

# GEOACOUSTIC INVERSION ALGORITHMS – WHEN DO WE STOP?

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**Abstract:** The validation of geoacoustic inversion methods is critical for the accurate prediction of acoustic propagation in shallow water. At present there are numerous methods for such inversion including those based on simulated annealing (SA) and genetic algorithms (GA) where such elephant guns are needed as a result of pathological and large parameter spaces. But what about modifying the search by reformulating the problem? Can we bootstrap an inversion starting at low frequencies in order to avoid random searches such as SA and GA? This paper will discuss this new method in the context of finding a "solution". However, we still need proper validation of all these methods under realistic but simulated conditions. The key for such benchmarking would be a host of scenario. Suggested scenarios will be proposed.