

MeteoGroup Operational System:

Automated Forecasts, meteorologist intervention
and final products

12 NOVEMBER 2007

ERIC TERPSTRA

i. Automated Forecasts

MODELS

MOS development

Operational system

ii. Meteorologist Intervention

iii. Final products

Models

ECMWF 00, 12 UTC

EPS 00, 12 UTC

- direct line with ECMWF

GFS 00, 06, 12, 18 UTC

- through NCEP

- Verifications have shown ECMWF is best model for MOS purposes

- Major MOS update based on availability ECMWF at 07/19.15 UTC

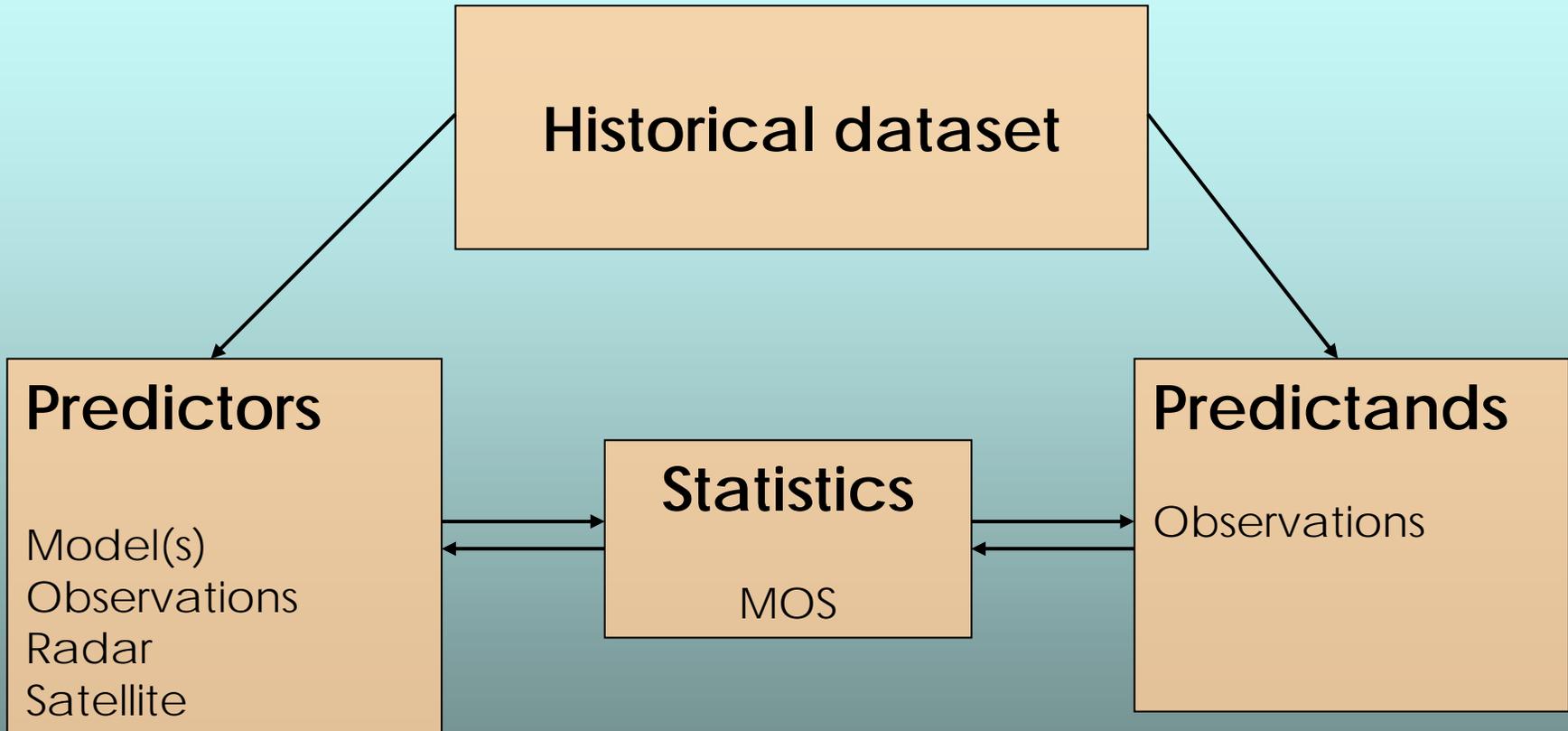
MOS - MODEL OUTPUT STATISTICS

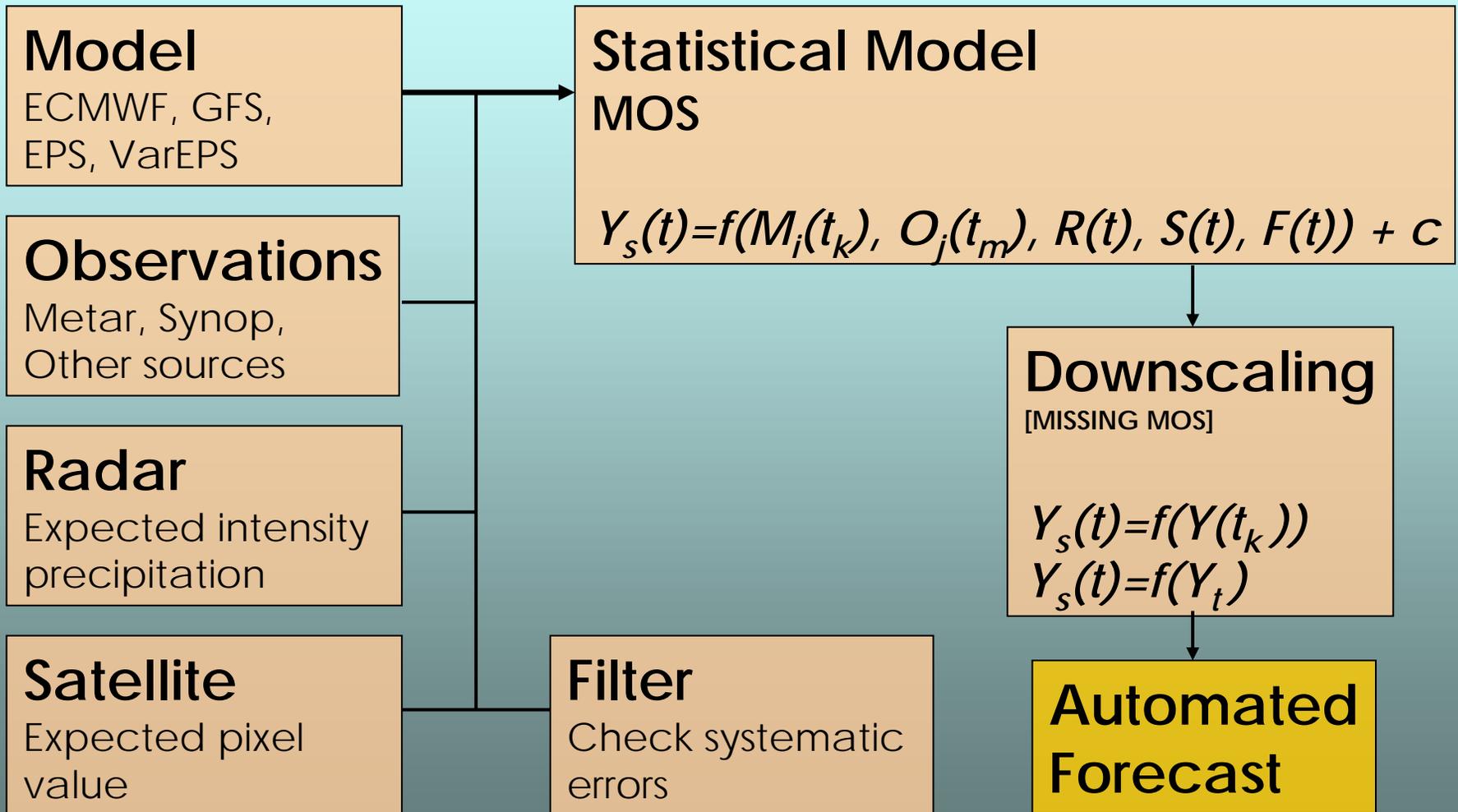
Forecast for a specific site (x,y) and time (t)
for predictand Y
with predictors X

