4.02 REPRESENTATION OF DISPERSION OF AIRCRAFT EMISSIONS IN URBAN ENVIRONMENTS

ApSimon H, Farias F.
Imperial College, Dept.of Environmental Science and Technology. London, UK

As the contribution to urban air pollution from road emissions is steadily reducing in cities of developed countries, other emission sources are becoming comparatively more relevant. The contribution to air pollution levels from emissions produced by the operation of airports located close to cities is one example in this respect. This phenomenon is accentuated due to urban settlement dynamics resulting in increases in the number of people exposed either living or working around these facilities and expansion wishes of airport operators to cope with forecasted increases in air traffic demand.

A definitive agreement in the representation of dispersion of aircraft emissions in urban environments has still not been achieved on either side of the Atlantic. The current favoured geometrical representations are either areas or volumes located at different heights, characterizing emissions from different stages of the aircraft landing-take off cycle.

Data from the last available emissions inventory for Heathrow airport in West London was used to represent emissions released in the two runways of the airport alongside a well-known software package, ADMS-Urban, applied extensively for modelling air pollution in cities. Different physical and geometrical parameters for these area and volume representations at different heights were systematically tested, showing different degrees of influence in the final spatial distribution of emissions.

A comparison with monitoring data from a station near to the airport was performed, highlighting the difficulties of assessing the contributions from multiple sources having an impact in urban environments.