

GMOS Update 2018

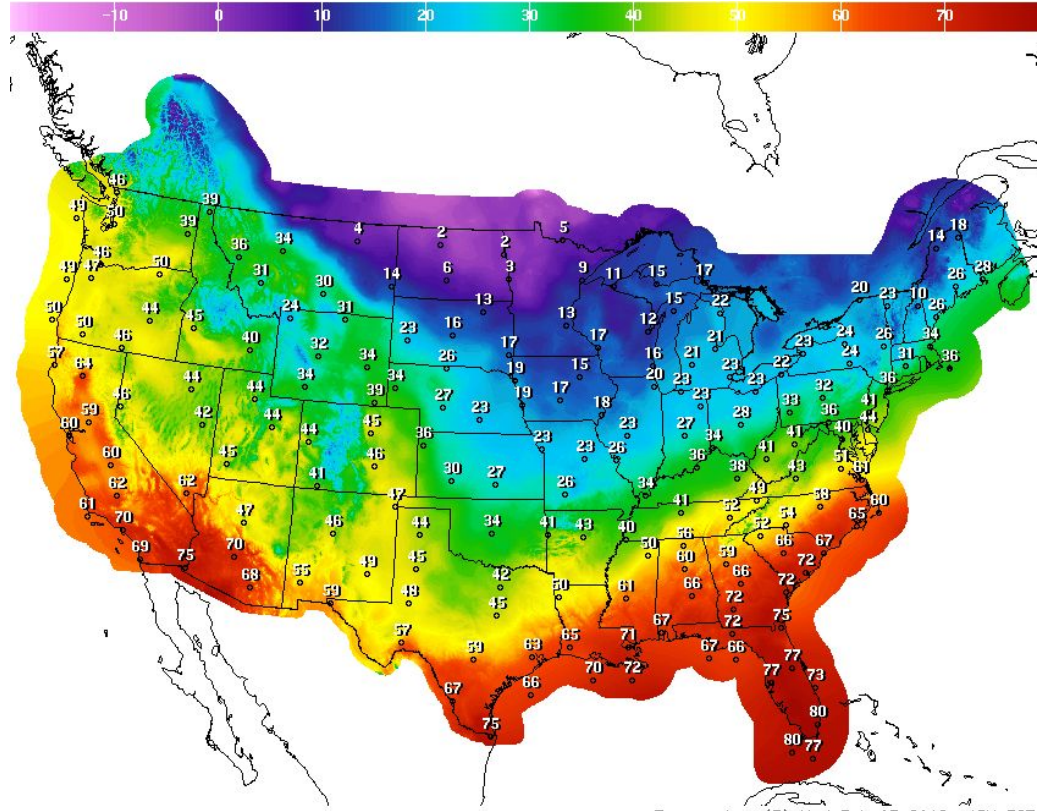
Statistical Modeling Branch, MDL

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GMOS - What's Changing?

1. New MOS stations added to analysis
 - a. 12,000+ MADIS stations added to CONUS analyses
 - b. 1200+ MADIS and Canadian stations added to Alaska analyses
2. CONUS and Alaska grids expanded to cover the full domain
 - a. These grids will be made available to the National Blend of Models
 - b. Grids will be clipped before dissemination
3. Updates to unified terrain and land/water masks
 - a. Updated for CONUS, Alaska, and Hawaii
 - b. Updates were made in conjunction with EMC (URMA/RTMA) and AWIPS
4. Updates to background grids used to make analyses
 - a. Updated Alaska grids to use .25 degree GFS DMO and GOE data instead of 47 KM
 - b. Added a GFS DMO grid as a background grid for CONUS sky cover analyses

CONUS GMOS - Current Operational Extent



Temperature(F) Wed Feb 07 2018 1PM EST

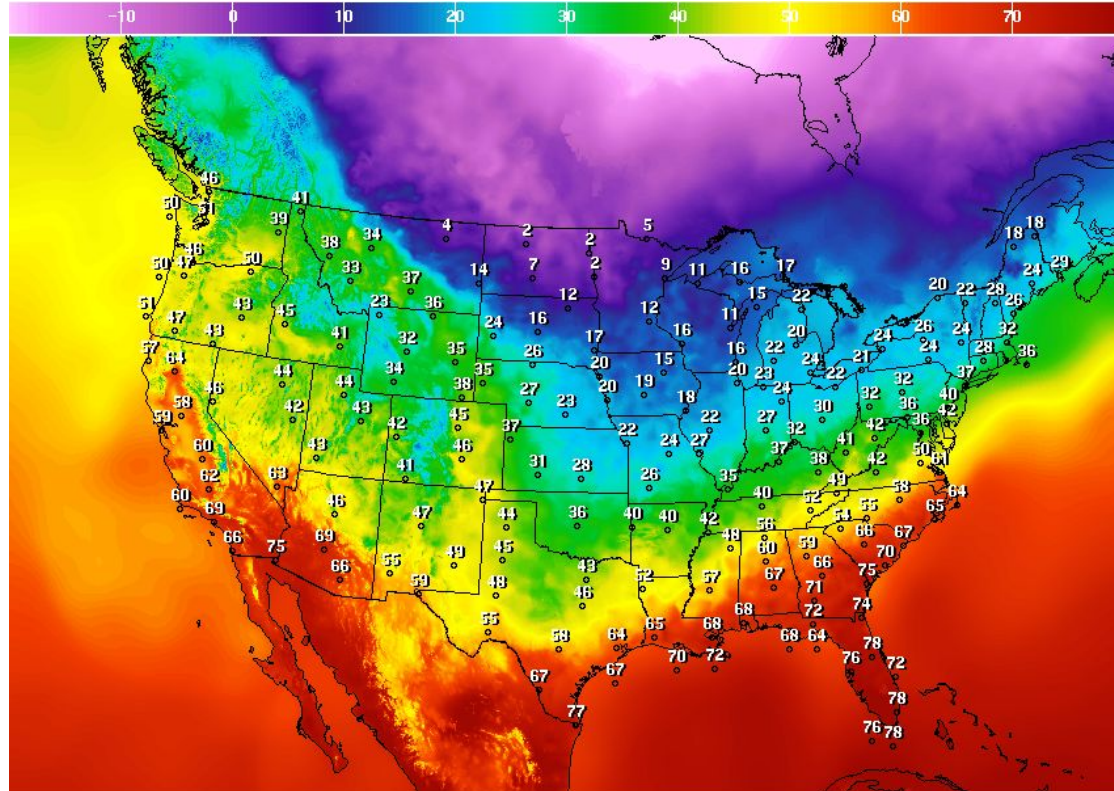
Open (Wed Feb 07 2018 18Z)

National Digital Forecast Database

Graphic created-Feb 06 5:48PM EST



CONUS GMOS - New Extent (TDLpack for NBM)



Temperature(F) Wed Feb 07 2018 1PM EST

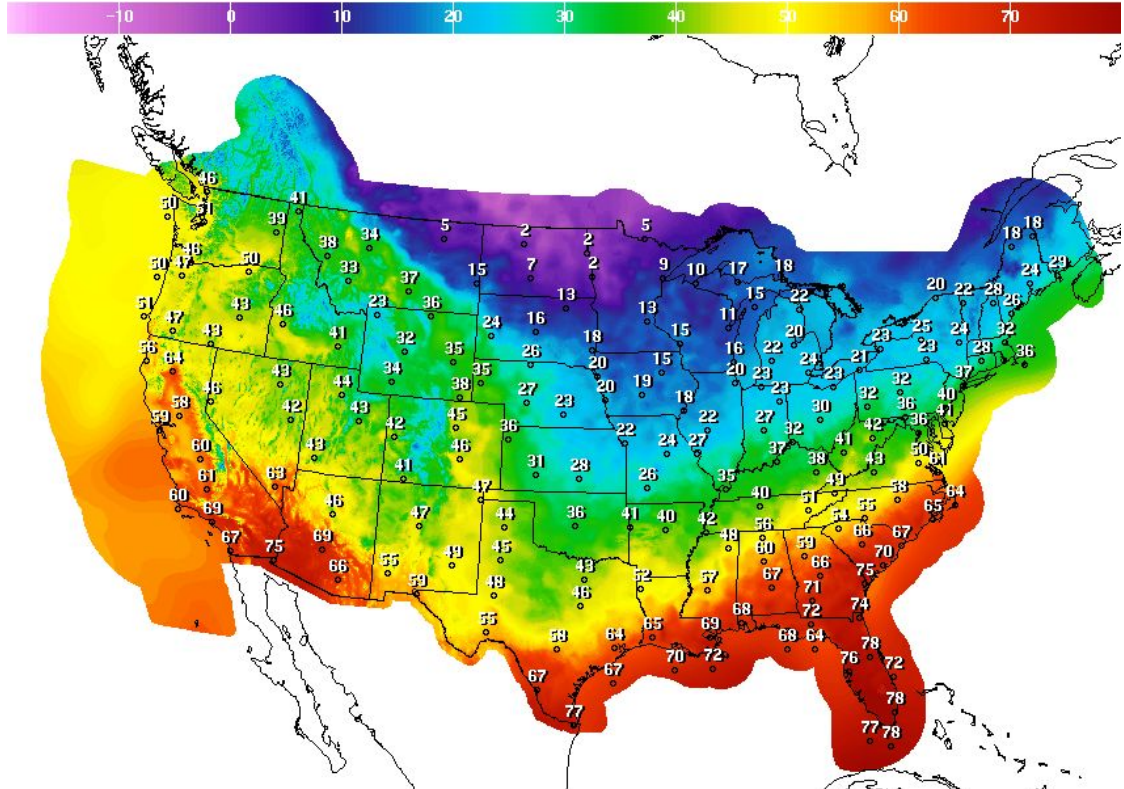
Para (Wed Feb 07 2018 18Z)

National Digital Forecast Database

Graphic created-Feb 06 5:57PM EST



CONUS GMOS - New Extent (GRIB2 Files)



Temperature(F) Wed Feb 07 2018 1PM EST

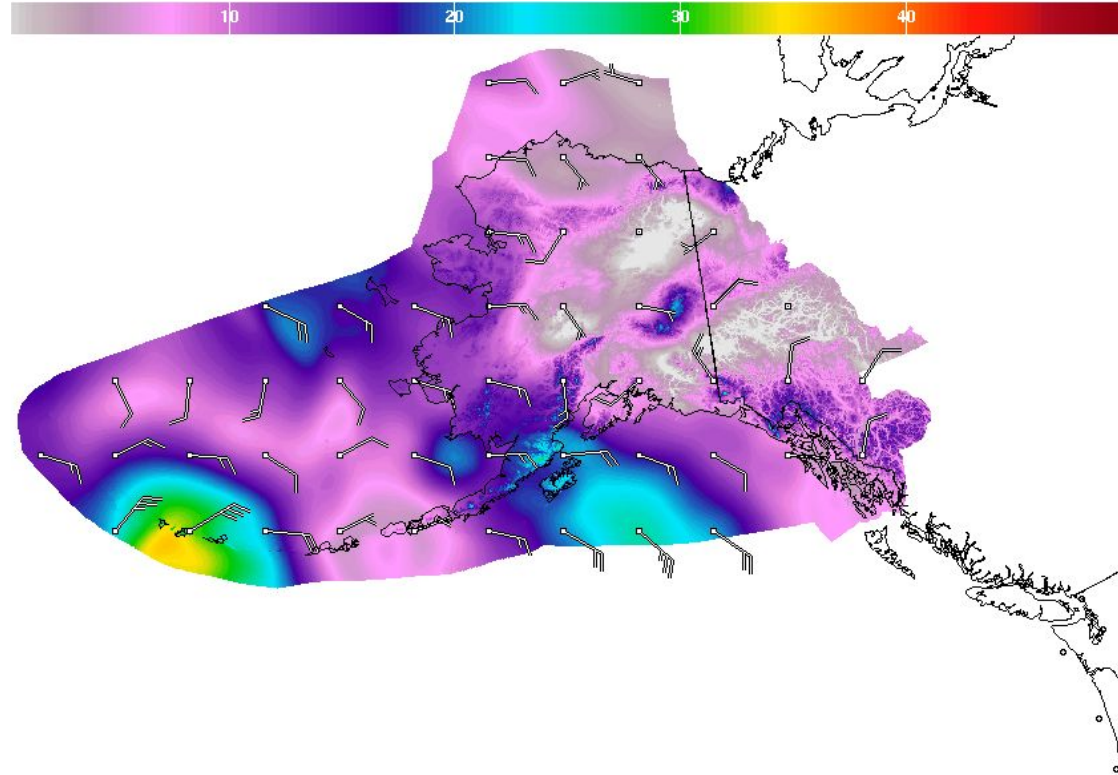
Para (Wed Feb 07 2018 18Z)

National Digital Forecast Database

Graphic created-Feb 06 4:39PM EST



Alaska GMOS - Current Operational Extent



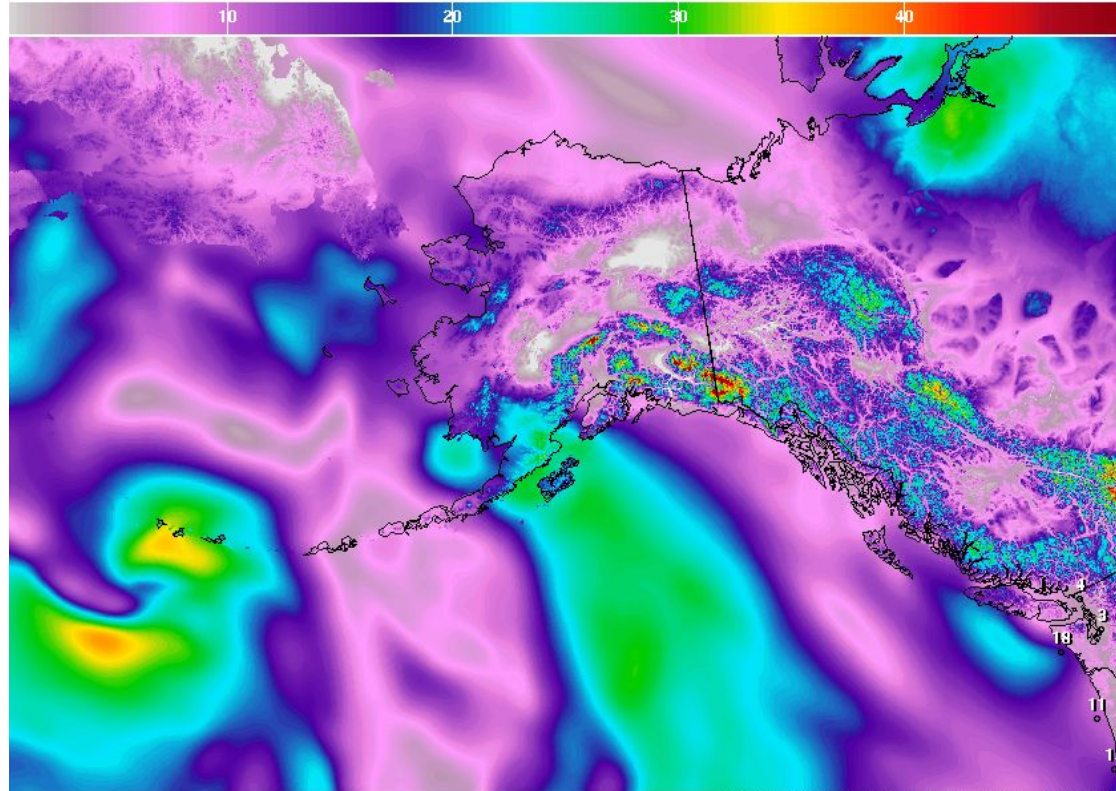
WindSpd(Kts) & WindDir For Fri Feb 09 2018 4PM EST
Oper (Fri Feb 09 2018 21Z)

National Digital Forecast Database

Graphic created-Feb 06 9:38PM EST



Alaska GMOS - New Extent (TDLpack for NBM)



WindSpd(Kts) Fri Feb 09 2018 4PM EST

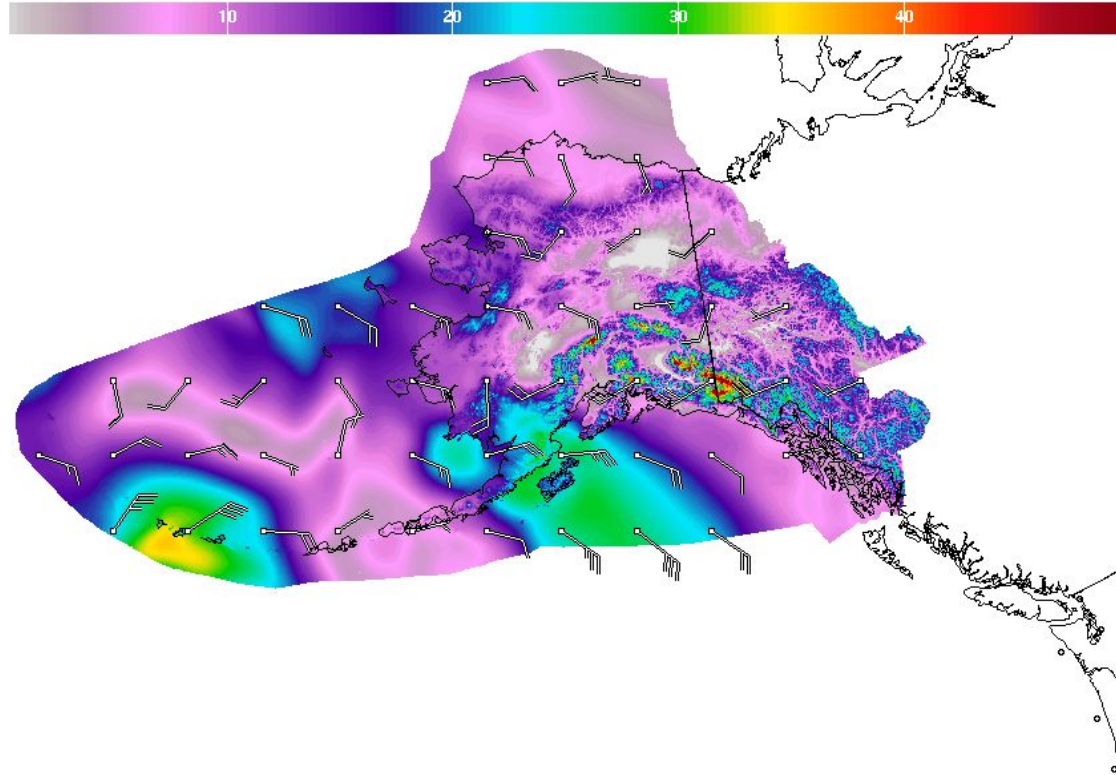
Para (Fri Feb 09 2018 21Z)