$$Y(x,y,t) = X(x_i, y_i, t_i) + c$$

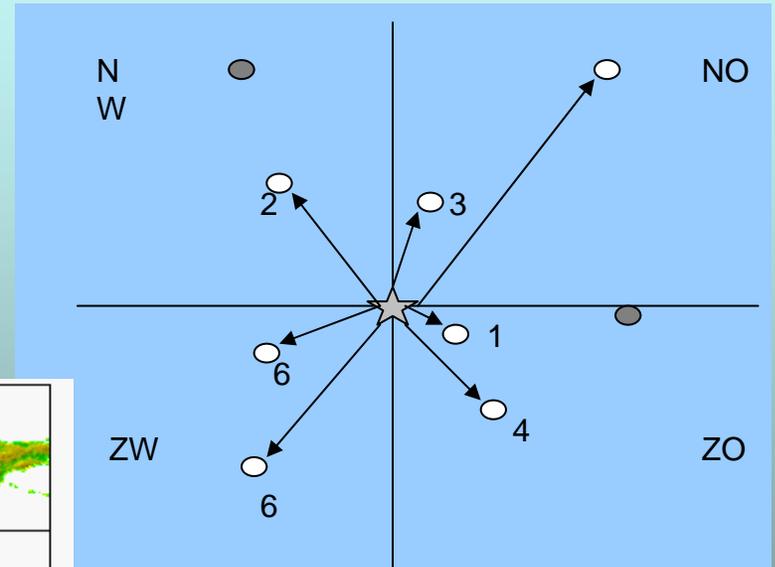
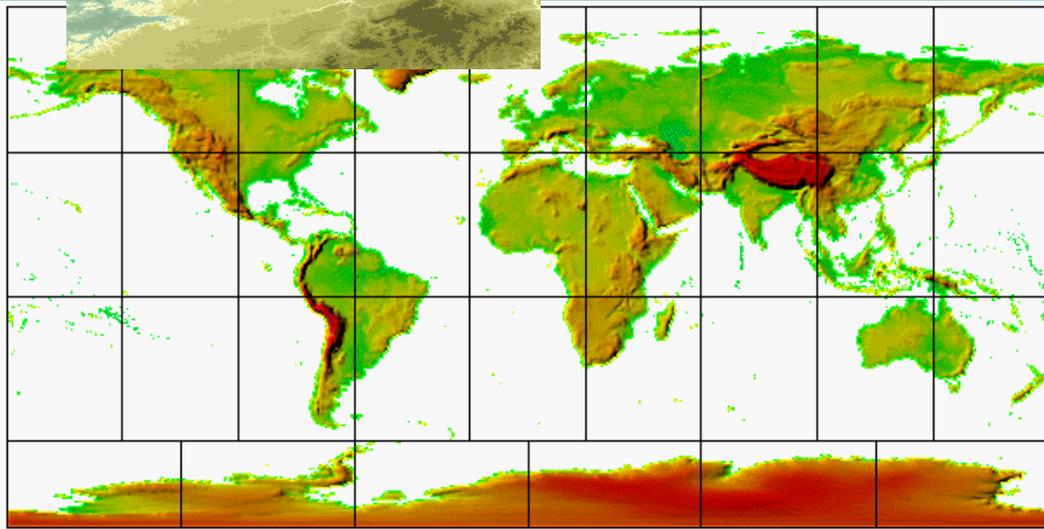
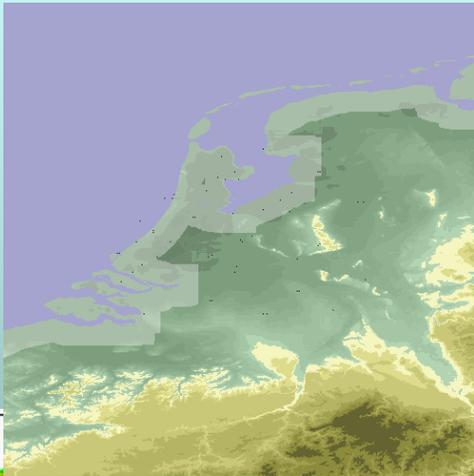
MOS - MODEL OUTPUT STATISTICS

