

the evaluation of the MUSIC algorithm for the analysis of infrasonic signals

The Multiple Signal Classification (MUSIC) algorithm (Schmidt, 1986) is a well-known high-resolution method used in array processing for parameter estimation. We report on the application of MUSIC to infrasonic data at frequencies applicable to the regional and global explosion monitoring. The infrasonic wavefield is comprised of multiple sources (e.g., microbaroms, anthropogenic noise, mine blasts, etc.) overlapping in time and frequency. The MUSIC algorithm, by analyzing the properties of the covariance matrix, can resolve propagation details with high resolution of multiple co-existing sources. Preliminary results of this study show enhancements in parameter estimation (frequency and direction-of-arrival) with implications for possible improvements in event detection algorithms in cluttered environments.

Primary author: MARCILLO, Omar (Los Alamos National Laboratory)

Presenter: MARCILLO, Omar (Los Alamos National Laboratory)

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