ICAO Airport Air Quality Guidance

Roger Gardner, Omega/MMU, UK

Outline

- Aims and approach
- Guidance now available (from CAEP/7)
- Current work
- After CAEP/8
- Summary

Why produce guidance?

- Airport air quality can be a significant problem
- Regulators and industry need robust quantification information to guide effective responses
- Inventory expertise and data is patchy
- Many assessment approaches in use

ICAO aims for guidance

- CAEP/6 remit to produce ‘best practice’ information for states and others
- Gather and build upon existing knowledge, harmonise where possible
- Provide a toolkit for users recognising differences in user needs and capabilities

Approach

- Produce as an ICAO manual
- Linked to other ICAO guidance, e.g Circ 303 and charges guidance
- Tiered approach according to need and available data
- ‘Living' document that will be updated as knowledge improves - loose leaf format
- Available on the ICAO website

Overview of Guidance Development – 3 phases

- Phase I – CAEP 7
  - Introduction
  - Regulatory Framework's & Drivers
  - Emissions Inventory
  - Emissions Temporal and Spatial Distribution

108-page document

- Phase II – CAEP 8
  - "Advanced" and "Sophisticated" Aircraft Inventory Section
  - Dispersion Modelling
  - Airport Air Quality Measurements
- Phase III – CAEP 9
  - Mitigation Options
  - Interrelationships

First two chapters

- Introduction – Overview of document purpose, ICAO role & activity, and air quality assessment
- Regulatory Framework's & Drivers - Background information on:
  - regulatory context,
  - drivers for action to address airport air quality, and
  - how the aircraft source contribution relates to other sources

Second two chapters

- Emissions Inventory – Intended to give users:
  - the ability to create inventories of aircraft and airport source emissions and
  - where and when applicable, to prepare those data for input to dispersion models.
- Emissions Temporal and Spatial Distribution – General considerations, distribution processes, input data for computer modelling, and data formatting and reporting.

Current Inventory Chapter (1)

- Tiered Approach – Allows users to draw upon methodologies with increasing levels of accuracy (and broadly commensurate complexity) according to their need and available data
  - Simple – only easily obtained data required
  - Advanced – best possible with non-proprietary data
  - Sophisticated – requires proprietary data

Current Inventory Chapter (2)

- Inventory Section – Overview including emission parameters and species, and airport sources. Annexes on calculating emissions from:
  - Aircraft
  - Aircraft Handling
  - Infrastructure-Related and Stationary Sources
  - Vehicle Traffic

Second phase – Current Work (1)

- Refine and develop the inventory chapter of the Guidance
  - "Advanced" and "Sophisticated" inventory sections
  - Extend inventory capabilities, subject to advice from the CAEP emission technology group (WG3), on aircraft performance & operation (e.g. start-up, idle, take-off roll & take-off)
  - Take on board refinements in particulate emissions estimation using FOA (first Order Approximation)

Second phase – Current Work (2)

- Development of new chapters in the Guidance Document on:
  - Dispersion modelling – the approaches and tools used
  - Airport Air Quality Measurement – for compliance and model verification purposes

Requires new expertise

- Delivery planned for CAEP/8

CAEP 8 and beyond

- For CAEP/8 - Deliver means to model emissions – show concentrations and refine knowledge of potential impact
- After CAEP/8 – the toolkit enabling optimal management and mitigation of those impacts, including the interdependencies

Summary

- First part of guidance available (on the ICAO website)
- Allows quantification of airport emissions
- Modelling and measurement being worked on now: mitigation and interdependencies later
- REQUEST - States and observer organizations support – Second phase will be dependent upon States and observers offering extra and new resources

ANY QUESTIONS?