

CLAIRPORT – Environmental impact assessments at airport level in Clean Sky 2 TE

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Abstract

Introduction

Capitalising on the success of the Clean Sky Programme (2008-2016), the Clean Sky 2 Programme aims to make a substantial contribution to the ACARE 2050 environmental and mobility goals by accelerating the introduction of innovative aircraft technologies in the timeframe 2025-2035. Cross-positioned within the Clean Sky 2 Programme, the Technology Evaluator (TE) is a dedicated evaluation platform. It has the key role of assessing the environmental impact of the technologies developed in this programme and their level of success towards the ACARE 2050 environmental and mobility goals. Clean Sky 2 TE assessments consider all promising green technologies selected by the European aeronautical industry participating in the Clean Sky 2 Programme. These technologies are clustered in coherent and mutually compatible solution sets, defining different concept aircraft.

Discussion

The approach in Clean Sky 2 TE is to 'insert' concept aircraft into a number of evaluation scenarios. These concept aircraft are simulated in appropriate scenarios and their environmental performance is compared to that of reference-technology aircraft. Such comparisons (or assessments) are performed at three levels: Aircraft Level (single aircraft flight), Airport Level (evaluating community impact), and Air Transport System Level (evaluating global fleet and worldwide assumptions). Hence, the Clean Sky 2 TE approach aims to demonstrate the impact of the Clean Sky 2 Programme's output in the overall air transport system.

The presentation will focus on assessments at Clean Sky 2 TE's Airport Level as carried out in the Clean Sky 2 TE project CLAIRPORT. The objective of these assessments is to quantify the environmental impact at airport level up to 2050 of technologies developed in the Clean Sky 2 Programme. This impact includes noise on the ground and the population exposed to noise, as well as emissions and their contribution to air quality. To this end, air traffic at and around a set of representative European airports is simulated. Based on this simulated air traffic, noise, CO₂ and NO_x emissions in the vicinity of the airport are calculated.

Conclusion

With the first Clean Sky 2 TE assessment completed in CLAIRPORT, the presentation will provide an overview of CLAIRPORT's assessment approach and its results emerging from this assessment, as well as an outlook to the second (and final) and expanded Clean Sky 2 TE Airport-Level Assessment as will be carried out in CLAIRPORT's successor project GREENPORT2050.