National Digital Forecast Database

Graphic created-Feb 06 10:24PM EST



Alaska GMOS - New Extent (GRIB2 Files)



WindSpd(Kts) & WindDir For Fri Feb 09 2018 4PM EST
Para (Fri Feb 09 2018 21Z)

National Digital Forecast Database

Graphic created-Feb 06 10:01PM EST



Gridded MOS Verification

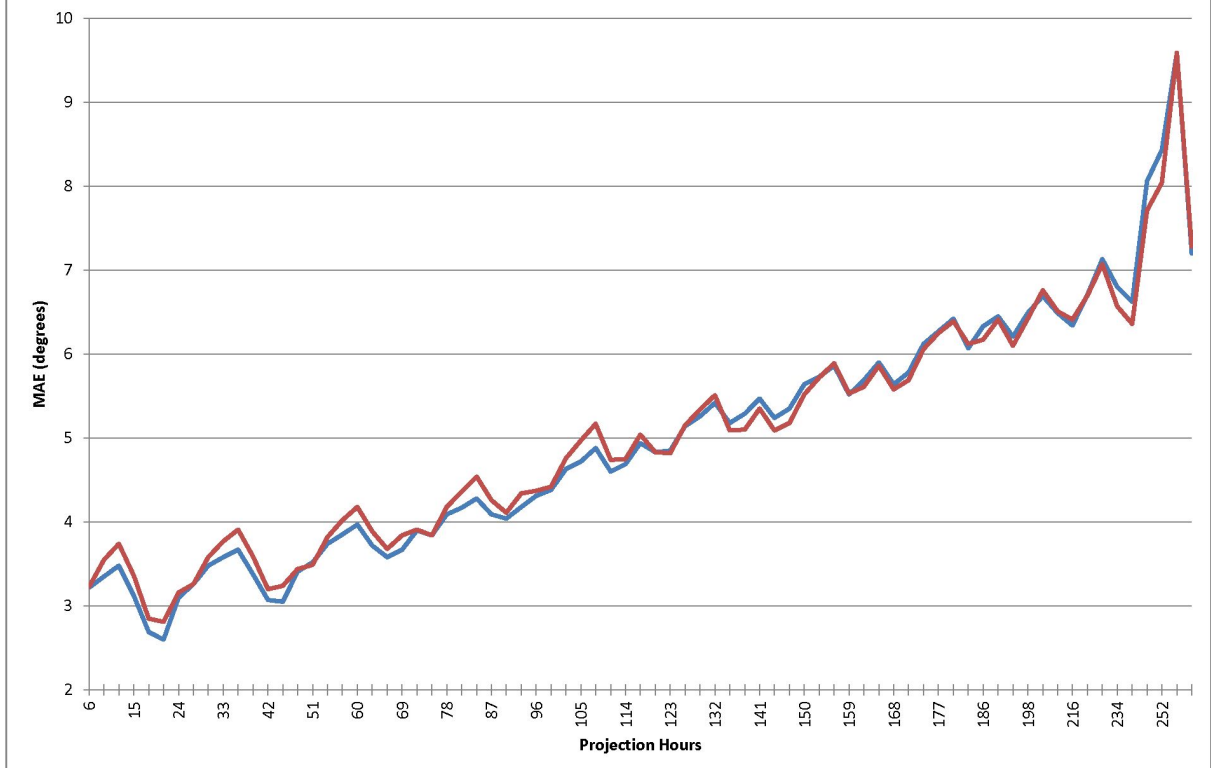
1. Verification Dates: 20171201-20171231
2. Domains: CONUS and Alaska
3. Elements:
 - a. [Temperature](#)
 - b. [Dewpoint](#)
 - c. [Daytime Maximum Temperature](#)
 - d. [Nighttime Minimum Temperature](#)
 - e. [Sky Cover](#)
 - f. [Wind Speed](#)
 - g. [6-HR QPF](#)
 - h. [12-HR PoP](#)
4. Scores: Mean Absolute Error (MAE), Bias, Brier Score

2-M Temperature Verification

1. Verification Dates: 20171201-20171231
2. Domains: CONUS and Alaska
3. Scores: Mean Absolute Error (MAE), verified against URMA
 - a. CONUS grids were clipped to match the URMA grid
4. Models verified
 - a. GMOS Para - Parallel run of GMOS, which includes the latest updates
 - b. GMOS Prod - Operational version of GMOS currently running in production

