

Launch of an Ecolabel for Passenger Aircraft

Task for a Master thesis according to university regulations

Background

New commercial aircraft are often advertised with many claims about their environmental advantages over reference and competitor models. These advertisement claims are often not verifiable, not based on any reporting standards (often due to a lack of such standards), and generally not backed up by reviewed scientific publications. This published PR information does not help the traveling public to choose the least environmentally damaging flight. Therefore, the concept of the Ecolabel for Passenger Aircraft was introduced as part of previous theses. It was found that aviation affects the environment most with the impact categories resource depletion and global warming (both due to fuel consumption), local air pollution (due to the nitrogen oxides emission in the vicinity of airports), and noise pollution. A calculation method was developed for each impact category based solely on official, certified, and publicly available data. To ensure that every parameter is evaluated independent of aircraft size, which allows comparison between different aircraft, normalizing factors such as the number of seats, rated thrust, and noise level limits were used.

Task

The existing Ecolabel for Passenger Aircraft should be updated and launched based on the latest available data and design considerations. ISO standards for ecolabels have to be followed. The overall environmental impact is determined by the weighted contribution of considered impact categories. For each category, a rating scale from A to G has to be updated based on the performance of the aircraft in service today. The scientific and environmental information has to be presented in an easily understandable way on the label, in a flyer, and in complete documentation. The ecolabel itself compares real aircraft in service and as such direct flights. Other tools should compare the environmental footprint when traveling between city pairs in more than one leg. It should be linked to information about the environmental footprint of other modes of transportation.

The detailed tasks are:

- Perform a brief literature study on existing and future aircraft labeling schemes.
- Discuss the ISO standards for environmental labeling and how they are applied to the "Ecolabel for Passenger Aircraft".
- Discuss and improve the existing calculation methods and calculate the environmental impact for each category (resource depletion, climate impact, ...) based on the latest available data.
- Present the environmental information in a meaningful and visually attractive Ecolabel for Passenger Aircraft, based on the EU Energy Label.
- Update and improve the existing Ecolabel Calculator. Additionally, find a way to present the environmental impact of a flight when one or more stopovers have to be made.
- Develop a comprehensible document to explain the ecolabel for Passenger Aircraft to the traveling public.

The report should be written in English based on international standards on report writing.