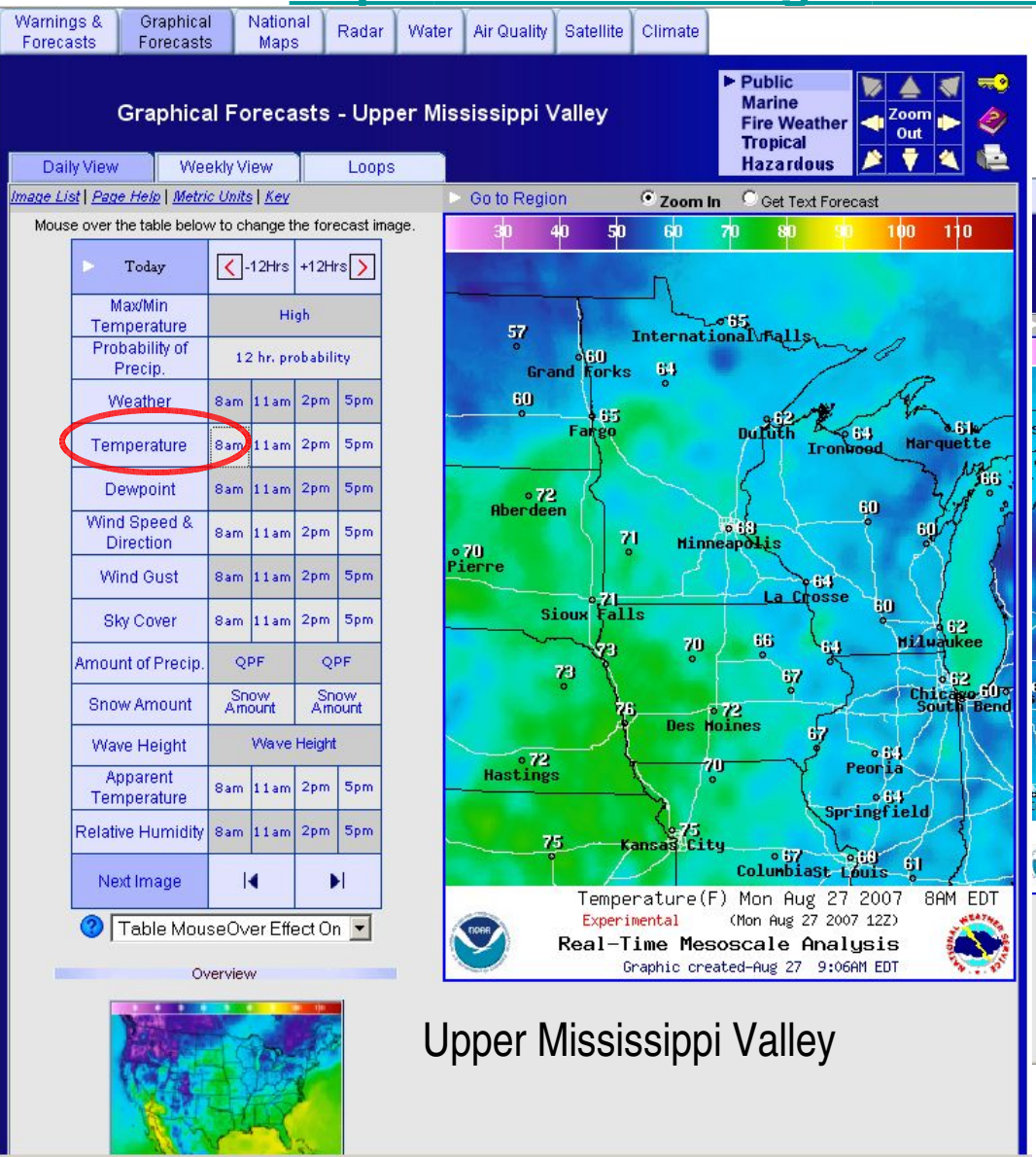
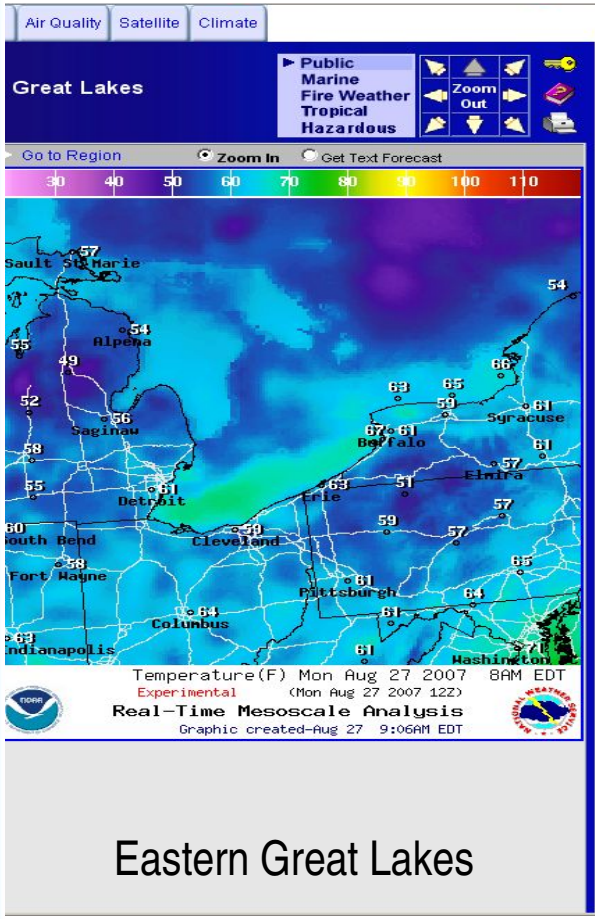
RTMA Displays from NDFD