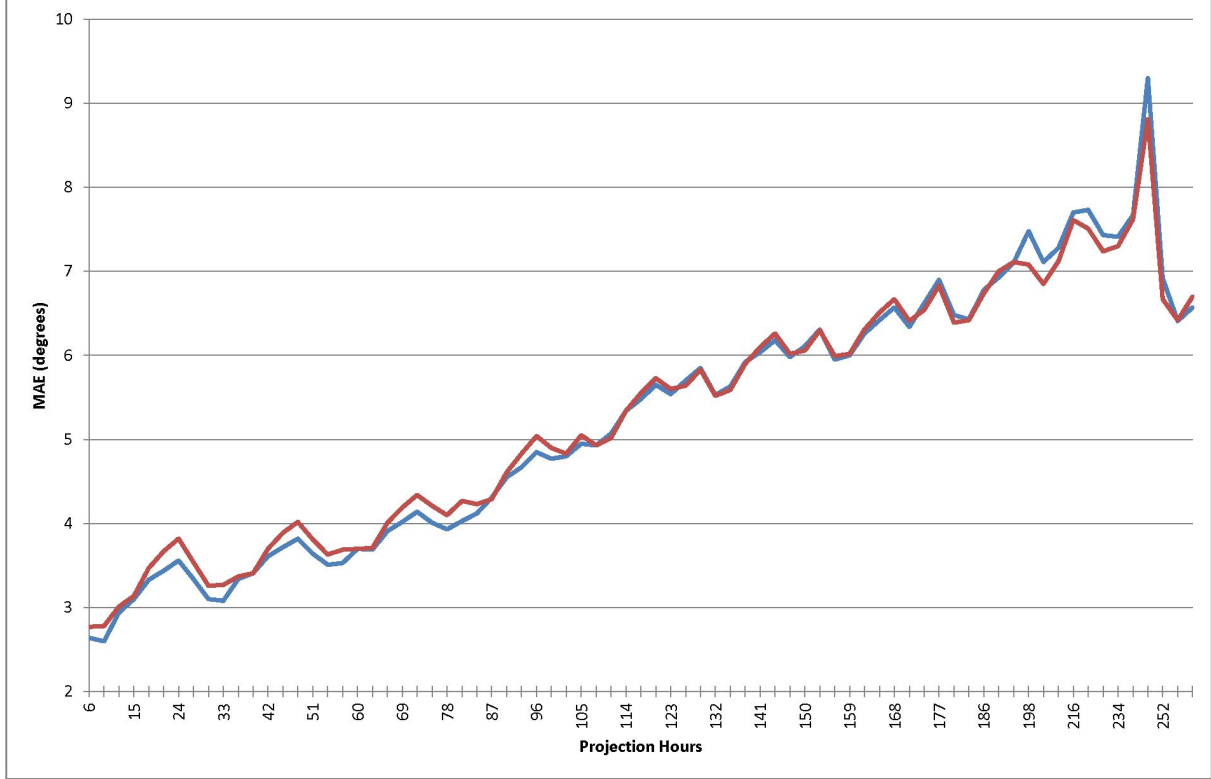
00z Temperature - MAE - Conus

— GMOS PARA — GMOS PROD



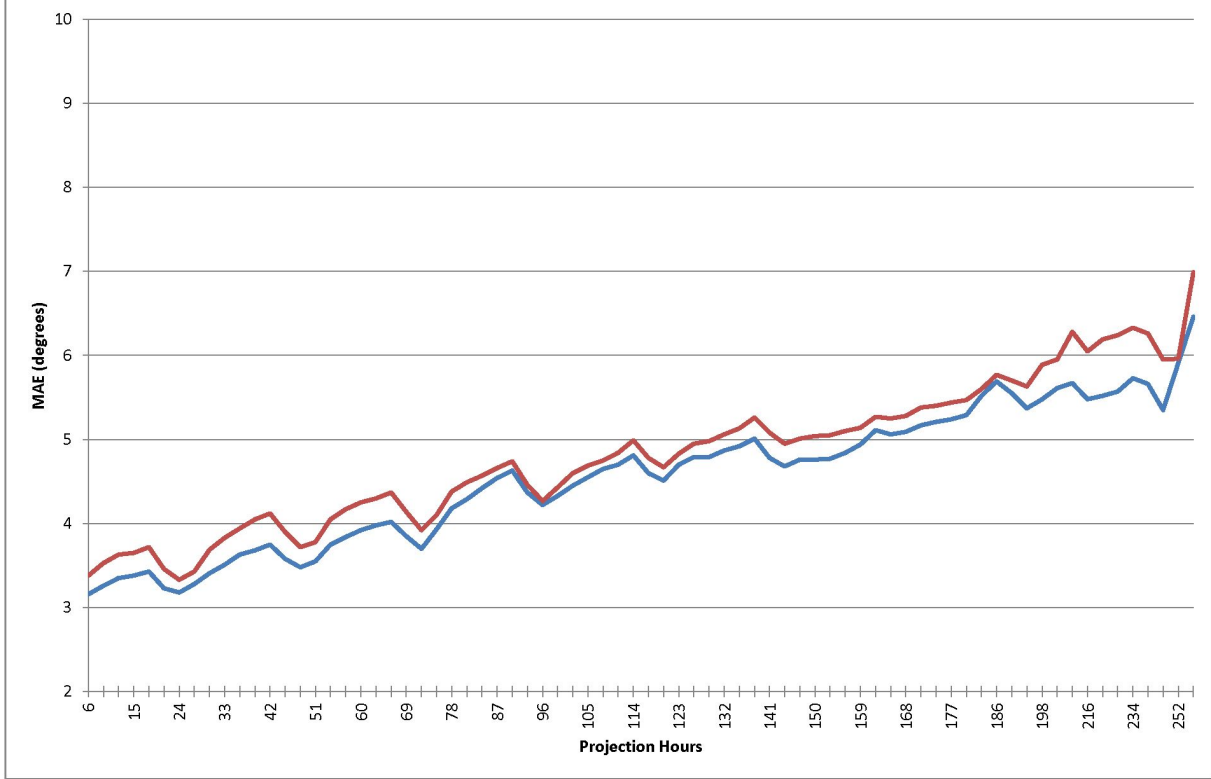
12z Temperature - MAE - Conus

— GMOS PARA — GMOS PROD



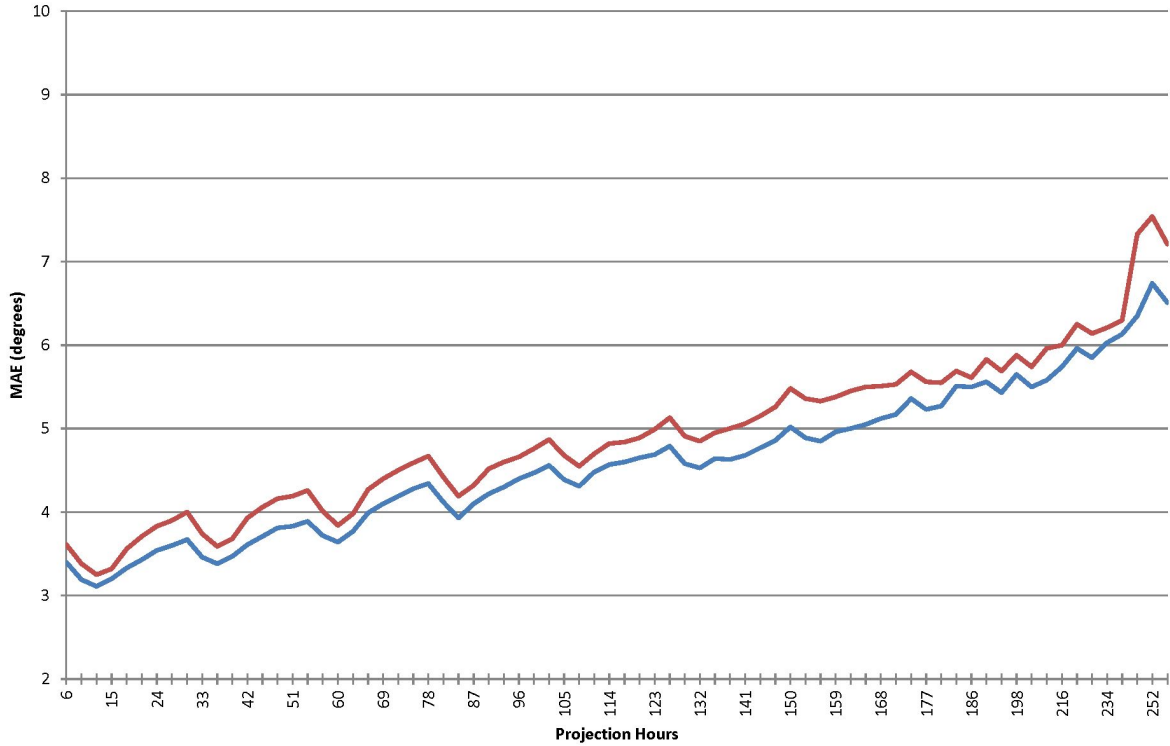
00z Temperature - MAE - Alaska

— GMOS PARA — GMOS PROD



12z Temperature - MAE - Alaska

— GMOS PARA — GMOS PROD

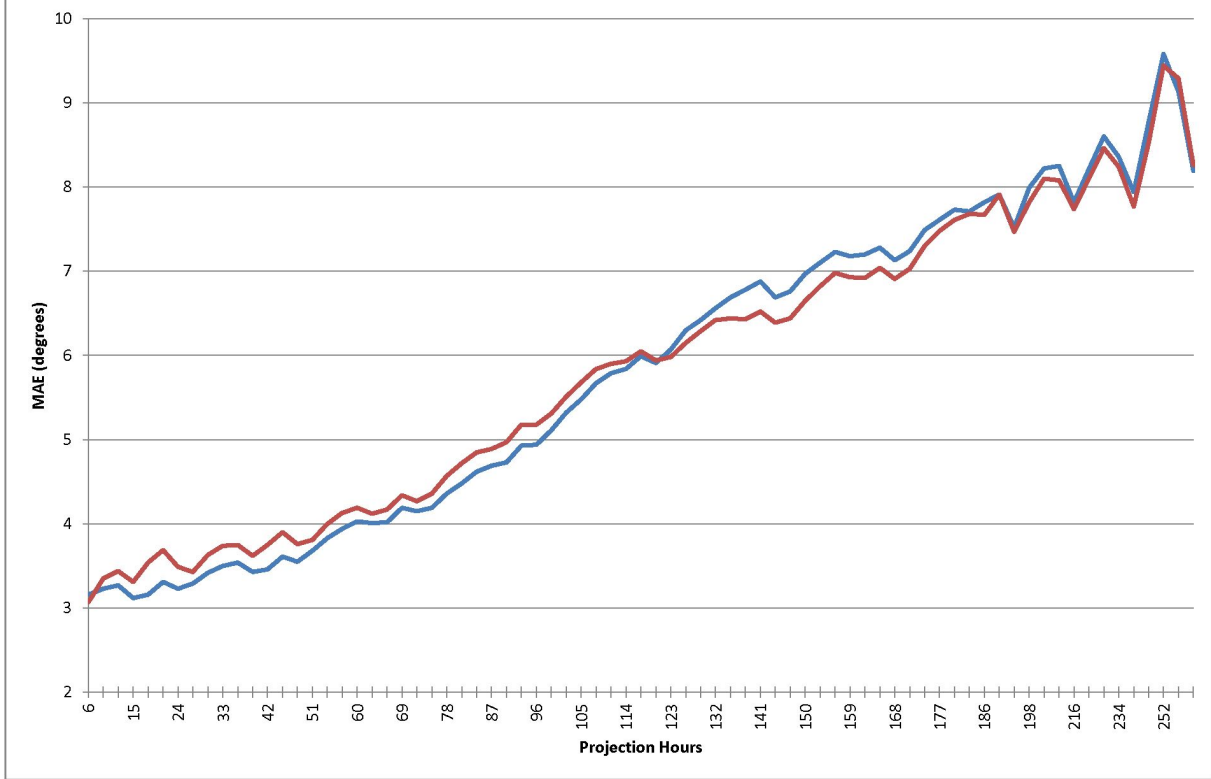


2-M Dewpoint Verification

1. Verification Dates: 20171201-20171231
2. Domains: CONUS and Alaska
3. Scores: Mean Absolute Error (MAE), verified against URMA
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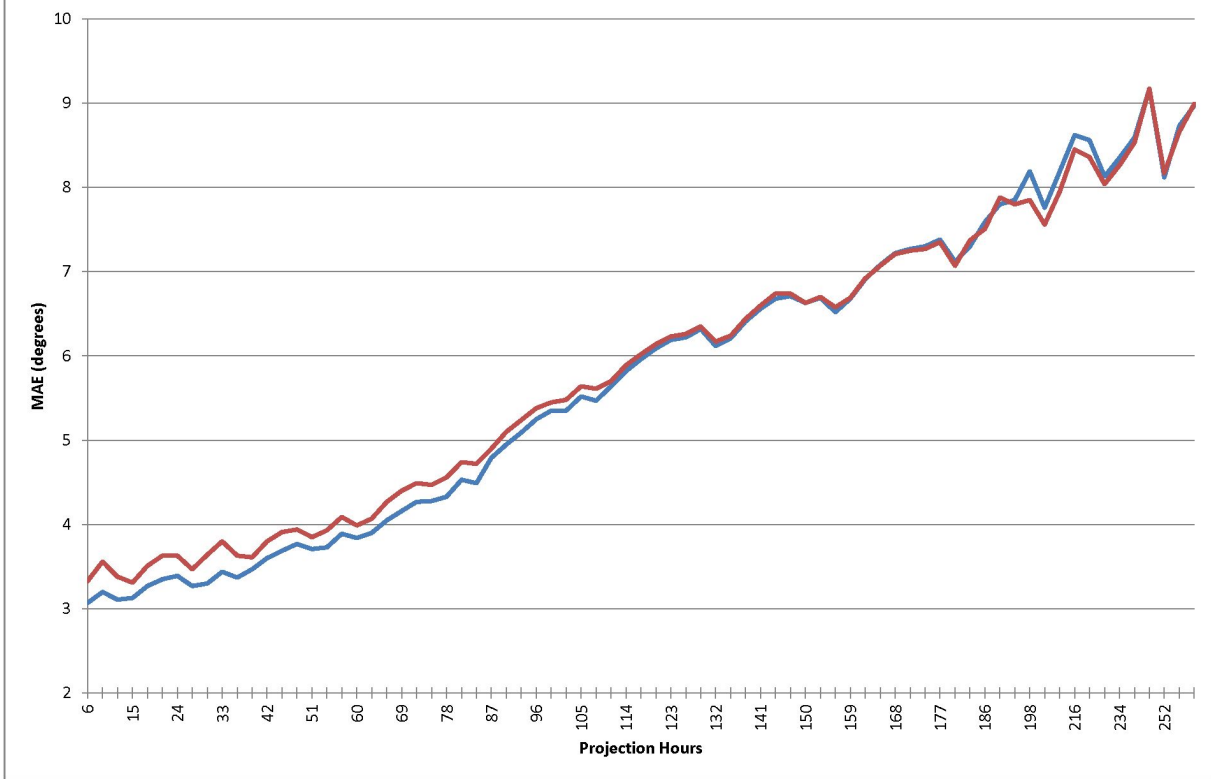
00z Dewpoint - MAE - Conus

— GMOS PARA — GMOS PROD



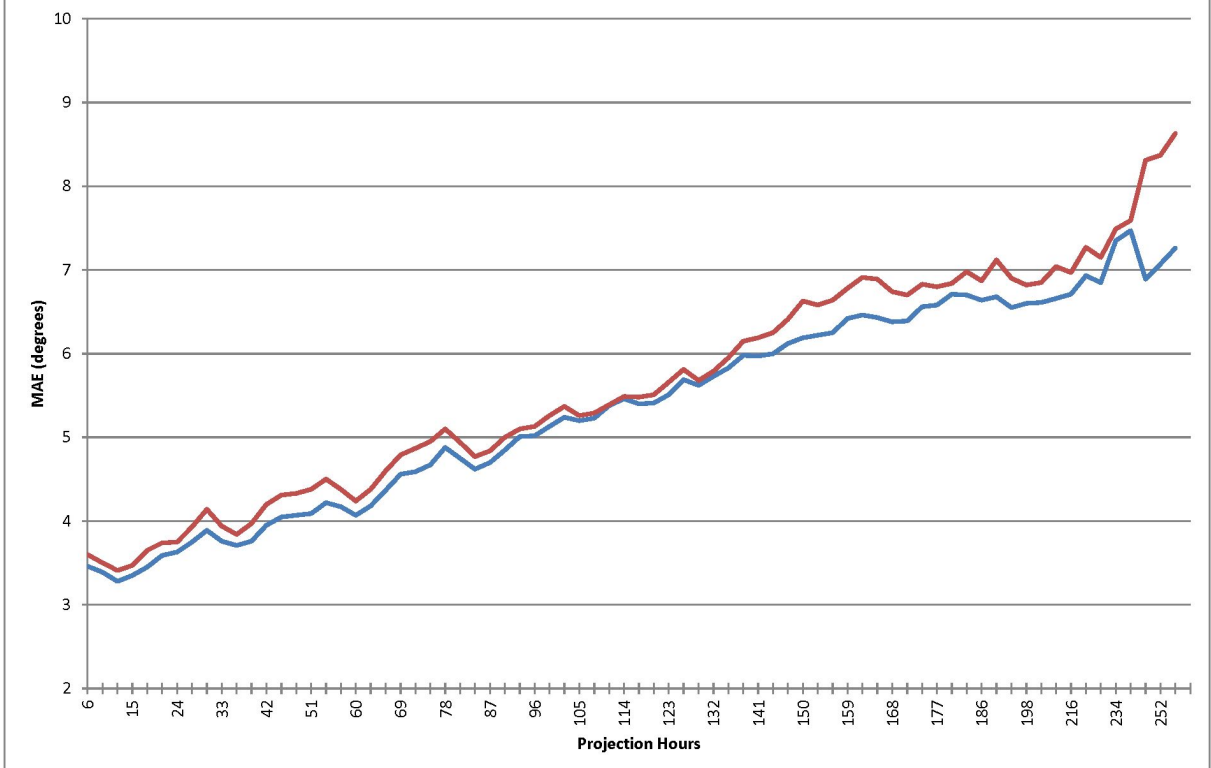
12z Dewpoint - MAE - Conus

— GMOS PARA — GMOS PROD



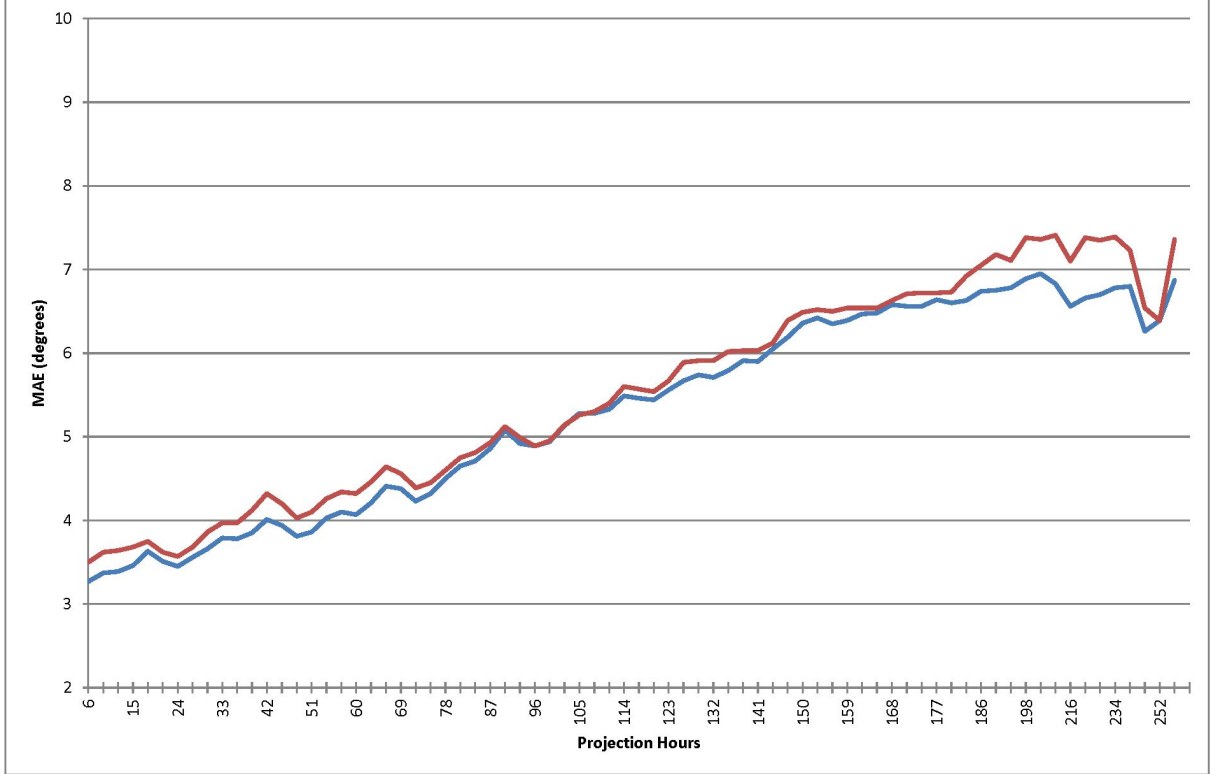
00z Dewpoint - MAE - Alaska

— GMOS PARA — GMOS PROD



12z Dewpoint - MAE - Alaska

— GMOS PARA — GMOS PROD

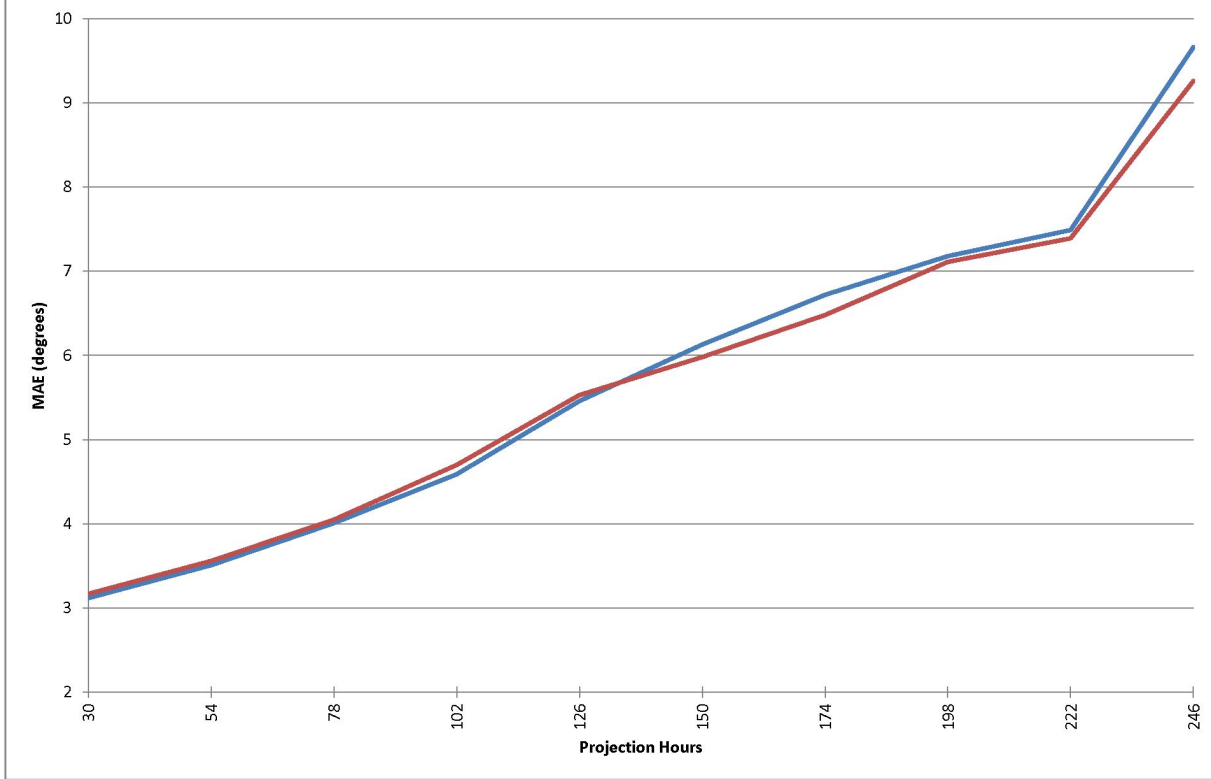


Daytime Maximum Temperature Verification

1. Verification Dates: 20171201-20171231
2. Domains: CONUS and Alaska
3. Scores: Mean Absolute Error (MAE), verified against URMA
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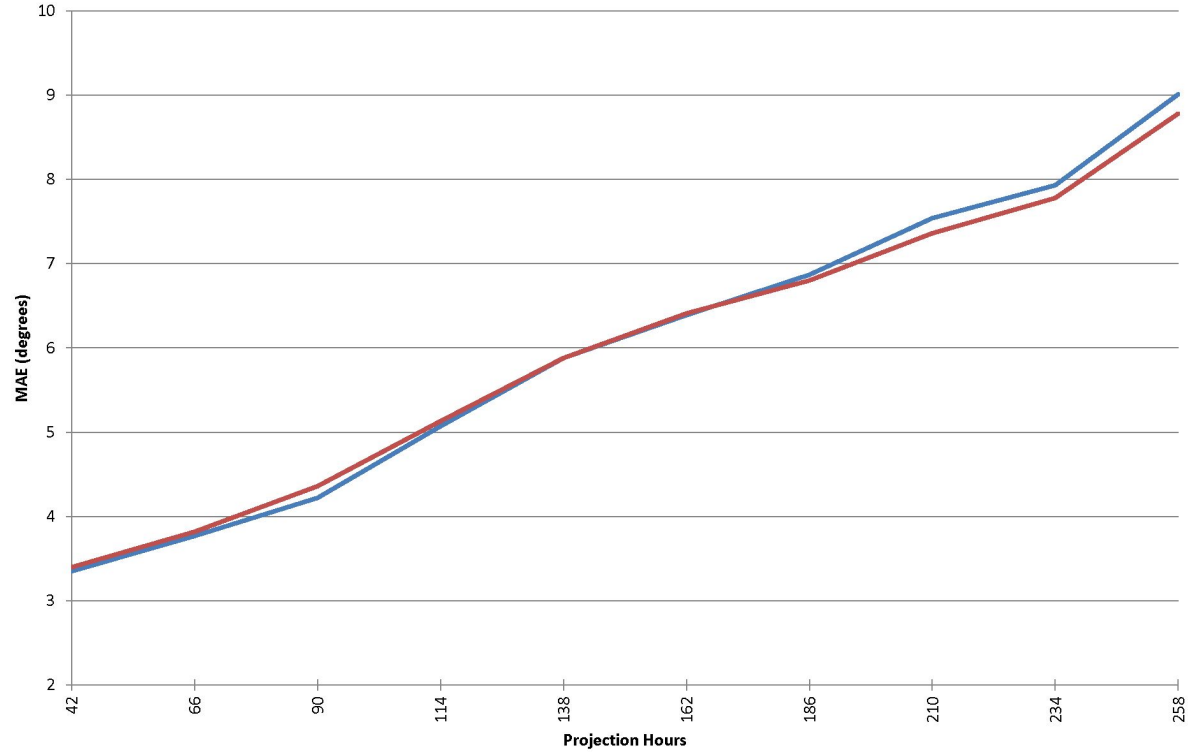
00z Max Temperature - MAE - Conus

