Tide-Gauge Observations of Long-Period Harbour Oscillations Along the Venezuelan Caribbean Coast Following the 24 June 2026 Earthquake Doublet

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Supplementary Material

This Supplementary Material includes the technical data sheets for the tide-gauge stations located at Puerto Cabello, La Guaira, and Pampatar harbours (Figures S1–S3, respectively). The data sheets were prepared by the Hydrography, Oceanography, Meteorology and Nautical Charting Service (SHN) of the Venezuelan Navy.

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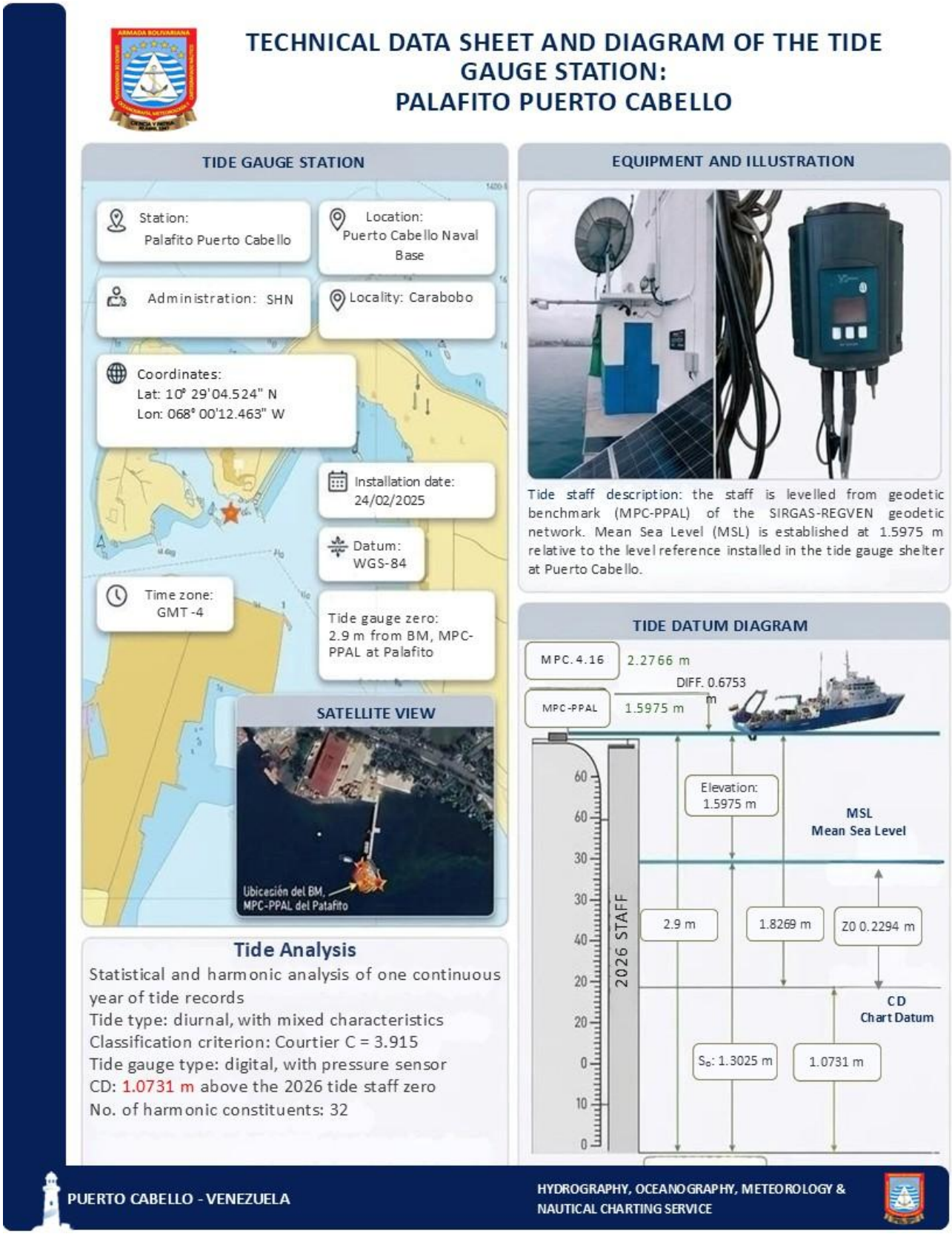


Figure S1. Technical data sheet for the ***Palafito*** **of Puerto Cabello tide-gauge station**, located at the Puerto Cabello Naval Base, Carabobo, Venezuela. The figure summarizes the station location and coordinates, tide-gauge instrumentation, satellite view, tide-staff configuration, and vertical reference system. The tide-datum diagram shows the relationships among the geodetic benchmark **MPC-PPAL**, the 2026 tide-staff zero, **Mean Sea Level (MSL)**, and **Chart Datum (CD)**. The station uses a digital pressure-sensor tide gauge, and the tidal characterization is based on statistical and harmonic analysis of one continuous year of observations using 32 harmonic constituents.

