Weekly Summary

2022-07-15

Shaorong Wu

Work Summary (July 11 ~ 15)

* Operations

07.13 09:30Z MET-11 image got partial coverage. Replaced with 09:45Z image.

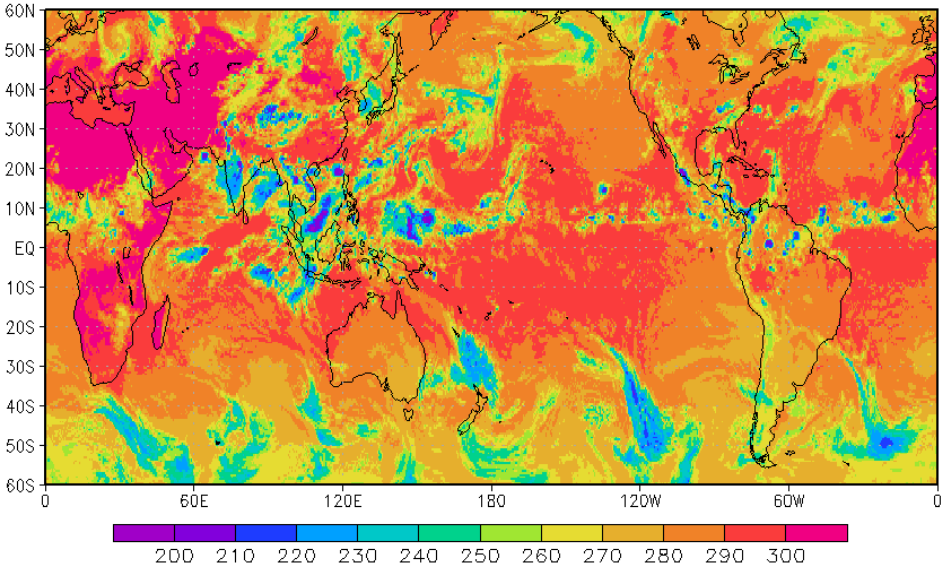
Submitted RFCs and got NCO approval to implement CMORPH-Gauge suites on CF.

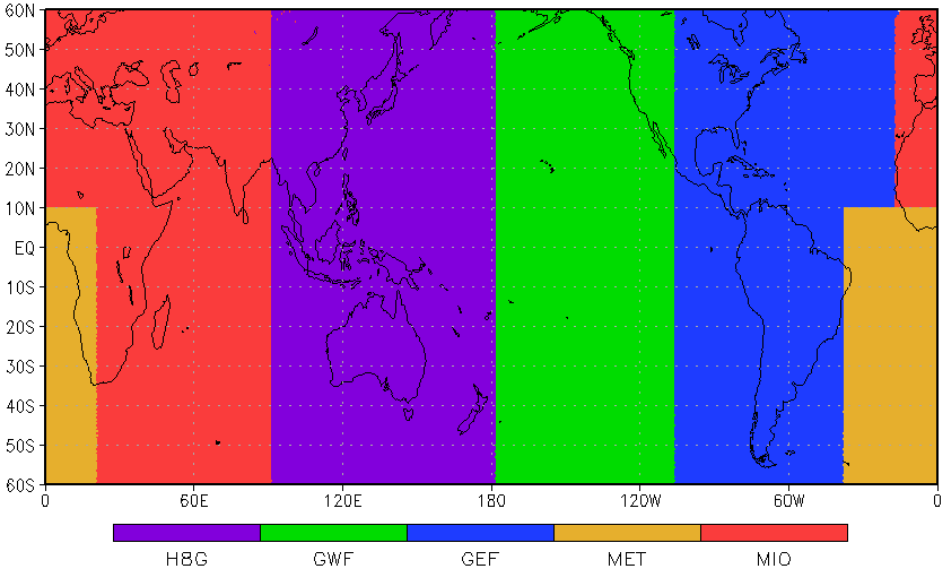
* Others

Provided samples of suspicious CADB daily precip reports over Africa during 2022.02~06.

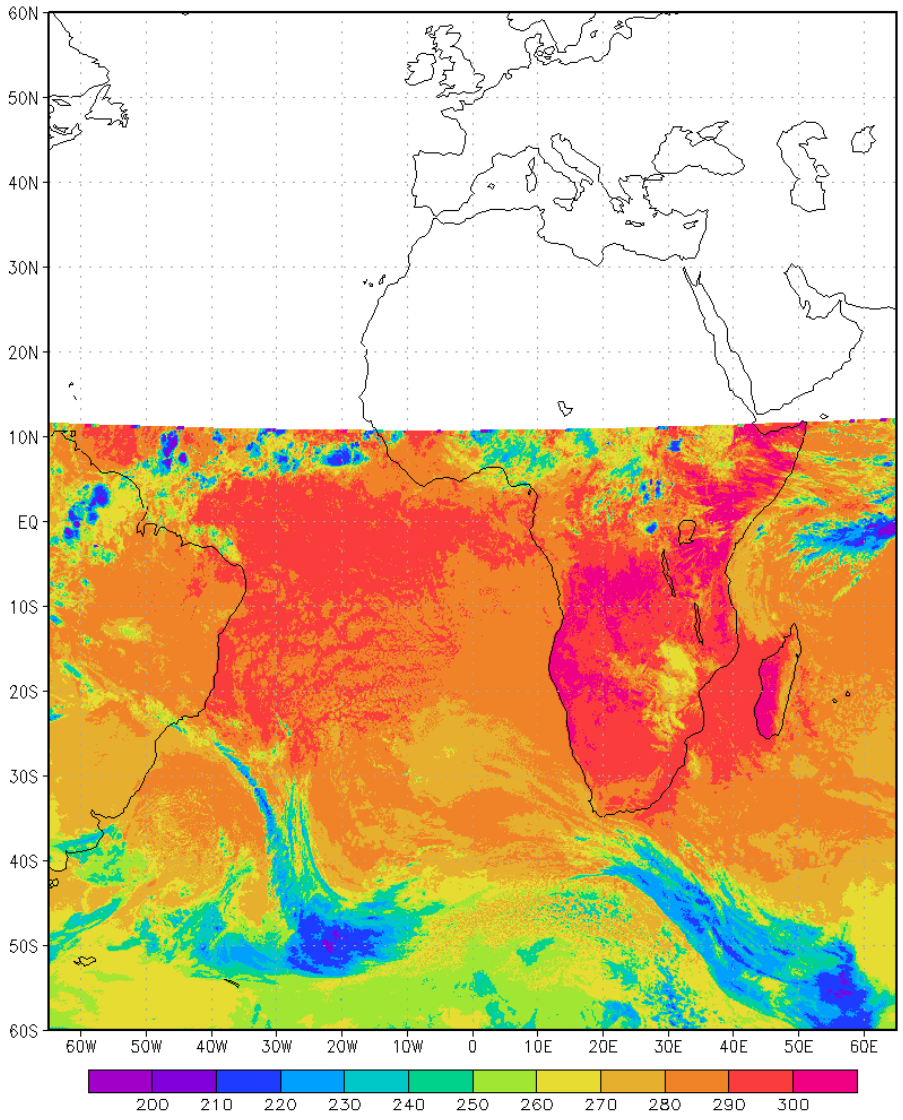
Started QC on 2022.05 CPC-Uni-Gauge daily precip analysis data over CONUS for USDA/RMA.

