

Statistical Downscaling

-Verification statistics (from MDL)

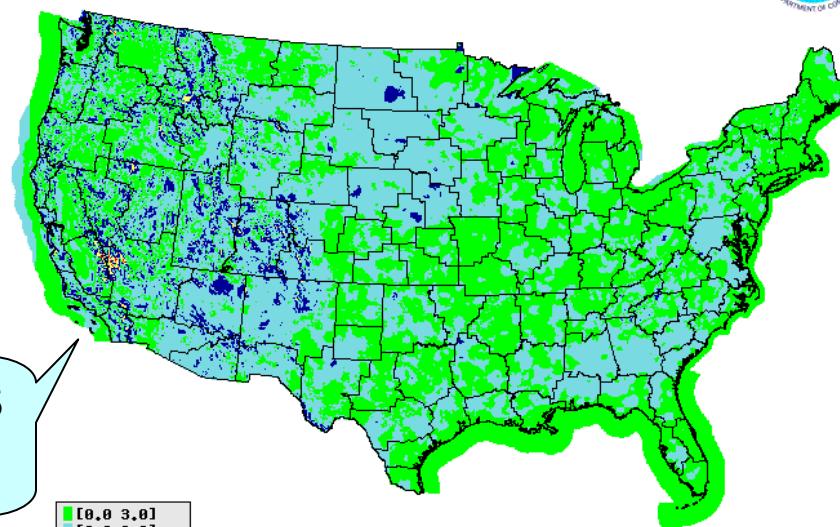
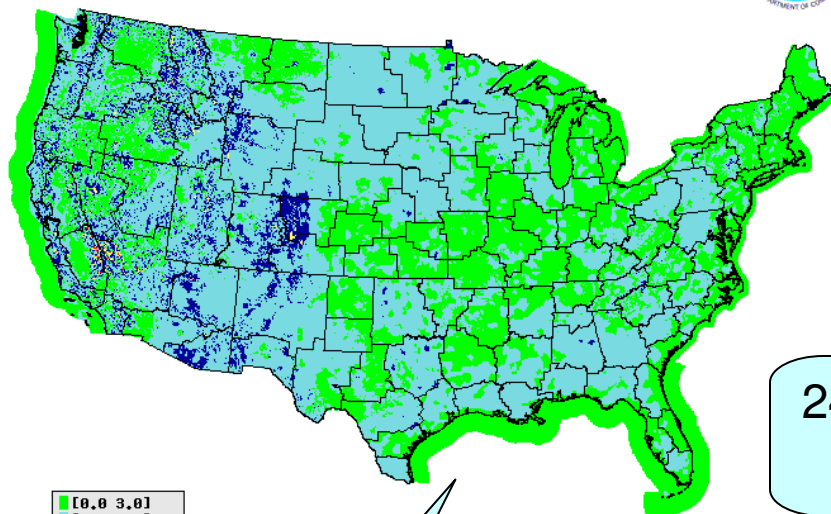
- 2-meter temperature only
- Period: July 20 – August 28 2007 (40 days)
- All verifications against **RTMA**
- NDFD: forecasts from 12UTC
- GMOS: forecasts from 00UTC
- GEFS: forecasts from 00UTC
 - Bias corrected NCEP GEFS ensemble mean only
 - Expect more improvement from:
 - Downscaling weight changes from 0.1(current) to 0.3(optimal)
 - Bias corrected GFS hybrid (not applied in this verification)
 - Bias corrected CMC GEFS (NAEFS-joint ensemble)



NDFD vs RTMA Surface Temp. MAE (deg F)
012-h NDFD Proj. from 12Z Ref. Time
July 20-August 28, 2007



GMOS vs RTMA Surface Temp. MAE (deg F)
Matches 012-h NDFD Proj. from 12Z Ref. Time
(024-h GMOS fcst available ~5:30Z)
July 20-August 28, 2007



24-h GMOS Forecast

[0.0 3.0]
[3.0 6.0]
[6.0 12.0]
[12.0 20.0]
[20.0 30.0]
[30.0 50.0]
[50.0 999.0]

CONUS	3.60
EASTERN	2.92
CENTRAL	3.55
WESTERN	4.26
SOUTHERN	3.27



[0.0 3.0]
[3.0 6.0]
[6.0 12.0]
[12.0 20.0]

