

CPC Probabilistic Extremes Tool Verification for all Variables

Verification results updated as of 9/5/2018,
using Michael Scheuerer's verification code

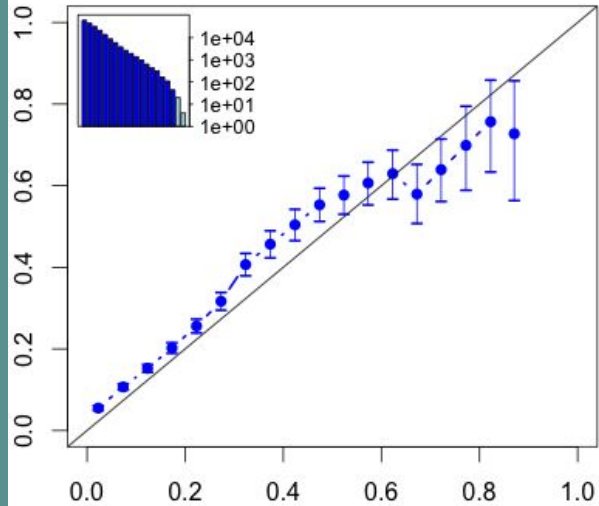
Calibrated forecasts produced using the GEFS
Reforecast, ensemble regression
post-processing method



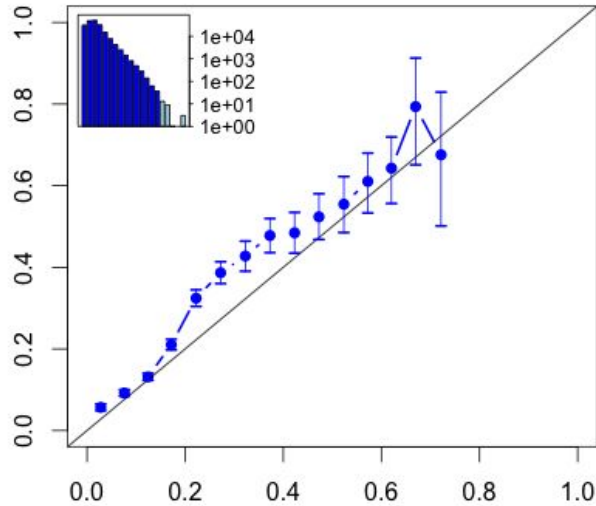
Tmin
Forecasts Valid
1/1/2014 - 12/31/2017
Obs: Wei Shi's gridded
obs v2

Tmin Reliability

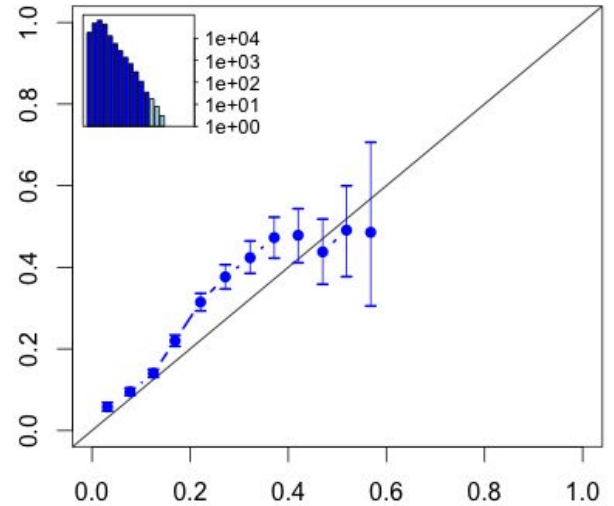
Lead time: 9 days, threshold: 15th pctl



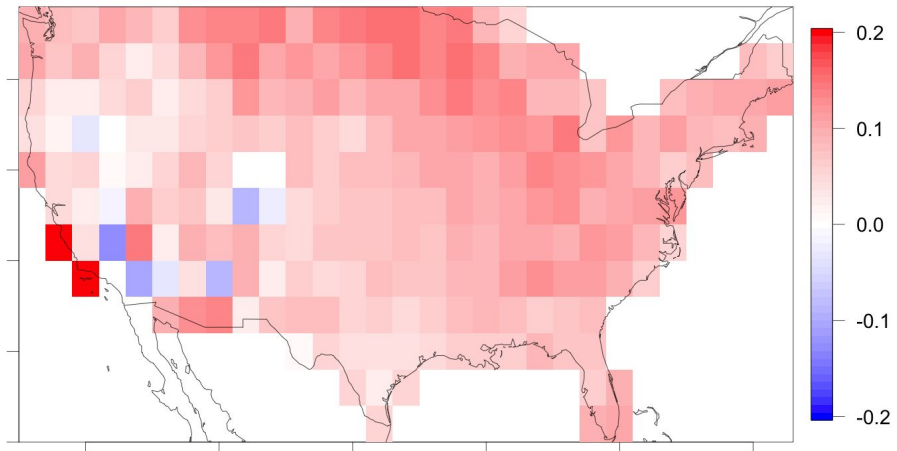
Lead time: 11 days, threshold: 15th pctl



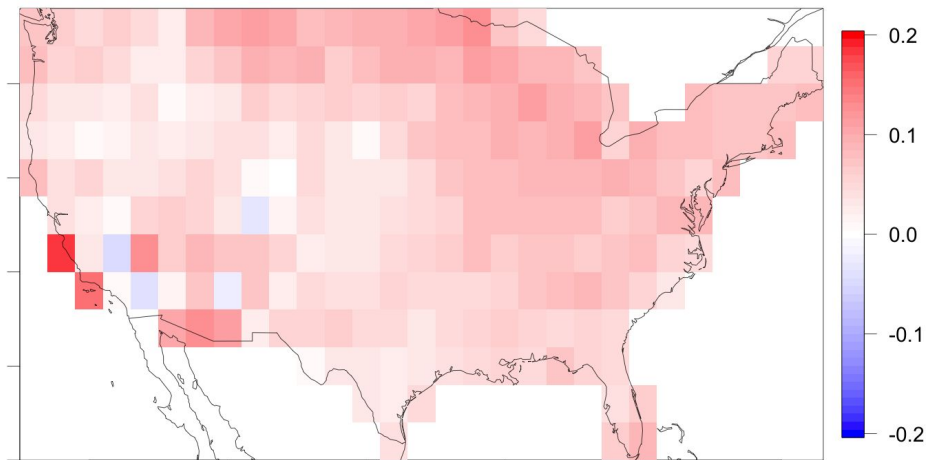
Lead time: 13 days, threshold: 15th pctl



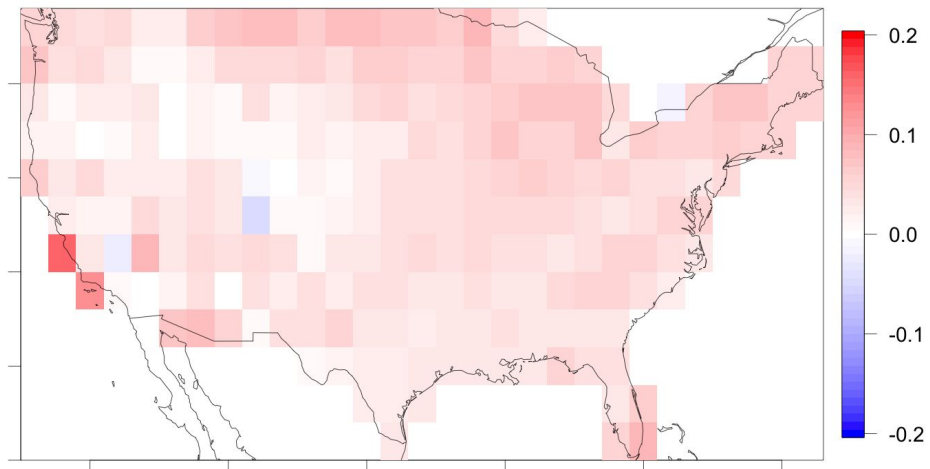
Map of ranked probability skill scores for Tmin (Oct-Mar), day9