— GMOS PARA — GMOS PROD

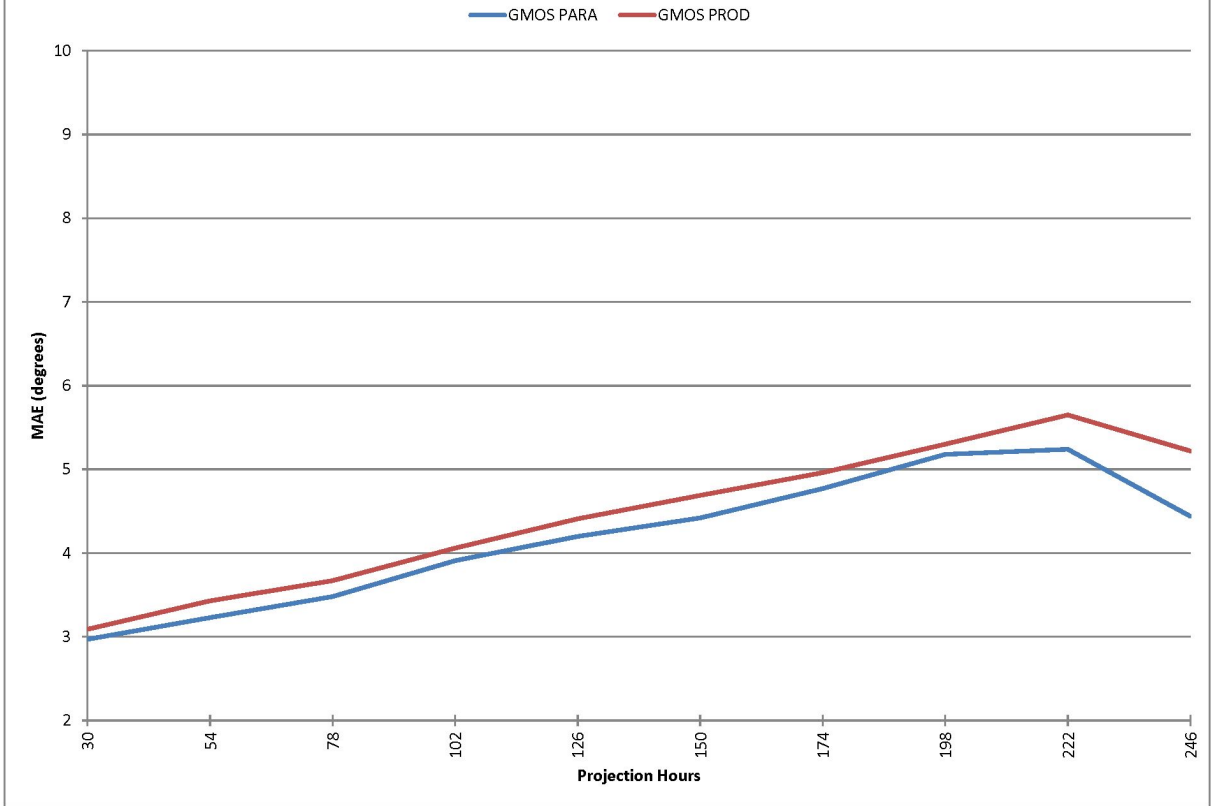


12z Max Temperature - MAE - Conus

— GMOS PARA — GMOS PROD

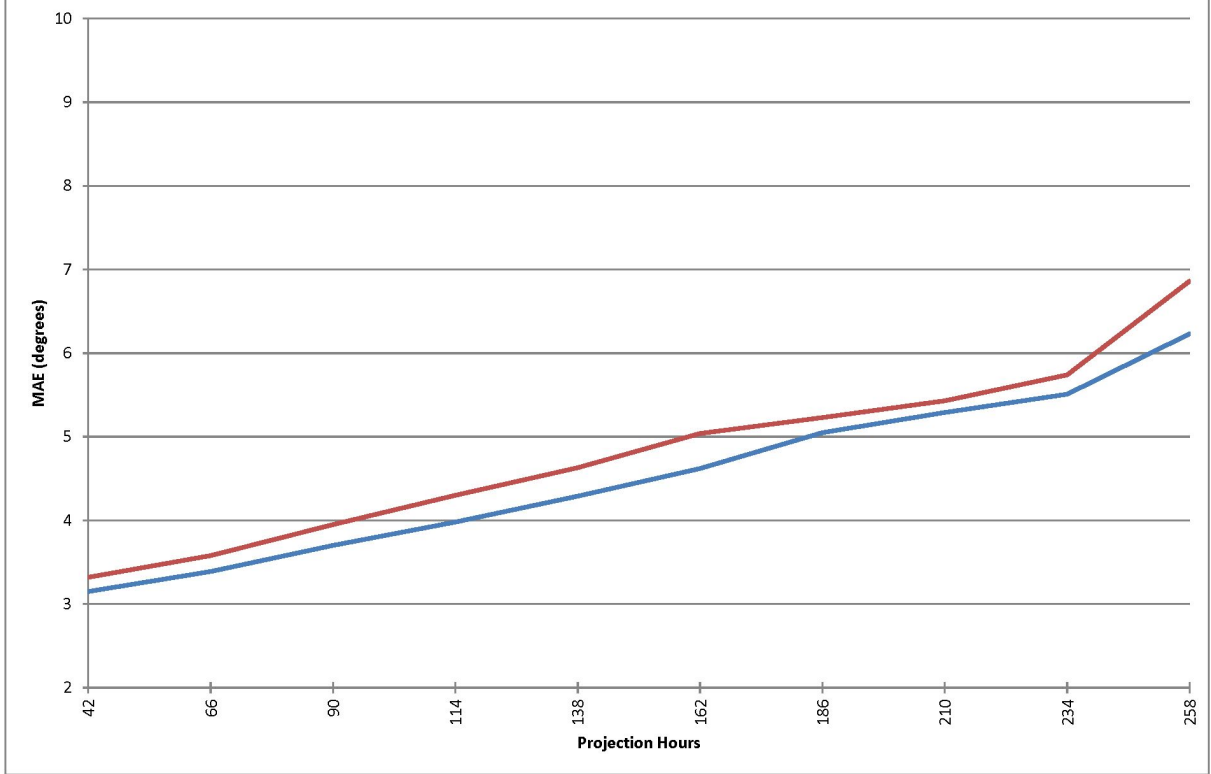


00z Max Temperature - MAE - Alaska



12z Max Temperature - MAE - Alaska

— GMOS PARA — GMOS PROD

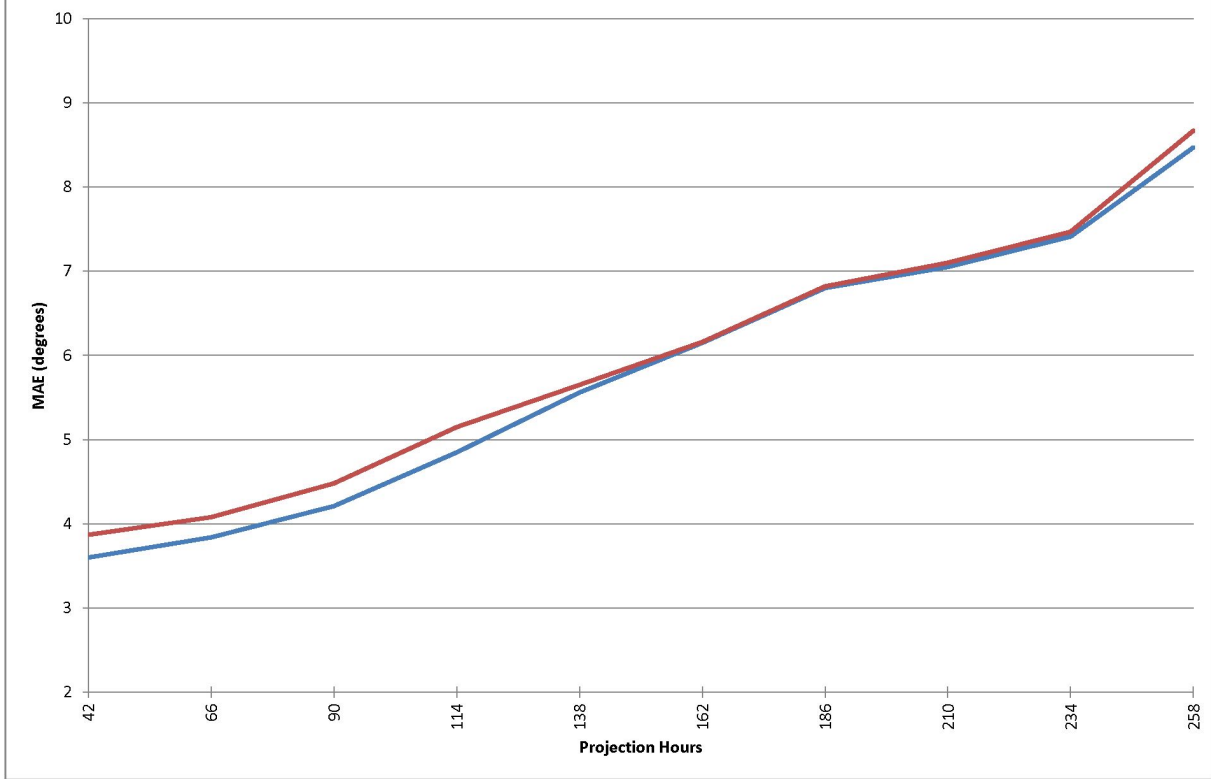


Nighttime Minimum Temperature Verification

1. Verification Dates: 20171201-20171231
2. Domains: CONUS and Alaska
3. Scores: Mean Absolute Error (MAE), verified against URMA
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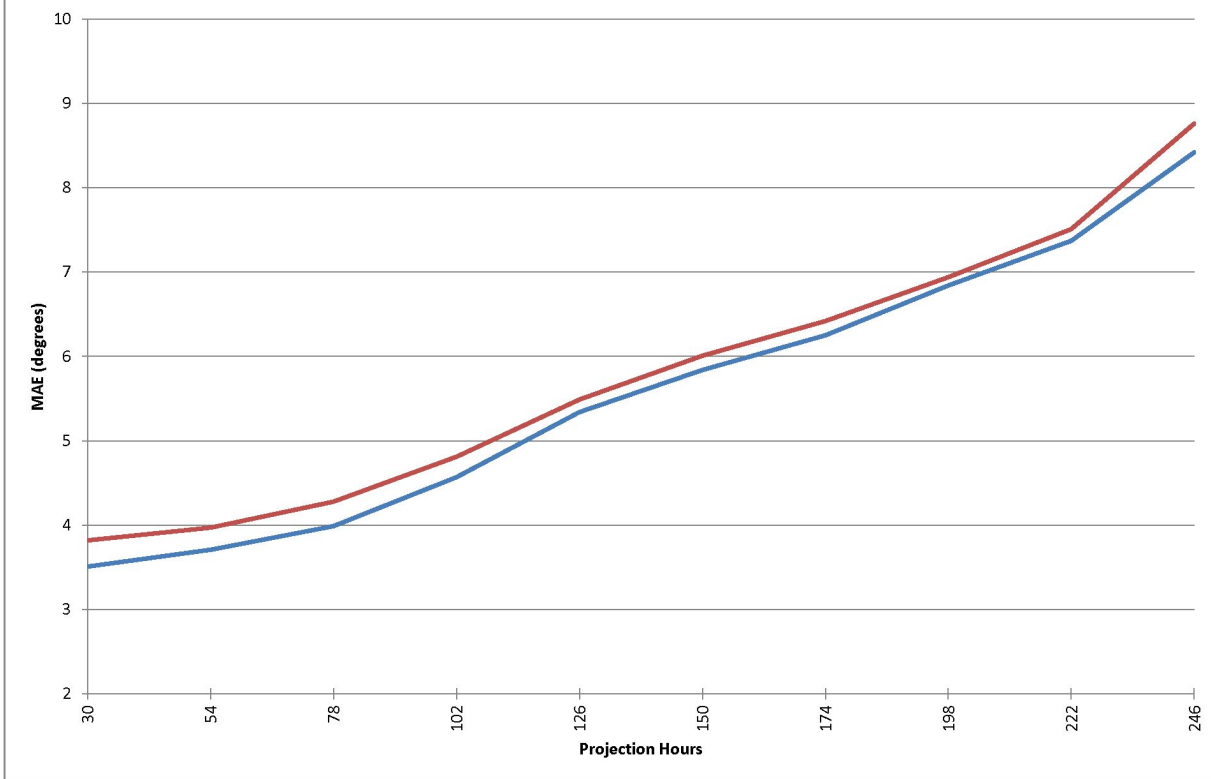
00z Min Temperature - MAE - Conus