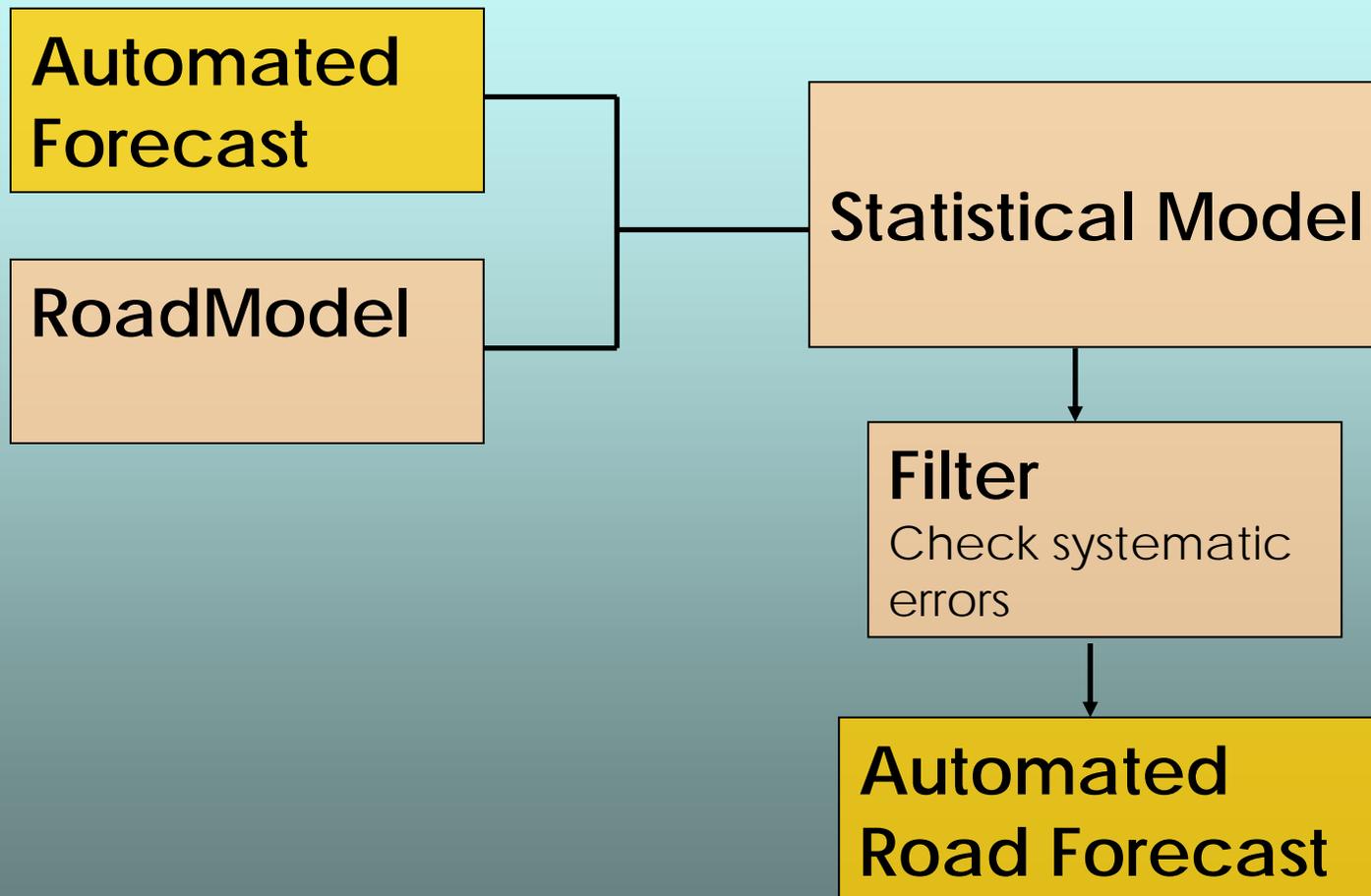
- Outperforms DMO on average 20%
- Bias free
- Predictands *not* in the model (visibility, probability freezing rain)





Downscaling





System properties

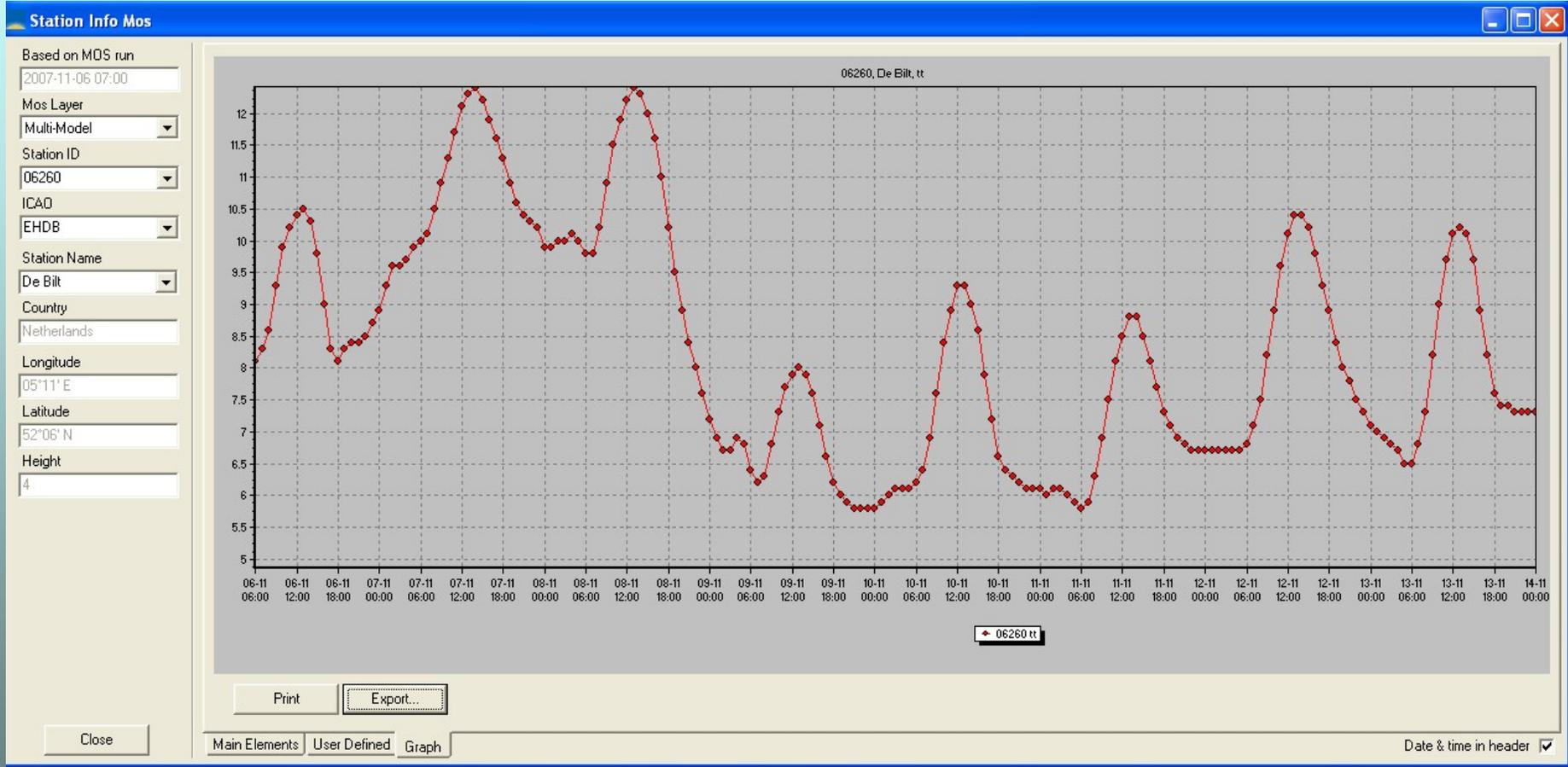
**** all locations complete information ****

