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Low-frequency environmental noise evaluation at Sos Enattos, the Sardinian site proposed for Einstein Telescope

The Sos Enattos area in Sardinia, Italy, is one of the most promising locations for the Einstein Telescope (ET), a next-generation underground gravitational wave observatory. In this study, we present the results of a recent environmental magnetic noise analysis aimed at characterising natural noise sources in the low-frequency band. Using a network of sensors deployed in the region, we assessed the site's noise conditions, focusing on the frequency range below 10 Hz where noise has the greatest impact on the sensitivity of the ET-LF interferometer. Our findings confirm that the site consistently exhibits exceptionally low ambient noise levels. These results reinforce Sos Enattos's potential as an ET location and provide a baseline for future infrastructure planning and noise mitigation strategies. Ongoing and future work will extend this analysis to include seasonal cycles and rare transient events. This will involve correlating noise data with meteorological and marine conditions and localised human activity in order to identify the main sources of noise variability.

Authors: CONTU, Andrea (INFN Cagliari); ROZZA, Davide (University of Milano-Bicocca & INFN-MIB); D'URSO, Domenico; NATICCHIONI, Luca; DI GIOVANNI, Matteo (Scuola Normale Superiore Pisa - INFN Pisa); DE ROSA, Rosario (Università Federico II Napoli - INFN Napoli)

Presenter: ROZZA, Davide (University of Milano-Bicocca & INFN-MIB)

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