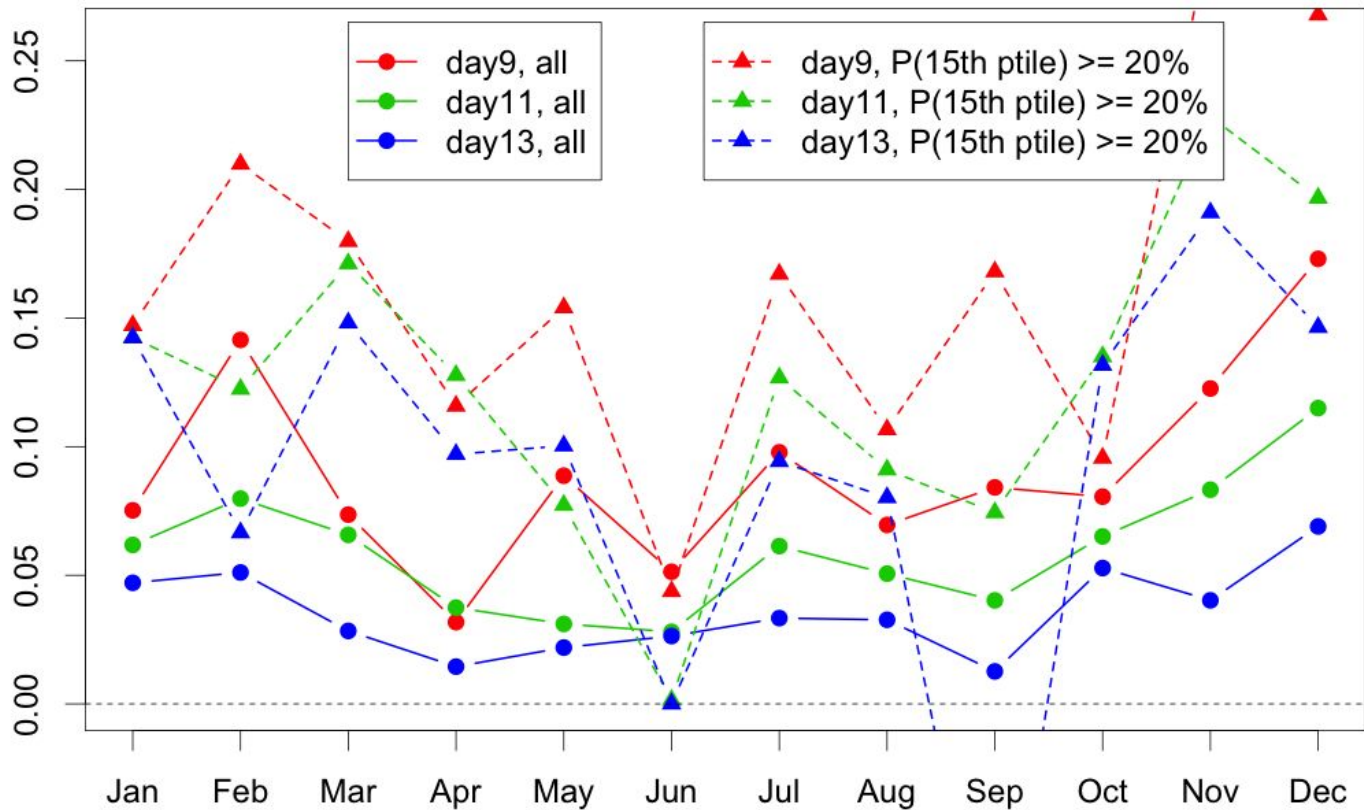
Map of ranked probability skill scores for Tmin (Oct-Mar), day11



Map of ranked probability skill scores for Tmin (Oct-Mar), day13



Brier skill score for tmin



Mean BSS

Cool Season (Oct-Mar)

All Ptile | P<15th

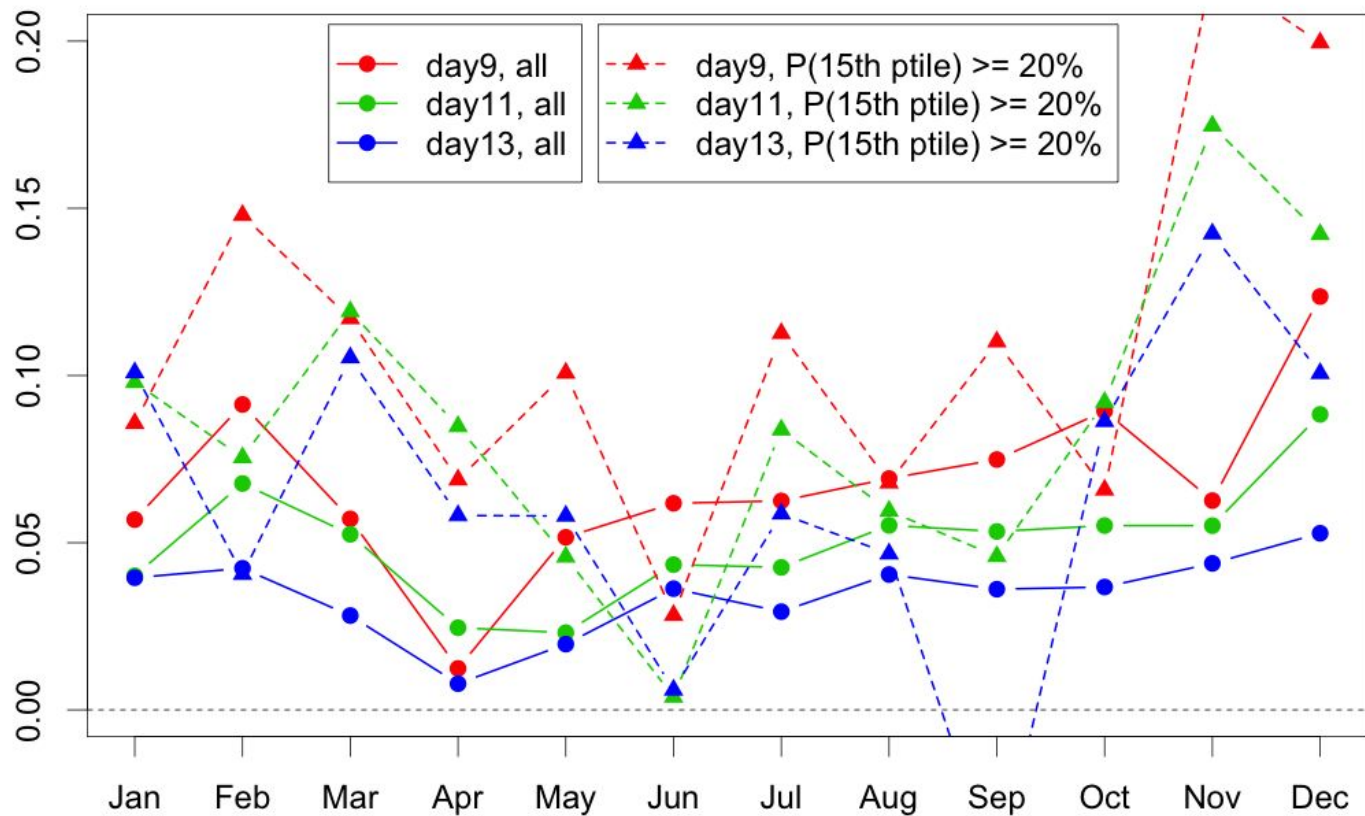
Day 9 0.11 | 0.2

Day 11 0.08 | 0.17

Day 13 0.05 | 0.14

Note: Outlier values should be ignored since likely not reliable and potentially due to low sample size

Ranked probability skill score for tmin



Mean RPSS
Cool Season (Oct-Mar)
All Ptile | P<15th

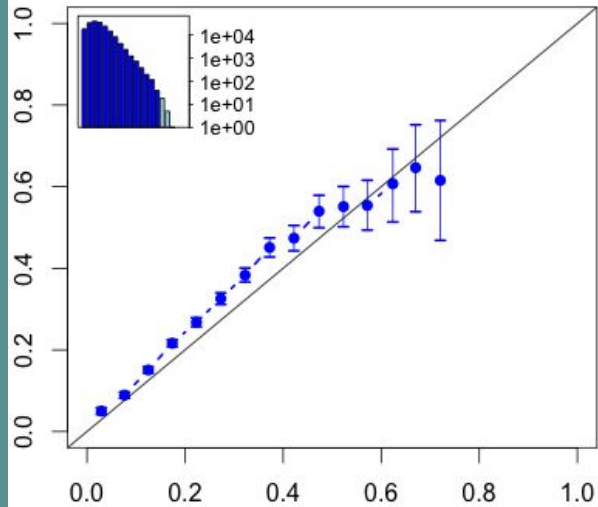
Day 9	0.08		0.14
Day 11	0.06		0.12
Day 13	0.04		0.09