- 1- A specific location
- 2 – Based on MOS
- 3 – 1-hourly up to 15 days
- 4 – All weather stations in the world (~15.000)
- 5 – 85 forecast elements
- 6 – updated every hour [2 days ahead]
- 7 – updated twice a day [15 days ahead]

Matrix of 85 columns x 5.4 million rows

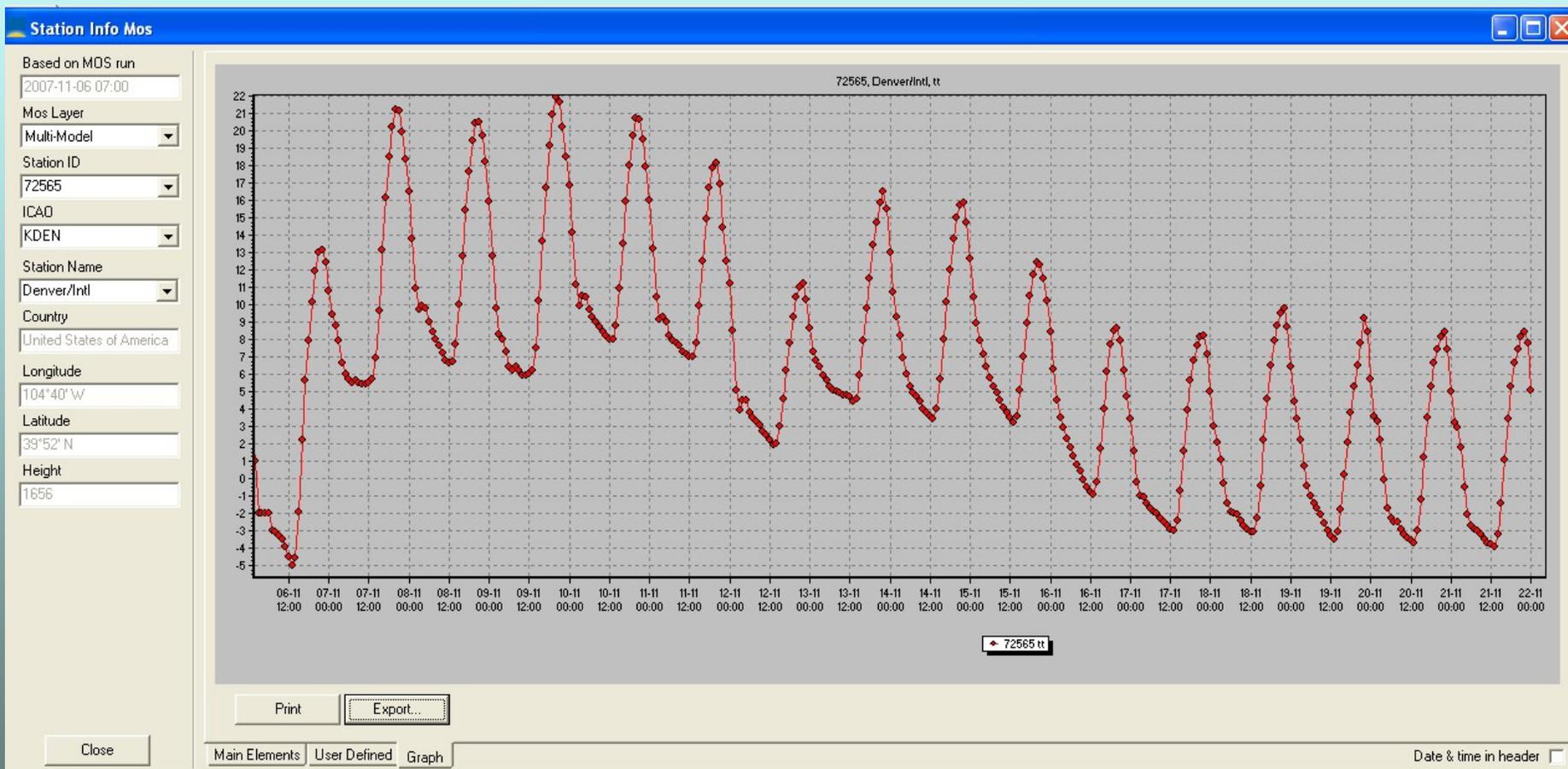
Operational system

MeteoGroup

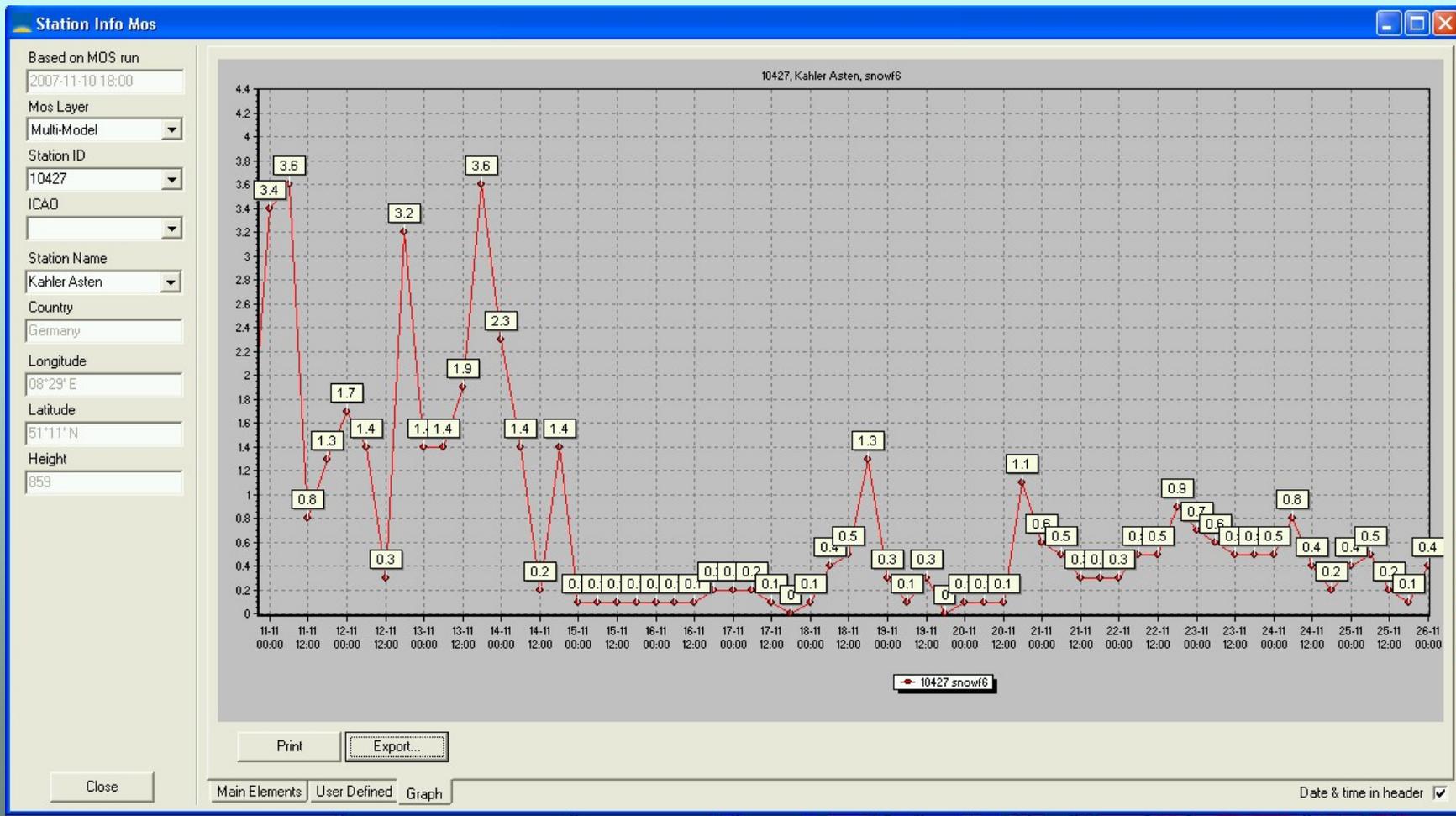


Operational system

MeteoGroup

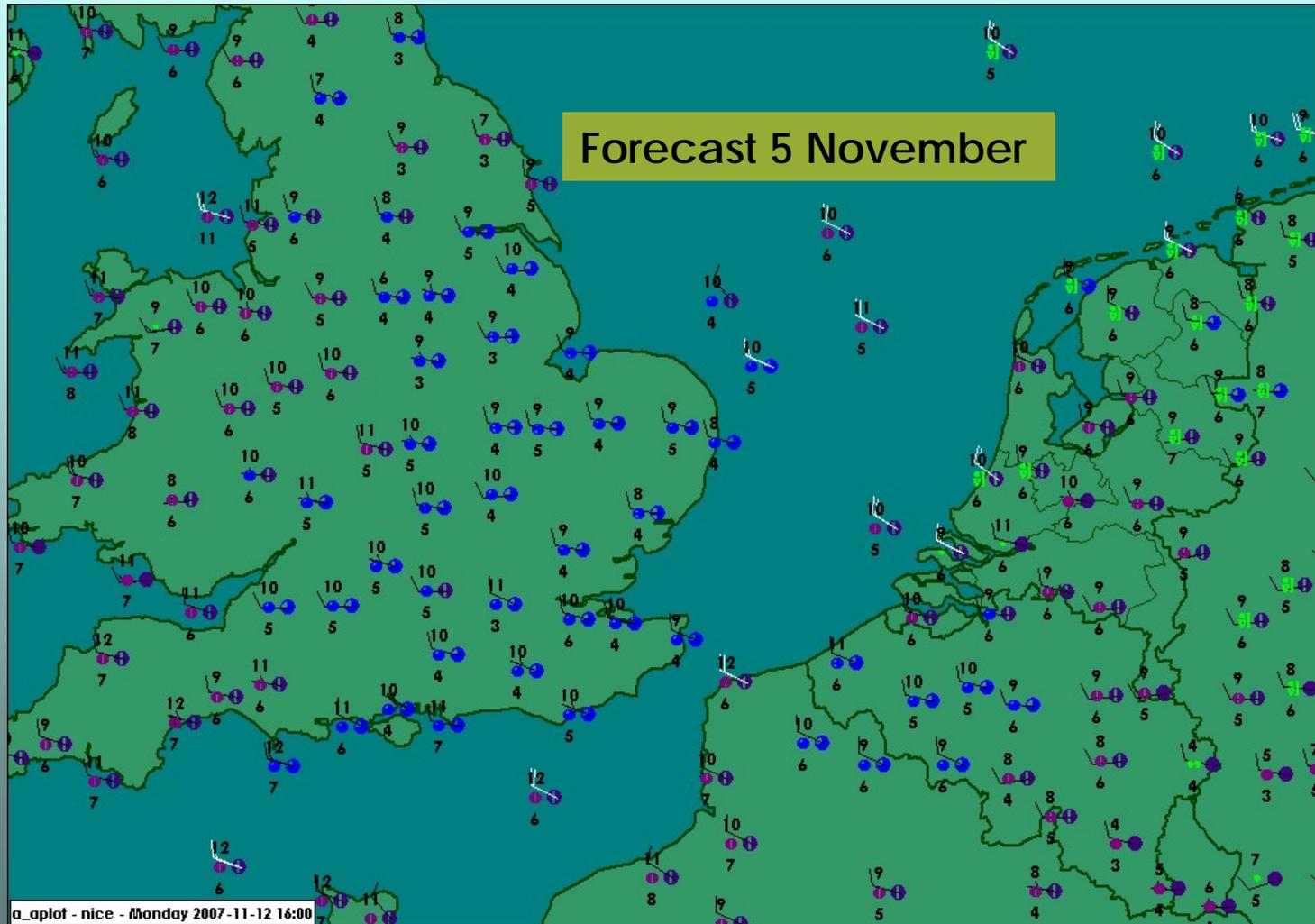