— GMOS PARA — GMOS PROD



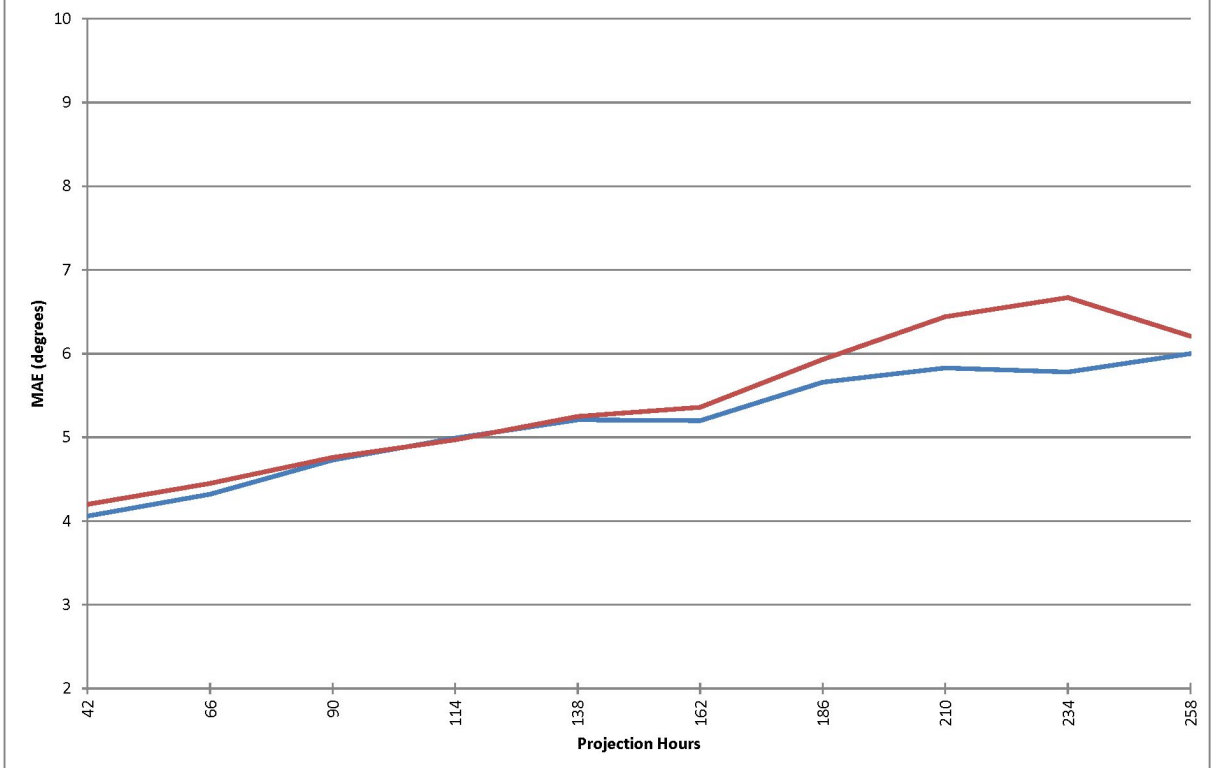
12z Min Temperature - MAE - Conus

— GMOS PARA — GMOS PROD

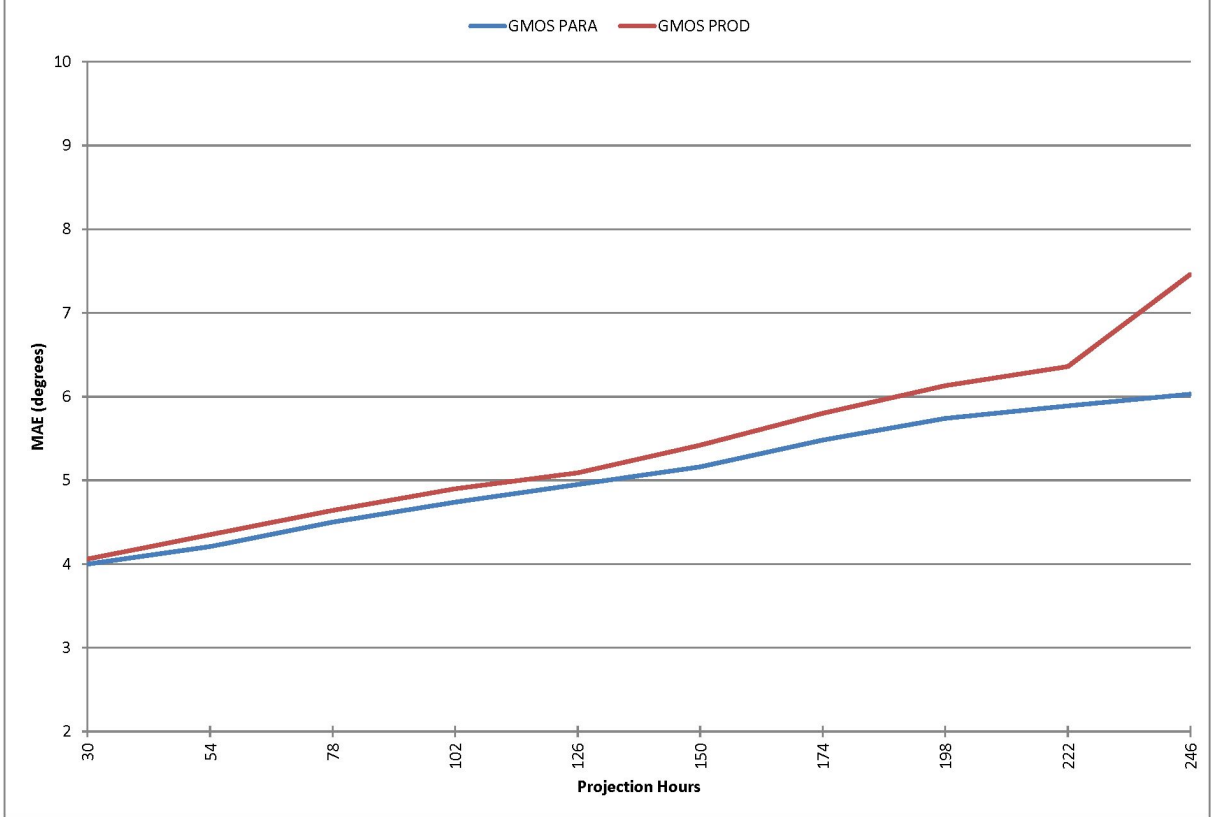


00z Min Temperature - MAE - Alaska

— GMOS PARA — GMOS PROD



12z Min Temperature - MAE - Alaska

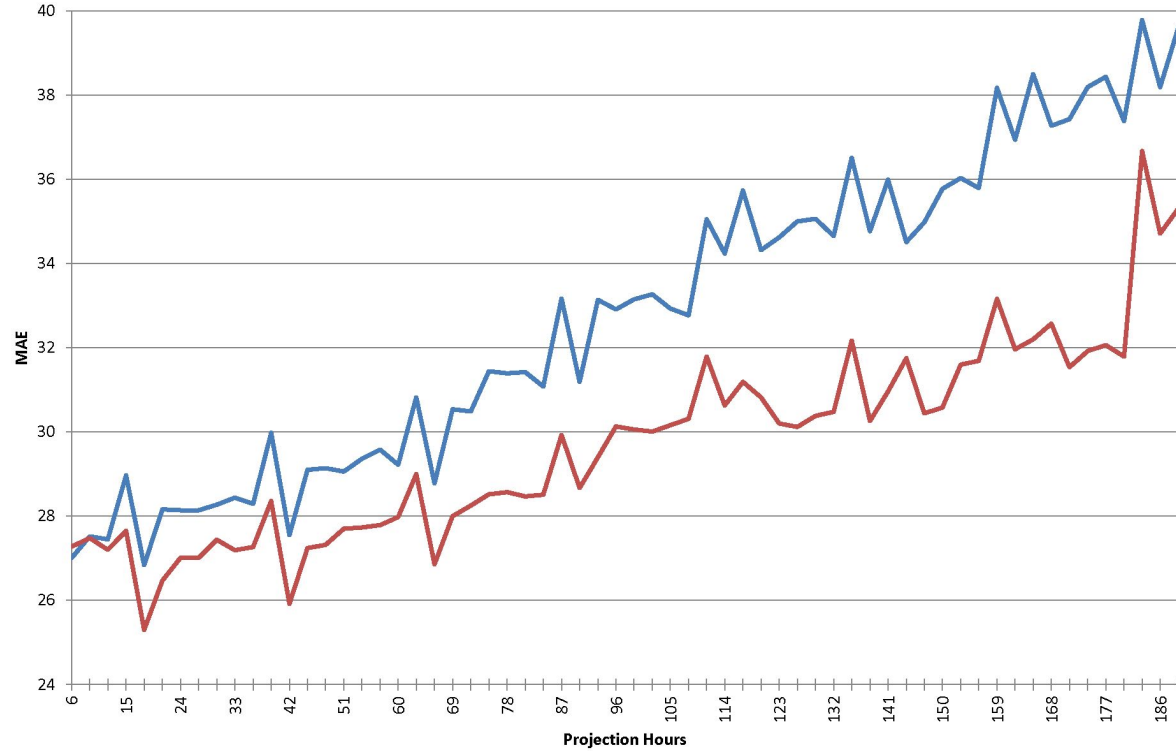


Sky Cover Verification

1. Verification Dates: 20171201-20171231
2. Domains: CONUS and Alaska
3. Scores: Mean Absolute Error (MAE), verified against URMA
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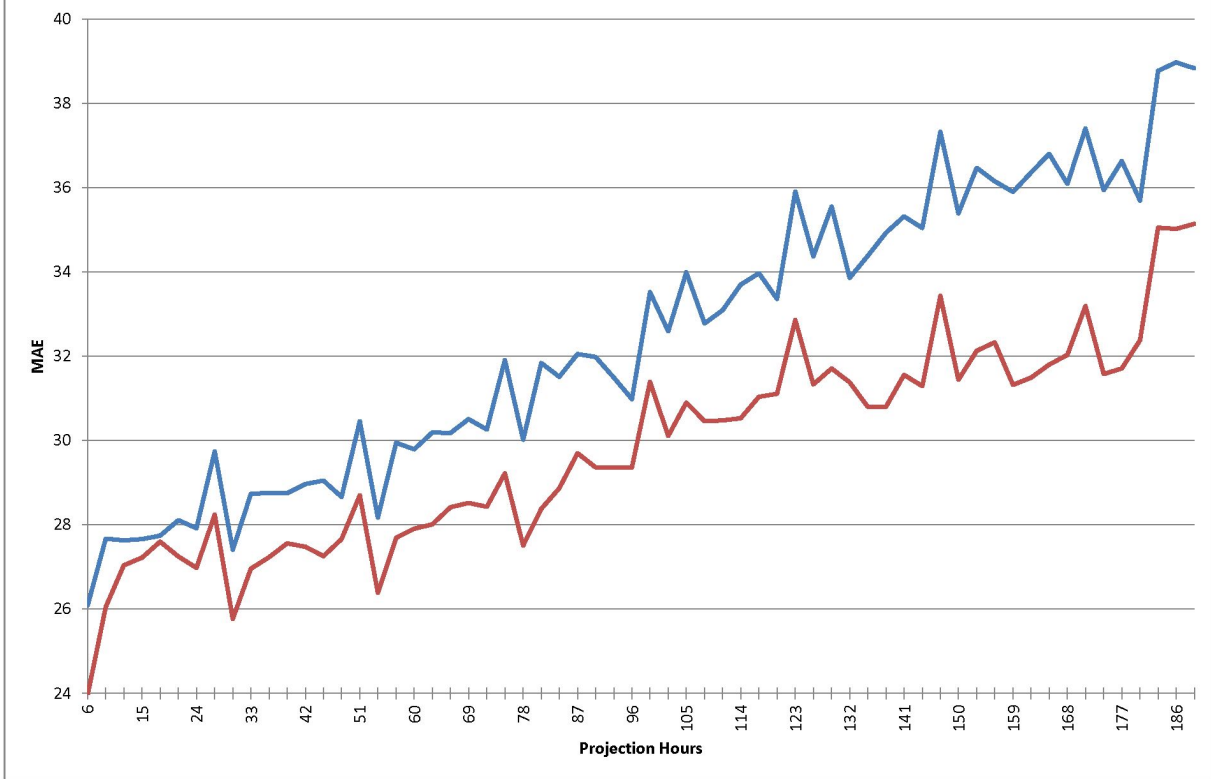
00z Sky Cover - MAE - Conus

— GMOS PARA — GMOS PROD



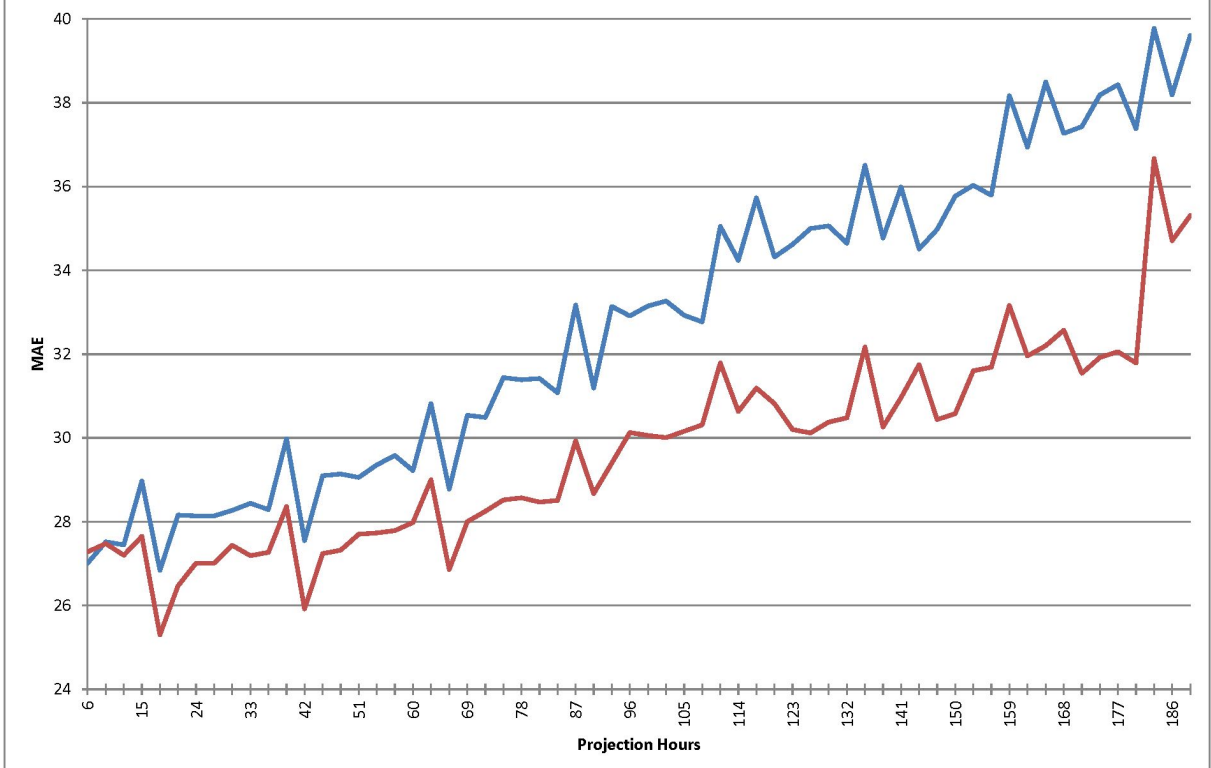
12z Sky Cover - MAE - Conus

— GMOS PARA — GMOS PROD



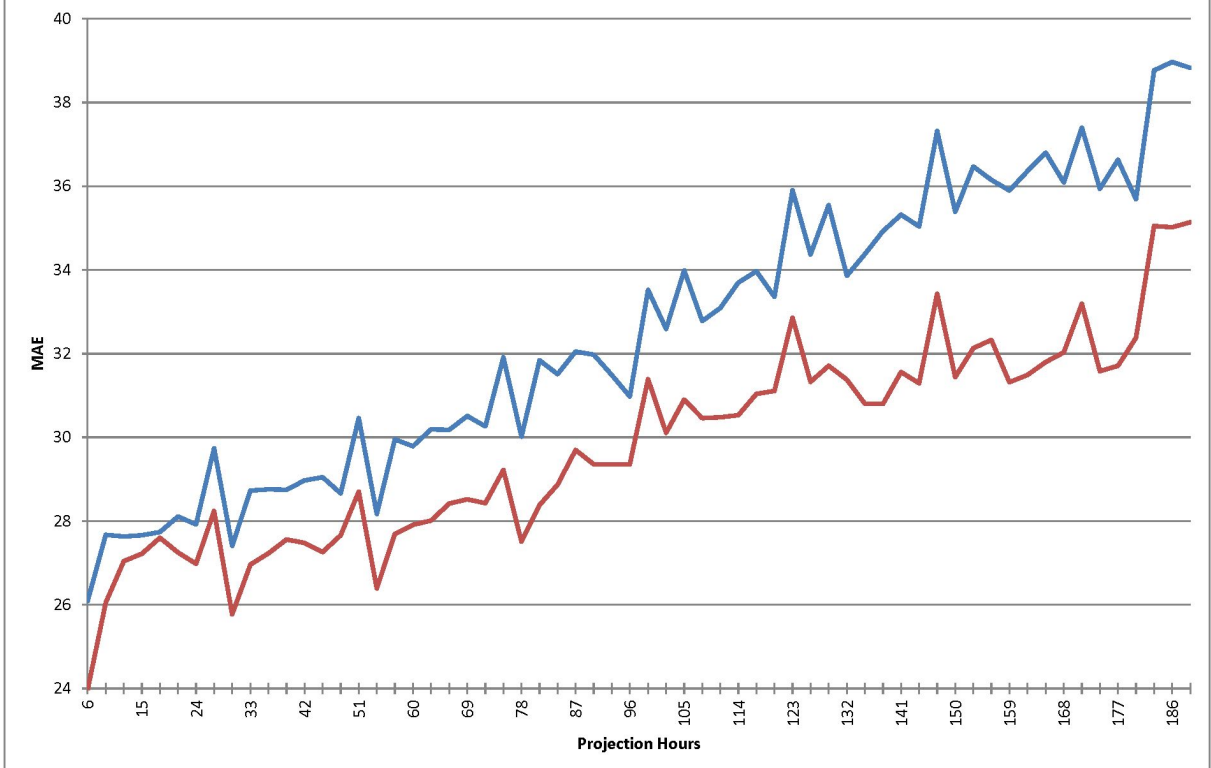
00z Sky Cover - MAE - Conus

— GMOS PARA — GMOS PROD



12z Sky Cover - MAE - Conus

— GMOS PARA — GMOS PROD

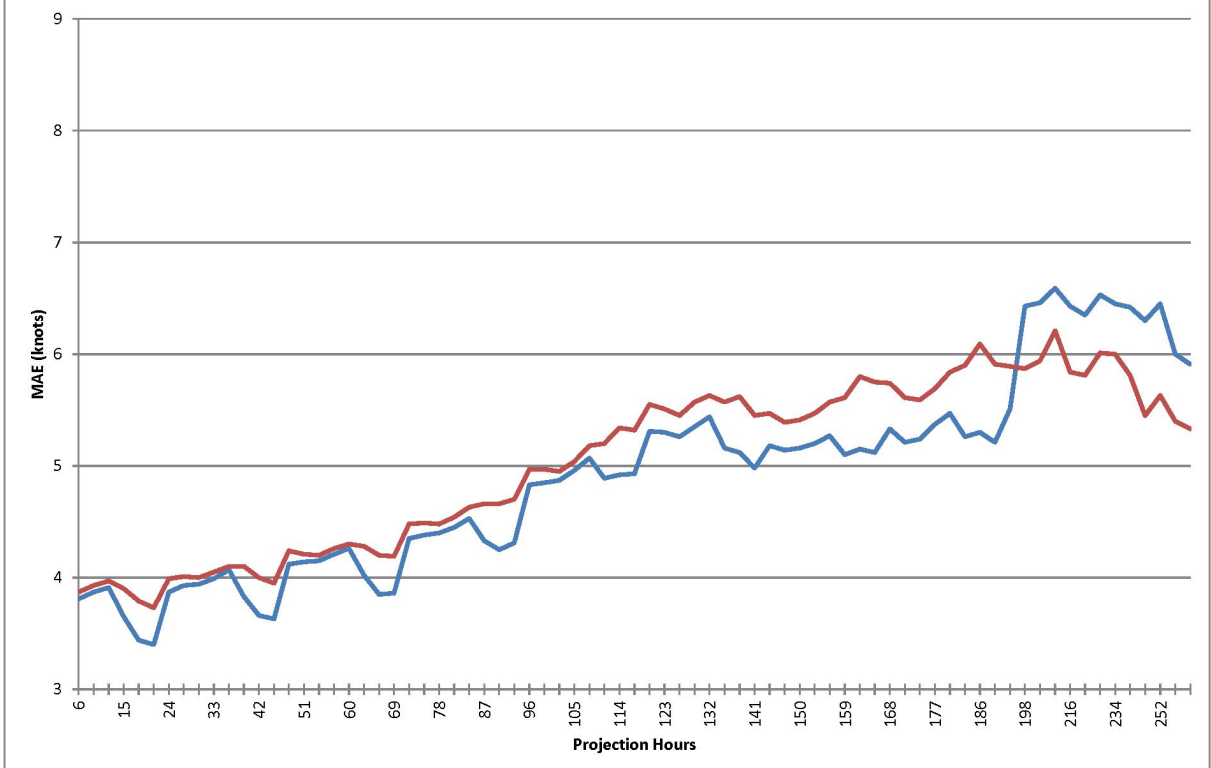


Wind Speed Verification

1. Verification Dates: 20171201-20171231
2. Domains: CONUS and Alaska
3. Scores: Mean Absolute Error (MAE) and Bias, verified against URMA
 - a. CONUS grids were clipped to match the URMA grid
4. Models verified
 - a. GMOS Para - Parallel run of GMOS, which includes the latest updates
 - b. GMOS Prod - Operational version of GMOS currently running in production

