

# **jUMP: Construction of a oceanic sound propagation modelling portal for research, incorporating IT services from EOSC.**

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The United Nations has already acknowledged anthropogenic noise's harm to marine wildlife. Therefore, the correct control and reduction of underwater noise are relevant to the intended sustainable management and protection of marine and coastal ecosystems, especially in light of the 14th development goal (conservation and sustainable use of the oceans and marine resources). Creating healthy and productive oceans is feasible by avoiding substantial detrimental consequences, enhancing their resilience, and taking steps for their restoration.

Due to maritime transportation, leisure and tourism, fishing operations, and running industrial facilities, the demand on the Portuguese coast is escalating. One harmful byproduct of these activities is underwater noise, which adversely affects species sensitive to noise and the ecosystems that support them. LNEC has created a modeling portal to simulate sound propagation in the ocean and support the monitoring activities along the Portuguese Exclusive Economic Zone to address this theme and the project "jUMP - Joint Action: A Stepping-stone for underwater noise monitoring in Portuguese waters" (EEZ).

In the current publication, the authors describe a web portal that enables users to configure sound propagation simulations on-demand, with particular configurations such as the source and receptor positions, frequency, and depth of the sound source, besides the use of European oceanographic services such as Copernicus and EMODnet, for the retrieve of oceanic stratification and bathymetry data. This study also presents some of the technologies used to construct the service. The service integrates numerous technologies and services from the European Open Science Cloud (EOSC) and will be provided without charge to the research community (e.g., Federated authentication, Workload managers, Infrastructure Managers, and computational resources). The platform, in the authors' opinion, can further study the domain of underwater sound transmission in our seas.

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