

Source noise model development for modern turboprop aircraft

Aircraft Noise and Climate Effects (ANCE)

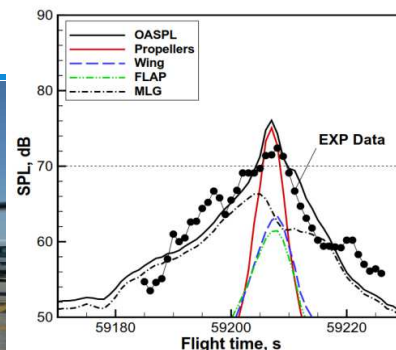
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Project Overview

Turboprop aircraft are making a comeback in the commercial aerospace industry, with their advanced blade designs and high fuel efficiency on short-range missions compared to turbofan aircraft. Leading manufacturers such as Bombardier and ATR are hence increasing turboprop production for the increased airline orders. A major aspect of turboprops is the noise they produce, which has to be modeled and controlled effectively, from the start of the aircraft design process. A comprehensive parametric turboprop noise model is needed to optimize turboprop aircraft designs, such that they are less noisy and produce lower emissions but still remain fuel efficient.



Project Goals

Implementation of a propeller/turboprop noise model for multidisciplinary aircraft design purposes:

- Literature research on existing propeller/turboprop noise models
- Comparison of the models and selection of the most appropriate analytical/semi-empirical model
- Validation with publically available data
- Implementation/coupling of the selected model in ANCE aircraft noise prediction tool INSTANT

Student profile:

- Good knowledge in/affinity for acoustics, aerodynamics and aircraft design
- Good programming skills (Matlab/Python), high level of motivation