[Wed] 2022-Jul-13 09:30~09:59Z [RT]

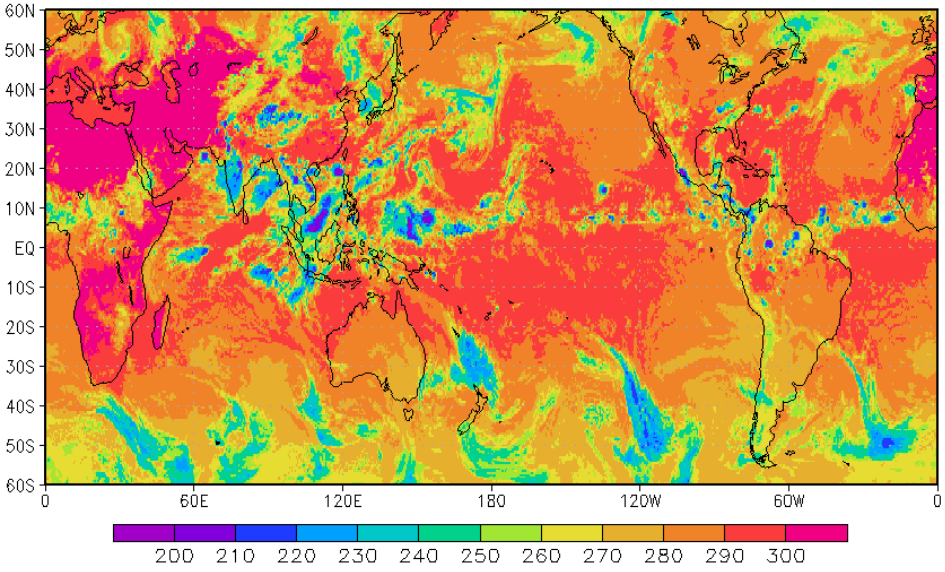


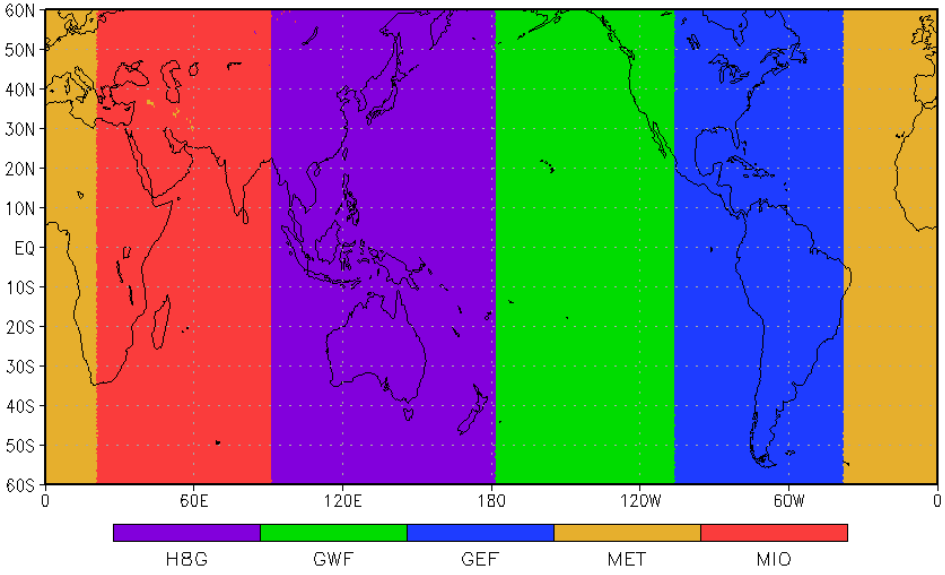


MET @ 2022-Jul-13 09:30Z



[Wed] 2022-Jul-13 09:30~09:59Z [OP]