NDFD Fields at Times Prior to Current Now Populated with RTMA

http://www.weather.gov/forecasts/graphical/sectors/



Upper Mississippi Valley



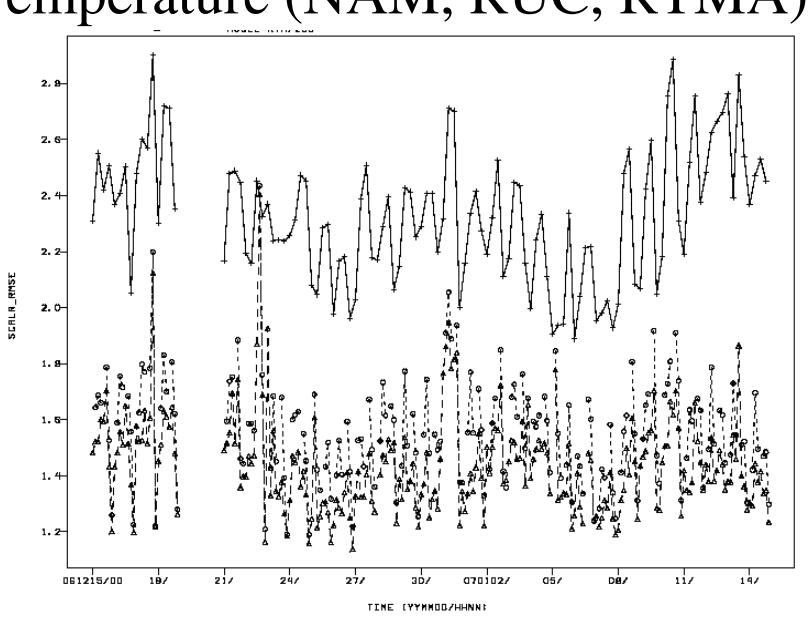
Eastern Great Lakes

RTMA Analysis Fit-to-Obs Is ALWAYS Better Than RUC (+NAM)

