

## Aircraft Noise Abatement Procedure Modeling and Validation

**Massachusetts Institute of Technology  
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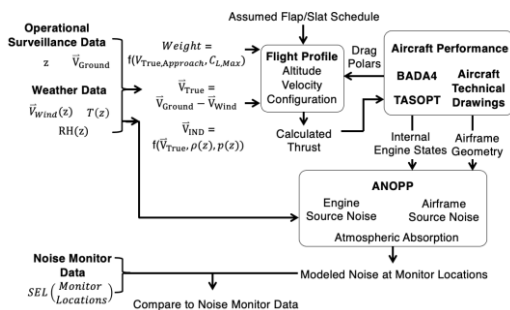
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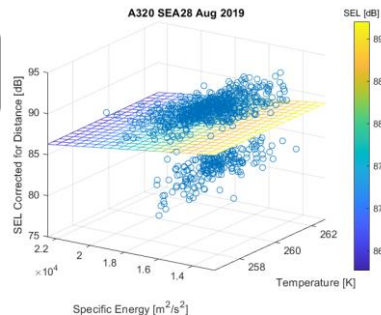
Cost Share Partner: Massachusetts Port Authority

### Research Approach:

Noise based on radar and weather data is modeled and compared to airport noise monitor data for validation. Factors contributing to variation in noise monitor recordings are identified.



Noise Modeling Framework



Preliminary Analysis of Factors Impacting Noise

### Objective:

To utilize empirical noise data to develop data-based/learned noise models and validate and improve both existing noise models and advanced operational flight procedure design

### Project Benefits:

Aircraft states, performance, and noise abatement flight procedures have been modeled and assessed through ASCENT projects 11 and 23. This project will validate and improve those models and provide insight into the modeling of noise abatement procedures like delayed deceleration approaches

### Major Accomplishments (to date):

- Developed noise modeling framework with monitor recordings, ADS-B, NOAA Rapid Refresh data. Developed performance models to estimate weight and thrust
- Demonstrated noise reduction from delayed deceleration approaches at KBOS, KSEA
- Conducted preliminary analysis to identify sources of variation in monitor recordings

### Future Work / Schedule:

- Refine analysis methodology for identifying factors contributing to noise variation
- Analyze datasets from other airport locations