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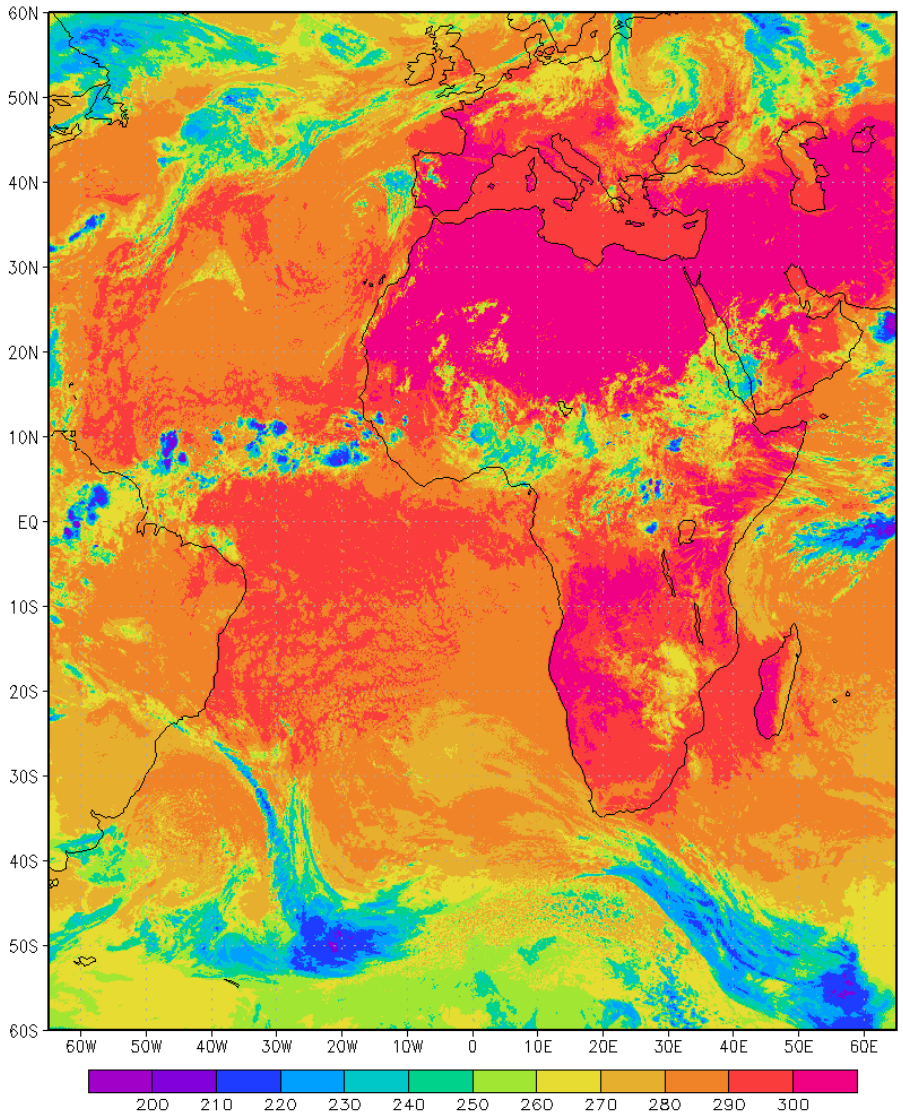
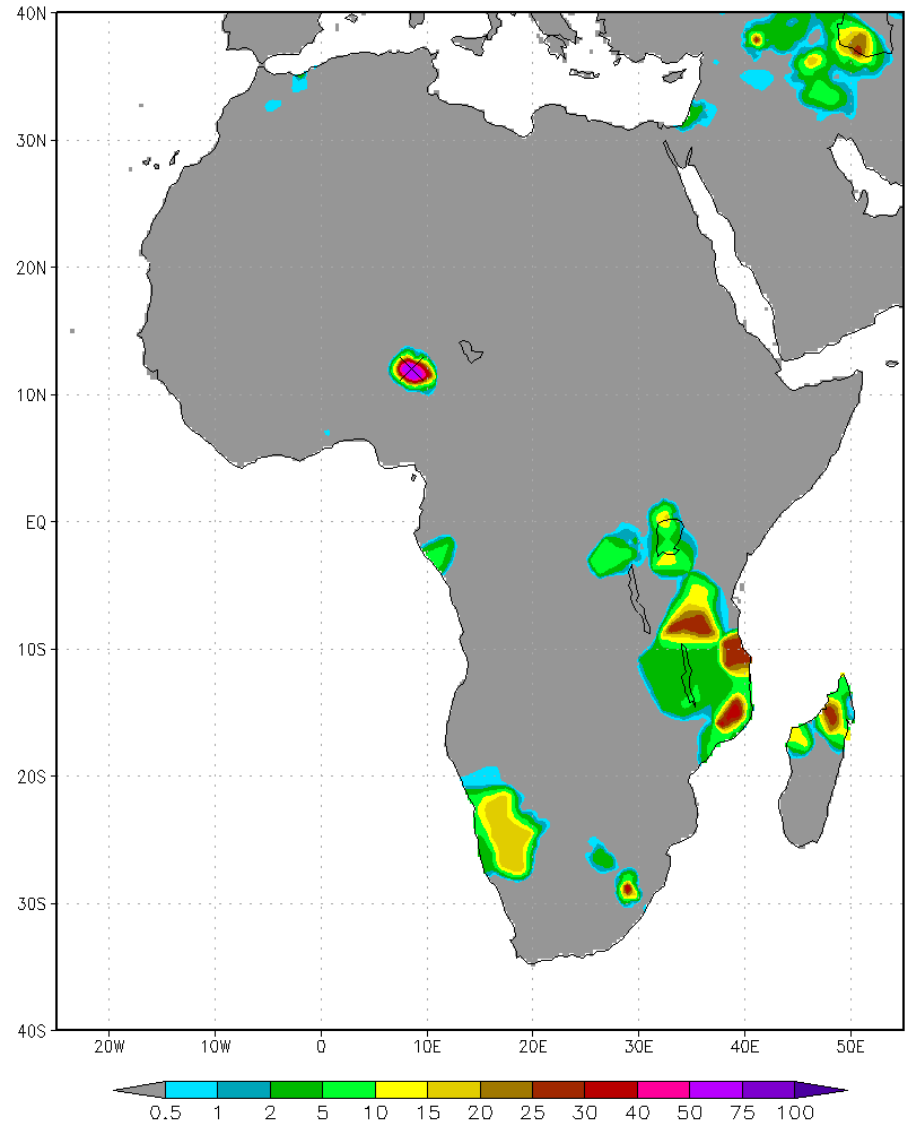
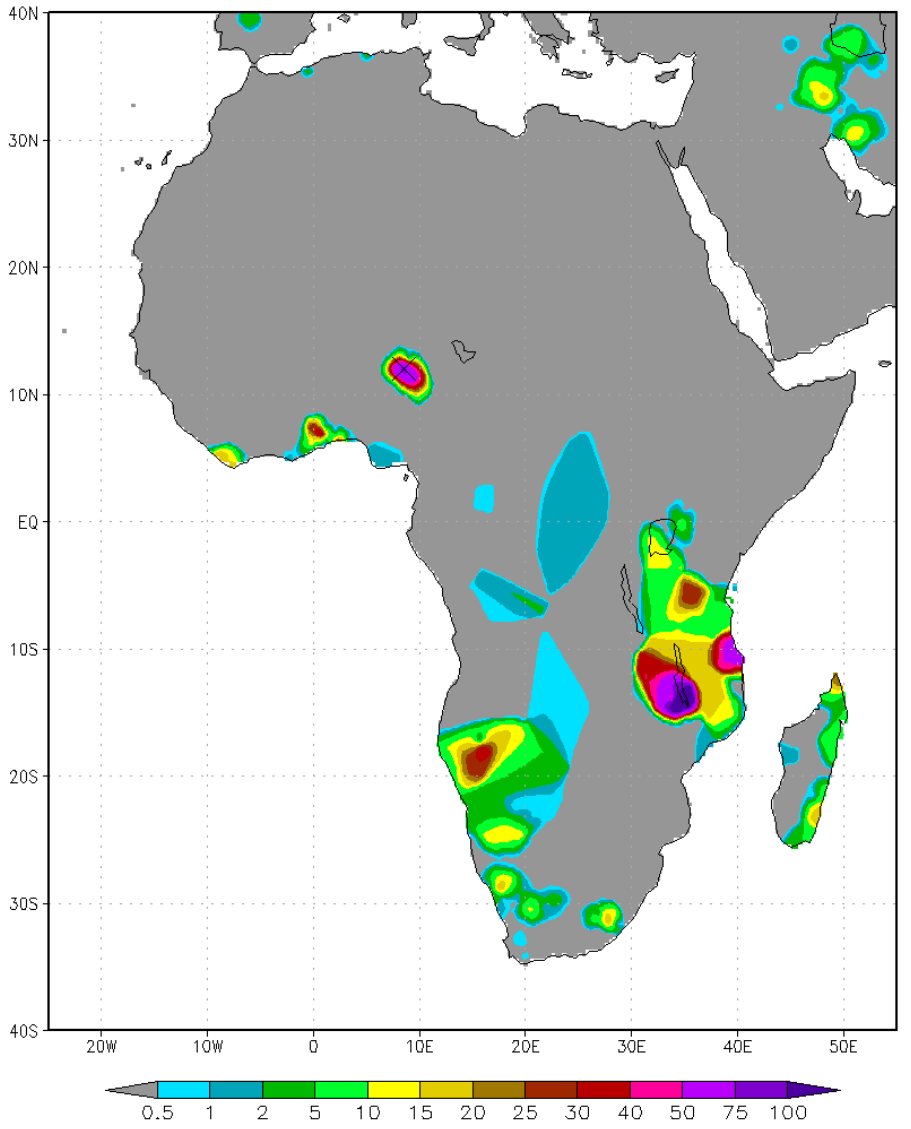