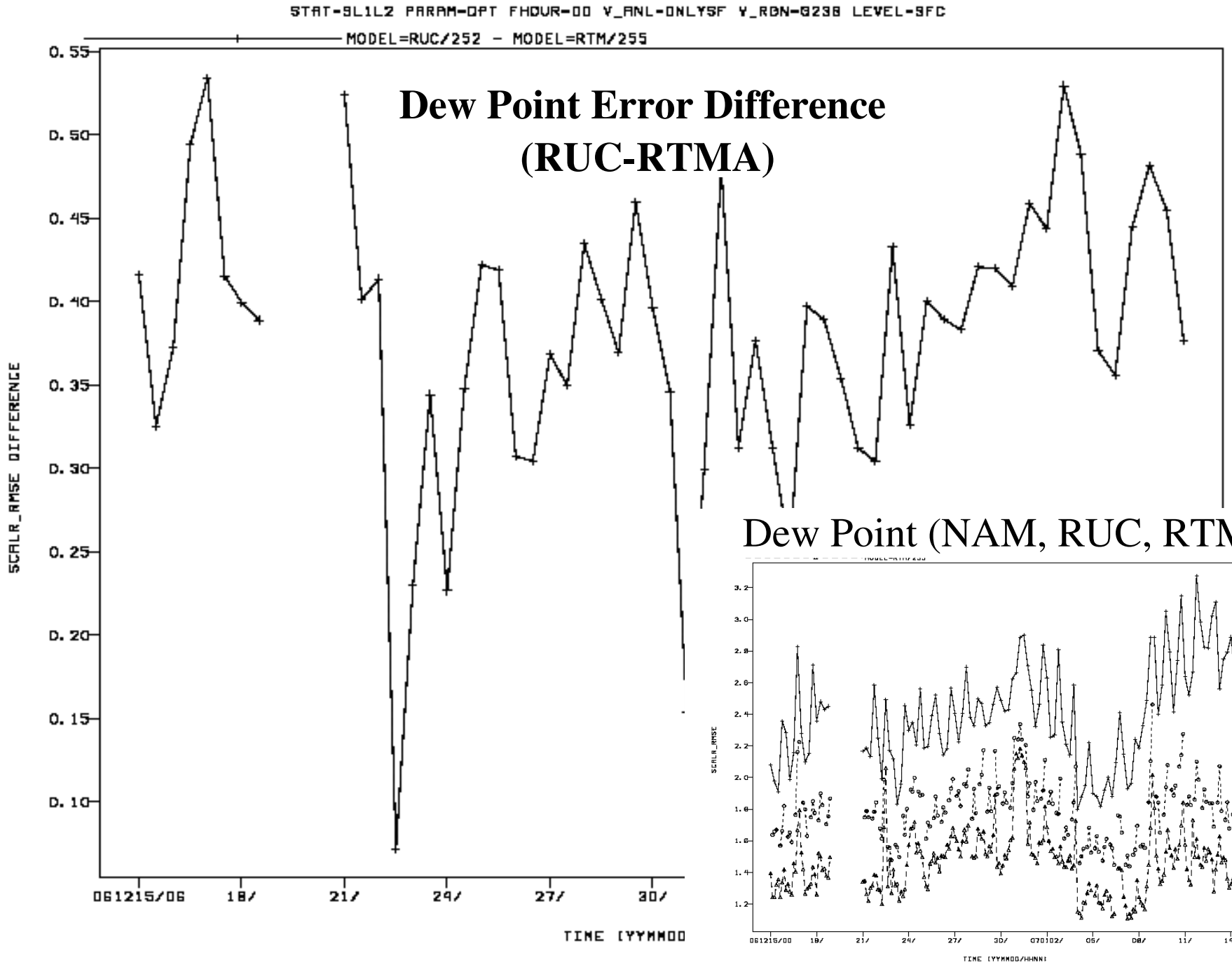
- Note complete absence of any negative values in next three plots of RUCfit - RTMAfit

- Inset displays actual fits for NAM (solid), RUC (dotted) and RTMA (dashed)