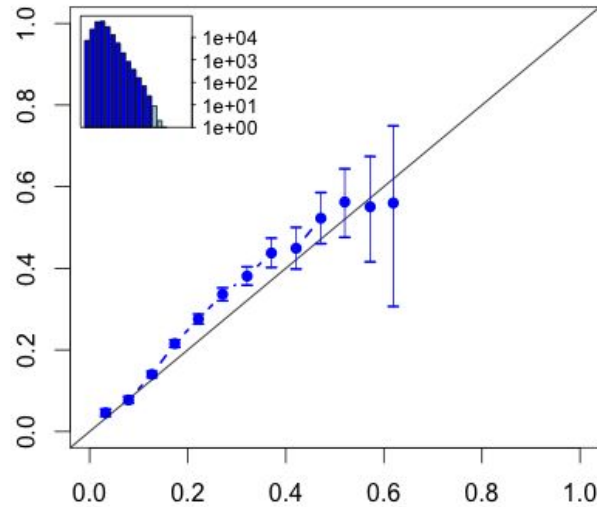
Tmax
Forecasts Valid
1/1/2014 - 12/31/2017
Obs: Wei Shi's gridded
obs v2

Tmax Reliability

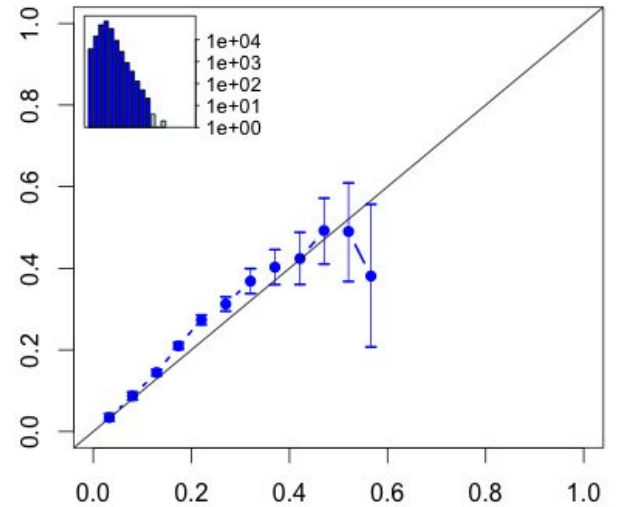
Lead time: 9 days, threshold: 85th pctl



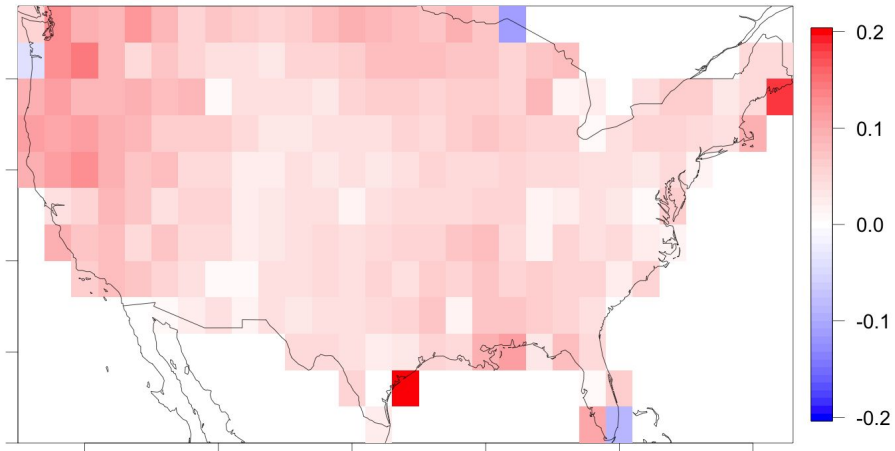
Lead time: 11 days, threshold: 85th pctl



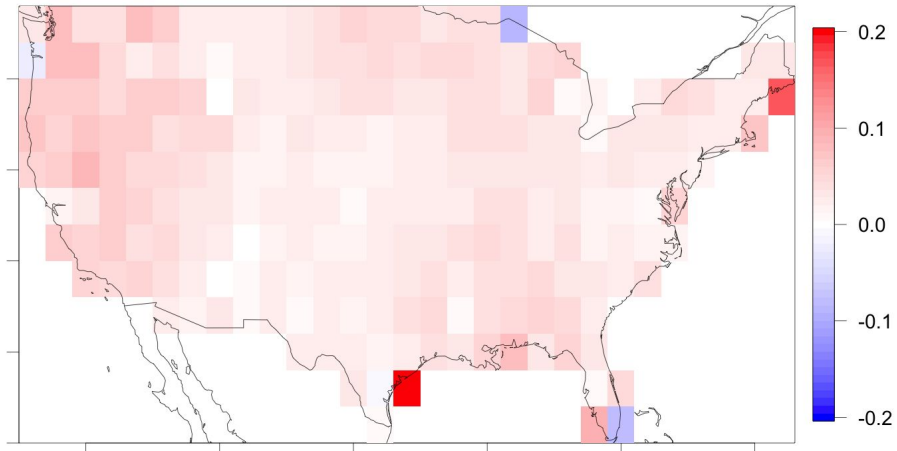
Lead time: 13 days, threshold: 85th pctl



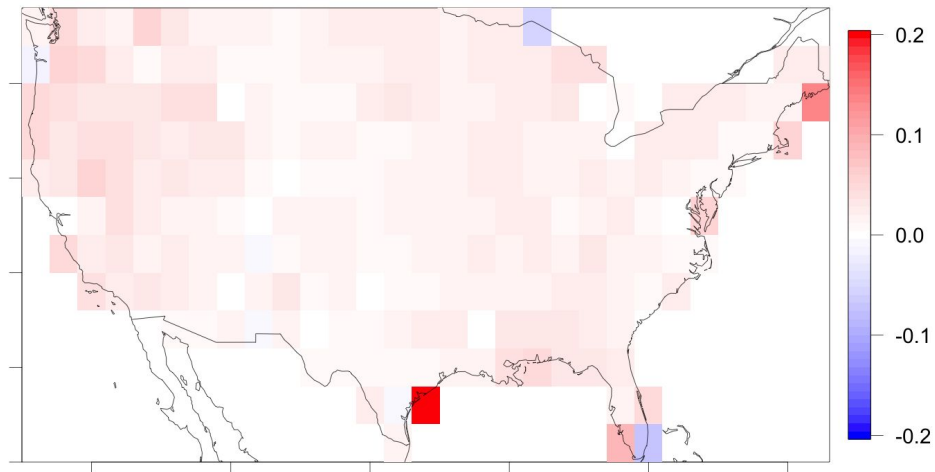
Map of ranked probability skill scores for Tmax (Apr-Sep), day9



