

— Modelisation de la coherence spatiale du bruit genere par les vagues —



Empirical models already exist for ambient noise spectral density function of frequency, sea state or wind speed but they give no information on the spatial structure or coherence of the noise field which is essential as soon as array beamforming is involved. We have developed a model which computes the spatial coherence matrix of the noise field due to a continuous distribution of sources located at the sea surface, and also the noise power spectral density after classical beamforming on an equidistant hydrophones linear array. In this model, propagation effects like rays bending due to variations of index of refraction and multiple bottom and surface reflections are taken into account. Principles of the modeling are presented and results demonstrate that significant differences can be obtained with respect to the classical omnidirectional noise field hypothesis.

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