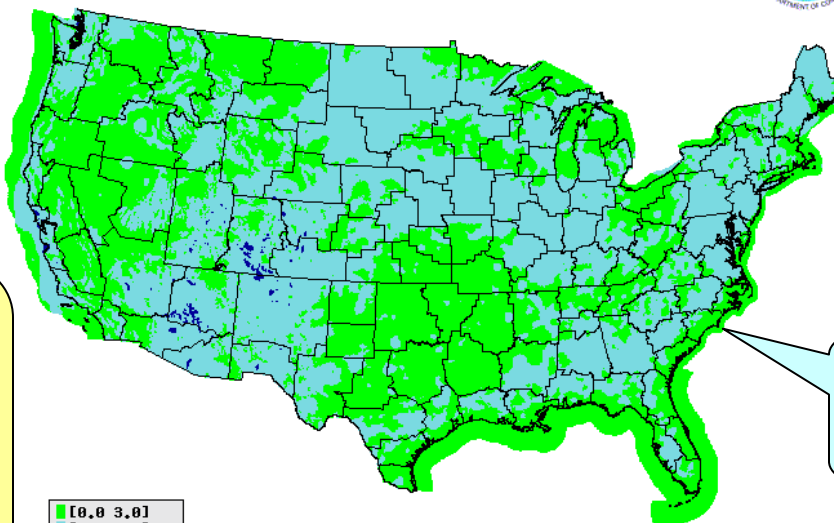
CONUS	3.37
EASTERN	2.80
CENTRAL	3.43
WESTERN	3.98
SOUTHERN	2.92



ENS vs RTMA Surface Temp. MAE (deg F)
Matches 012-h NDFD Proj. from 12Z Ref. Time
(024-h ENS fcst available ~?:?:?)
July 20-August 28, 2007

12-h NDFD Forecast

For COUNS:
GEFS(3.07) : NDFD(3.60)
GEFS (+17%)
GEFS(3.07) : GMOS(3.37)
GEFS (+10%)



24-h GEFS Forecast

[0.0 3.0]
[3.0 6.0]
[6.0 12.0]
[12.0 20.0]
[20.0 30.0]
[30.0 50.0]
[50.0 999.0]

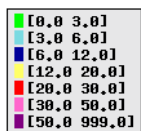
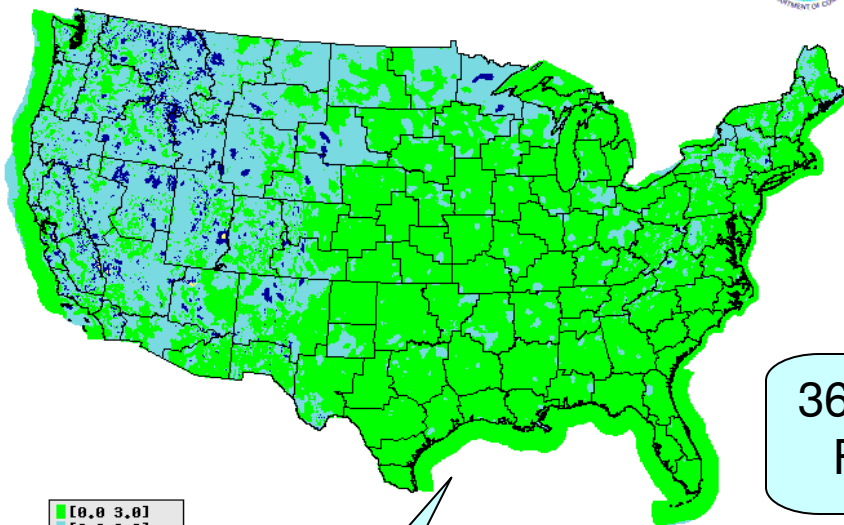
CONUS	3.07
EASTERN	3.12
CENTRAL	3.41
WESTERN	3.01
SOUTHERN	2.72



NDFD vs RTMA Surface Temp. MAE (deg F)
024-h NDFD Proj. from 12Z Ref. Time
July 20-August 28, 2007