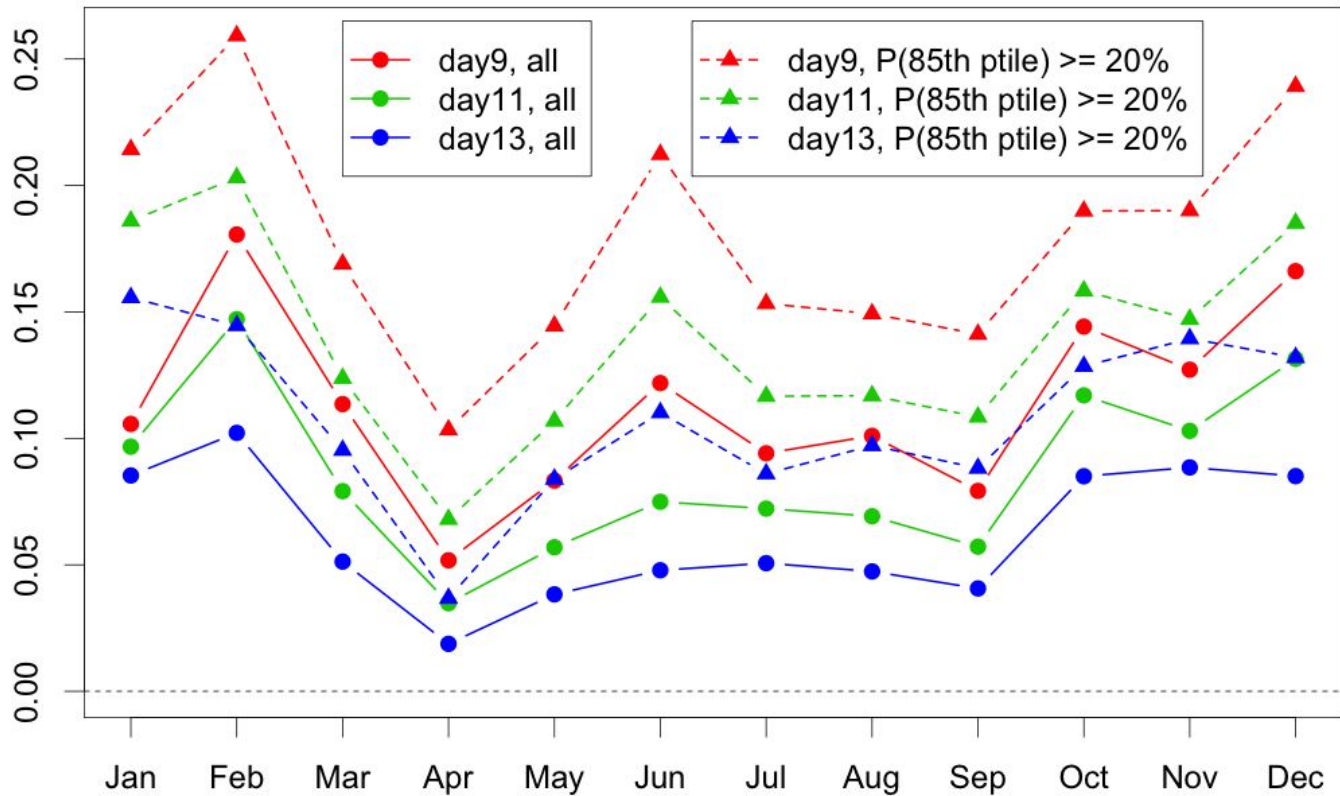
Map of ranked probability skill scores for Tmax (Apr-Sep), day11



Map of ranked probability skill scores for Tmax (Apr-Sep), day13

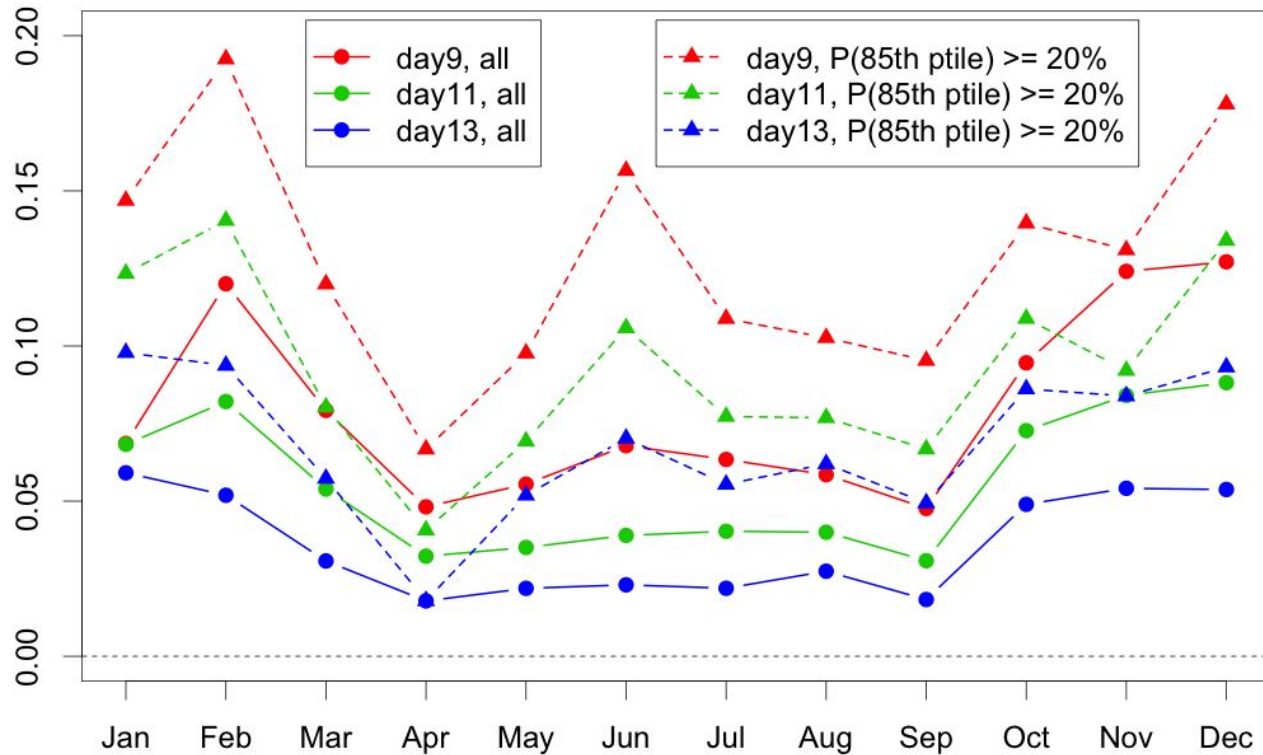


Brier skill score for tmax



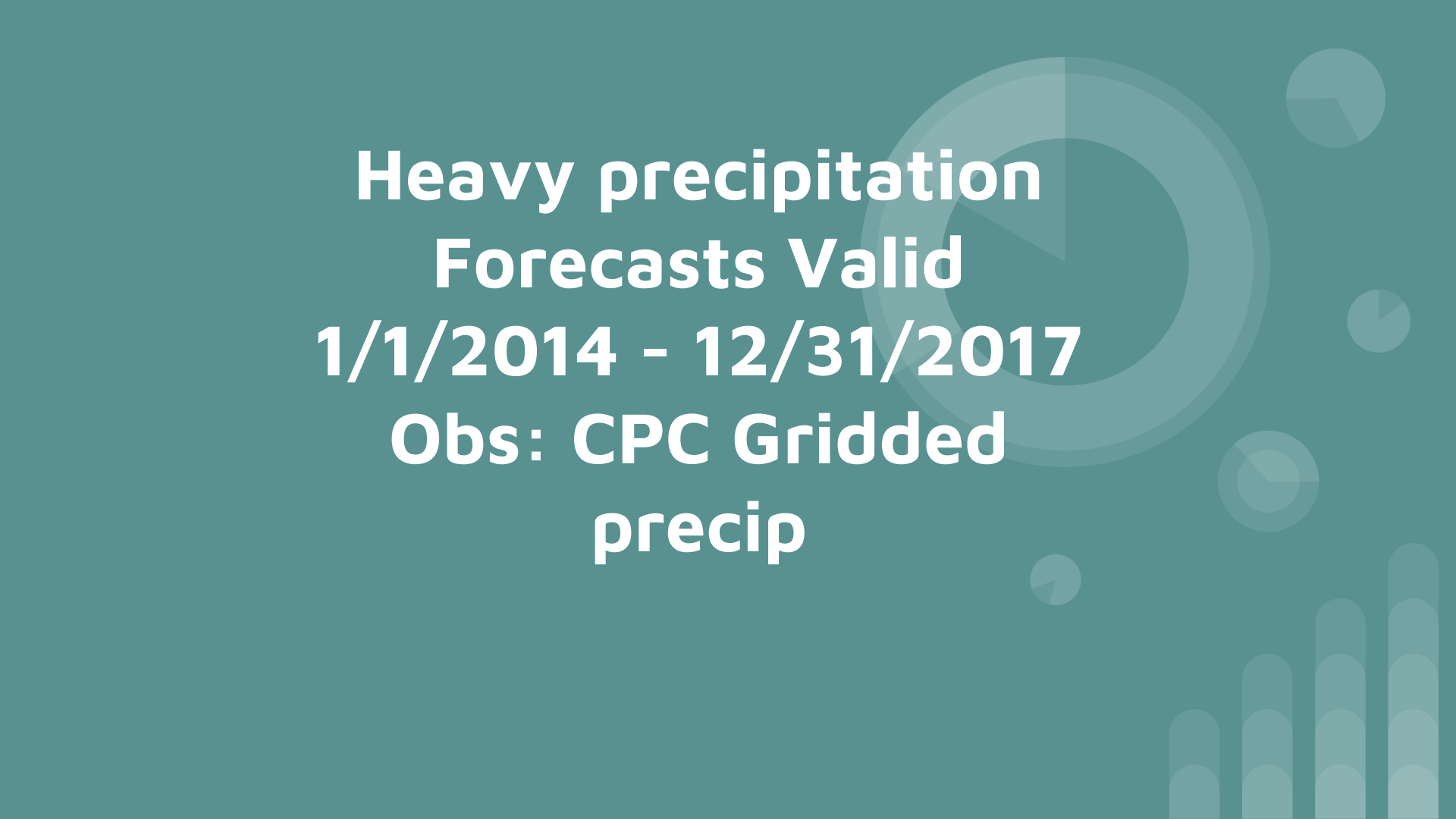
Mean BSS
Warm Season
(Apr-Sep)
All Ptile | P<15th
Day 9 0.09 | 0.15
Day 11 0.06 | 0.11
Day 13 0.04 | 0.08