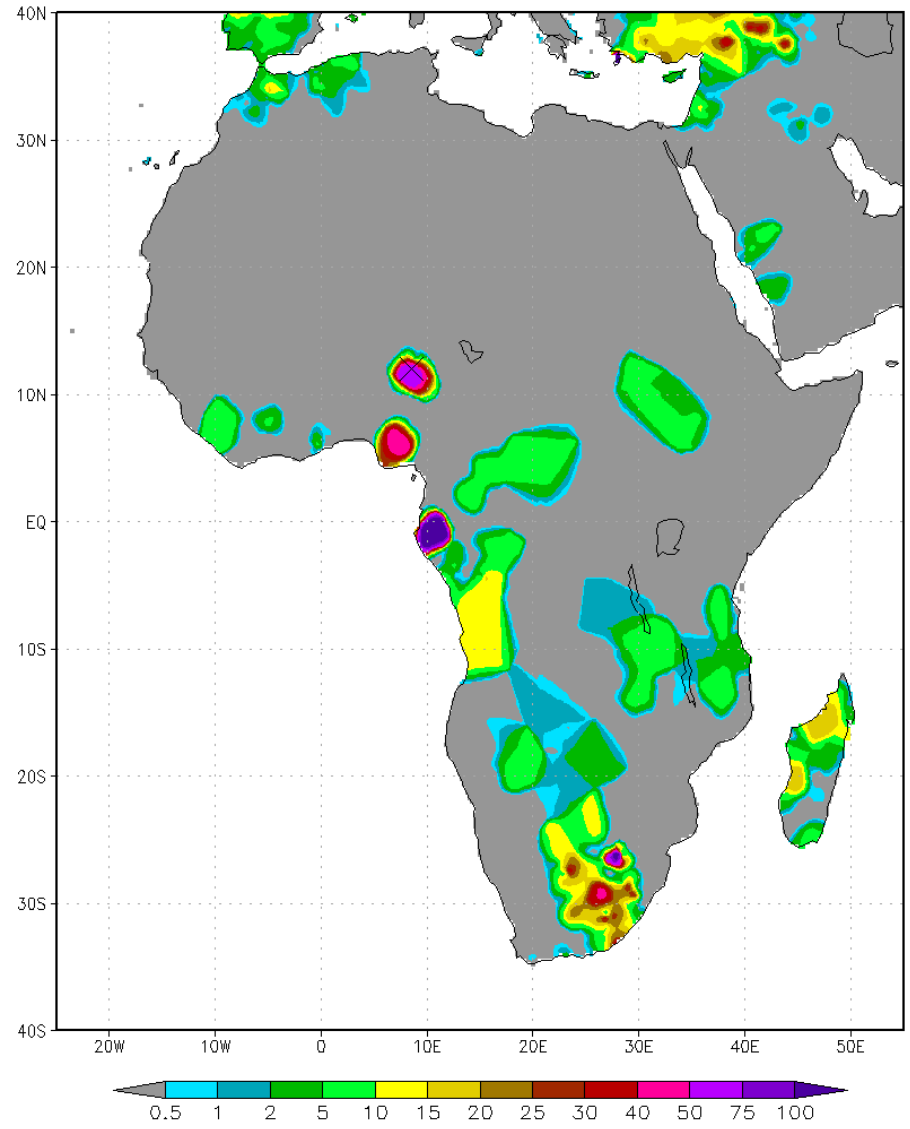
Gauge Daily (06Z–06Z) Precip (mm) 2022.02.11



