Improving Capabilities in Modeling Aircraft Noise Sources

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Propositions

accompanying the dissertation

Improving capabilities in modeling aircraft noise sources

by

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1. Engine noise shielding of aircraft under operating conditions results in a decrease of the received sound level on the ground but also in a decrease of perceived annoyance (Chapter 3 and 6).
2. Disruptive low-noise aircraft concepts still require many years of research before they can be manufactured and operational. Alternatively, modifications of the engine location in current aircraft concepts (to take advantage of noise shielding) can help meeting mid-term noise reduction goals (Chapter 5).
3. The directivity and frequency content (tonal or broadband) of the noise source has a strong influence on noise shielding (Chapter 4).
4. Measured sound quality metrics can be correlated with the aircraft geometry and operational conditions. This can be used as an innovative way of predicting annoyance during the design process of a new aircraft (Chapter 6).
5. Long exposure to familiar sounds can make them less annoying but that is not true for aircraft noise. After an entire day of measurements, each flyover becomes more annoying than the previous.
6. Air traffic is often regarded as a hazard to human health and planet Earth. But apart from its economic importance, air travel connects people and cultures and ultimately contributes to a more tolerant civilization.
7. Failure is one's personal opportunity of being frustrated or enlightened. A researcher does not have the privilege of being frustrated for a long time.
8. In a world massively connected, manipulating public opinion was never so easy and profitable. More than ever, critical thinking is an essential skill that should be encouraged at a young age.
9. Enthusiasm is contagious in science, as shown by the many spontaneous started student projects every day.
10. Being patient does not make one run out of time or opportunities.

These propositions are regarded as opposable and defendable, and have been approved as such by the promotors Prof. dr. D.G. Simons and Prof. dr. ir. M. Snellen.