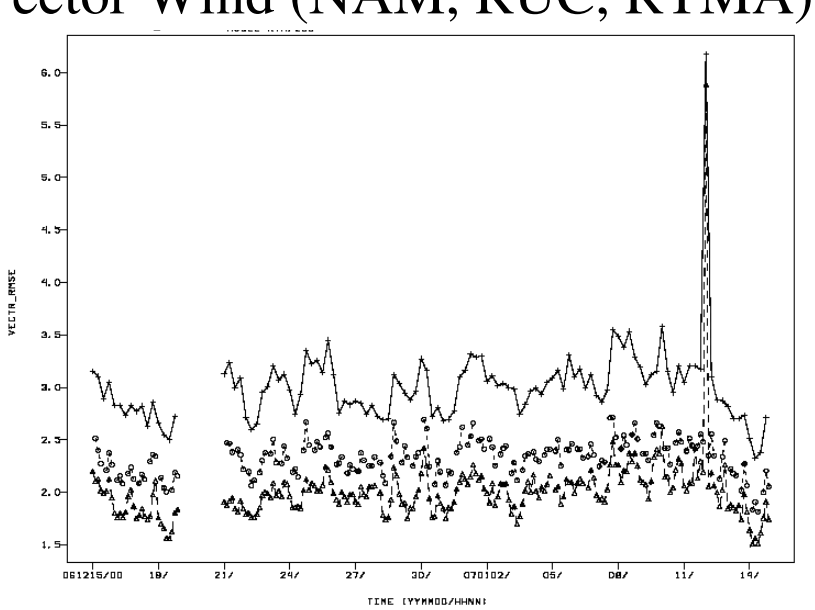
Temperature (NAM, RUC, RTMA)



Temperature Error Difference
(RUC-RTMA)


STAT-SL1L2 PARAM-DPT FHOUR-00 V_ANL-ONLYSF V_RGN-G238 LEVEL-SFC
MODEL=RUC/252 - MODEL=RTM/255
Dew Point Error Difference
(RUC-RTMA)
SCALR_RMSE DIFFERENCE
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
061215/06
18/
21/
24/
27/
30/
TIME (YYMMDD
Dew Point (NAM, RUC, RTMA)
SCALR_RMSE
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
061215/00
18/
21/
24/
27/
30/
070102/
05/
08/
11/
14/
TIME (YYMMDD/HHNN)

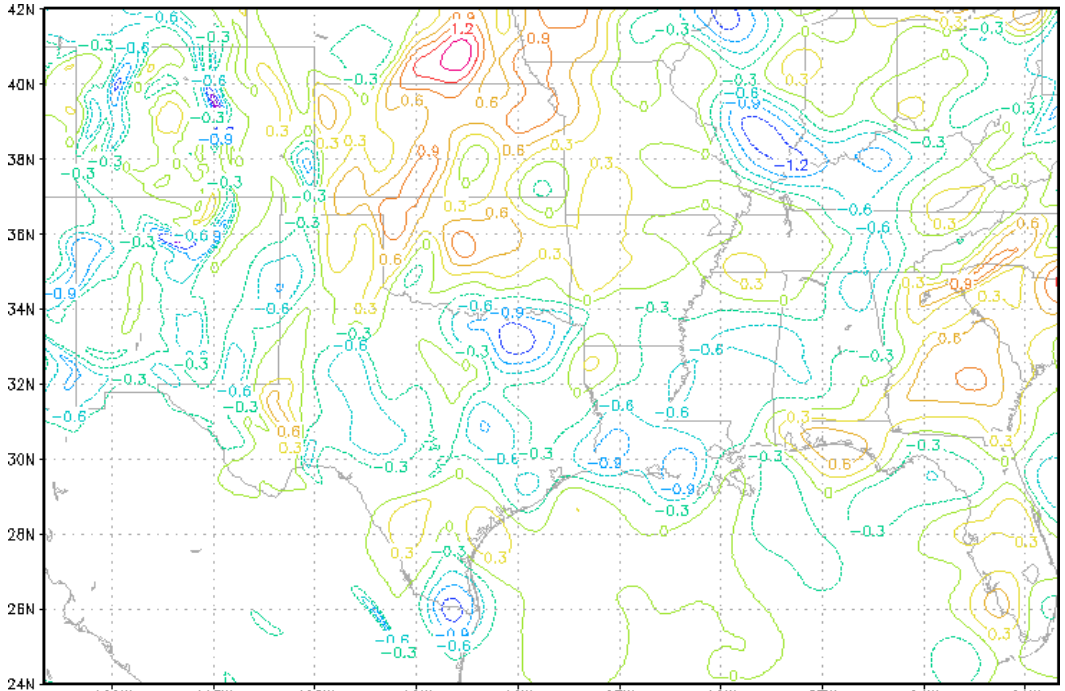
Vector Wind (NAM, RUC, RTMA)

