

Time and Frequency Characterization of the Underwater Baseline Sound Level at the Test Site of PLataforma Oceánica de CANarias (PLOCAN)

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Abstract : Anthropogenic Underwater Radiated Noise (URN) is a pollutant that in many cases creates a disturbance for marine species. In recent years, this topic has received its due importance, and several projects began to study and analyze it. One of the key aspects in understanding the issue of Underwater Radiated Noise, is the characterization of the baseline sound, this is, the ambient or background level in the absence of ships or any other anthropogenic sound source, that would allow us to set a reference level with which other sounds can be compared. The aim of this study is to analyze one-month of continuous underwater sound recordings in the test site of PLataforma Oceánica de CANarias (PLOCAN) to characterize the baseline sound level, in order to prepare the stage for a later comparison with different sources of anthropogenic noise, for example, the one produced by wind generators. A custom MATLAB based software was used to analyze these sound recordings and generate the following variables: SPL, Leq, L1, L5, L10, L50, L90, L95, and Lpeak. All these variables were generated for the unfiltered signals, filtered signals from 20 hz to 20 Khz, and one-third-octave band signals from 20 hz to 20 Khz. The results were analyzed in numerical and graphical form, and a summary of the results that characterize the baseline sound of the PLOCAN test site were generated. The main key findings of this study are the following: 1- Processing time is long for the dataset under analysis. It took 10 full days of non-stop processing to generate the above variables, not including the post-processing time. 2- The amount of data generated was relatively large, requiring automation of the analysis process. 3- Some variables tend to be better suited to characterize the baseline level. 4- A large variability was found in the levels of the different metrics.

Keywords : essential ocean variables, ocean sound, sound pressure level, underwater radiated noise

Conference Title : ICUA 2026 : International Conference on Underwater Acoustics

Conference Location : London, United Kingdom

Conference Dates : August 19-20, 2026