

High performance beamforming techniques

Aircraft Noise and Climate Effects

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Supervisor

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- Arrays of microphones are capable of providing acoustic images indicating the locations and strengths of acoustic sources
- Analysis of the array data is in general based on delay-and-sum techniques
- New advanced analysis techniques are based on matching the measured signals with modelled signal^{1,2}
- How suitable are these methods for analysing aircraft fly-over data?
- The outcomes of this research are important for efforts aiming at routine, i.e. fast, and accurate measurements of aircraft induced noise

Elements

1. Study and implement the techniques
2. Assess performance (ability to locate and quantify sources versus computational demands) of the techniques
3. Apply the technique to fly-over array data

[1] T. Yardibi, J. Li, P. Stoica, N.S. Zawodny and L.N. Cattafesta III, *A covariance fitting approach for correlated acoustic source mapping*, J. Acoust. Soc. Am. 127 (5), 2010

[2] Q. Zhang, H. Abeida, M. Xue, W. Rowe and J. L., *Fast implementation of sparse iterative covariance-based estimation for source localization*, J. Acoust. Soc. Am. 131 (2), 2012