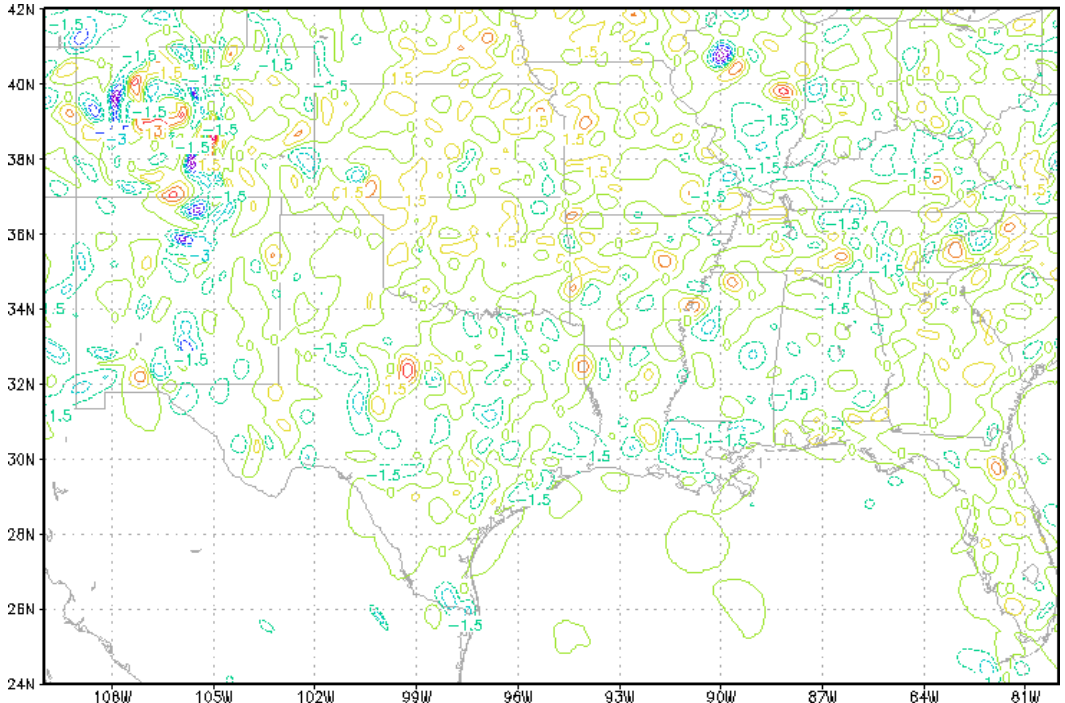


Vector Wind Error Difference (RUC-RTMA)

26 June 2007 RTMA Upgrades

- http://www.emc.ncep.noaa.gov/mmb/rtma/para
- Fine-tuned obs and background errors ➔ Analysis is now drawing much closer to the observations
- Reduced spatial scales of the anisotropic filter ➔ more fine scales resolved in the analysis
- **Improved handling of analysis near coasts: Elevation gradient made artificially large in order to obtain sharp background error covariances ➔ Reduced influence of coastal-land temperatures on over-water temperatures**
- Recalibrated observation gross error check
- Dynamic 'reject lists' of observations (especially mesonets) based on gross error checks from previous analyses
- Improved observation operators near coasts so that interpolation uses only grid points of one type (land or water)
- Run-time observation buddy check





ANALYSIS INCREMENTS OF TEMPERATURE (K) 17z 16 April 2007

Operational RTMA

(cint=0.75 K)

