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PROJECTS

Advanced Military Aircraft Noise Model - 06/02/06

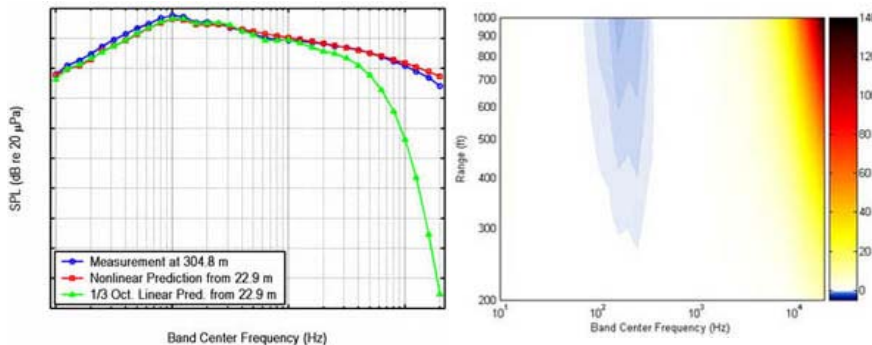
BRRC joins a consortium developing advanced non-linear acoustic models for military aircraft noise propagation and impact assessment.

Background

Current environmental noise models used by the Department of Defense (DoD) to assess the impact of military aircraft operations are not appropriate for the new generation of fighter aircraft with high performance engines and vectored thrust capabilities. This shortcoming has the potential to lead to restrictions in flight operations at airbases and within training airspaces. New noise models, which take advantage of the computational capabilities of today's computers, are needed to provide legally defensible assessments of current and future aircraft operations in protecting bases and airspace for training purposes and in minimizing restrictions based on noise.

Objective

The objective of this project is to provide environmental specialists with tools, based on the latest technology, for assessing and mitigating the noise impact around bases and on ranges of the new generation of fighter aircraft operating under all possible weather and terrain conditions.



Summary of Process/Technology

The research effort will consist of two main elements. The first will be a series of numerical, laboratory, and field studies to develop practical models for nonlinear generation and propagation of noise from high-thrust, vectored jet engines. The second element will be development of computer simulation procedures for the visualization of the resultant dynamic noise fields. The product will allow planners to incorporate a completely new set of operational scenarios and features, such as non-linear propagation and dynamic visualization of noise exposure, that will assist in public presentation and understanding of potential noise impacts and their mitigation.

Benefit

The information developed under this study will represent a significant advance in the understanding of non-linear propagation from high-level noise sources and in the measurement of aircraft source noise levels. This will allow DoD to more accurately estimate the noise environment from aircraft operations and provide a scientific foundation for installation commanders in responding to criticisms from knowledgeable citizens on the appropriateness of these estimates. The tools developed will assist DoD in being responsive to the requirements of the National Environmental Policy Act of 1969 (NEPA) while protecting operational readiness from unreasonable restrictions based on today's limited knowledge of non-linear noise effects.

Advanced Acoustic Models for Military Aircraft Noise Propagation and Impact Assessment.

Partner: Wyle Laboratories

Sponsor: Strategic Environmental Research and Development Program (SERDP)



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