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AIC-A
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REVISED

AIRCRAFT INDUCED LIGHTNING (AIL)

1 — INTRODUCTION

Aircraft induced lightning (AIL) strikes have occurred in the past, adding significant costs (i.e. inspections or even damage) to airline operations. This AIC describes the efforts made by KNMI (Royal Netherlands MET office) and their aviation partners to better understand AIL and to increase pilot awareness of AIL in the Schiphol TMA.

2 — WEATHER CONDITIONS SUSCEPTIBLE FOR AIL

AIL is difficult to predict due to the relatively low lightning frequency during autumn and winter. In cold weather conditions towering cumulus (TCU) and cumulonimbus (CB) clouds usually do not generate lightning, but an aircraft flying through, or close to, such a cloud may trigger an unexpected discharge, resulting in one single lightning strike onto the aircraft. In the Schiphol TMA, AIL specifically occurs at low altitude during approach and departure phases.

Two weather types are identified as being susceptible for AIL:

- A west to north westerly flow of cold, unstable air ($T \leq -10^{\circ}\text{C}$, upper level FL 100) from northerly latitudes. This weather situation rises low topped TCU or CB clouds (tops in general $< \text{FL } 200$), which compared to summer storms, are small in diameter.
- A south westerly flow of unstable polar air advected from the British Channel towards the south part of the North Sea and the Dutch coast. In this weather situation thundery showers can occur.

Because the development of thundery showers in above mentioned weather types is similar, forecasts for these weather types can include forecasts for unexpected AIL.

3 — KNMI SERVICE

KNMI produces AIL awareness reports for the Schiphol TMA. The reports are available on the KNMI website www.aviationweather.nl (or www.luchtvaartmeteo.nl) from October 15th until April 15th every 3 HR between 0000-1500 (2300-1400). The reports are valid for 9 HR and will be amended when necessary. The reports are available in graphical and bulletin format. Details are available on the website's online Help.

4 — IMPROVING AIL FORECASTS

Reports from pilots encountering AIL have proven to be valuable to improve AIL forecasting. However, still more research needs to be done to investigate when, how, and why AIL occurs. KNMI therefore requests pilots to continue to report AIL occurrences in the Schiphol TMA to ATC the Netherlands. By comparing pilot reports, forecasts, and weather data, KNMI hopes to improve AIL forecast services.

Next to the normal ATC procedure to report a lightning strike, KNMI would also appreciate any possible information on lightning strikes in the Amsterdam FIR by email: aviation@knmi.nl, or during office hours MON-FRI 0730-1600 (0630-1500) by telephone: +31 (0)30 2206 657/474.

5 — DOCUMENT CONTROL

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