EMS7/ECAM8 Abstracts,
Vol. 4, EMS2007-A-00124, 2007
7th EMS Annual Meeting / 8th ECAM

1 The economic value of short term Terminal Aerodrome Forecasts

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Delays, caused by adverse weather, account for most of the weather related expenses of airline operators. Especially in the morning, when demand on landing capacity is maximal, delays can be long. We calculated the value of the nightly (01:00hr) Terminal Aerodrome Forecasts (TAF) in the capacity planning process for this 2 hour peak demand period at Schiphol. These are the first results in a KNMI project that studies the economic value of weather forecasts.

We designed a model consisting of three steps. First, Forecasts (TAF) and observations (meteorological aviation routine weather report, METAR) are translated to forecast and "observed" capacities using the Schiphol runway selection and capacity declaration schemes. The second step calculates the delays. Unavoidable delays occur when the forecast capacities are correct but less than the runway maximum. Avoidable delays occur when the capacity forecasts deviate from the actual "observed" capacities. The third step calculates the total annual cost using a report from Eurocontrol*. This report differentiates the cost of one minute delay to ground (ATC) and airborne (holding) delays as well as short term (less than 15 minutes) and long-term (15 to 65 minutes) delays. The annual costs with the actual forecast are compared to the hypothetical costs with perfect forecasts (forecast =observation) and persistency forecasts (forecast=observation at 01:00hr).

Our results show that the 01:00hr TAF on average managed to prevent EUR 1.5 mln. of delay costs annually over the period 1996-2005. An additional EUR 1.5 mln. can

be gained when the forecasts improve to almost equalling the observations.