Modelling and Managing Airport Performance
Konstantinos Zografos,
Andreatta Giovanni and Amedeo Odoni, Editors,
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Modelling and Managing Airport Performance provides an integrated view of state-of-the-art research on measuring and improving the performance of airport systems with consideration of both airside and landside operations. The considered facets of performance include capacity, delays, economic costs, noise, emissions and safety. Several of the contributions also examine policies for managing congestion and allocating sparse capacity, as well as for mitigating the externalities of noise, emissions, and safety/risk. The book is a compilation of articles devoted to methodologies for analyzing, forecasting, and improving the performance of airports and air traffic flows with the following 10 chapters dealing with all aspects of airport functionality:

- Modeling Airport Landside Performance, dealing with levels of service, check-in, departure lounges, baggage claims, etc.
- Decision Support Systems for Integrated Airport Performance Assessment and Capacity Management, discussing modelling concepts
- Measuring Air Traffic Management (ATM) Delays Related to Airports: A Comparison between the US and Europe
- Forecasting Airport Delays
- Airport Operational Performance and Its Impact on Airline Cost
- New Methodologies for Airport Environmental Impact Analysis
- Airport Safety Performance
- Scheduled Delay as an Indicator for Airport Scheduling Performance
- Implementation of Airport Demand Management Strategies: A European Perspective
- Design and Justification for Market-Based Approaches to Airport Congestion Management: The US Experience, discussing slots, small communities, and so forth.

Because this review is being published in the Noise Control Engineering Journal, the focus of this review will be on Chapter 6, "New Methodologies for Airport Environmental Impact Analysis," by Hansen, Ryerson, and Marchi, which focuses on four key undesirable byproducts of airport and aviation operations: noise, water runoff, air pollutants and Greenhouse gas emissions (GHG).

The discussion of noise in Chapter 6 is thorough and informative. It addresses a conundrum that practitioners have wrestled with for decades, namely that while aviation noise levels have decreased significantly in absolute terms over the last several decades, annoyance from and resistance to airport operations remains unchanged (or in some areas is even increasing). The authors of Chapter 6 review the effects of noise on people, various policy approaches that have been undertaken, and models for predicting noise exposure from aircraft operations.

Hansen et al. propose that better models that address policy impacts, not simply the impacts from the pollutants, should be developed. These policy models would allow for objective comparison of various policy alternatives and would also allow for evaluation of the impacts of multiple pollutants (i.e., tradeoffs).

In short, Chapter 6 proposes that better models would enable comprehensive policy analysis that would put the impact and effects of noise in context with other environmental pollutants and allow for more effective decision-making.

I would recommend Chapter 6 of Modelling and Managing Airport Performance for those seeking a concise summary of the range of environmental challenges facing airports.

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