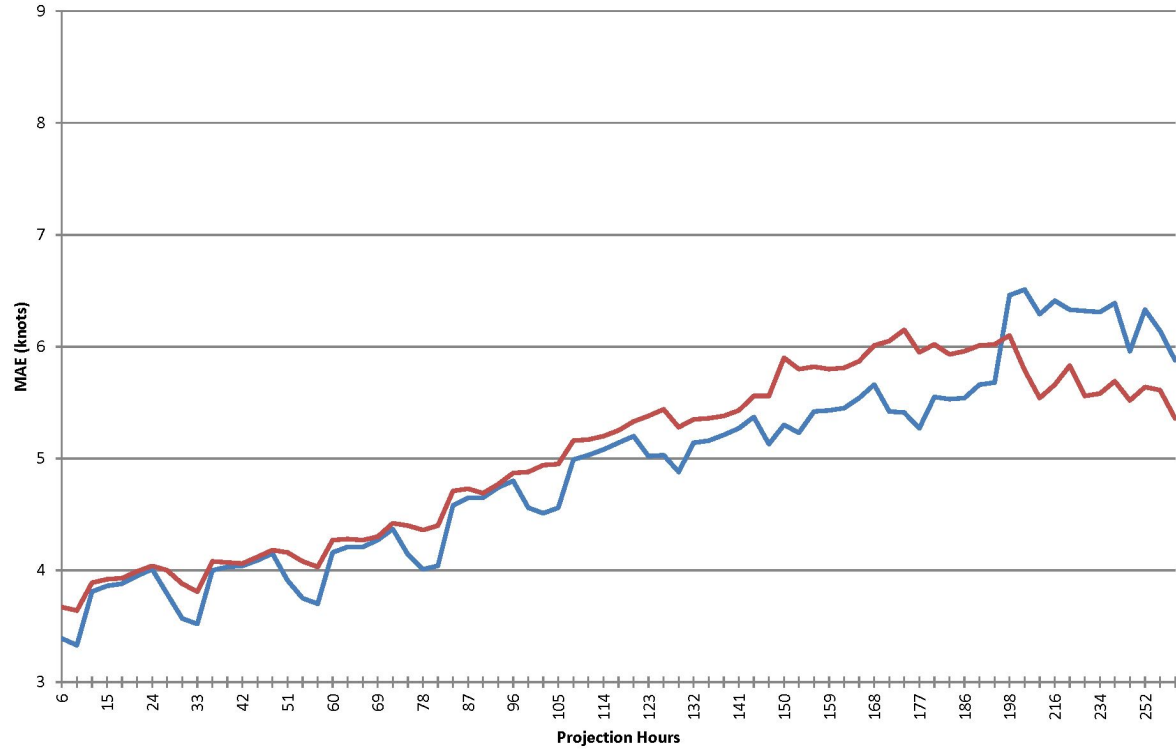
00z Wind Speed - MAE - Conus

— GMOS PARA — GMOS PROD



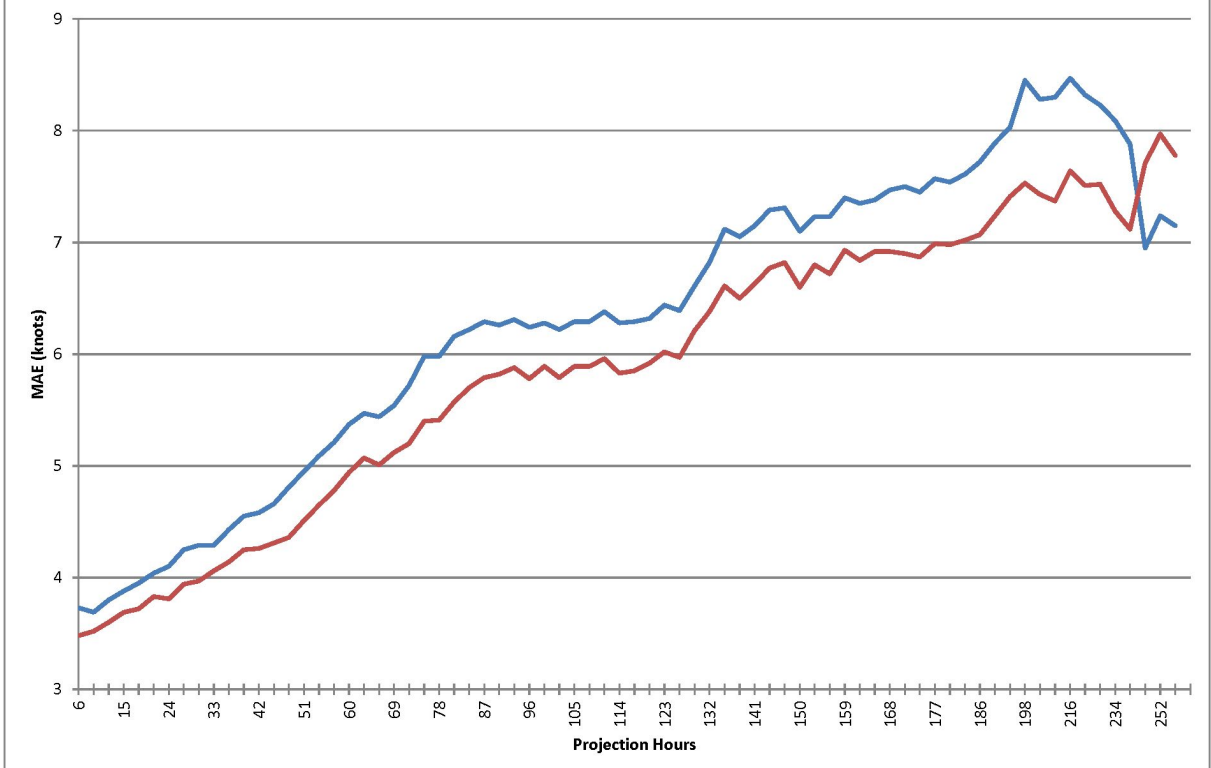
12z Wind Speed - MAE - Conus

— GMOS PARA — GMOS PROD



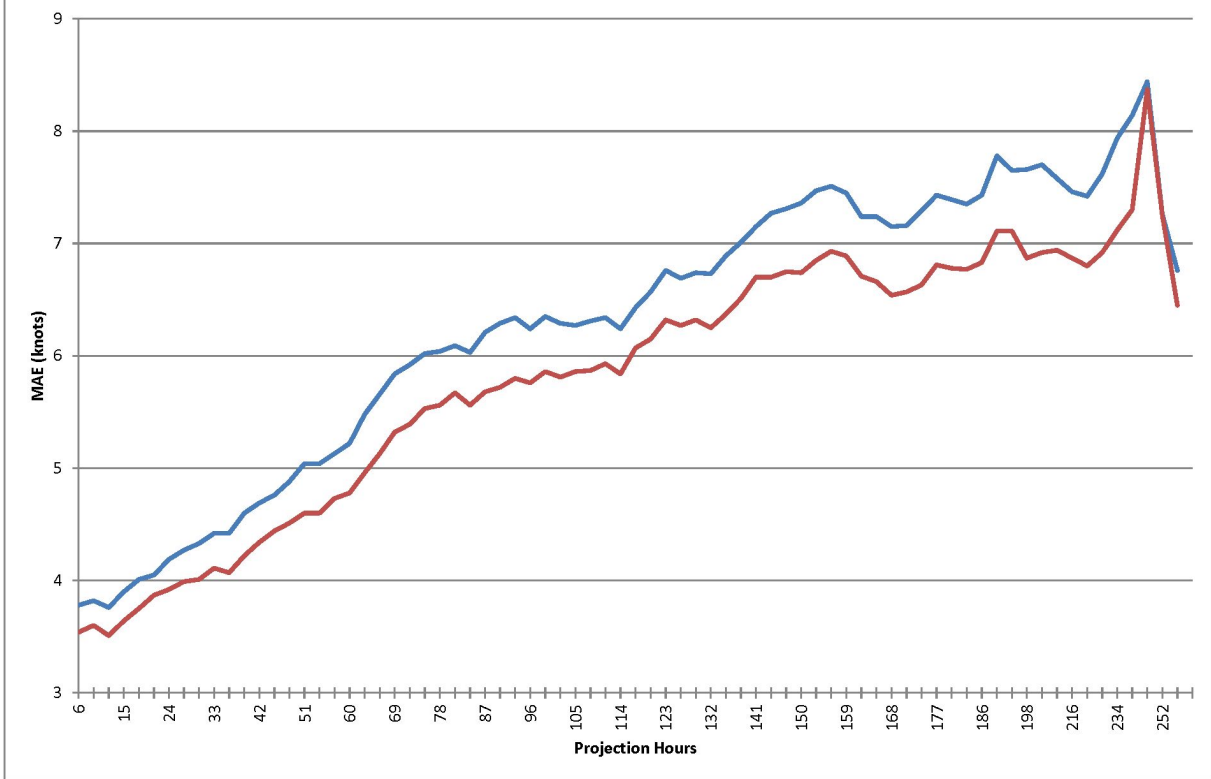
00z Wind Speed - MAE - Alaska

— GMOS PARA — GMOS PROD



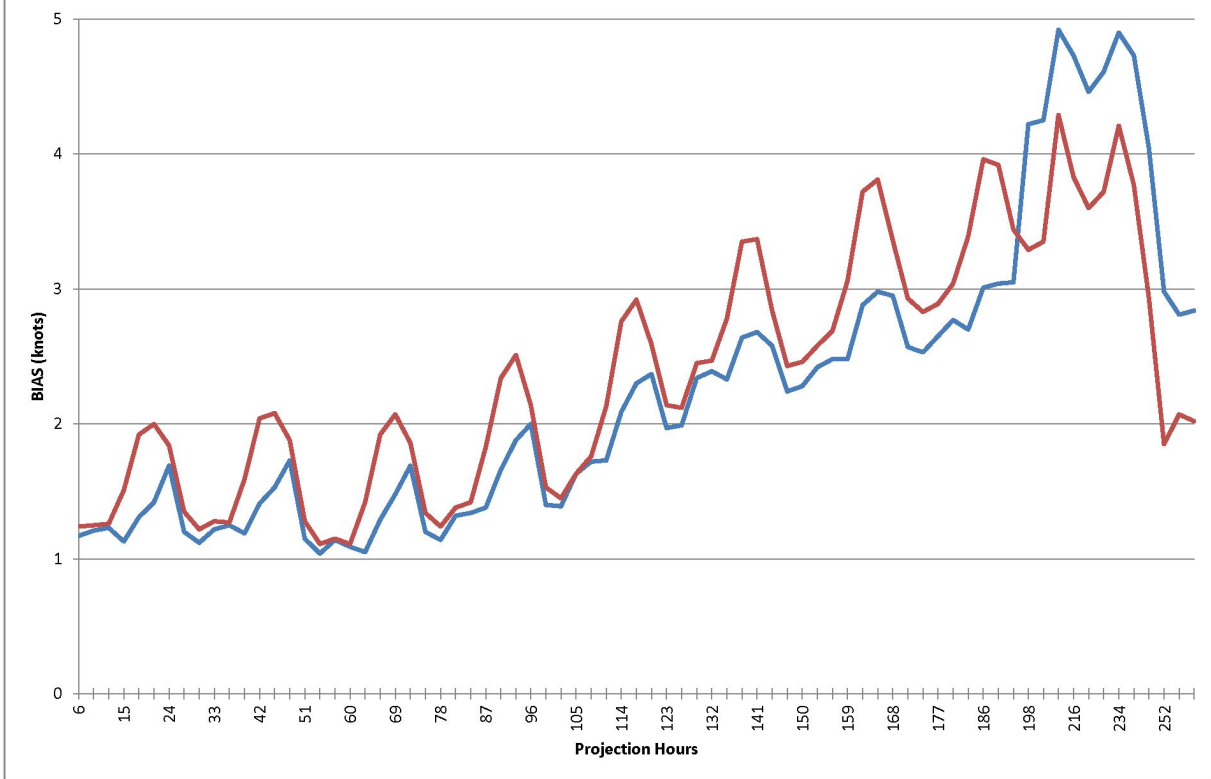
12z Wind Speed - MAE - Alaska

— GMOS PARA — GMOS PROD



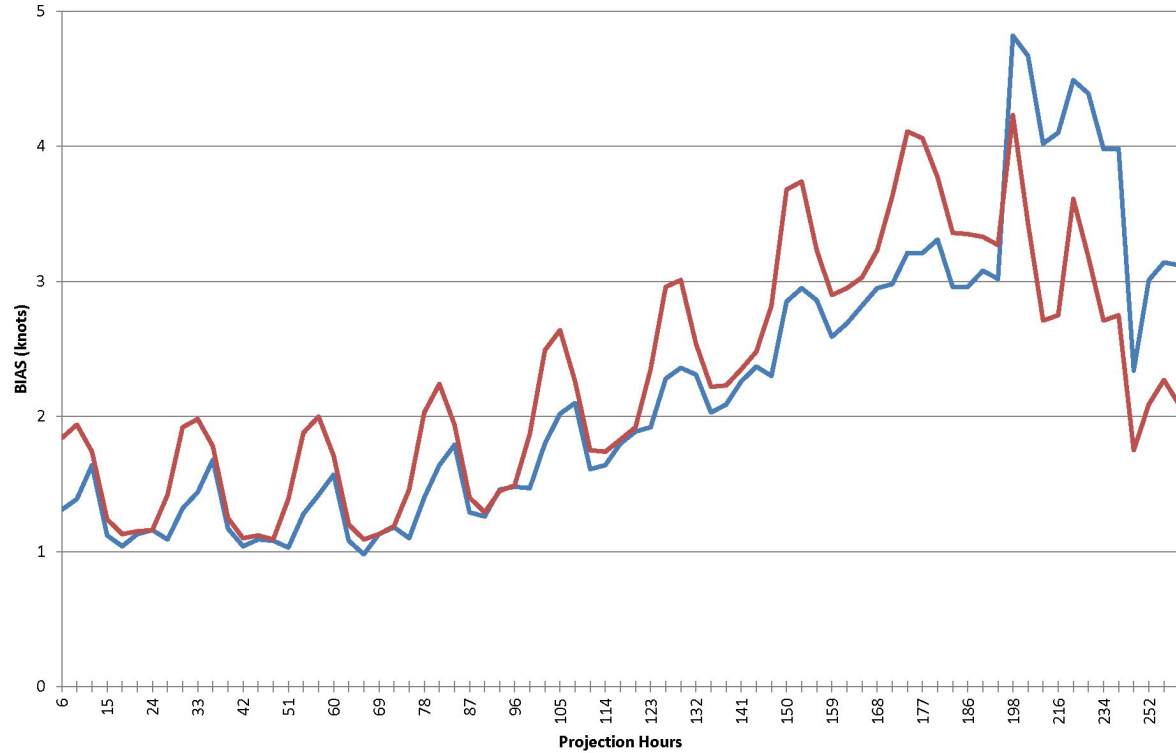
00z Wind Speed - BIAS - Conus

— GMOS PARA — GMOS PROD



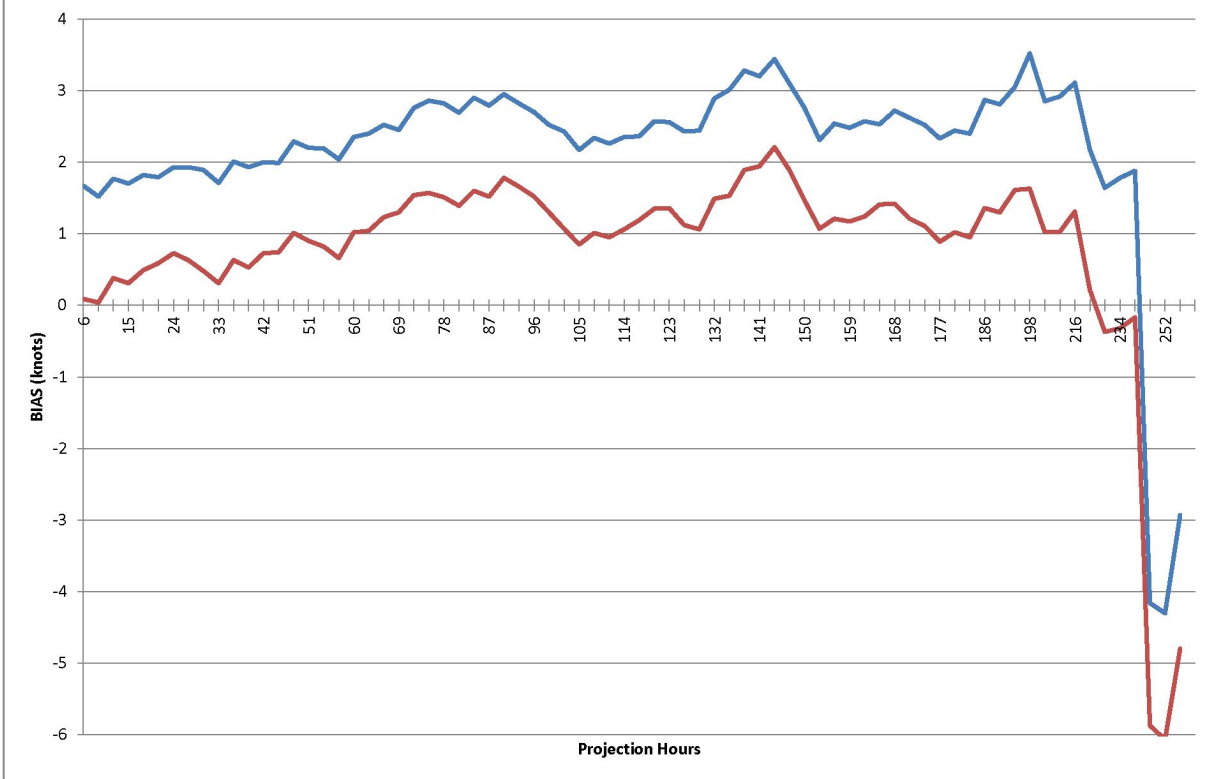
12z Wind Speed - BIAS - Conus

— GMOS PARA — GMOS PROD



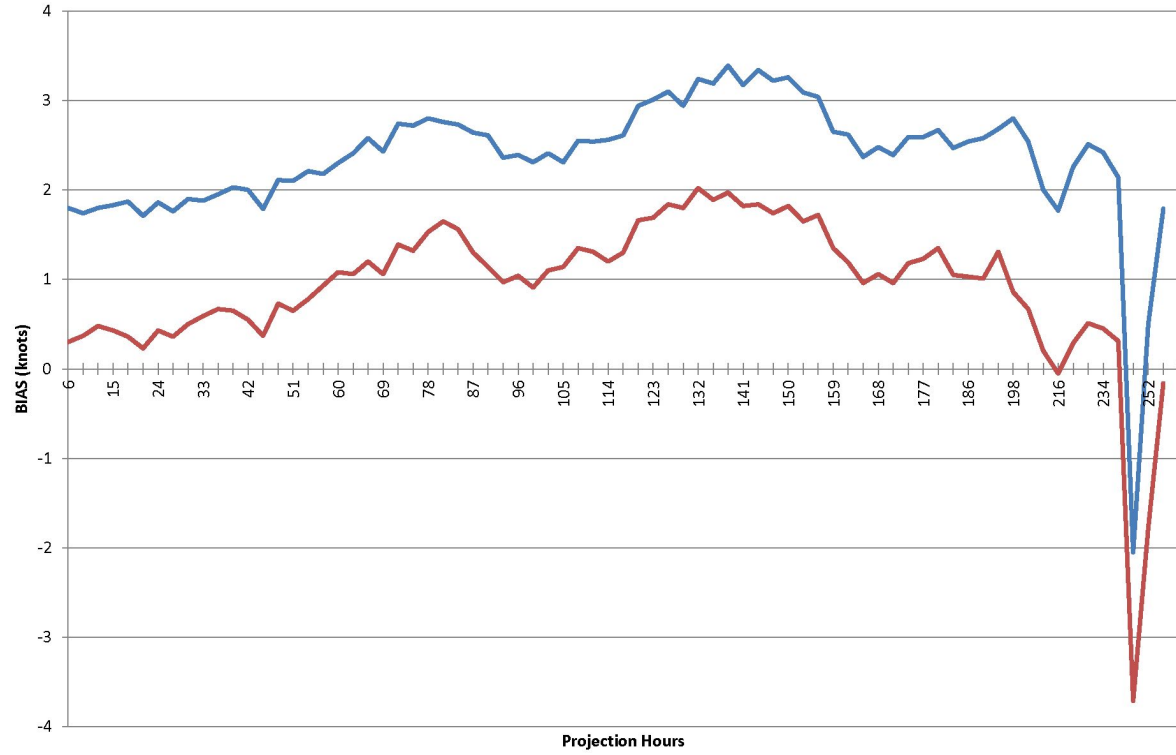
00z Wind Speed - BIAS - Alaska

— GMOS PARA — GMOS PROD



12z Wind Speed - BIAS - Alaska

— GMOS PARA — GMOS PROD

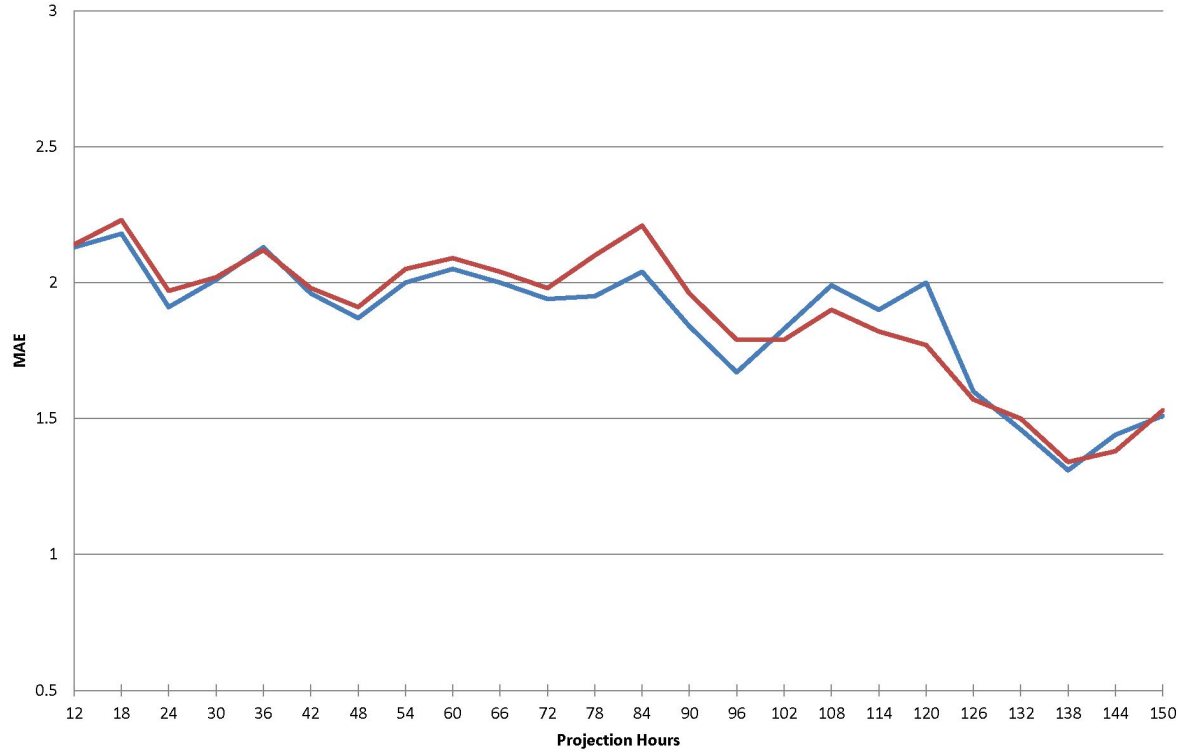


6-HR QPF Verification

1. Verification Dates: 20171201-20171231
2. Domains: CONUS and Alaska
3. Scores: Mean Absolute Error (MAE), HEIDKE Skill Score, verified against URMA
 - a. CONUS grids were clipped to match the URMA grid
4. Models verified
 - a. GMOS Para - Parallel run of GMOS, which includes the latest updates
 - b. GMOS Prod - Operational version of GMOS currently running in production