Ranked probability skill score for tmax



Mean RPSS
Warm Season(Apr-Sep)
All Ptile |
P@85th>20%

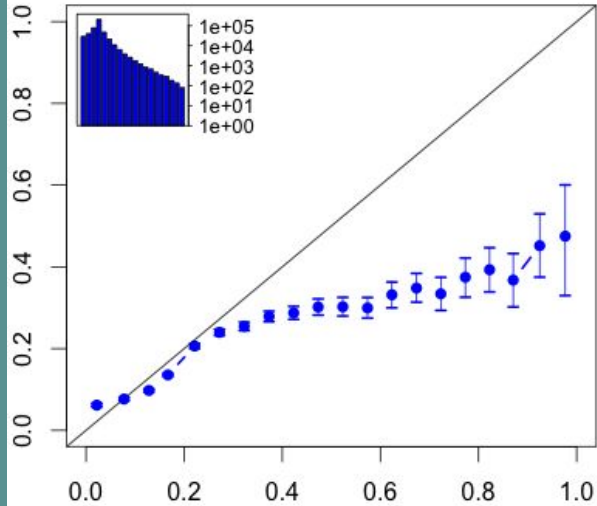
Day 9	0.10		0.15
Day 11	0.08		0.11
Day 13	0.05		0.09



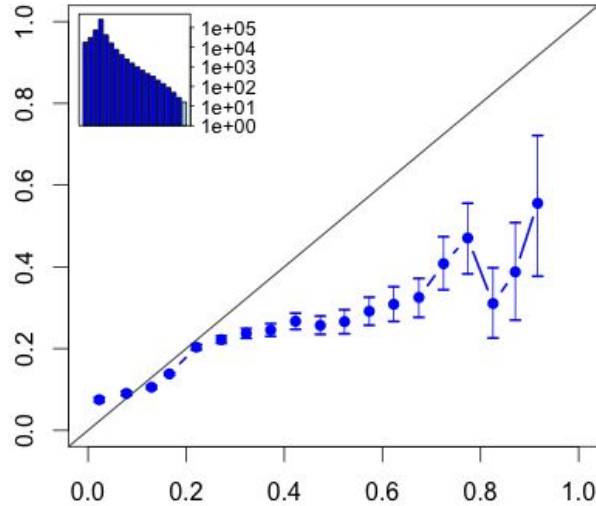
**Heavy precipitation
Forecasts Valid
1/1/2014 - 12/31/2017
Obs: CPC Gridded
precip**

Heavy Precipitation Reliability

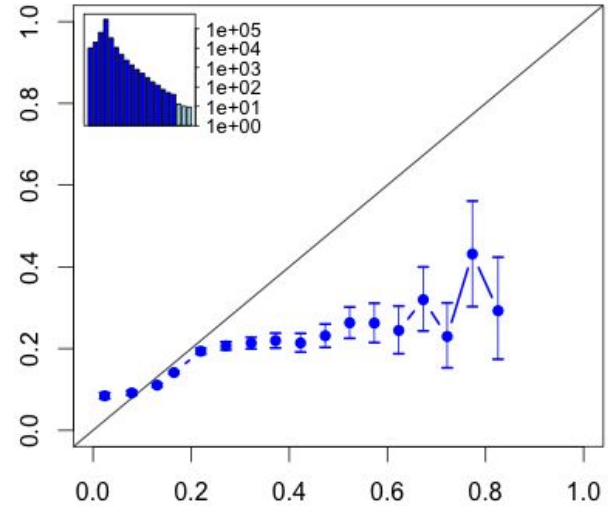
Lead time: 8-10day, threshold: 85th pctl



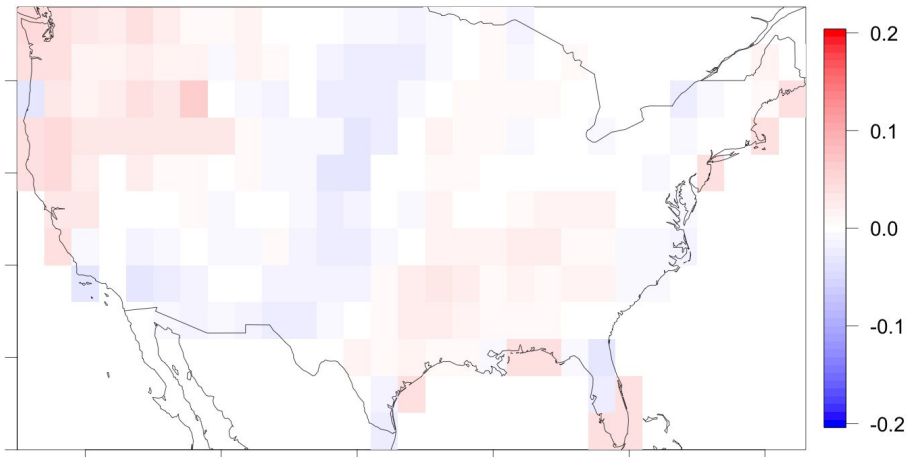
Lead time: 10-12day, threshold: 85th pctl



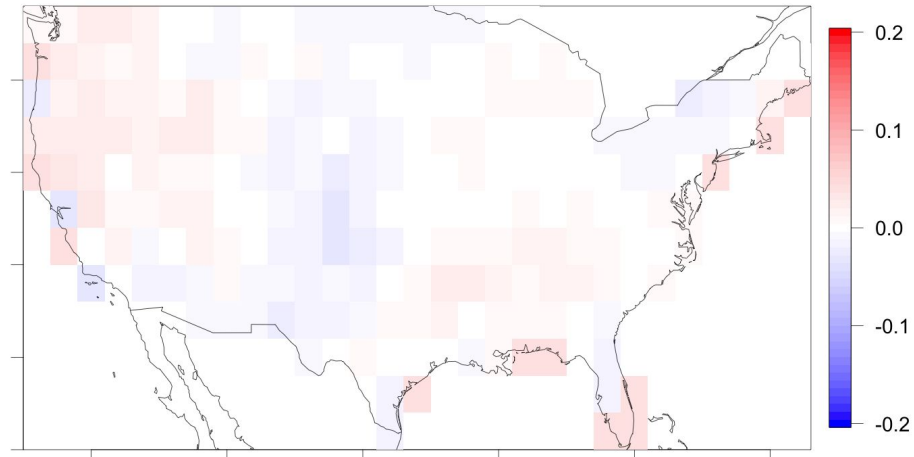
Lead time: 12-14day, threshold: 85th pctl



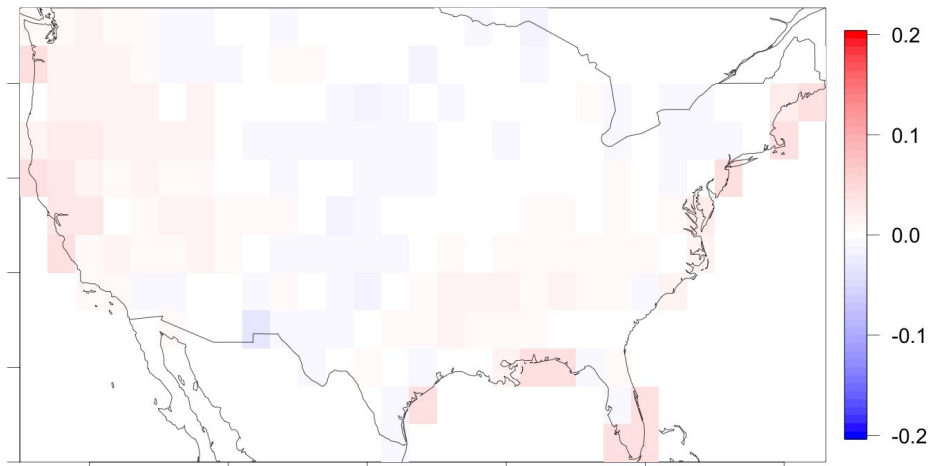
Map of ranked probability skill scores for precip, 8-10day