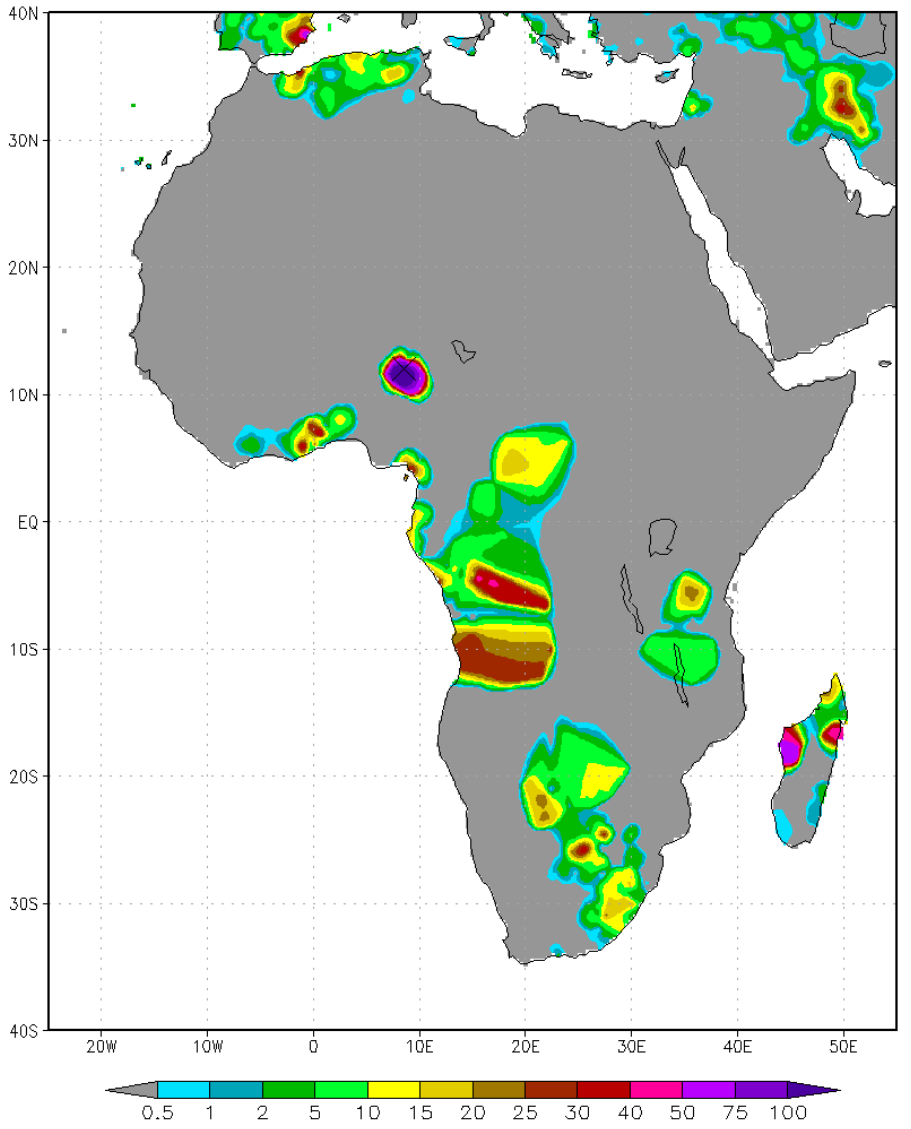
Gauge Daily (06Z–06Z) Precip (mm) 2022.02.12



Gauge Daily (06Z–06Z) Precip (mm) 2022.03.03



Gauge Daily (06Z–06Z) Precip (mm) 2022.03.04



Bert Katz

Activities for July 11 – July 15

1. The following OpenMP jobs are running in quasi-operational mode on WCOSS 2.0; their C2 VECTOR products are archived to HPSS:
   (a) C2 VECTORS are produced from Gaussian-gridded FV3 GFS fields at 04Z, 10Z, 16Z, and 22Z. Each run requires 2 - 3 minutes.
   (b) C2 VECTORS are produced from real-time 0.05-deg half-hourly geostationary data (see points 6 and 7). Each run requires about 2/3 min.
   (c) hourly blending of C2 VECTORS from (a) and (b). Each run requires 4-5 seconds (but 2 minutes including compression).
   (d) a logfile is updated when the above runs archive their results.

2. The snow probability job runs in quasi-operational mode on WCOSS 2.0. It is initiated by the GFS C2 VECTOR processing. Results are compressed and archived to HPSS; updates are posted to a logfile.

3. Stage 4 precipitation analyses for the mainland U. S., Alaska, and Puerto Rico are copied daily to the CPC workstations at 0620 UTC.

4. NCO failed to mirror the “sfluxgrbFFF” files to the development machine for the 1800 UTC cycle on July 11. This was discovered at 4:45 PM on July 13. NCO personnel completed mirroring those files by 8:20 PM that evening. Normal real-time processes then resumed; they were caught up by 5:15 AM on July 14. A logfile is now updated when the “sfluxgrbFFF” files are unavailable.

Activities for 7/11 – 7/15 (cont'd.)

5. Procedures are running hourly on WCOSS 2.0 to fetch twenty polar-orbiting data streams from the CPC workstations. The “raw1” data files are reacquired as they are updated. Hourly time-stamped data availability tables (including the age of the data files) are generated. The data files and tables are stored in subdirectories by date; the tables are shipped back to similar directories on the CPC workstations. New “unified” standards for file names and file contents are part of a redesign of the processing using configuration files to ease changes in satellite usage. The procedures are acquiring:

(a) PMW data from ten satellites (10 simultaneous jobs). GPROFS data from GPM in HDF5 files are being decoded into standard “RAW1” files.

(b) LEO AVHRR data from five satellites (5 simultaneous jobs). Provision of this data stopped in early Jan. 2021. These processes will be redesigned.

(c) MiRS snowfall data from five satellites (5 simultaneous jobs). NetCDF data from five satellites are being decoded into standard “RAW1” files.

6. A twice-hourly real-time GPE run on WCOSS 2.0 produces GPE and 30-minute MWCOMB2X data, which are compressed for archival to HPSS and shipment to the CPC workstations. Jobs are triggered which create GEOSTATIONARY and BLENDED C2 VECTORS. These results are also archived to HPSS. Each archival is accompanied by an update to a logfile. Timing issues were denying sufficient GPE data to the GEOSTATIONARY jobs. Those timing issues have been resolved. The half-hourly GPE jobs now produce data for two hours before the current hour.

Activities for 7/11 – 7/15 (cont'd.)

7. Procedures are running hourly on WCOSS 2.0 (using data acquired in point 5 to generate various aggregated precipitation products from hour t – 12 to hour t – 1 on twelve processors:

(a) MWCOMB2X data in ~7 minutes. This job triggers a chain of jobs which generate, in order: (1) GPE data; (2) GEOSTATIONARY C2 VECTORS; and (3) BLENDED C2 VECTORS based upon the MWCOMB2X data produced above. A logfile is updated when (1), (2), and (3) archive their results. Timing issues were denying sufficient GPE data to the GEOSTATIONARY jobs. Those timing issues have been resolved.

(b) LEO AVHRR JOINT precipitation estimates, along with MWCOMB and CLOUDSAT estimates, in 6.5 – 7 minutes.

(c) SFCOMB snowfall estimates in 2 - 3 minutes.

(d) APCOMB combined MWCOMB2X, LICOMB and SFCOMB precipitation estimates in ~1 minute.

8. Procedures are running hourly on WCOSS 2.0 to generate morphed precipitation products from hour t – 15 to hour t - 1:

(a) Forward propagation and backward propagation. Two single-threaded jobs are running simultaneously, taking 3-4 minutes. A delaying job ensures timely use of BLENDED C2 VECTORS.

(b) Morphing the propagated results. This takes ~0.5 min. on 15 processors. A delaying job ensures timely use of GPE data. Missing LEO AVHRR data (see points 5 and 7) has caused this job to generate NaN's.

Activities for 7/11 – 7/15 (cont'd.)