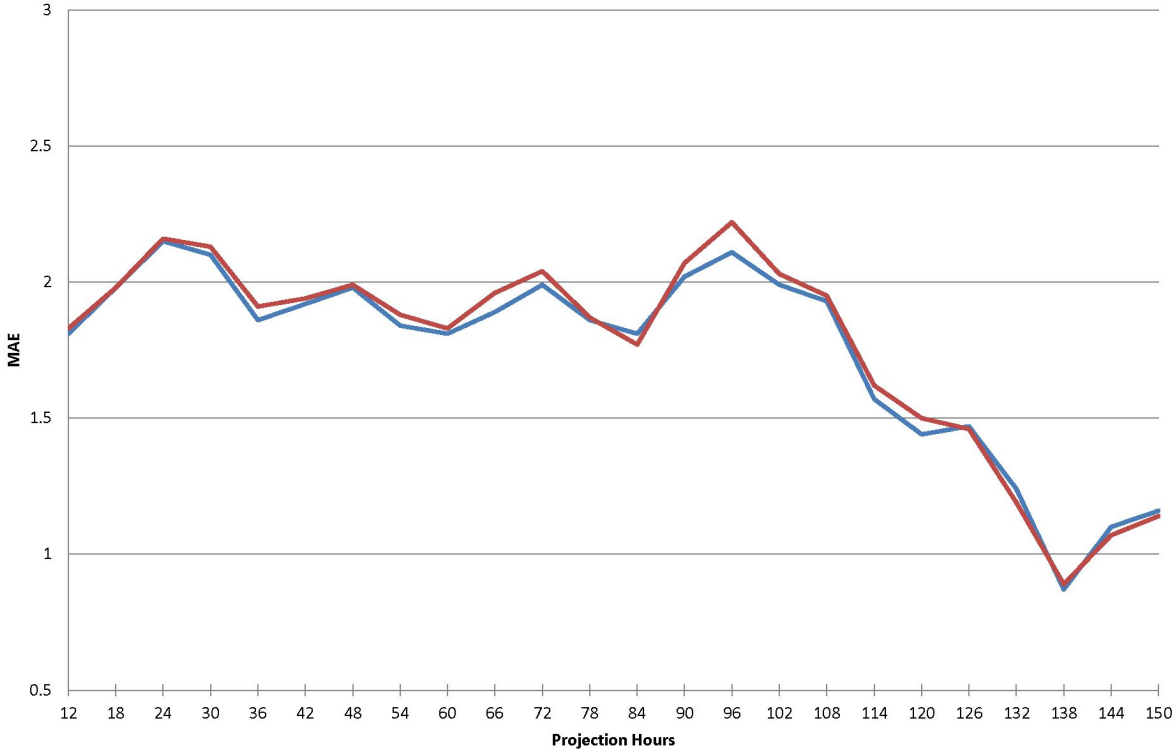
00z QPF6 - MAE - Conus

— GMOS PARA — GMOS PROD



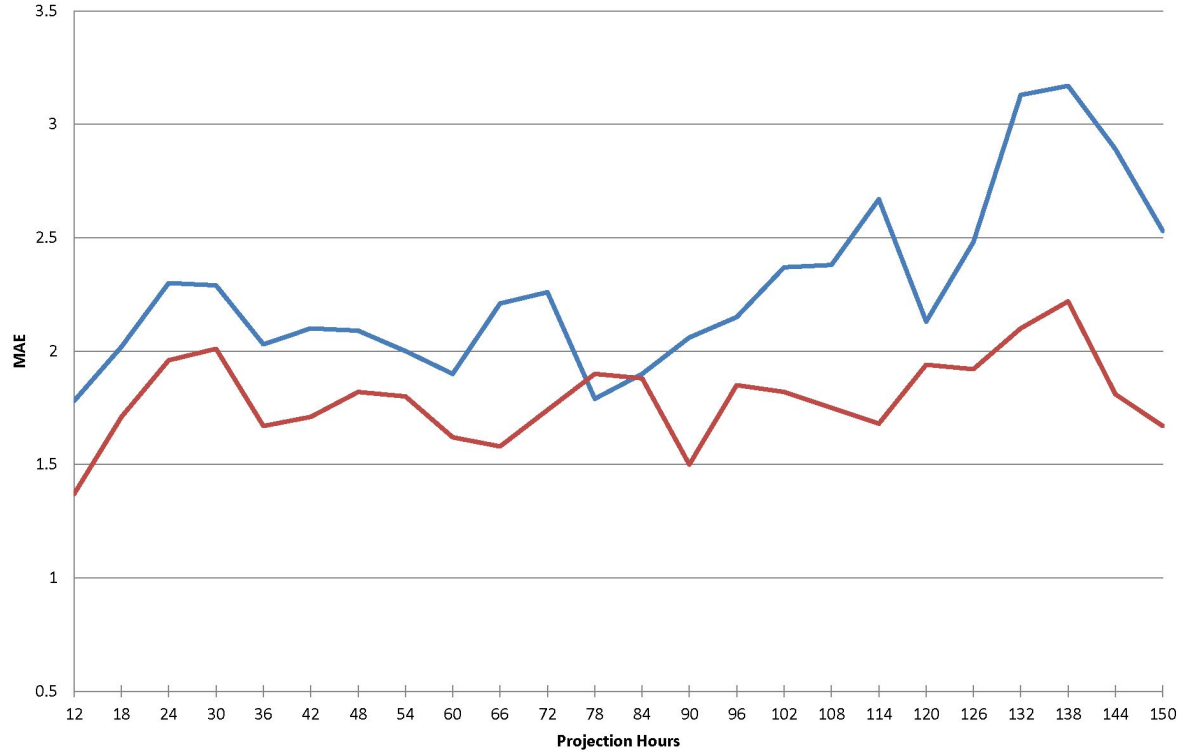
12z QPF6 - MAE - Conus

— GMOS PARA — GMOS PROD



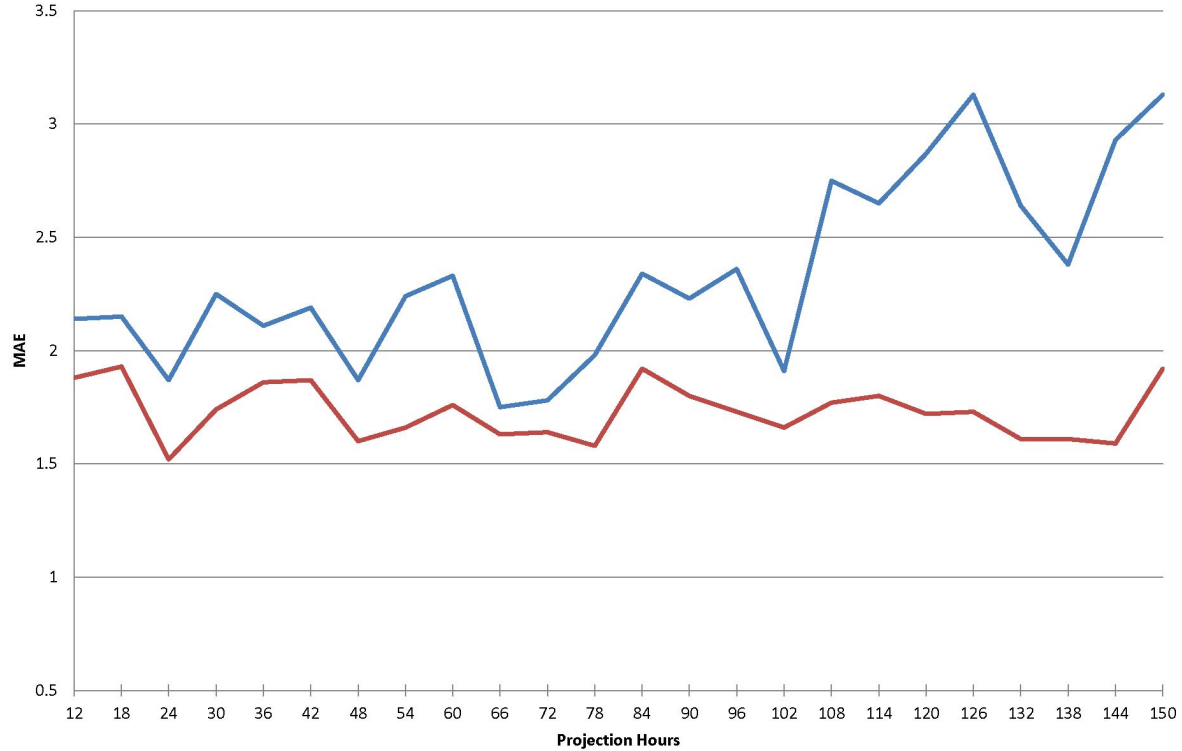
00z QPF6 - MAE - Alaska

— GMOS PARA — GMOS PROD



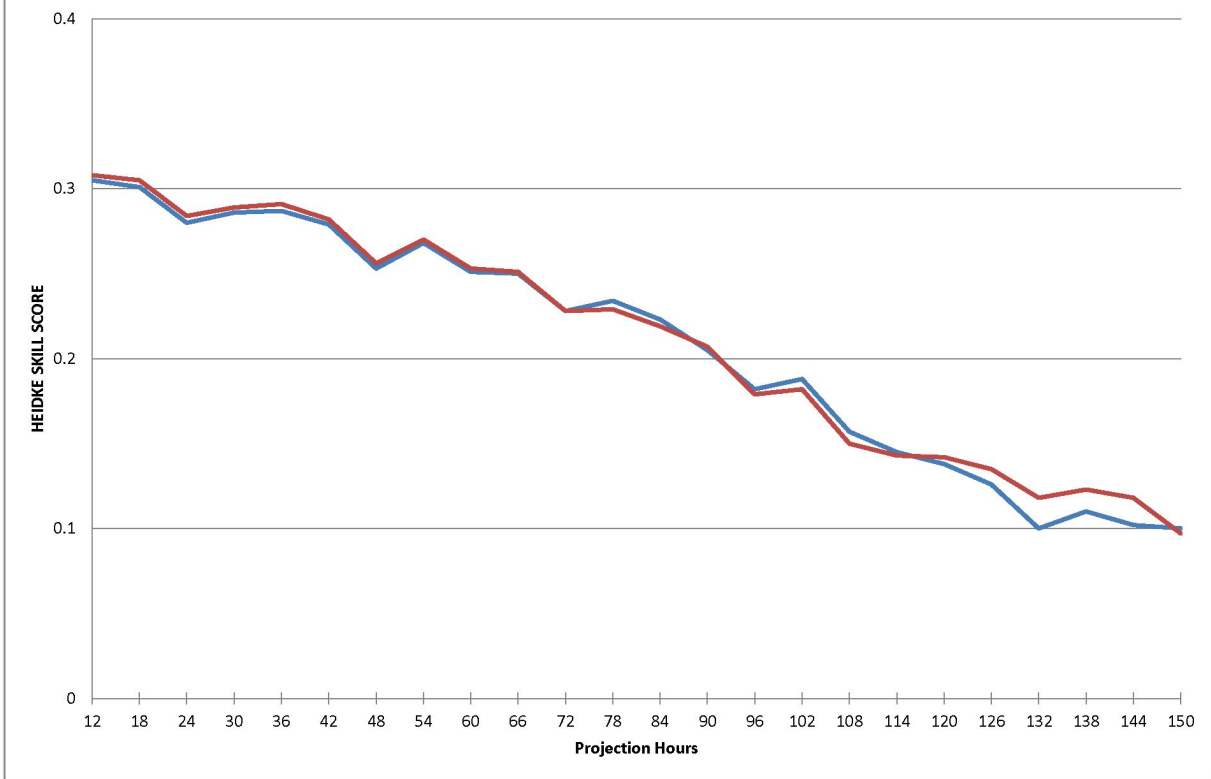
12z QPF6 - MAE - Alaska

— GMOS PARA — GMOS PROD



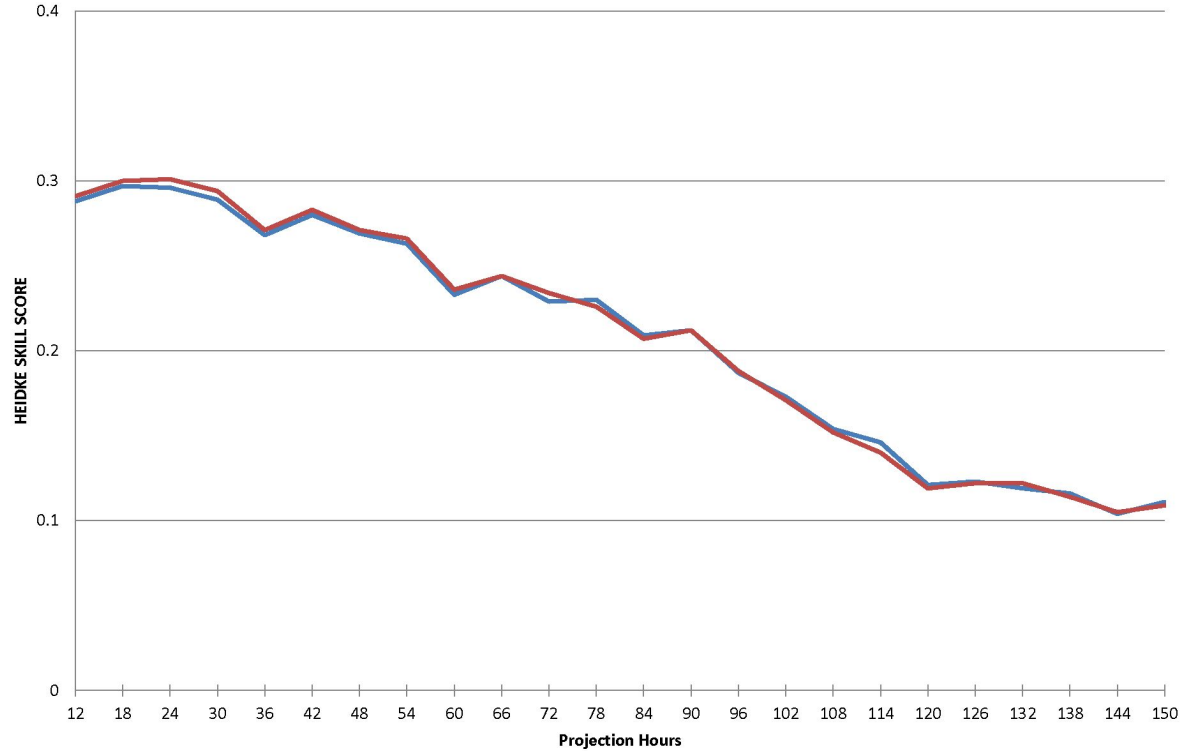
00z QPF6 - HEIDKE SKILL SCORE - Conus

— GMOS PARA — GMOS PROD



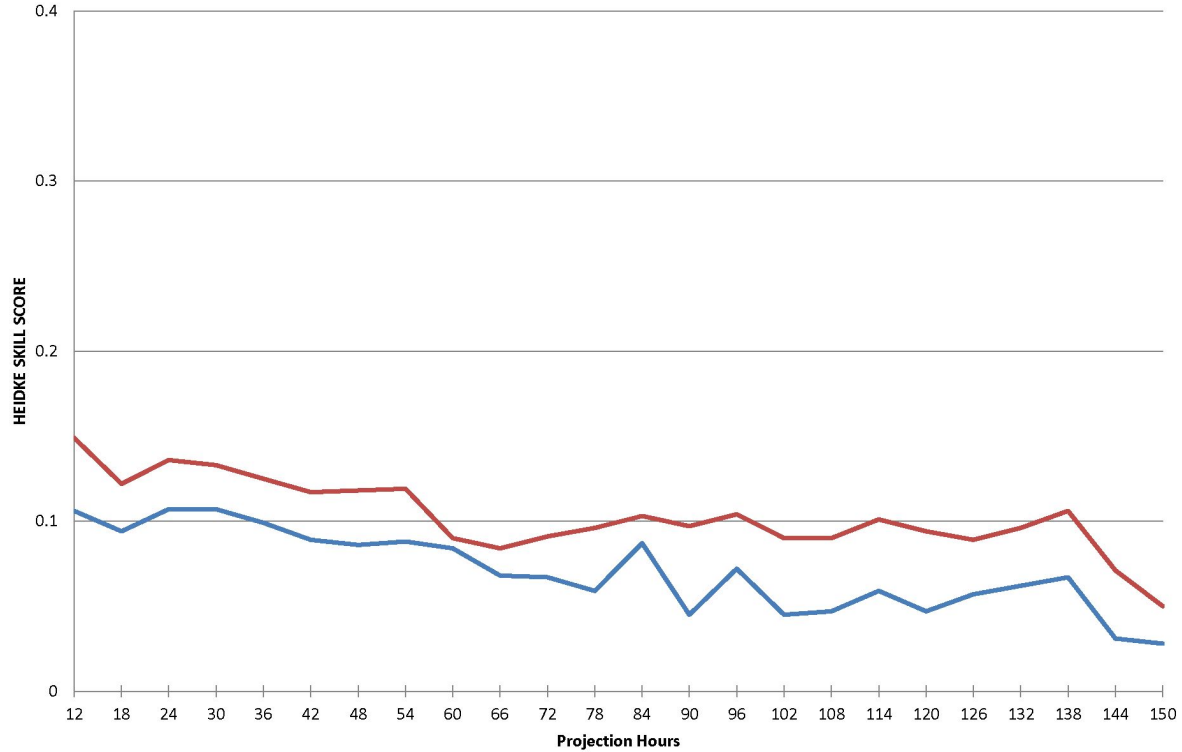
12z QPF6 - HEIDKE SKILL SCORE - Conus

— GMOS PARA — GMOS PROD



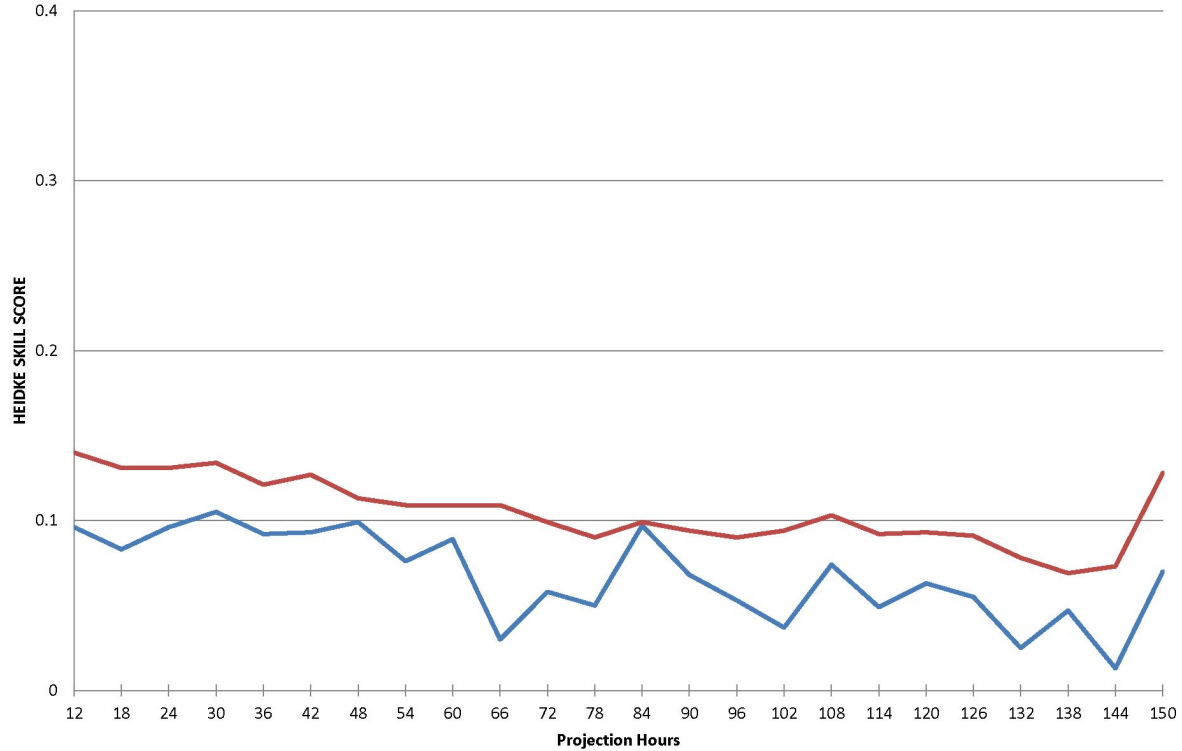
00z QPF6 - HEIDKE SKILL SCORE - Alaska

— GMOS PARA — GMOS PROD



12z QPF6 - HEIDKE SKILL SCORE - Alaska