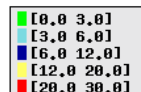
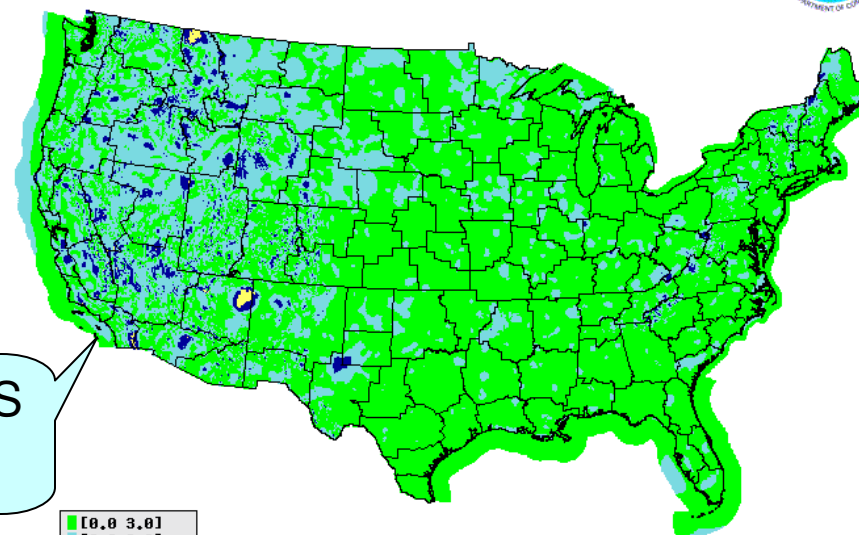


GMOS vs RTMA Surface Temp. MAE (deg F)
Matches 024-h NDFD Proj. from 12Z Ref. Time
(036-h GMOS fcst available ~5:30Z)
July 20-August 28, 2007



CONUS	2.87
EASTERN	2.45
CENTRAL	2.83
WESTERN	3.83
SOUTHERN	2.10

36-h GMOS Forecast

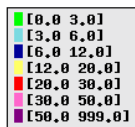
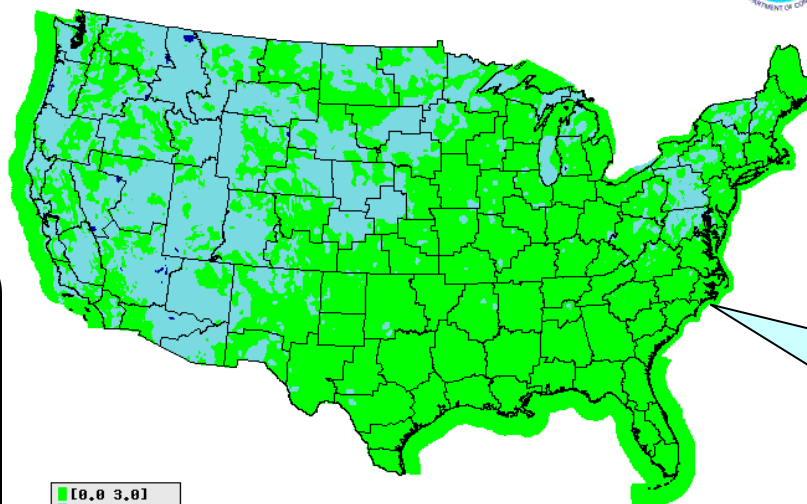


CONUS	2.78
EASTERN	2.48
CENTRAL	2.68
WESTERN	3.65
SOUTHERN	2.09

24-h NDFD Forecast



ENS vs RTMA Surface Temp. MAE (deg F)
Matches 024-h NDFD Proj. from 12Z Ref. Time
(036-h ENS fcst available ~?:?:?)
July 20-August 28, 2007



