. The analysis of the results has shown a slight change between the current elevation reference and the one determined at the Algiers (6.6 cm) and Jijel ports (5.8 cm), but relatively important at Oran port (24 cm). Stability analysis of the data from the six tide stations at different times shows that the signals are affected by power law noise processes, Ricker FM and Random Walk FM. The mean sea level along the Algerian coast is not at an equal distance from the surface of the hydrographic datum, because not the same value has been found between the hydrographic datum and the new reference in each station. In perspective, the long-term analysis of tide-gauge data will allow the definition of a new altimetric/reference that will serve as a long-term origin for the Algerian general leveling network.