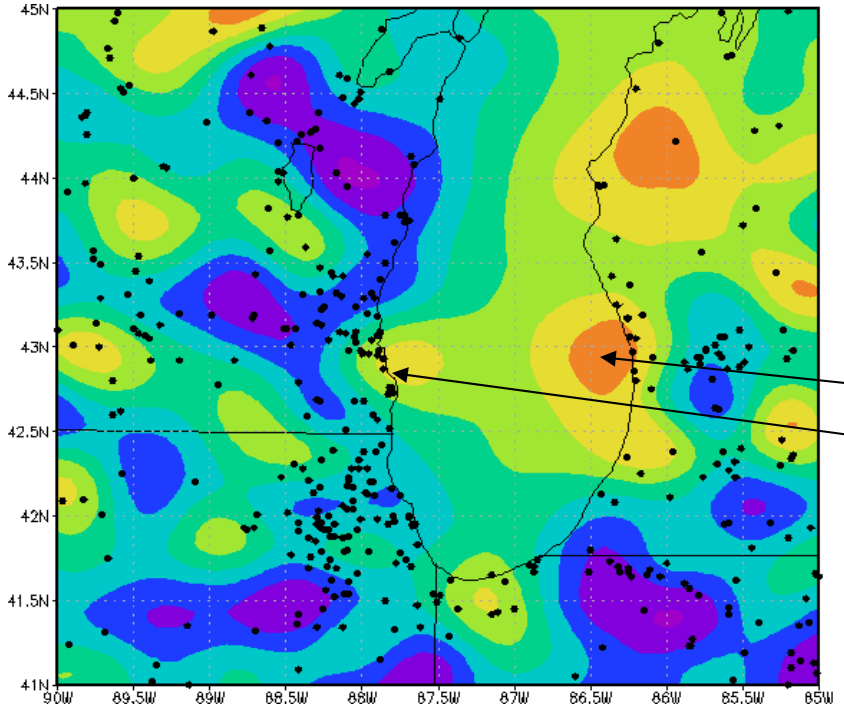
Scales are relatively broad and fit to obs is looser

Parallel RTMA

(cint=1.5 K)

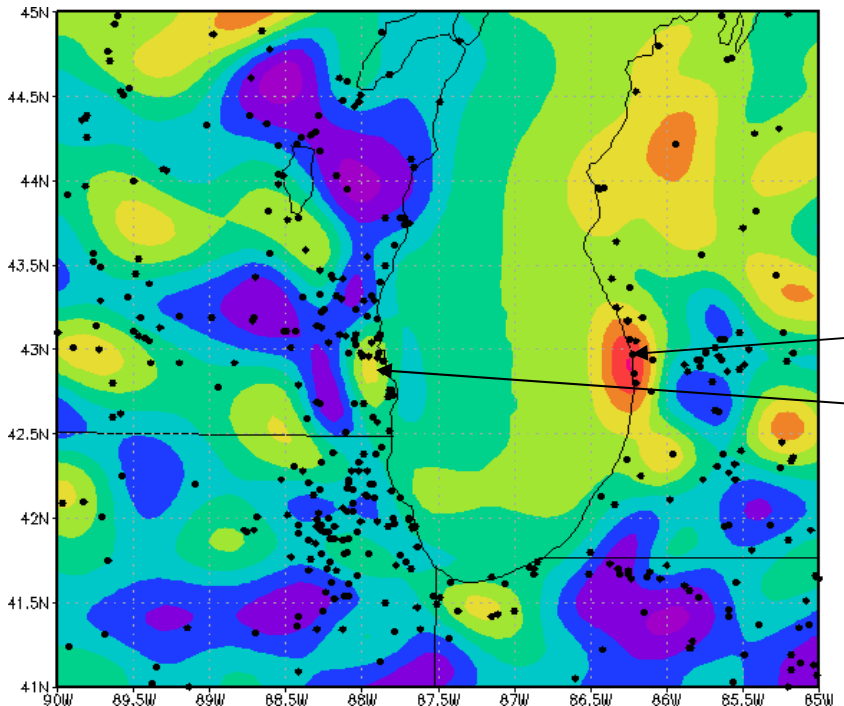
Smaller scales and tighter fit to obs compared with the operational RTMA

Example of improved treatment of T-analysis near boundaries of land/water



T- increments (K) from Opr-RTMA:

