Weather dependent shift strategy at KNMI

History

During the 1980's and 1990's, KNMI (Royal Netherlands Meteorological Institute) consisted of three main forecast offices, and another three secondary ones. The main Offices were in Zierikzee (later Hoek van Holland) where maritime forecasting was based, Schiphol airport for aviation forecasting and De Bilt for general forecasting. Furthermore there were forecast/briefing offices at three regional international airports. This set-up caused an enormous amount of duplication, with each office drawing its own charts, producing its own forecasts almost from scratch etc.

Centralisation, first step

After lengthy discussions, KNMI decided to centralise forecasting (at least partially), and in November 2001 the Central Forecasting Office (CFO) in De Bilt became operational. The maritime office was completely closed and the aviation station at Schiphol was reduced to only one forecaster per shift, responsible only for Schiphol itself, while the Meteorological Watch Office and forecasting for other airports and general aviation was transferred to the CFO.

Centralisation, second step

At the end of March 2003, services at Schiphol (apart from observations) ended rather abruptly due to staffing problems, and the last forecasters where also withdrawn from the site.

Users in the aviation community in The Netherlands were not pleased at all and feared that there would be a significant effect on quality and service. By the end of 2002 there had been a study by one of the senior aviation forecasters at Schiphol on the possibilities and advantages of having an experienced forecaster on site at the Air Traffic Control (ATC) Approach facilities at Schiphol. The results of this study were quite promising and proved that having such a Meteorological Advisor on site would have great advantages in trying to reduce costs due to suboptimal use of the limited capacity of the airport.

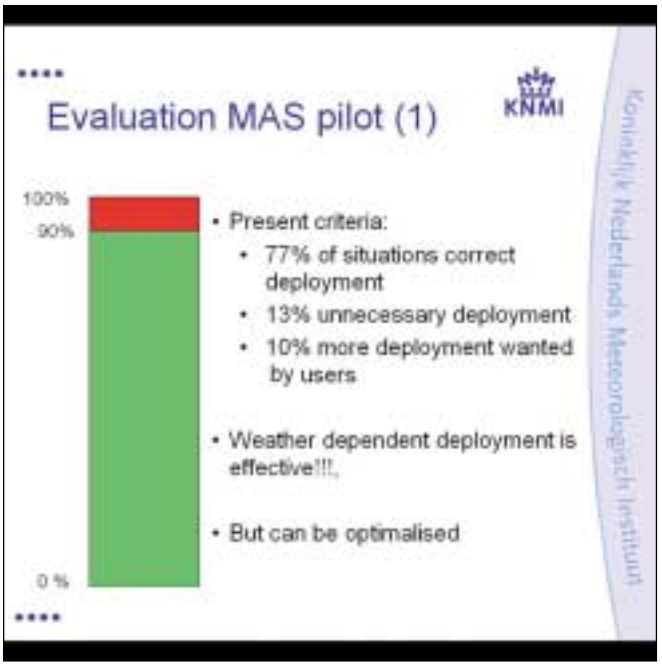
Advantages of Meteorological Advisor on site

In addition to the cost reductions mentioned above, ATC realised that there were other advantages in having their advisor next to them and "live". Face to face contact was

seen as providing greater trust in the forecasting and nowcasting qualities of these advisors. On the other hand, forecasters were happy to be "there where the real action is" and felt much more appreciated whilst gaining a greater understanding of the decision making processes within ATC.

Pilot scheme for the MAS (Meteorological Advisor Schiphol)

The combination of factors mentioned above led to a pilot study from October 2003 extending into spring 2004. A preliminary working desk was installed in the ATC Approach site but forecasters only went on duty under certain (weather) conditions. The procedure is as follows: Each evening around 2000 local time, the aviation forecaster in De Bilt and the Supervisor Approach at Schiphol talk to each other by telephone and based on the forecast weather conditions for the next morning (visibility, cloud ceiling, severe weather, cross/tail wind), the decision is made whether or not to deploy the forecaster to Schiphol. The MAS would only be available for the morning shift, normally 0500-1300 local time. This is the period when the first morning peak occurs in terms of air traffic and delays cause maximal impact due to so-called snowballing (effects that can be felt throughout the whole day and sometimes even longer). In prolonged extreme weather situations KNMI will try to have a second MAS available for a late shift. The period of presence can also be changed when adverse weather is forecast during any other specific period of the day (e.g severe thunderstorms in late afternoon during summer)



Evaluation

Evaluation of the pilot scheme showed that in 77% of cases the deployment of the MAS was useful to very useful, in 13% of cases it was deemed to be not necessary and in 10% of cases necessary but not deployed. Furthermore Air Traffic Controllers were appreciative of the presence of the MAS very much, awarding their ability over the whole period with 8 or above (on a scale of 1-10).

According to what was expected from climatology, the MAS was sent to the airport on 55-60% of the days during winter.

Conclusion

The main conclusion was to implement the deployment of a weather dependent MAS following the successful trial provided by the pilot scheme. It was decided to refine the criteria/thresholds on which the decision to deploy or not would be based. To facilitate face to face contact with other users (such as Schiphol Airport Authorities), a video conference system would be put in place.

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