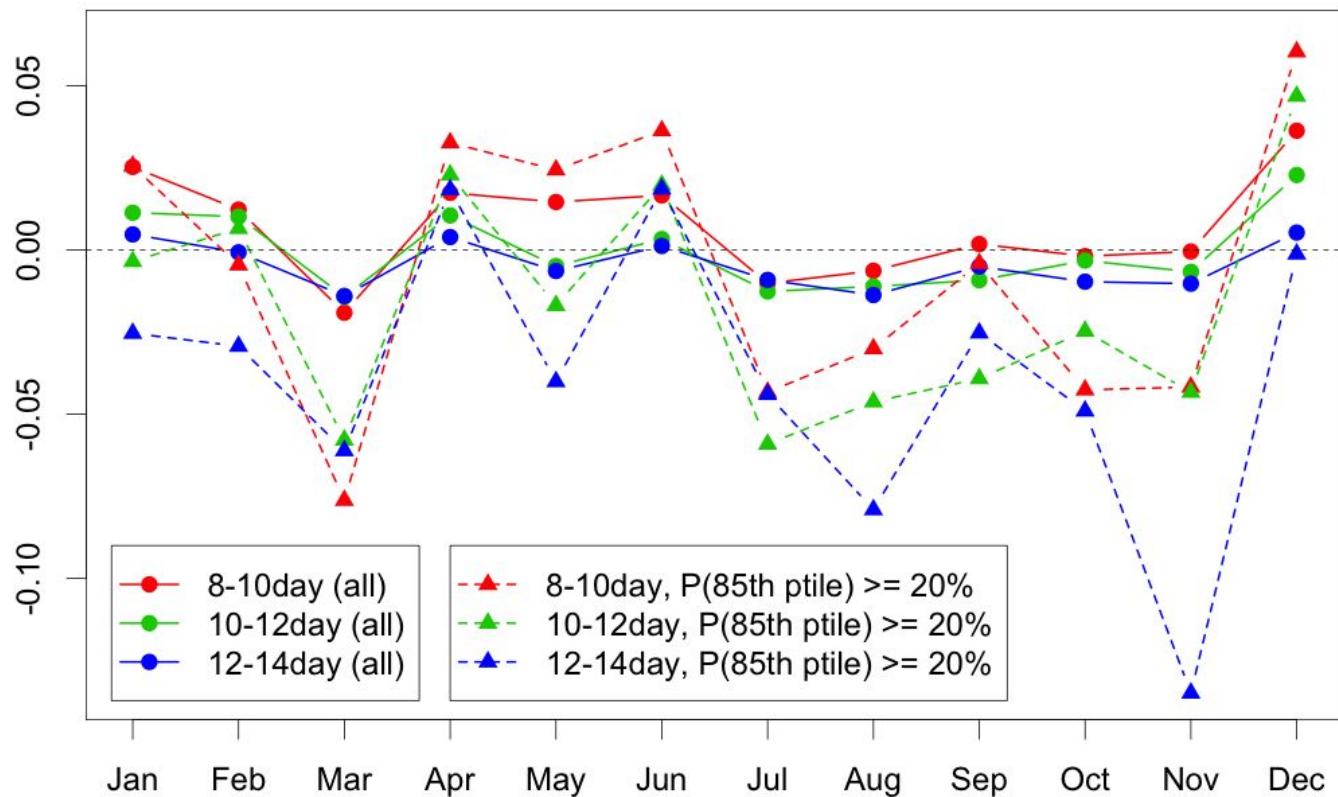
Map of ranked probability skill scores for precip, 10-12day