— GMOS PARA — GMOS PROD

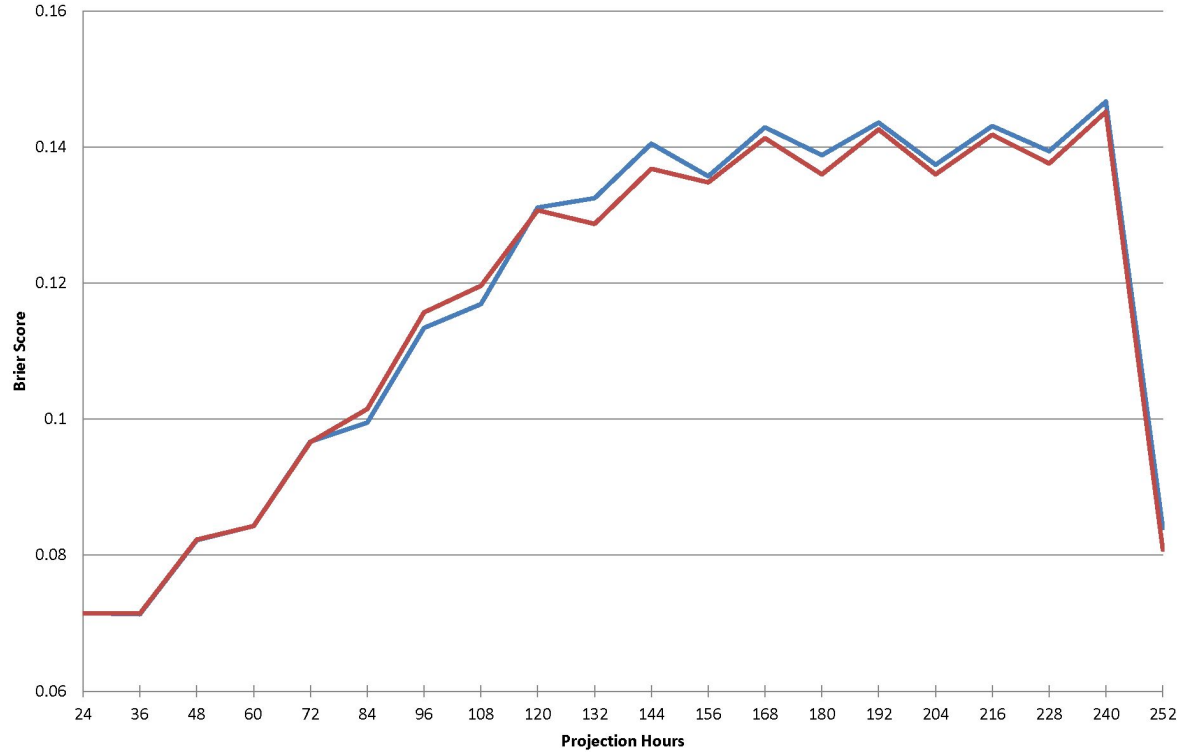


12-HR POP Verification

1. Verification Dates: 20171201-20171231
2. Domains: CONUS and Alaska
3. Scores: Brier Score, verified against URMA
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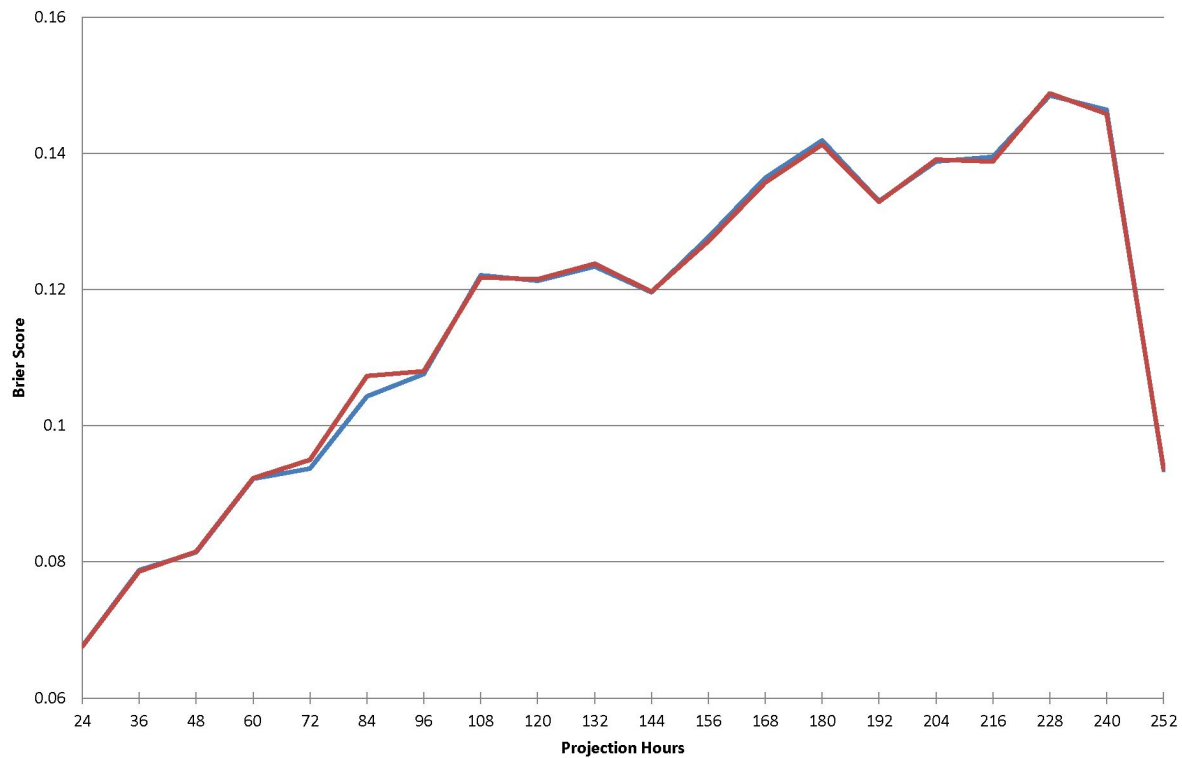
00z POP12 - Brier Score - Conus

— GMOS PARA — GMOS PROD



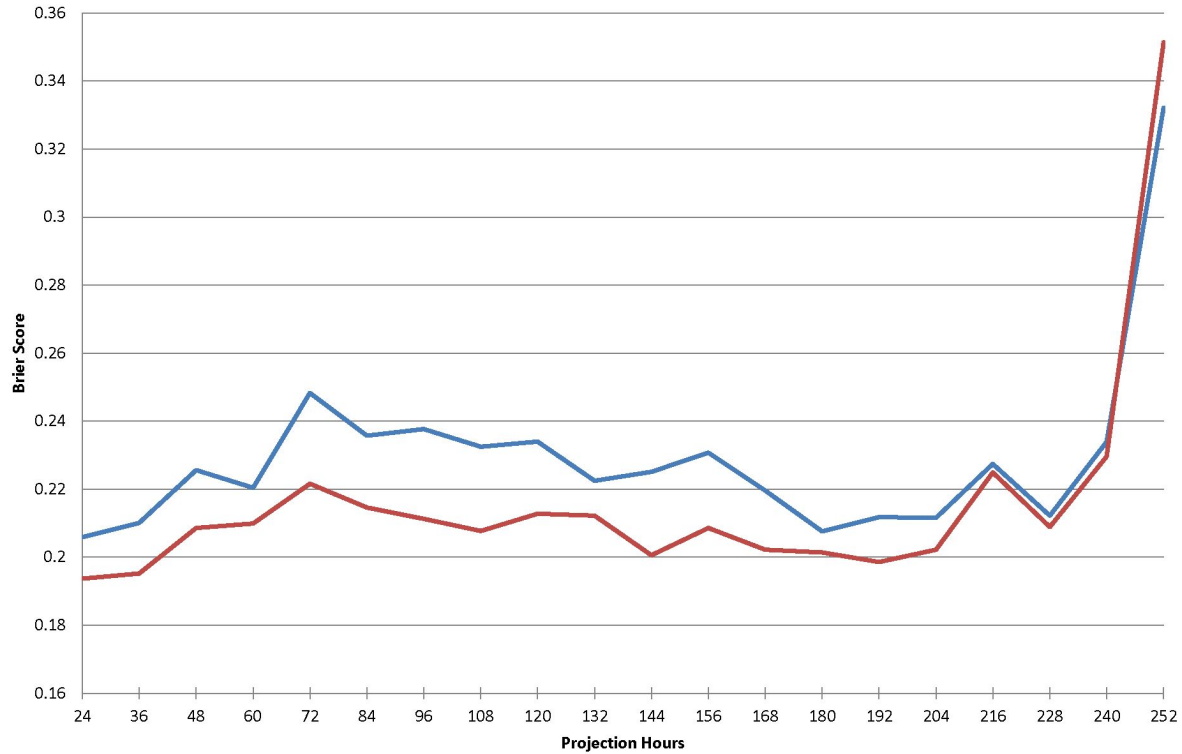
12z POP12 - Brier Score - Conus

— GMOS PARA — GMOS PROD



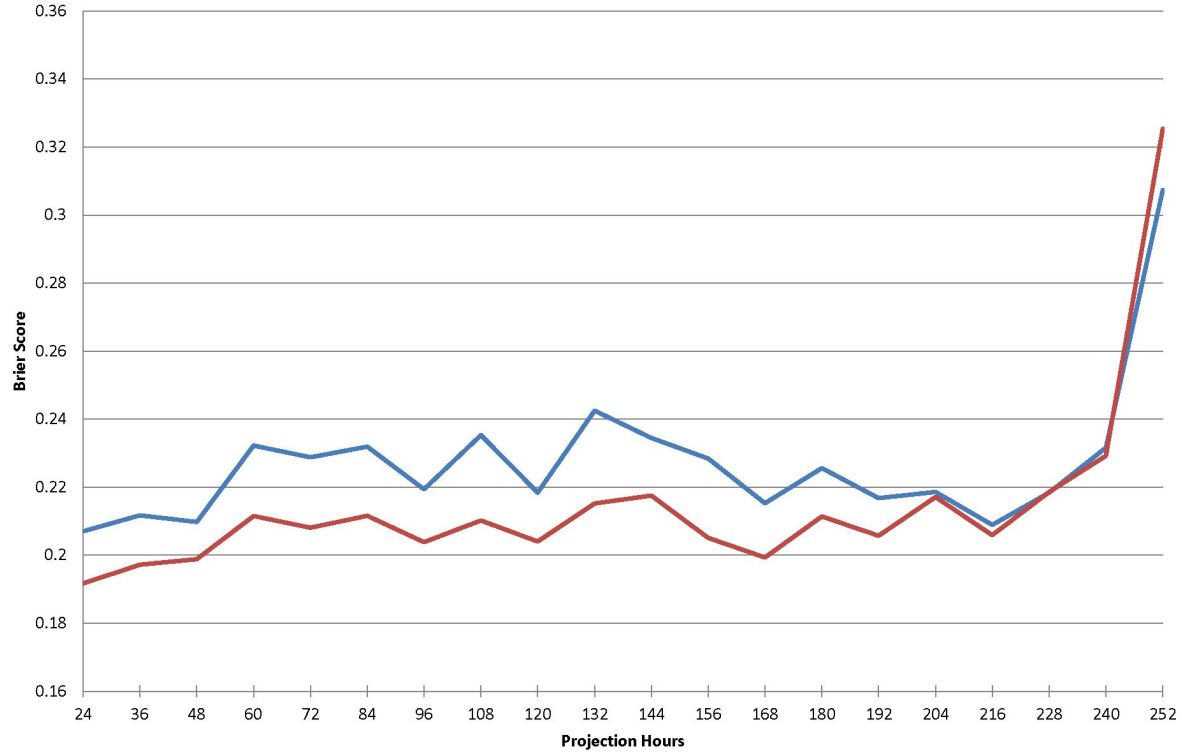
00z POP12 - Brier Score - Alaska

— GMOS PARA — GMOS PROD



12z POP12 - Brier Score - Alaska

— GMOS PARA — GMOS PROD



Your feedback is appreciated!

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