9. The daily data gathering jobs, Weekly SSTOI job and the post-processing of the Weekly SSTOI analysis are running in quasi-operational mode on WCOSS 2.0. The following are sent to the RZDM server: GRIB and zipped flat binary versions of the weekly analyses and monthly averaged analyses, and compressed ASCII files containing the weekly and monthly SSTOI analyses for the year-to-date.

This past Monday's Weekly SSTOI analysis was for July 6. A final monthly average was produced for June 2022.

10. Retrospective GPE data were produced on WCOSS 2.0 for May 16 – June 14, 2022, along with 30-min. MWCOMB2X data for June 2022. Retrospective GEOSTATIONARY and BLENDED C2 VECTORS were produced on DOGWOOD for May 2 – June 1, 2022.

11. Retrospective bias-corrected hourly T2m fields and snow probability were produced for May 2022 on WCOSS 2.0 and archived to HPSS. The hourly T2m fields (both 0.05-deg. and 0.25-deg. resolutions) were also shipped to the CPC workstations.

12. After last week's machine swap on WCOSS 2.0, a SysAdmin completed copying missing files to the development machine late Friday afternoon. Real-time CMORPH2 processes had to be restarted on Saturday morning. This resulted in a 54-hour gap in real-time processing.

Yanjuan Guo

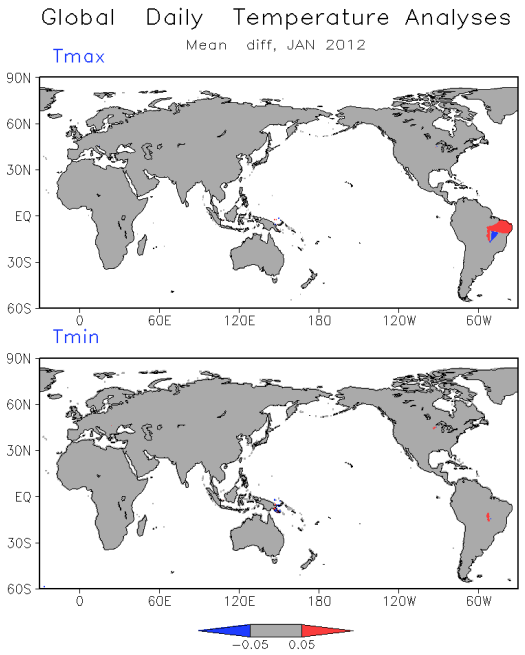
Weekly Report (07/15/2022)

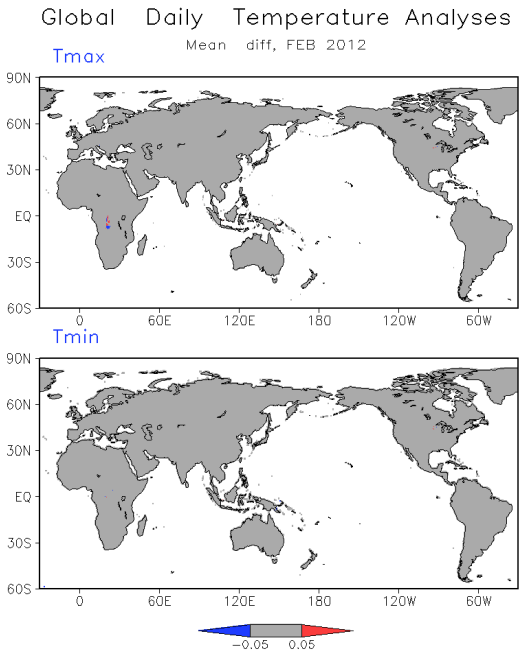
- Continued checking new analysis and CTL run analysis for T2m temperature:

- Compared the entire 2012

- Only difference occurred when a considerable number of routine station observations are missing, e.g., regions in certain months below

- Working on improving the efficiency of new code


Global Daily Temperature Analyses
Mean diff, JAN 2012
Tmax
Tmin
90N
60N
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
−0.05
0.05


Global Daily Temperature Analyses
Mean diff, FEB 2012
Tmax
Tmin
90N
60N
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
−0.05
0.05

of obs in region (90-30W, 30S-0) for Jan 2012

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tmax #=	235	tmin #=	216	tmax #=	258
tmax #=	257	tmin #=	212	tmax #=	258
tmax #=	256	tmin #=	230	tmax #=	257
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tmax #=	254	tmin #=	233	tmax #=	257
tmax #=	255	tmin #=	228	tmax #=	230
tmax #=	244	tmin #=	230	tmax #=	258
tmax #=	256	tmin #=	229	tmax #=	259
tmax #=	257	tmin #=	232	tmax #=	260
tmax #=	258	tmin #=	226	tmax #=	258
tmax #=	258	tmin #=	233	tmax #=	**82**
tmax #=	257	tmin #=	231	tmax #=	258
tmax #=	256	tmin #=	233	tmax #=	247
tmax #=	246	tmin #=	230	tmax #=	258
				tmax #=	258

