

Abstract Submitted  
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**The Effects of Nonlinear Propagation on Acoustic Source Imaging in One-Dimension**<sup>1</sup> MICAH SHEPHERD, KENT L. GEE, Brigham Young University — The acoustics of finite-amplitude (nonlinear) sound sources, such as rockets and jets, are not well understood. Characterization of sound pressure amplitudes, aeroacoustic source locations and frequency dependence of these sources is needed to assess the impact of the acoustic field on the launch equipment and surrounding environment. Nonlinear propagation of high-amplitude sound is being studied to determine if a source-imaging method called near-field acoustical holography (NAH), which is based on linear assumptions, can be used to estimate the source information mentioned. A one-dimensional numerical algorithm is being used to linearly and nonlinearly propagate the radiation from a monofrequency source. NAH is used to reconstruct the source information from the simulated data and the error is determined in decibels.

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