Map of ranked probability skill scores for precip, 12-14day



Brier skill score for precip



Mean BSS

All Seasons

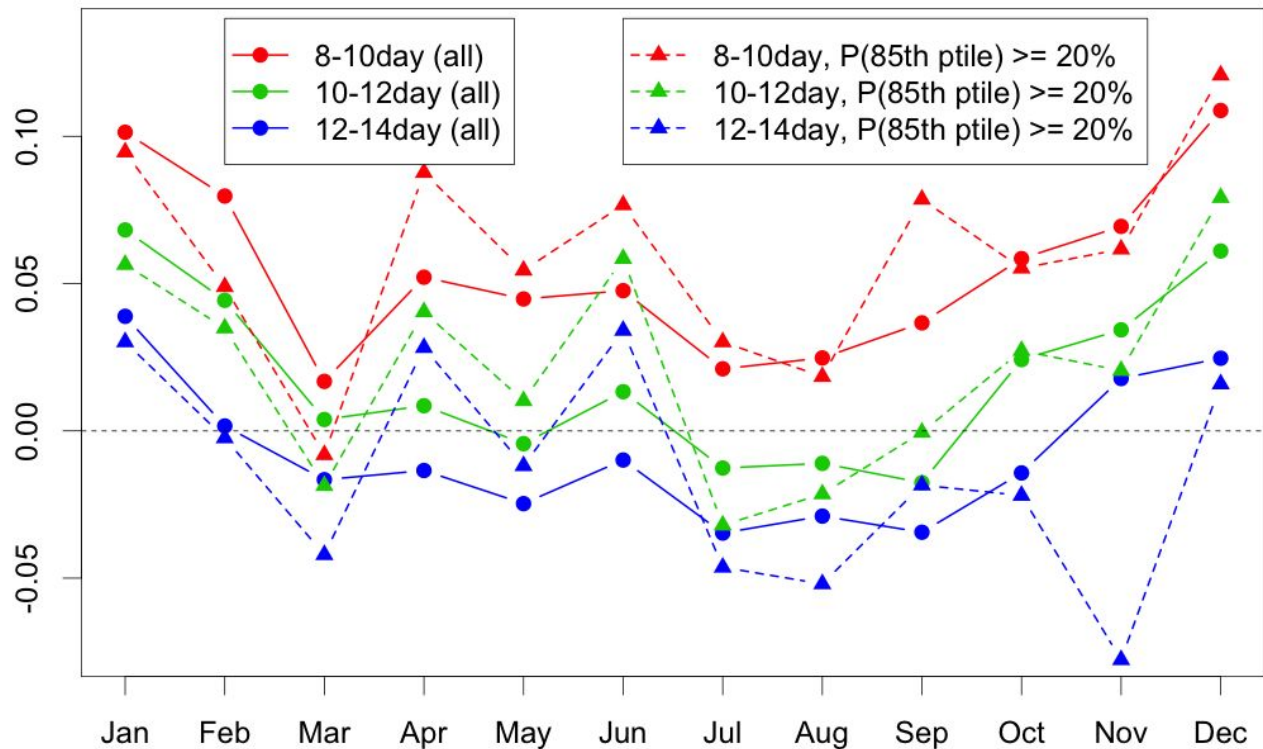
All Ptile | P<15th

Day 8-10 0.01 | 0.00

Day 10-12 0.00 | -0.01

Day 12-14 0.00 | -0.04

Ranked probability skill score for precip




Mean RPSS
All Seasons

All Ptile | P@85th>20%

Day 8-10 0.06 | 0.06

Day 10-12 0.02 | 0.02

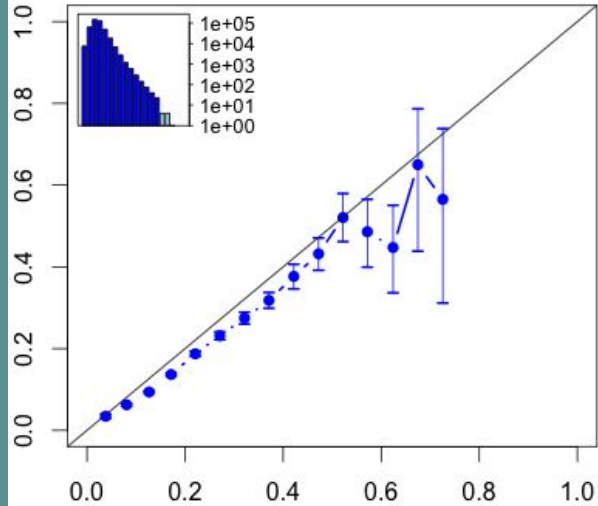
Day 12-14 -0.01 | -0.01



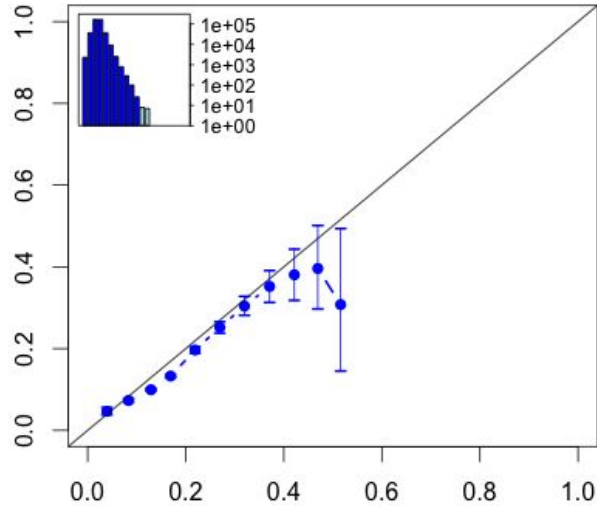
High winds
Forecasts Valid
1/1/2014 - 12/31/2017
Obs: CFSR Analyses

High Wind Reliability

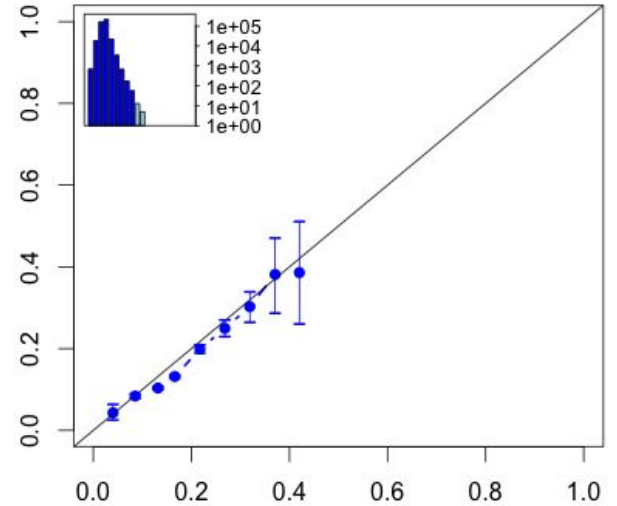
Lead time: 8-10day, threshold: 85th pctl



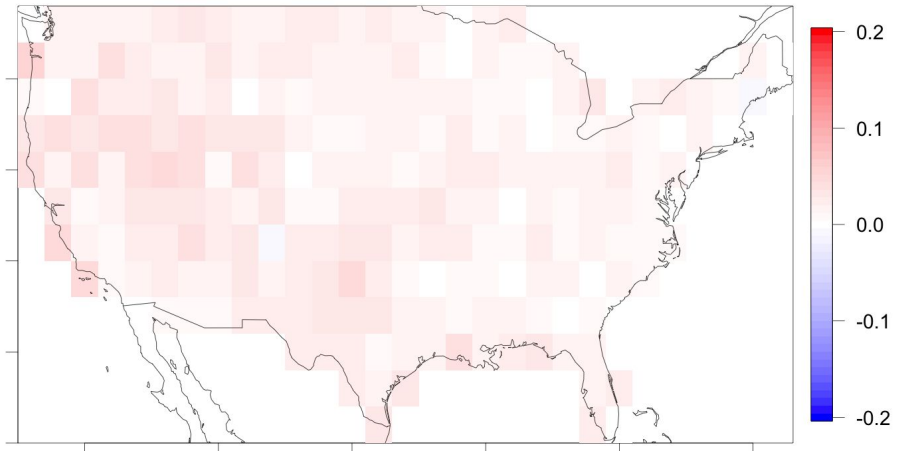
Lead time: 10-12day, threshold: 85th pctl



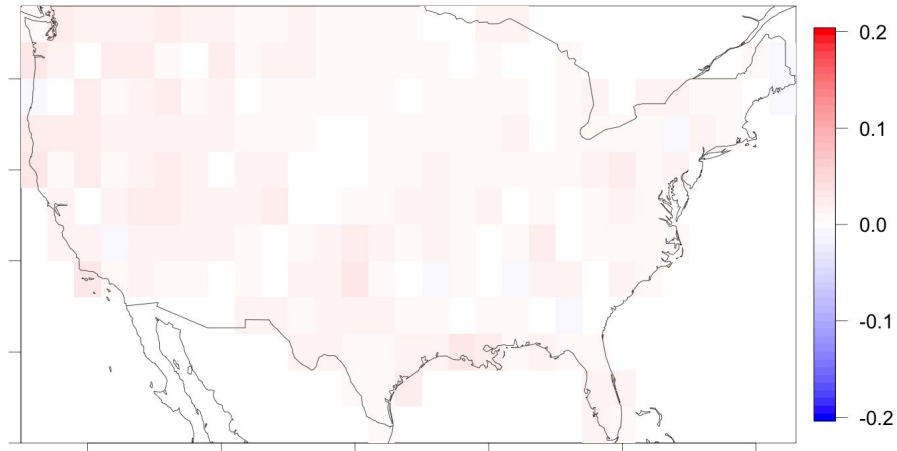
Lead time: 12-14day, threshold: 85th pctl



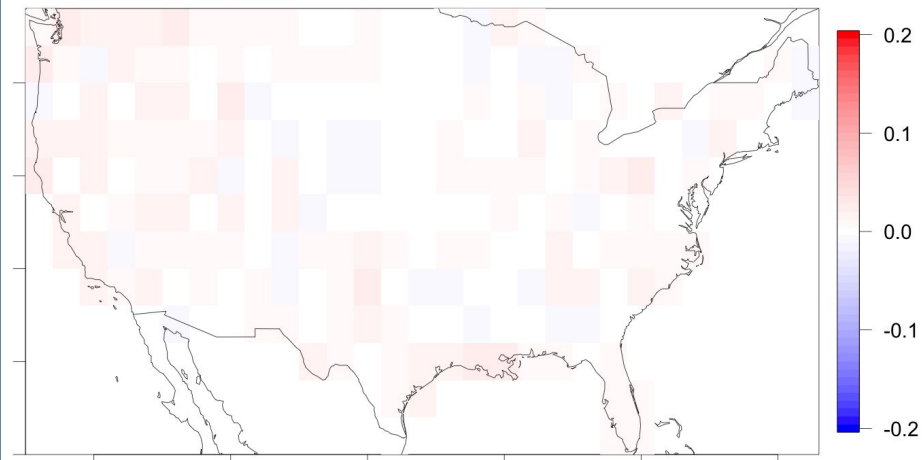
Map of ranked probability skill scores for wind, 8-10day