Land T-obs influence large area over water

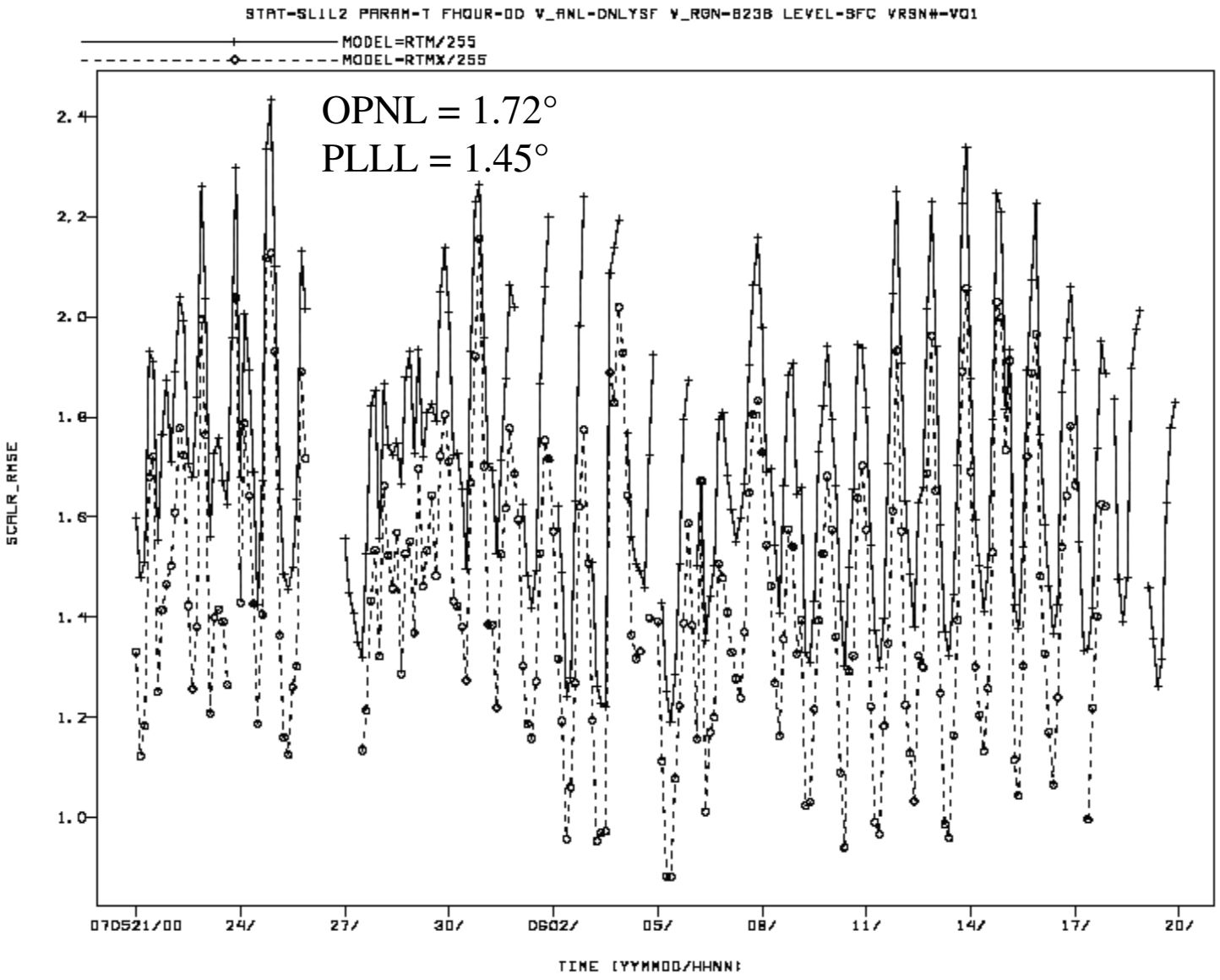


T-increments (K) from Parallel RTMA:

