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Infrasonic Noise Analysis at Sos Ennatos

A designated area near the Sos Enattos mine (Lula, Nuoro Province, Sardinia, Italy) has been proposed as a candidate site for the Einstein Telescope (ET), a next-generation gravitational wave observatory requiring an exceptionally low-noise environment. To assess infrasound conditions relevant to ET, a set of infrasound microphones was installed at Sos Enattos, both on the surface and underground, in the fall of 2022. Nearly two years of continuous data have been collected, enabling a detailed analysis of infrasound propagation and its correlation with environmental factors such as wind speed, atmospheric pressure, and other meteorological conditions. The study examines the coherence between sensors and evaluates the effectiveness of underground placement in mitigating infrasound noise. Understanding the infrasound environment at Sos Enattos is essential for assessing the broader site's suitability for ET. This work presents an overview of the monitoring campaign, analysis methods, and preliminary insights into the site's infrasound characteristics.

Primary authors: Prof. ROSIŃSKA, Dorota (Astronomical Observatory of the University Warsaw); Dr CIESLAR, Marek (Nicolaus Copernicus Astronomical Center); Dr SUCHENEK, Mariusz (Nicolaus Copernicus Astronomical Center); Prof. BULIK, Tomek (Astronomical Observatory of the University Warsaw)

Co-author: ALHASSAN, Wathela (Nicolaus Copernicus Astronomical Center)

Presenter: ALHASSAN, Wathela (Nicolaus Copernicus Astronomical Center)

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