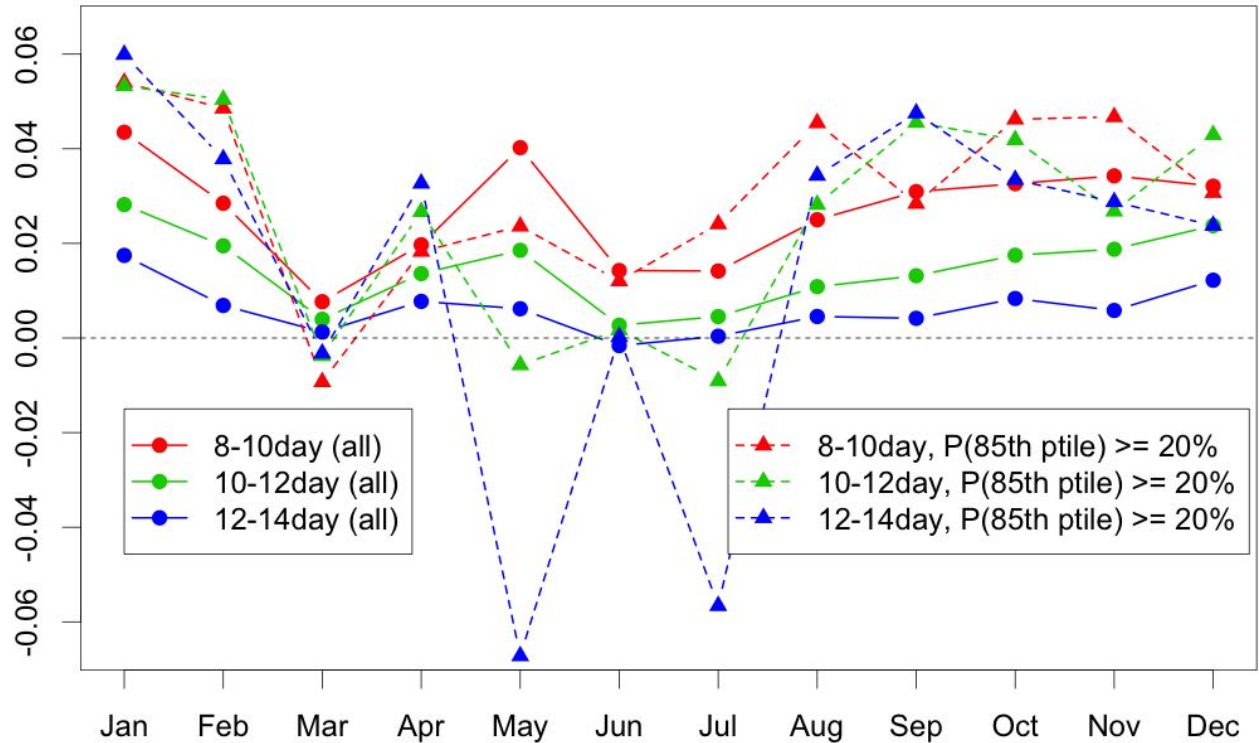
Map of ranked probability skill scores for wind, 10-12day



Map of ranked probability skill scores for wind, 12-14day



Brier skill score for wind



Mean BSS
All Seasons

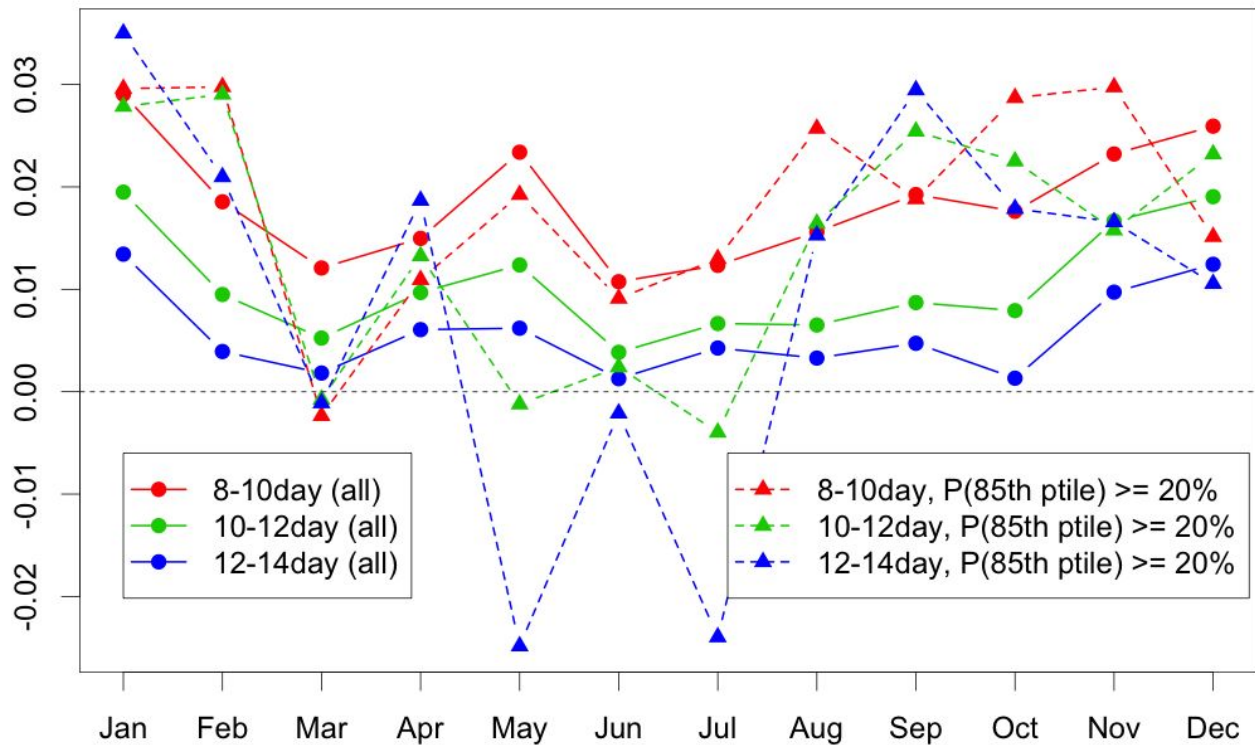
All Ptile | P@85th>20%

Day 8-10 0.02 | 0.03

Day 10-12 0.02 | 0.03

Day 12-14 0.00 | 0.01

Ranked probability skill score for wind



Mean RPSS

All Seasons

All Ptile | P@85th>20%

Day 8-10 0.02 | 0.02

Day 10-12 0.01 | 0.01

Day 12-14 0.01 | 0.01

Mean RPSS values:

1. Tmax for Apr-Sep:

day9 day11 day13
0.102 0.075 0.050 all cases
0.151 0.113 0.085 P(85th ptile) >=20%

2. Tmin for Oct-Mar:

day9 day11 day13
0.080 0.060 0.041 all cases
0.140 0.117 0.096 P(15th ptile) >= 20%

3. Wind for all months:

day8-10 day10-12 day12-14
0.019 0.010 0.006 all cases
0.019 0.014 0.009 P(85th ptile) >= 20%

4. Precip for all months:

day8-10 day10-12 day12-14
0.055 0.018 -0.008 all cases
0.060 0.021 -0.014 P(85th ptile) >= 20%

Mean BSS values:

1. Tmax for Apr-Sep:

day9 day11 day13
0.089 0.061 0.041 all cases
0.151 0.112 0.084 P(85th ptile) >= 20%

2. Tmin for Oct-Mar:

day9 day11 day13
0.111 0.078 0.048 all cases
0.200 0.166 0.138 P(15th ptile) >= 20%

3. Wind for all months:

day8-10 day10-12 day12-14
0.027 0.015 0.006 all cases
0.031 0.025 0.014 P(85th ptile) >= 20%

4. Precip for all months:

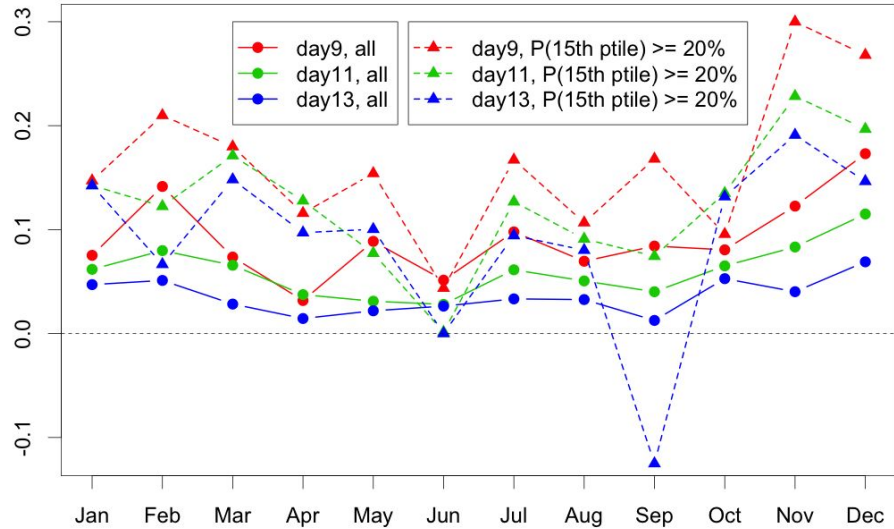
day8-10 day10-12 day12-14
0.007 0.000 -0.004 all cases
-0.005 -0.016 -0.038 P(85th ptile) >= 20%

Companion meeting minute notes at

<https://docs.google.com/document/d/1Qn05bylVD1Kh6uU6qg4tBw0VuTWANnwx3sBdyApiVFc/edit>

Extra Slides - with outlier values shown

Brier skill score for tmin



Ranked probability skill score for tmin