CONUS	2.70
EASTERN	2.43
CENTRAL	2.85
WESTERN	3.35
SOUTHERN	1.95

36-h GEFS Forecast

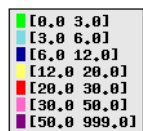
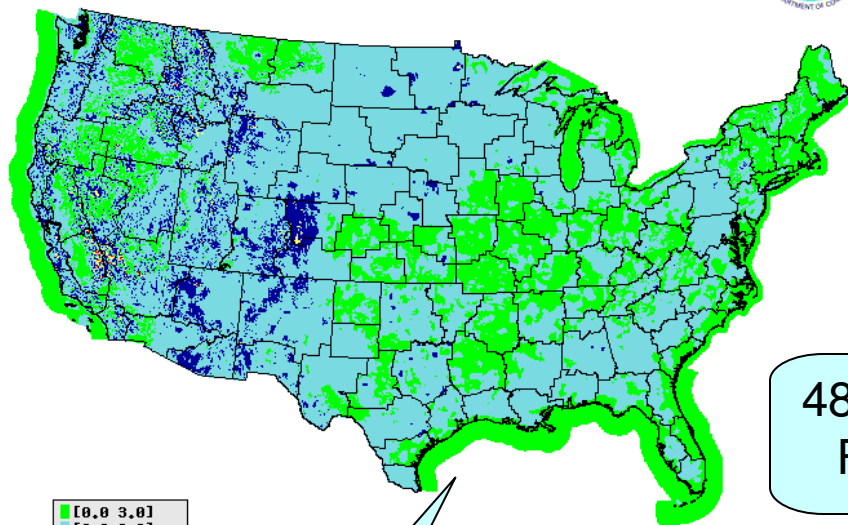
For COUNS:
GEFS(2.70) : NDFD(2.87)
GEFS (+6.3%)
GEFS(2.70) : GMOS(2.78)
GEFS (+3%)



NDFD vs RTMA Surface Temp. MAE (deg F)
036-h NDFD Proj. from 12Z Ref. Time
July 20-August 28, 2007



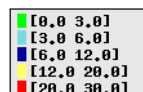
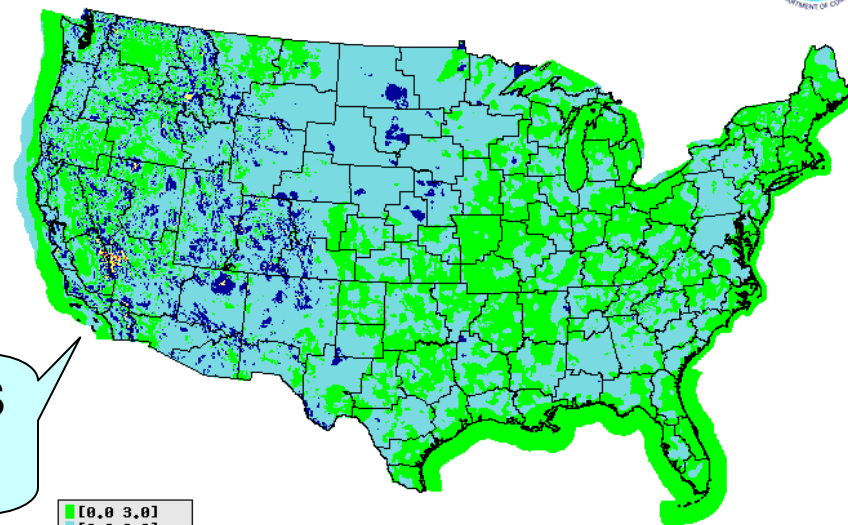
GMOS vs RTMA Surface Temp. MAE (deg F)
Matches 036-h NDFD Proj. from 12Z Ref. Time
(048-h GMOS fcst available ~5:30Z)
July 20-August 28, 2007



CONUS	3.84
EASTERN	3.07
CENTRAL	3.96
WESTERN	4.45
SOUTHERN	3.40



48-h GMOS
Forecast



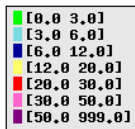
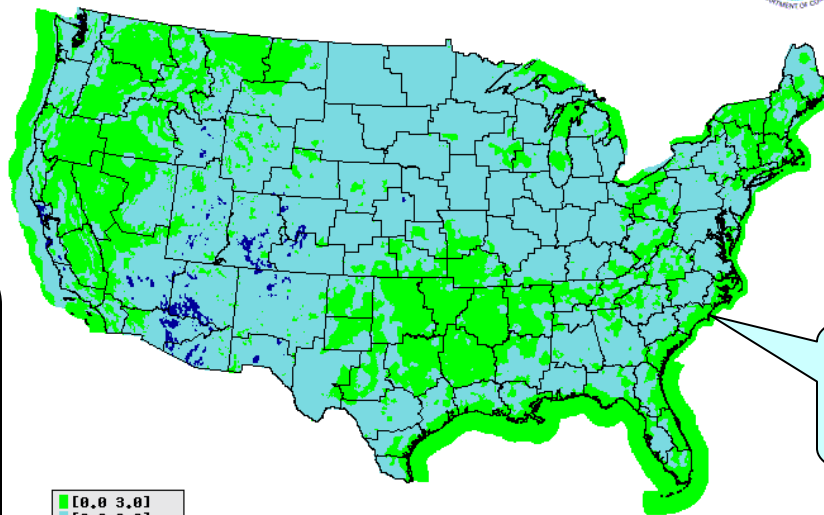
CONUS	3.56
EASTERN	2.90
CENTRAL	3.70
WESTERN	4.16
SOUTHERN	3.05