Operational system



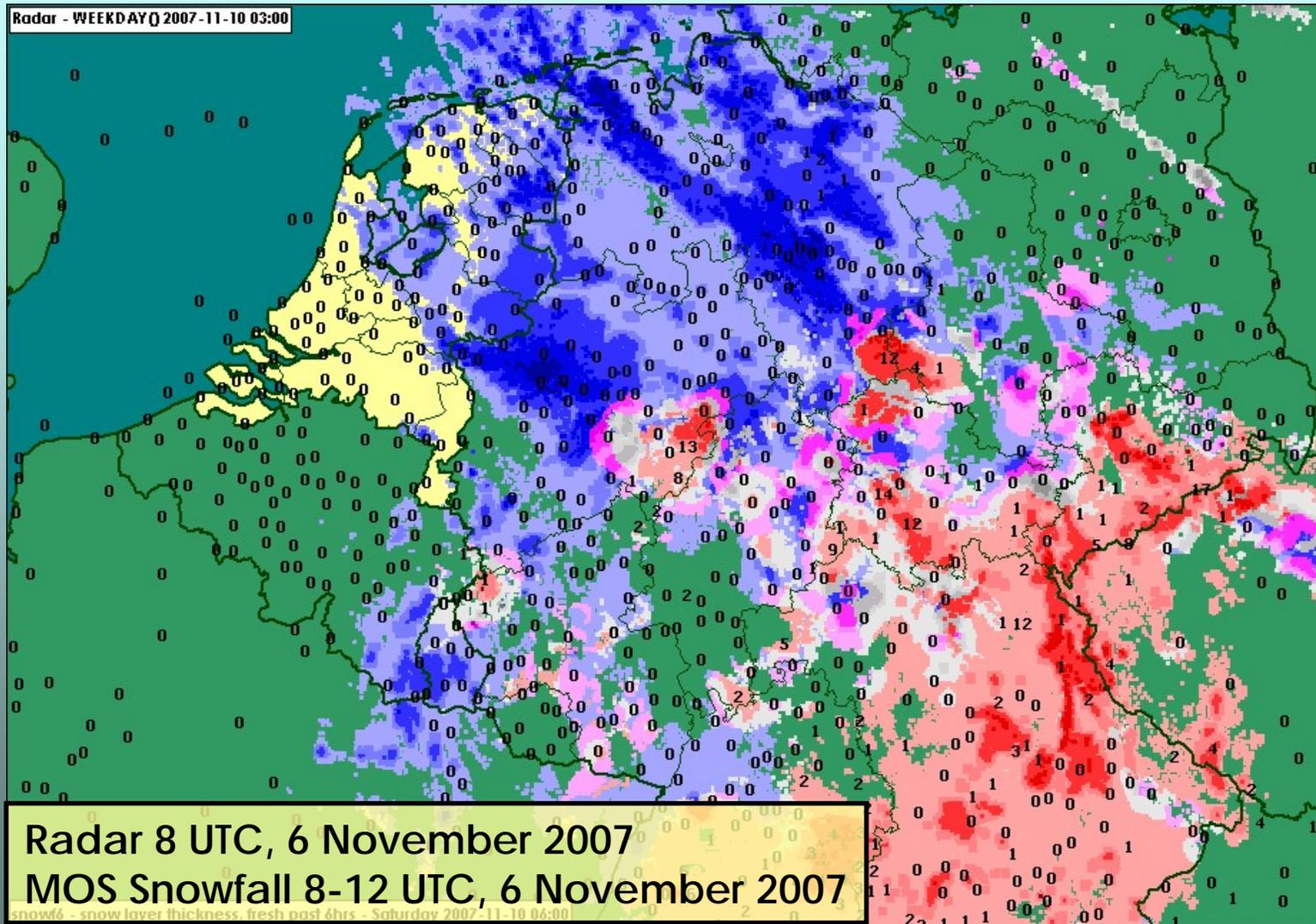
Operational system

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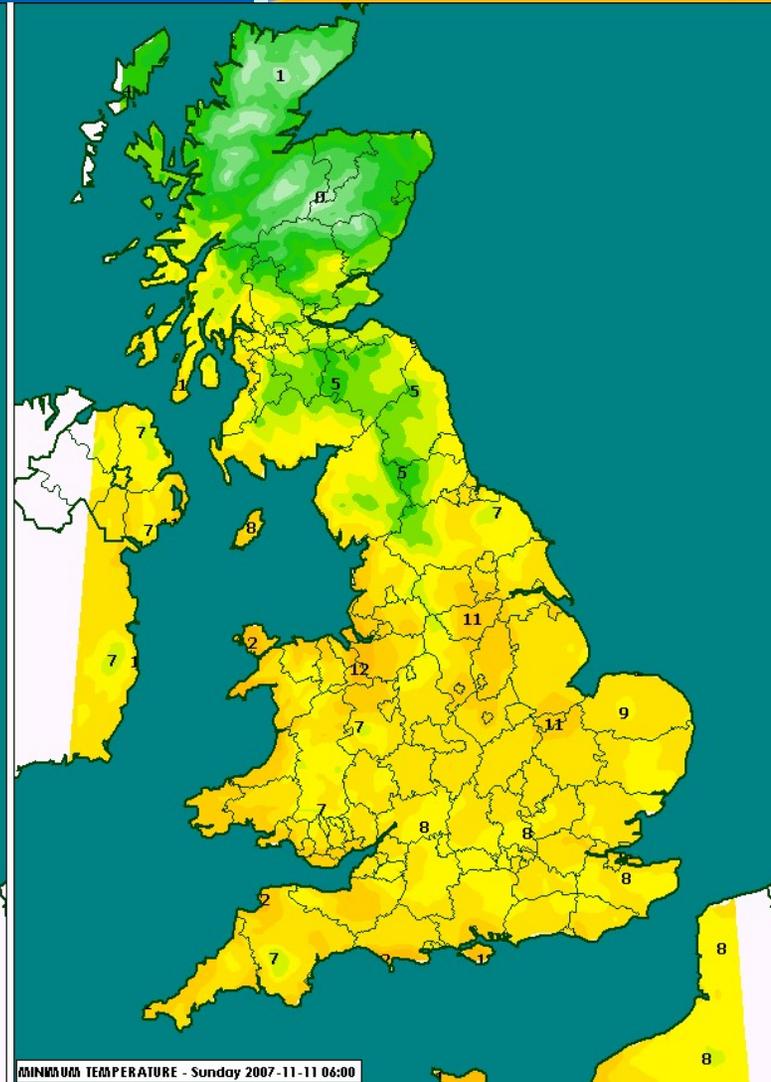
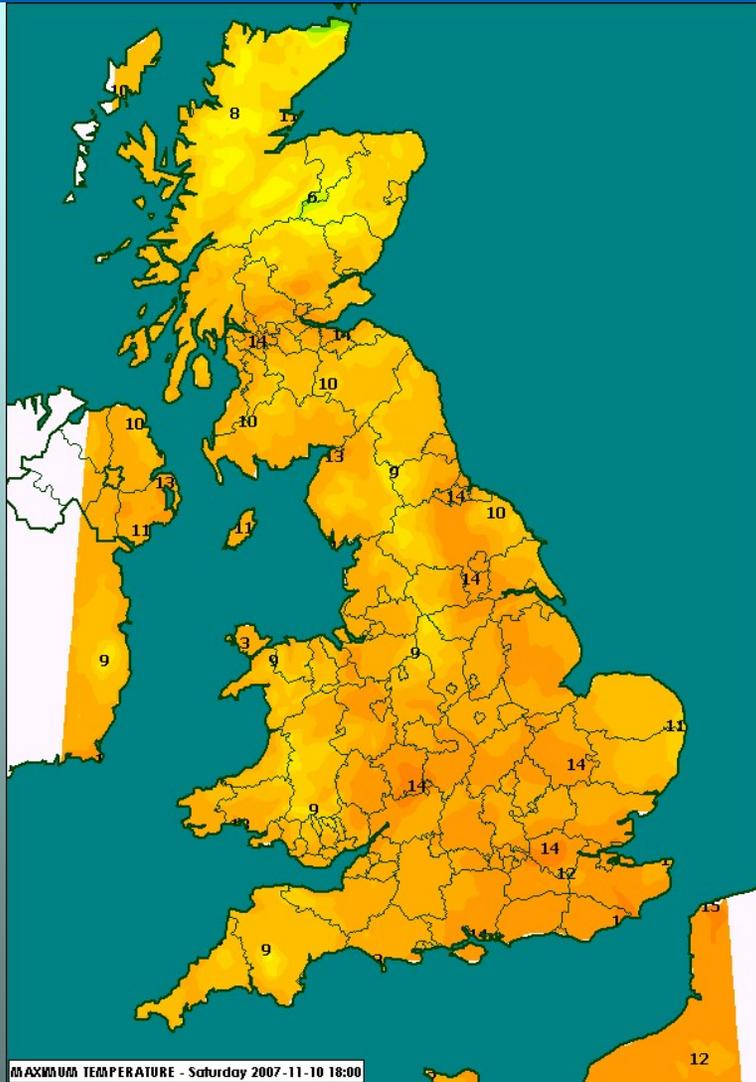
Operational system