tmin #=	224
tmin #=	236
tmin #=	234
tmin #=	231
tmin #=	227
tmin #=	230
tmin #=	232
tmin #=	233
tmin #=	235
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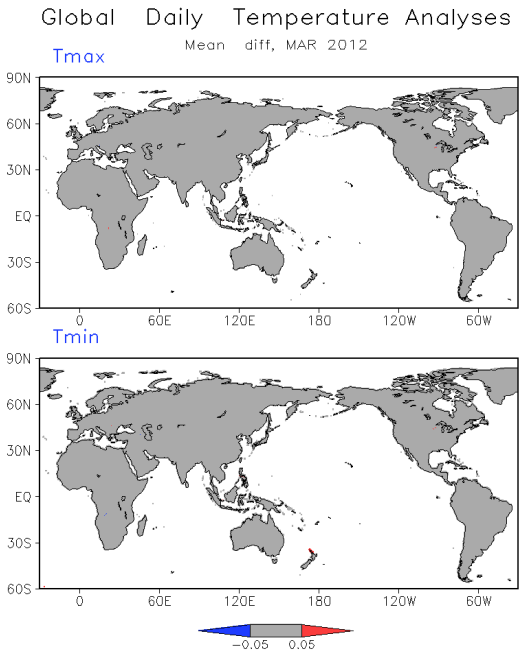
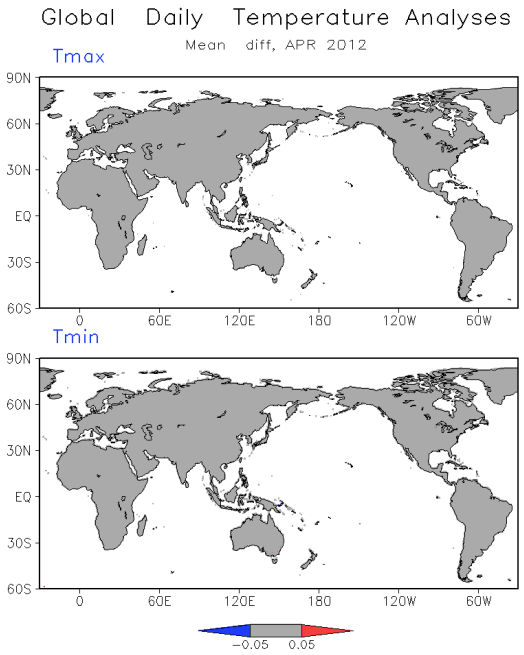
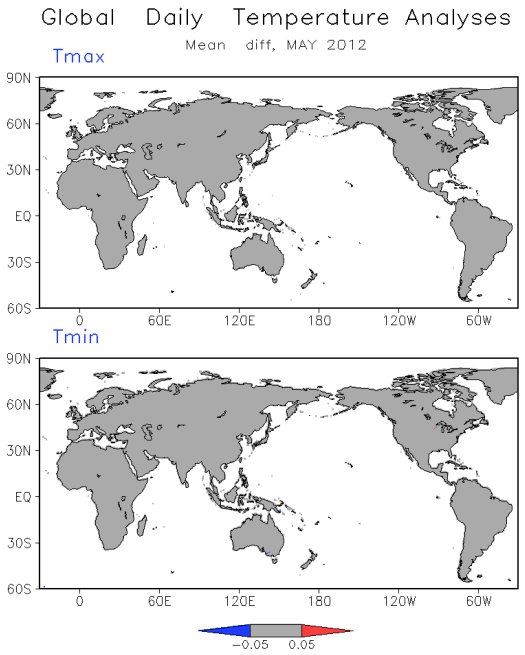
tmin #=	233
tmin #=	215
tmin #=	234
tmin #=	233
tmin #=	236
tmin #=	234


Global Daily Temperature Analyses
Mean diff, MAR 2012
Tmax
Tmin
90N
60N
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
−0.05
0.05


Global Daily Temperature Analyses
Mean diff, APR 2012
Tmax
Tmin
90N
60N
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
−0.05
0.05


Global Daily Temperature Analyses
Mean diff, MAY 2012
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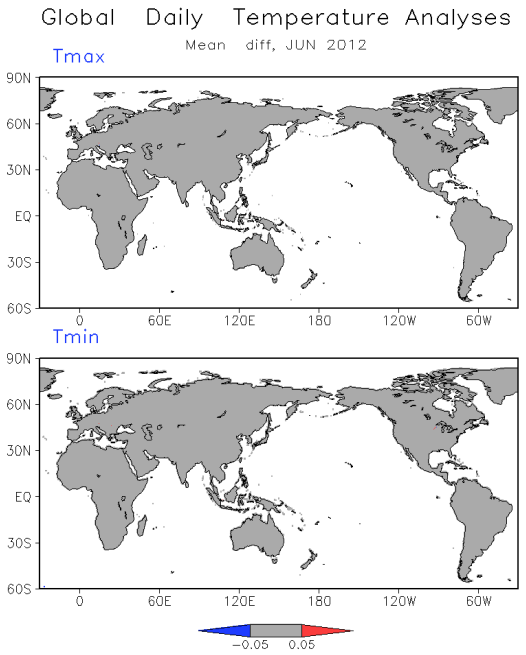
90N
60N
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
Tmin
90N
60N
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
−0.05
0.05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Mean diff, JUN 2012
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90N
60N
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
Tmin
90N
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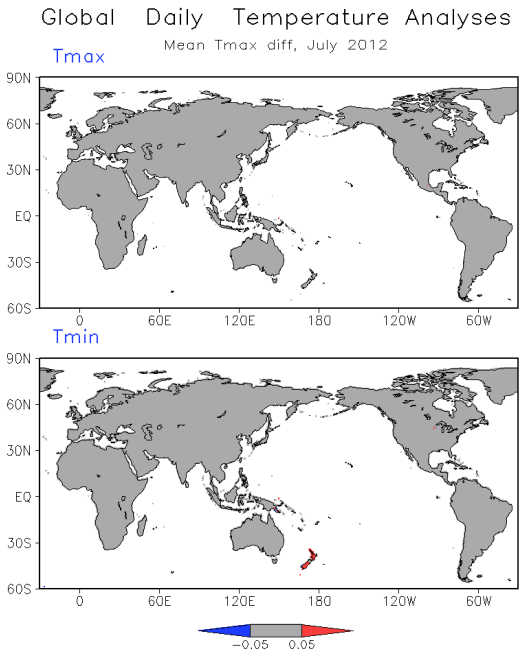
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
−0.05
0.05


Global Daily Temperature Analyses
Mean Tmax diff, July 2012
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60N
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EQ
30S
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60E
120E
180
120W
60W
Tmin
90N
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30N
EQ
30S
60S
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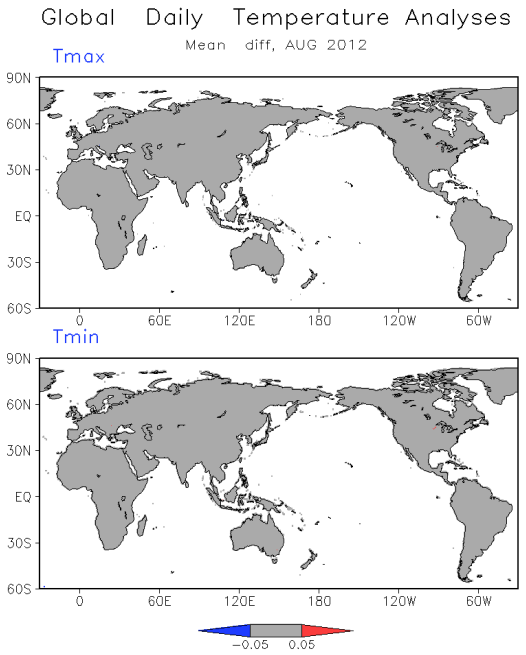
60E
120E
180
120W
60W
−0.05
0.05


Global Daily Temperature Analyses
Mean diff, AUG 2012
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30N
EQ
30S
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60E
120E
180
120W
60W
Tmin
90N
60N
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
−0.05
0.05