ENS vs RTMA Surface Temp. MAE (deg F)
Matches 036-h NDFD Proj. from 12Z Ref. Time
(048-h ENS fcst available ???)???)
July 20-August 28, 2007



36-h NDFD
Forecast

For COUNS:
GEFS(3.40) : NDFD(3.84)
GEFS (+13%)
GEFS(3.40) : GMOS(3.56)
GEFS (+5%)



CONUS	3.40
EASTERN	3.12
CENTRAL	3.93
WESTERN	3.37
SOUTHERN	2.95

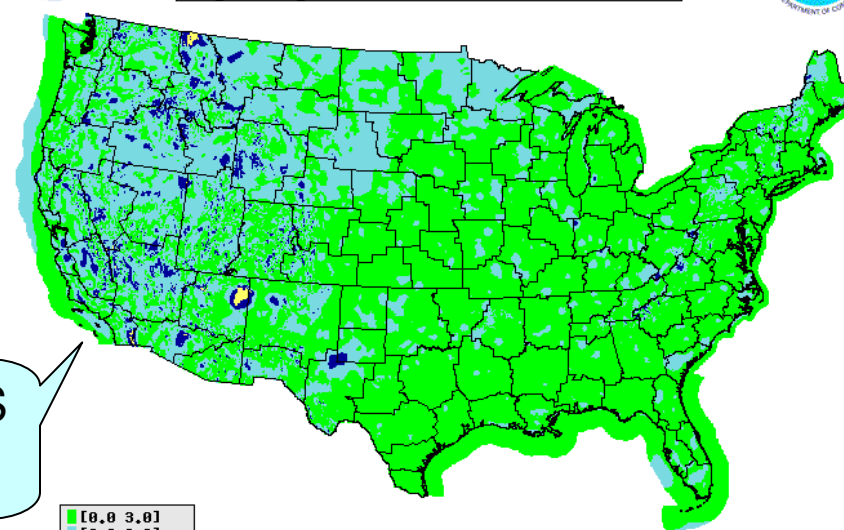
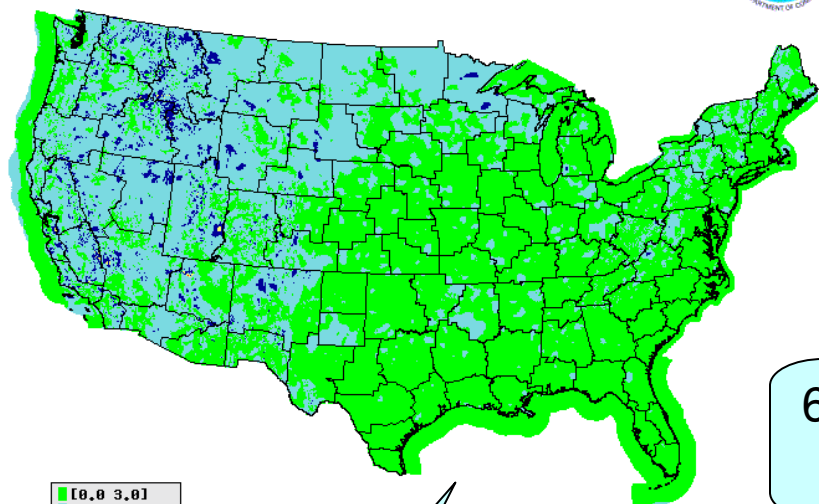
48-h GEFS
Forecast



NDFD vs RTMA Surface Temp. MAE (deg F)
048-h NDFD Proj. from 12Z Ref. Time
July 20-August 28, 2007



GMOS vs RTMA Surface Temp. MAE (deg F)
Matches 048-h NDFD Proj. from 12Z Ref. Time
(060-h GMOS fcst available ~5:30Z)
July 20-August 28, 2007



