



Fog Alleviation: An Unintended Benefit of Airport Construction and Operations at Amsterdam's Schiphol Airport?

Jonathan G Izett (1), Bas J H van de Wiel (1), Peter Baas (1), Ruben B Schulte (2,3)

(1) Department of Geoscience and Remote Sensing, Delft University of Technology, Delft, The Netherlands (j.g.izett@tudelft.nl), (2) Meteorology and Air Quality Group, Wageningen University and Research, Wageningen, The Netherlands, (3) Netherlands National Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands

Fog - in particular, the associated reduction in visibility - presents a hazard to airport operations. Although technology has improved to allow greater safety during fog events, protocol still requires more time between aircraft movements, often resulting in significant delays and cancellations. Yet, observations at Amsterdam's Schiphol International Airport in the Netherlands (one of Europe's busiest airports) suggest that the airport buildings and aircraft operations themselves may help to alleviate some of the fog hazard. Meteorological data from a network of weather stations at and around Schiphol airport are used to assess the occurrence and severity of fog events. Runways located closer to airport terminals are shown to experience both fewer and shorter fog events than those at greater distances from the main terminal complex. Further, large aircraft - in particular Boeing 747s - are observed to raise local runway temperature and wind speed by as much as a few degrees under nocturnal stable boundary layer conditions, which can have a significant impact on the formation of local fog. These findings present an interesting look at the local influence of airport construction and aircraft operations, suggesting that they may ultimately lead to "built-in" fog mitigation beyond the natural, undisturbed state. The benefit likely grows with the size of the airport. The larger and busier the airport (such as Heathrow, or Paris-Charles de Gaulle), for example, the more damaging a fog event can be, but the greater potential for disruption of fog formation due to greater number of aircraft movements.