

## Noise Model Validation for AEDT

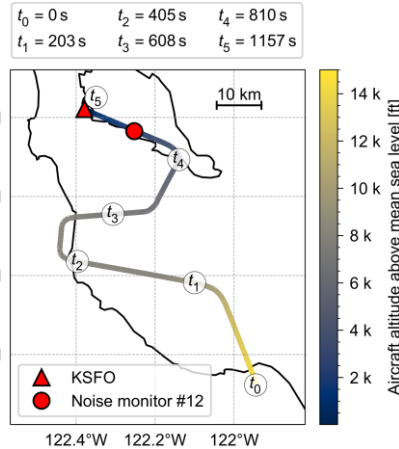
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Cost Share Partner:

Spire Global



Example arrival into SFO airport.  
Trajectory provided by GaTech.

### Objective:

- Assess the accuracy of AEDT in estimating noise compared to real-world measurements in both the vicinity of airports as well as further afield under various modeling assumptions
- Enable incorporation of high-fidelity weather in AEDT noise modeling for real-world flights

### Project Benefits:

- One of the main benefits of this project is to suggest possible improvements that could be made in future releases that enhance the predictive capability with respect to real world measurement data

### Research Approach:

- Leverage findings in sound propagation and related tools from completed ASCENT Project 40 (PSU and Purdue).
- Finish developing an in-house ray tracing code to include inhomogeneous atmosphere for noise predictions around airports.
- Understand the influence of AEDT's atmospheric absorption and acoustic impedance corrections in noise calculations, if they were a function of high-fidelity weather.
- Eventually compare the in-house code with AEDT predictions, to assess the extent of differences caused by weather effects.

### Major Accomplishments (to date):

- Supported GaTech colleagues in importing Spire Global high-fidelity weather into AEDT for the first time.
- Successfully made initial noise predictions near SFO with in-house code.

### Future Work / Schedule:

- Compare in-house noise results including inhomogeneous atmosphere to AEDT's homogeneous assumption.
- Assess sensitivity of atmospheric absorption & acoustic impedance AEDT corrections to atmospheric variability.