60-h GMOS Forecast

[0.0 3.0]
[3.0 6.0]
[6.0 12.0]
[12.0 20.0]
[20.0 30.0]
[30.0 50.0]
[50.0 999.0]

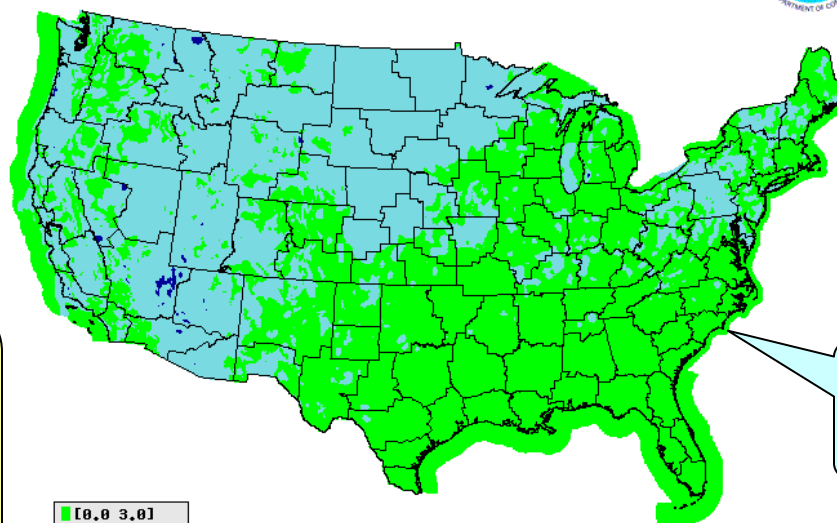
CONUS	2.98
EASTERN	2.53
CENTRAL	3.00
WESTERN	3.92
SOUTHERN	2.18

[0.0 3.0]
[3.0 6.0]
[6.0 12.0]
[12.0 20.0]

CONUS	2.87
EASTERN	2.51
CENTRAL	2.84
WESTERN	3.75
SOUTHERN	2.14

48-h NDFD Forecast

ENS vs RTMA Surface Temp. MAE (deg F)
Matches 048-h NDFD Proj. from 12Z Ref. Time
(060-h ENS fcst available ~?:?:?)
July 20-August 28, 2007



60-h GEFS Forecast

For COUNS:
GEFS(2.93) : NDFD(2.98)
GEFS (+1.7%)
GEFS(2.93) : GMOS(2.87)
GEFS (-2%)

[0.0 3.0]
[3.0 6.0]
[6.0 12.0]
[12.0 20.0]
[20.0 30.0]
[30.0 50.0]
[50.0 999.0]

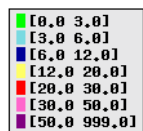
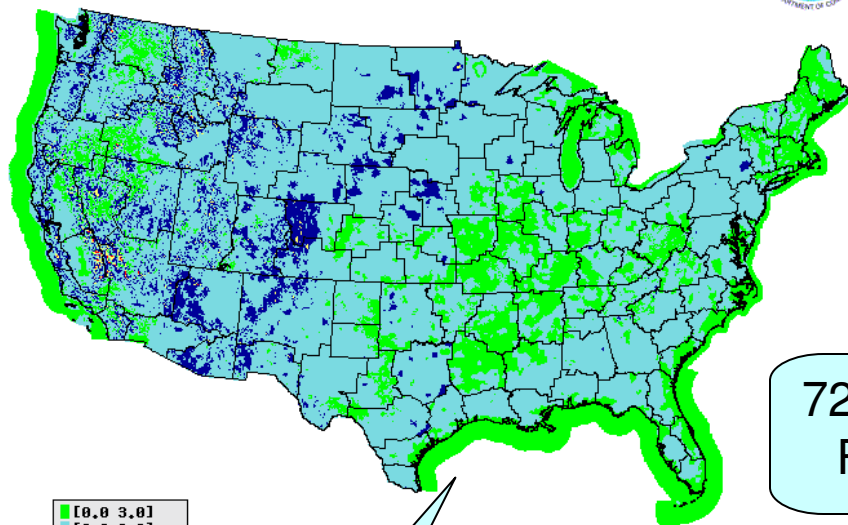
CONUS	2.93
EASTERN	2.64
CENTRAL	3.23
WESTERN	3.57
SOUTHERN	2.04



NDFD vs RTMA Surface Temp. MAE (deg F)
060-h NDFD Proj. from 12Z Ref. Time
July 20-August 28, 2007

