ULLA-

Acoustic Measurements around Arlanda
Presentation content

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Project overview

Overall purpose:
Study the acoustic immission and sound quality for approaching aircraft

Started: June 2017,
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Issues:
• Acoustic measurement equipment
• Availability of flight data
Key problem

- Can differences in flight operational behaviour for approaches and weather provide measurable effects on air traffic noise?

- Is there a relationship between flight operational behaviour and sound quality?
Methods used

Sound level meters:
- Use approximately 30 measurement units (20 simultaneous)
- Commercial solutions
- Development of sound level meter

Cooperation within CSA:
- FDR from project Brantare can be correlated to acoustic measurements
- SAFT requires acoustic measurements in order to be validated
Sound level meter

- Commercial equipment 200 000 SEK per piece
- Production of sound level meters with requirements:
  - Correct acoustic levels
  - Weather resilience
  - Triggering for aircraft movement
  - Wireless communication
  - Self-supporting electric power system
Measurement locations

Focus should be in areas where people are affected

- Upplands Väsby and Rosersberg relevant, 01 L & 01 R (red areas)
- Densely populated areas with E4 highway and railway noise
- Assuming the flight procedure is similar in other landing directions
- Corresponding areas in 19 L, 19 R and 26 (blue areas) are less diluted by ambient noise
Conclusions

Project process is before schedule

Sound level meters planned to be tested and operational this autumn

Measurement locations focus areas

Sound quality tests planned 2018
Further research

Analysis of acoustic measurements correlated with actual flight data in collaboration with other projects;

• Matching flight data with noise measurement on the ground (*Brantare*)
• Validate results of an ongoing development of a noise simulation tool (*SAFT*)
Now/Future

Brantare

ULLA

INFRA

SAFT

Assist with flight operational expertise

Cross correlate noise with flight operation

Deliver acoustic measurements for validation of SAFT
Future

1. Deliver noise data from selected flights

Brantare

Assist with flight operational expertise

INFRA

ULLA

2. Deliver noise data synchronized with flight data

SAFT
Thank You!

Questions?
Collect flight data (operational & weather)

Structure & analyse data

Study available approaches and the operational implications of wind.

Interaction with industry and dissemination of various activities and results through participation in conferences and publication of conference papers/articles

Utveckla och skapa simuleringsmodell

Anpassa gränssnitt för input att kunna ta emot olika flygdata

Testkör simuleringsmodell med olika indata

Jämför simulerade beräkningar med ULLAs mätningar

Anpassa simuleringsmodellen för att bättre matcha ULLAs resultat

Sätt upp mätutrustning

Mät buller

Analysera bullermätningar

Matcha mot relevanta flygningar med tillgång till flygdata

Bullerdata synkade med flygdata till SAFT