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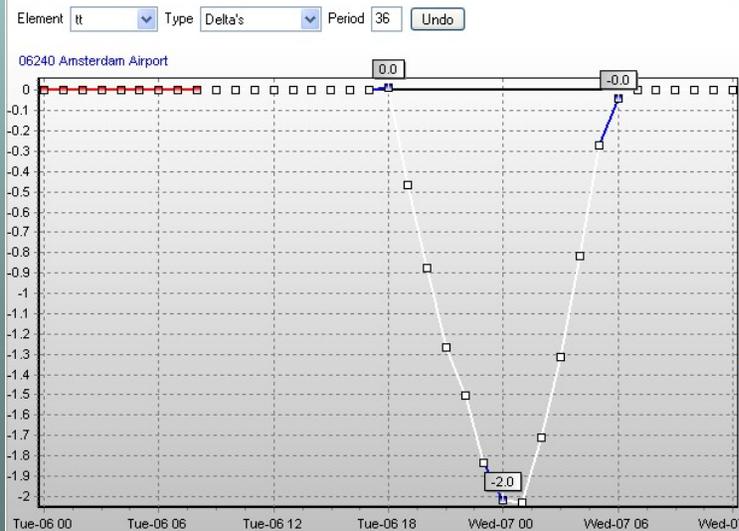
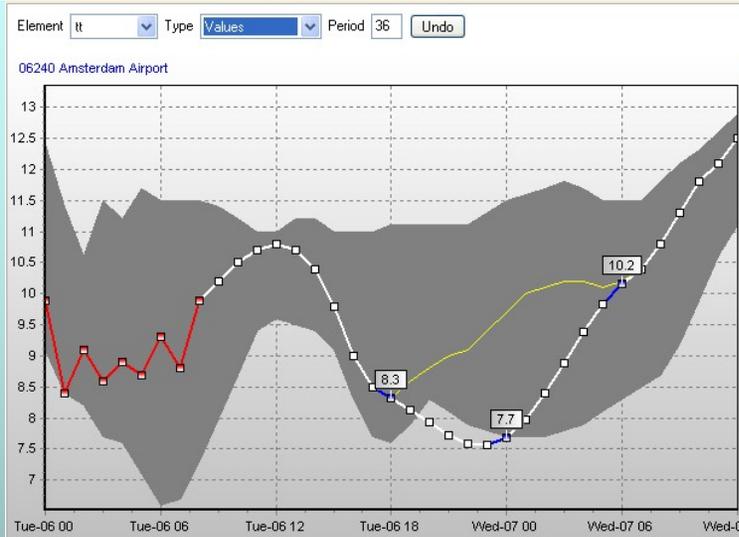


