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# of long-range propagation of acoustic waves generated by different types of impulsive sources.

When considering acoustic events of impulsive nature in the ocean that generate shock waves as detonation of explosive charges (especially those close to free surface or seabed), air-guns, electric shocks or collapses of metallic objects or glassware, we should be especially careful verifying the conditions of validity of equations used in the range of distances, depths and frequencies of interest. A range-dependent model based on Parabolic Equation Method (RAM v1.5) was used to estimate Transmission Loss along acoustic paths of thousands of kilometres. Effects of source-depth, physical properties of sound channel and several formulations to quantitatively describe sound attenuation in water column were considered. The feasibility of inferring distinctive features of impulsive acoustic sources from the corresponding pressure levels received at long distances was examined through spectral and cepstral analysis techniques. Analyses of signals generated by impulsive sources are presented. Different types of impulsive signals taken from semi-empirical models were used as input with the aim of analysing acoustic propagation effects over long source-receiver distances, assuming linear acoustics validity. Reported pressure pulses for implosions of small aluminium cylinders were scaled up to evaluate implosions of larger objects. Some anisotropic characteristics of the sources could be inferred from the analysis performed.

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