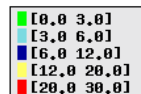
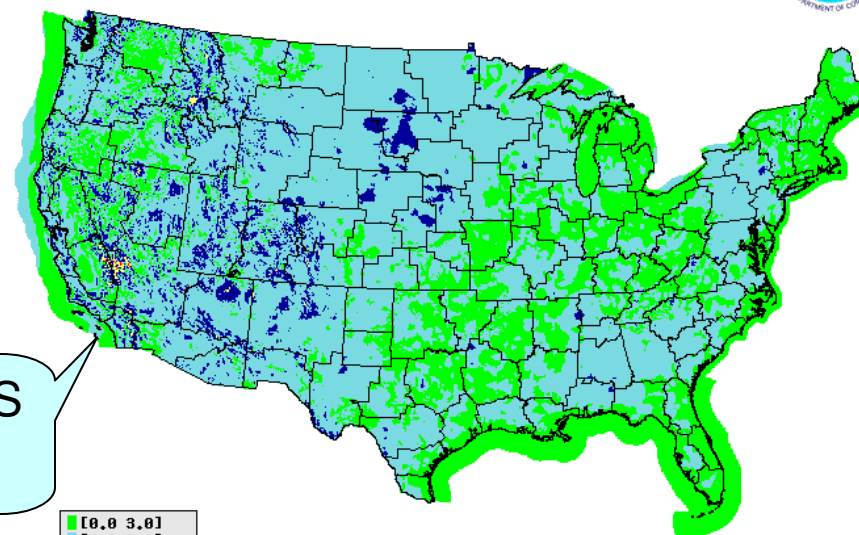


GMOS vs RTMA Surface Temp. MAE (deg F)
Matches 060-h NDFD Proj. from 12Z Ref. Time
(072-h GMOS fcst available ~5:30Z)
July 20-August 28, 2007



CONUS	4.08
EASTERN	3.36
CENTRAL	4.31
WESTERN	4.67
SOUTHERN	3.53

72-h GMOS Forecast

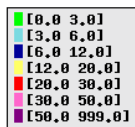
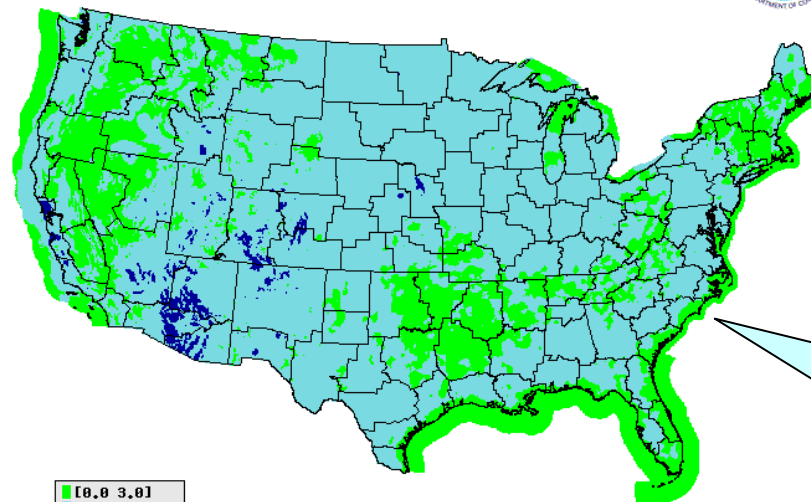


CONUS	3.74
EASTERN	3.04
CENTRAL	3.95
WESTERN	4.35
SOUTHERN	3.20

60-h NDFD Forecast



ENS vs RTMA Surface Temp. MAE (deg F)
Matches 060-h NDFD Proj. from 12Z Ref. Time
(072-h ENS fcst available ~?:?:?)
July 20-August 28, 2007



CONUS	3.63
EASTERN	3.22
CENTRAL	4.21
WESTERN	3.61
SOUTHERN	3.17

72-h GEFS Forecast

For COUNS:
GEFS(3.63) : NDFD(4.08)
GEFS (+12.4%)
GEFS(3.63) : GMOS(3.74)
GEFS (+3%)

40 day average absolute errors of 2-meter temperature (NDFD has 12hr advantage)

COUNS only – verified against RTMA

2-m temp. forecast errors