Land T- obs influence smaller area over water

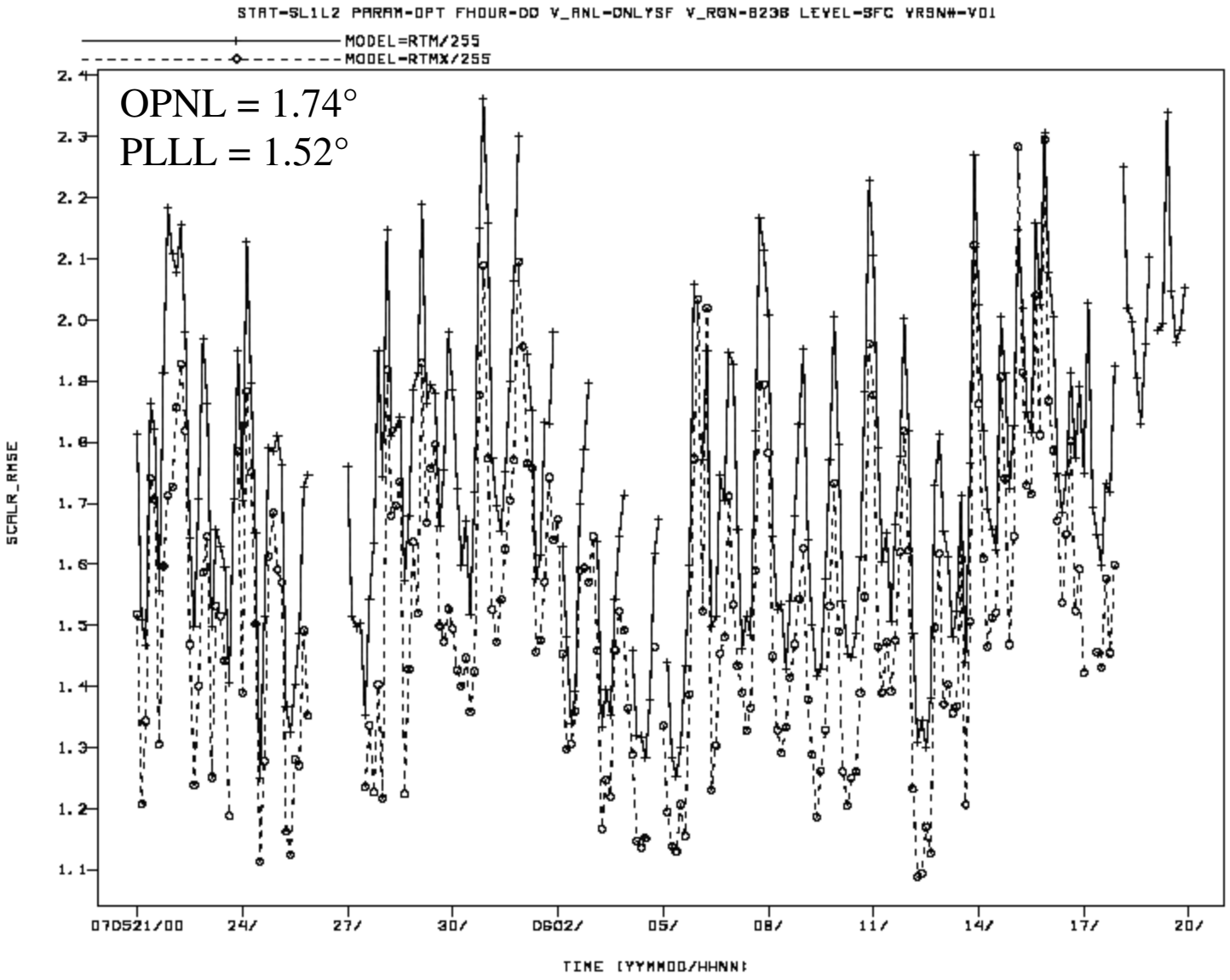
Fit-to-Obs: RMS Temperature

Operational RTMA - solid vs Parallel RTMA - dashed



Fit-to-Obs: RMS Dew Point

Operational RTMA - solid vs Parallel RTMA - dashed



Fit-to-Obs: RMS Vector Wind

Operational RTMA - solid vs Parallel RTMA - dashed