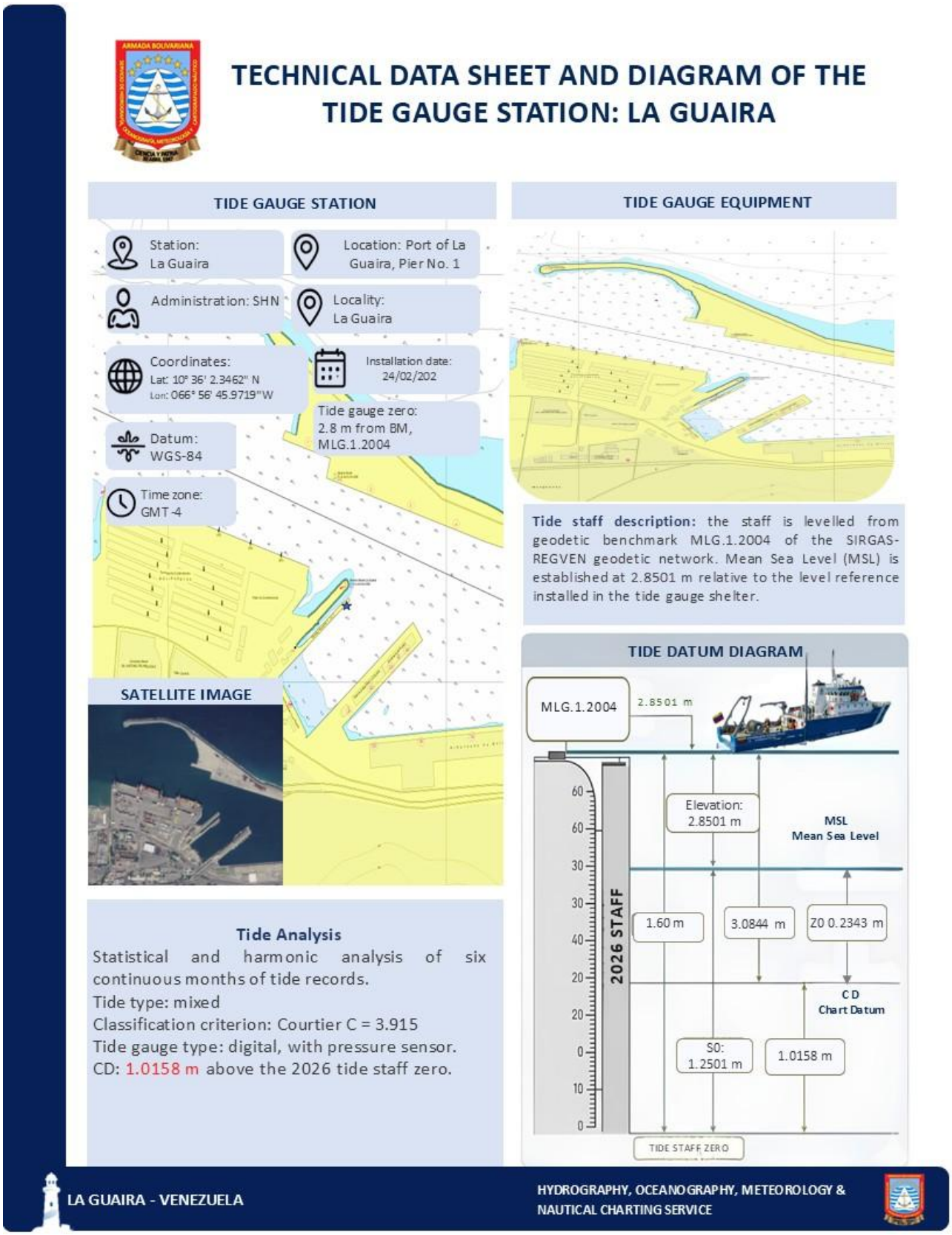


Figure S2. Technical data sheet for the **La Guaira tide-gauge station**, located at the Port of La Guaira, Venezuela. The figure shows the station location and coordinates, hydrographic and satellite views, tide-gauge instrumentation, tide-staff configuration, and vertical reference system. The tide-datum diagram illustrates the relationships among the geodetic benchmark **MLG.1.2004**, the 2026 tide-staff zero, **Mean Sea Level (MSL)**, and **Chart Datum (CD)**. The station uses a digital pressure-sensor tide gauge, and the tidal characterization is based on statistical and harmonic analysis of six continuous months of observations.

