



Dedicated to innovation in aerospace



Training for Winter Conditions at Amsterdam Airport Schiphol

Reykjavik, 10 October 2011

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Department Training, Simulation & Operator Effectiveness



Winter in the Netherlands

as it used to be...



as it is today...

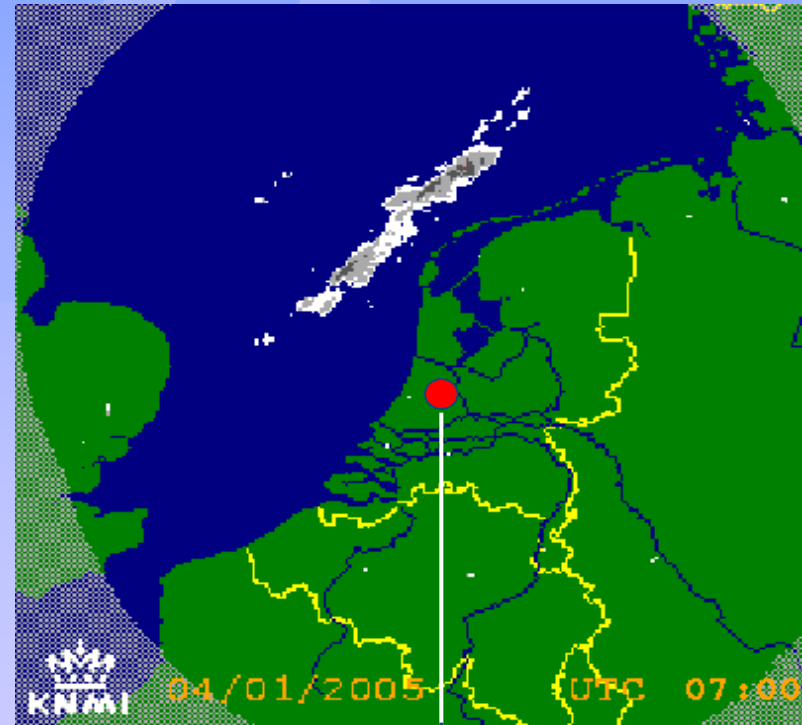




Incidentally....



Snow strikes unexpectedly



SPL



Early March 2005: Schiphol in grip of winter due to severe and unexpected snowfall

Most important problems

- Communication between parties
- No maximal utilisation of available de-icing capacity
- Snow removal stands not optimised
- Loss of overview of gates and aircraft
- Snow fleet could not be moved in time during degrading visibility conditions
- More passengers spending the night at the airport than necessary



NLR Solution: Exercise for all main operational parties @ SPL



Exercise objective

“During severe snow and icing conditions the participants are able to run the airside operations at Schiphol Airport in such a way the damage for the timetable (inbound and outbound) is minimised.”



Operational parties @ different locations



Schiphol Tower

- 12th floor: Dutch ATC Tower
- 10th floor: Schiphol / KLM



Schiphol Centre

- KLM Ground Services
- Schiphol Airside Ops



Schiphol East

- KLM ATM
- KLM Operations Control
- Dutch ATC Approach

Different training locations



KLM Operations Control



Tower simulator



**Exercise management
Kitchen crew
Technical support**



KLM Hub Control



**Deicing
Gate planning
Apron control**

Different scenarios possible

Example scenario:

- **Morning scenario (outbound peak)**
- **Duration: 4 hours**
- **Initial conditions**
 - The airport is covered with snow. The runways are clear and capacity is not limited.
 - Three de-icing teams are available
 - Snow fleet stand-by
 - Runways in use:
 - Take-off: 36L
 - Landing: 06



Example scenario events

- T+15 Snowfall reaches Schiphol
- T+20 Braking action 36L "Poor"
- T+20 Diverging flight
- T+30 Assign slot times, due to situation at other European airports
- T+50 Buffer positions not swept clear of snow
- T+50 Aircraft tries to jump the de-icing queue
- T+60 Prioritisation of flights by KLM Operations Control
- T+70 Trumps run out of de-icing fluid
- T+80 Aviobridge frozen
- T+90 Technical problem after de-icing aircraft
- **etc.**



The results

(...) “From this and other exercises the importance of fast, complete communication between all parties was emphasised once again. When it started snowing at the end of December 2005 **the exercise appeared to be fruitful**, on both the operating as well as the co-ordinating side. **The teamwork between the parties involved went better than ever before. The airport remained open**, whereas train and car traffic stood still.”

(Source: www.schiphol.nl, januari 2006)



Track record – four winter exercises

- **2005 – Snowflake**
 - Schiphol Airport, ATC, KLM

- **2006 – Snowwhite**
 - Schiphol Airport, ATC, KLM

- **2007 – Joint Forces**
 - Schiphol Airport, ATC, KLM

- **2011 – Winter training ATC The Netherlands**
 - ATC & Schiphol Airport



Conclusion

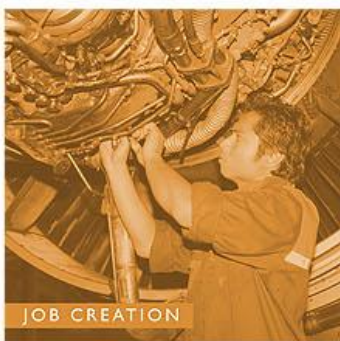
Multi-disciplinary training in the simulator is key in preparation for adverse weather conditions

- Interaction between players of different parties involved proved very valuable
- Multidisciplinary debriefing leverages training effectiveness
- Possibility to emphasise action items for the coming winter





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