

ACOUSTICS2008/2147
**Effect of ocean sound speed uncertainty on matched-field
geoacoustic inversion**

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The effect of ocean sound speed uncertainty on matched field geoacoustic inversion is investigated using data from the SW06 experiment along a nearly range-independent bathymetric track. Significant sound speed differences were observed at the source and receiving array and several environmental parameterizations were investigated for the inversion including representing the ocean sound speed at both source and receivers with empirical orthogonal function (EOF) coefficients. A GA-based global optimization method was applied to the candidate environmental models. Then, a Bayesian inversion technique was used to quantify uncertainty in the environmental parameters for the best environmental model, which included an EOF description of the ocean sound speed.