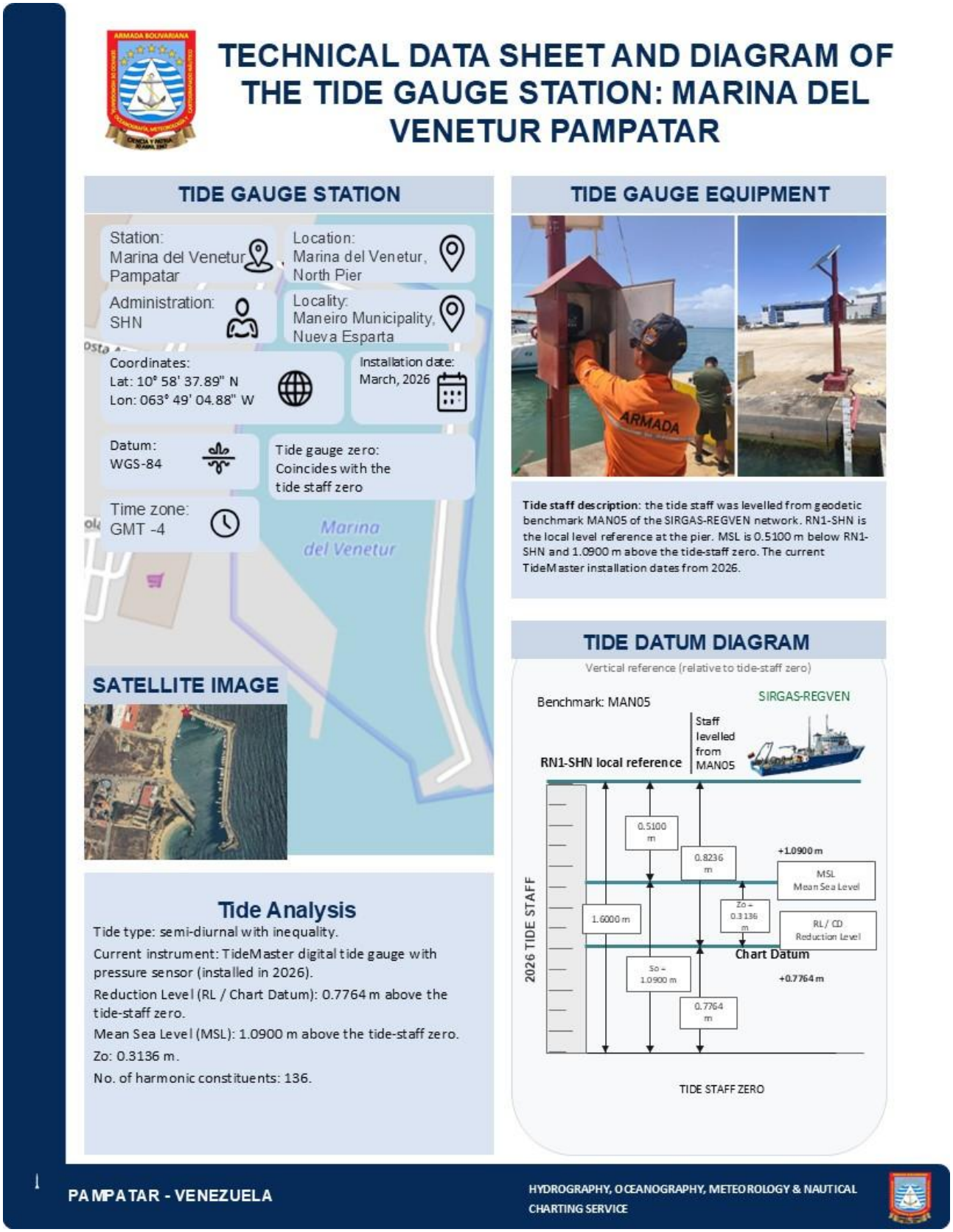


Figure S3. Technical data sheet for Pampatar tide-gauge station, located at the northern pier of Marina del Venetur, Maneiro Municipality, Nueva Esparta, Venezuela. The figure summarizes the station location and coordinates, satellite view, tide-gauge equipment, and vertical reference system. The station is equipped with a TideMaster digital tide gauge with a pressure sensor, installed in March 2026. The tide-datum diagram shows the vertical relationships among the MAN05 geodetic benchmark, the local RN1-SHN reference, the 2026 tide-staff zero, Mean Sea Level (MSL), and the Reduction Level/Chart Datum (RL/CD). MSL is located 1.0900 m above the tide-staff zero, whereas RL/CD is 0.7764 m above the tide-staff zero, giving Z_o = 0.3136 m. Tidal characterization indicates a semi-diurnal tide with inequality, based on 136 harmonic constituents.