Meteorologist intervention

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Meteorologist intervention



Automated Forecast

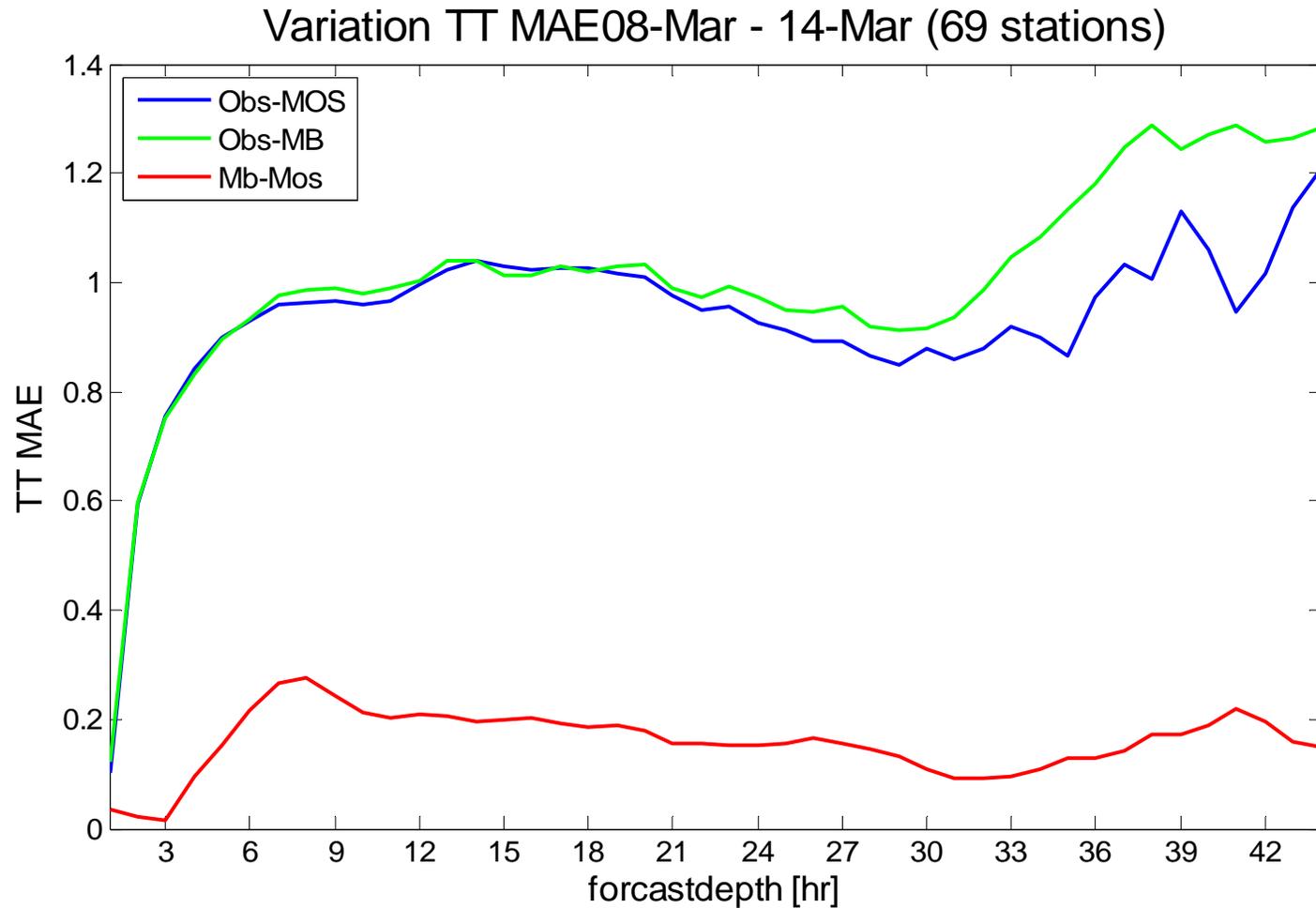
Intervention application

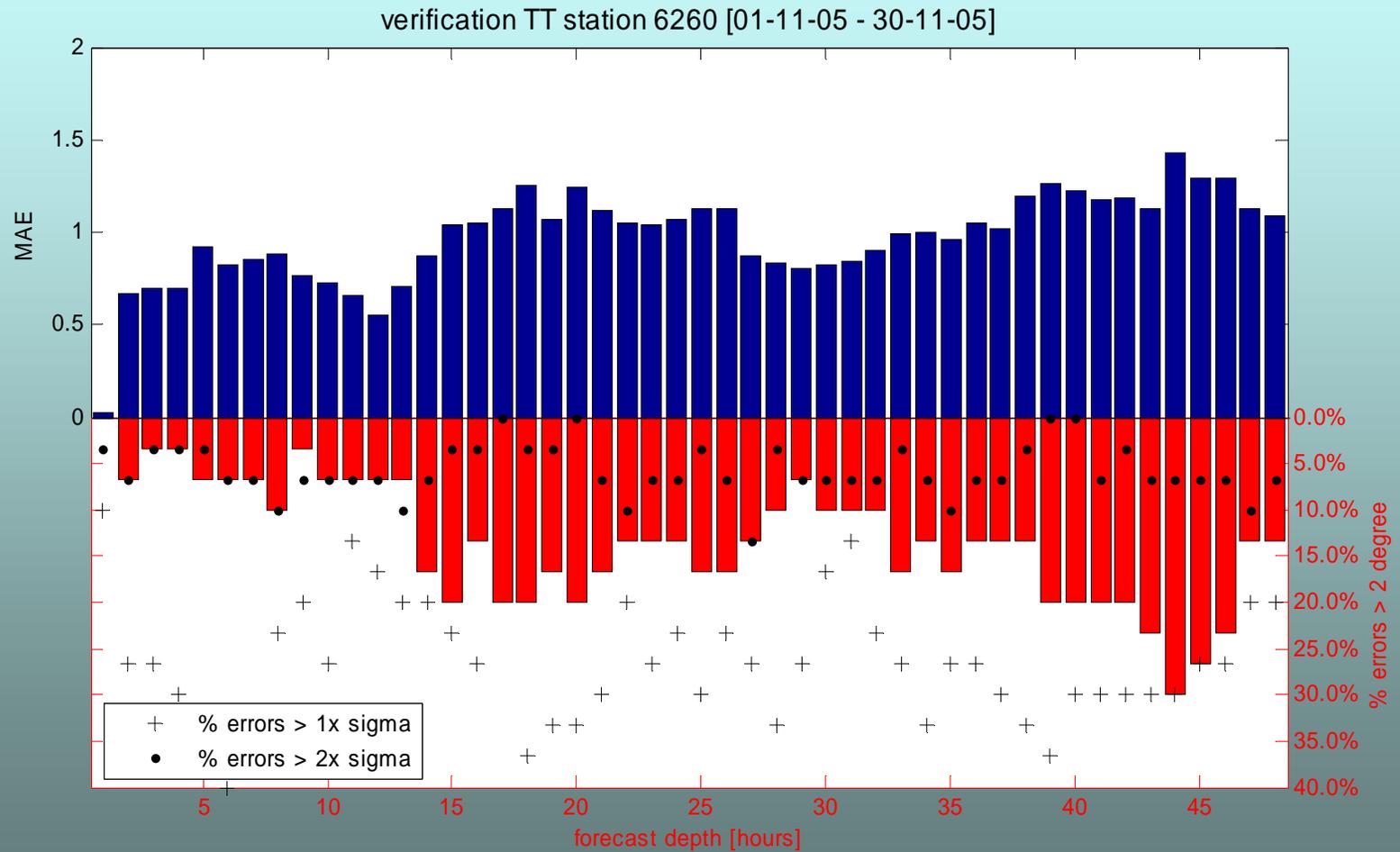
I am the BOSS !

Final forecast

Happy clients







Future developments

Extension MultiModelMOS

- more global models
- mesoscale models
- mesoscale ensembles

Extension to more than 15 days

Automated verification