Jul2012 region: 160-180E; 50S-30S

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- tmax #= 29 tmin #= 29
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- tmax #= 29 tmin #= **1**
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- tmax #= 29 tmin #= 28
- tmax #= 29 tmin #= 29
- tmax #= 29 tmin #= 29
- tmax #= 29 tmin #= 29
- tmax #= 28 tmin #= 28

- tmax #= 29 tmin #= 29
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- tmax #= 29 tmin #= 29
- tmax #= 29 tmin #= 29
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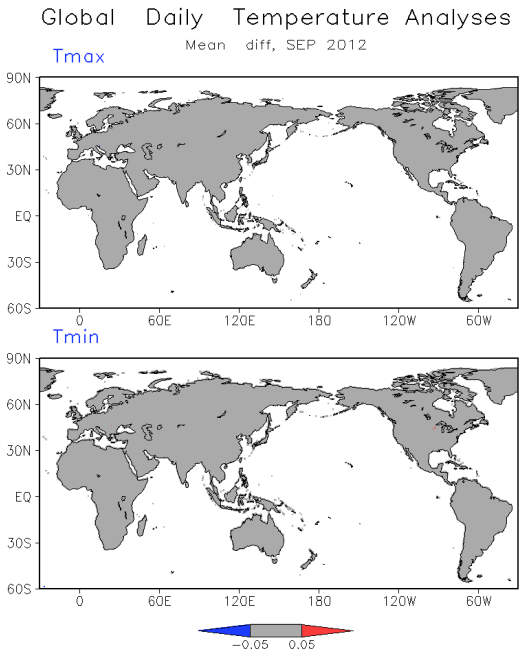
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Mean diff, SEP 2012
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30N
EQ
30S
60S
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60E
120E
180
120W
60W
Tmin
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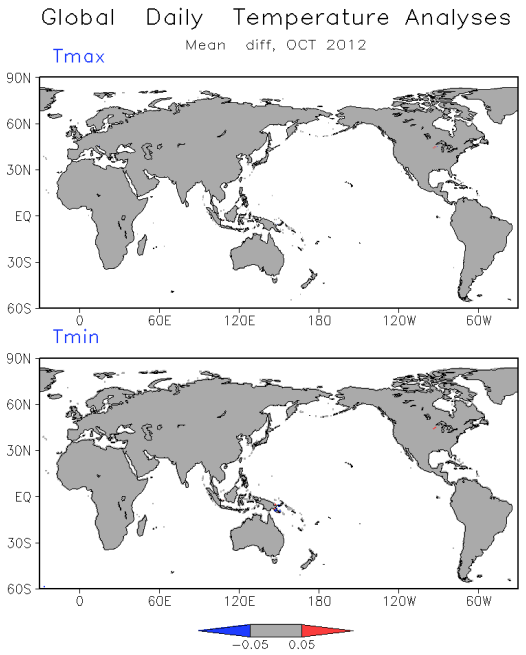
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
−0.05
0.05


Global Daily Temperature Analyses
Mean diff, OCT 2012
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EQ
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60S
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60E
120E
180
120W
60W
Tmin
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EQ
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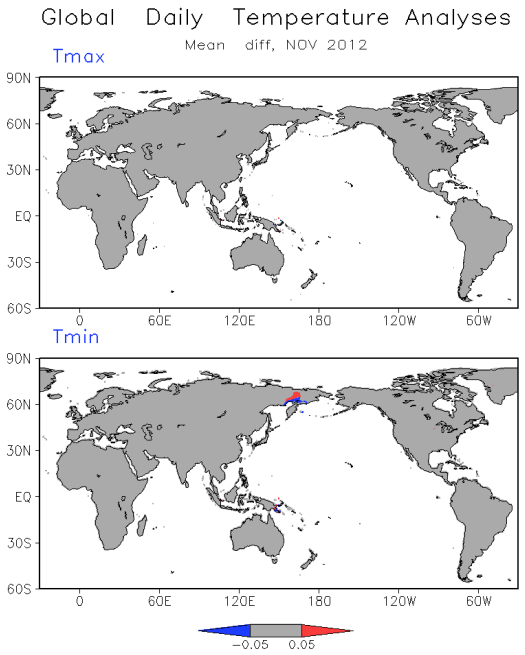
120E
180
120W
60W
−0.05
0.05


Global Daily Temperature Analyses
Mean diff, NOV 2012
Tmax
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30N
EQ
30S
60S
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60E
120E
180
120W
60W
Tmin
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120E
180
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60W
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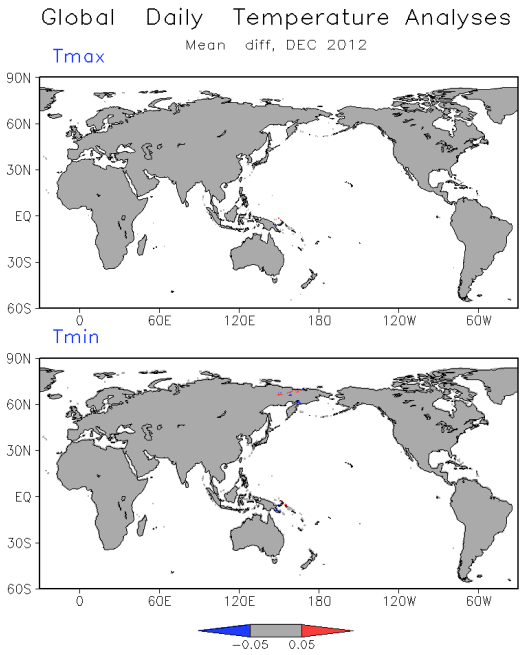
0.05


Global Daily Temperature Analyses
Mean diff, DEC 2012
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30N
EQ
30S
60S
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60E
120E
180
120W
60W
Tmin
90N
60N
30N
EQ
30S
60S
0
60E
120E
180
120W
60W
−0.05
0.05

NOV 2012, region: 140-170E; 55-75N

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- tmax #= 38 tmin #= **7**
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- tmax #= 38 tmin #= 38
- tmax #= 38 tmin #= 38
- tmax #= 38 tmin #= 38
- tmax #= 38 tmin #= **12**
- tmax #= 38 tmin #= 38
- tmax #= 38 tmin #= 37
- tmax #= 38 tmin #= **12**
- tmax #= 38 tmin #= **10**
- tmax #= 38 tmin #= 38
- tmax #= 38 tmin #= **11**
- tmax #= 38 tmin #= **9**
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- tmax #= 38 tmin #= 38
- tmax #= 38 tmin #= 38
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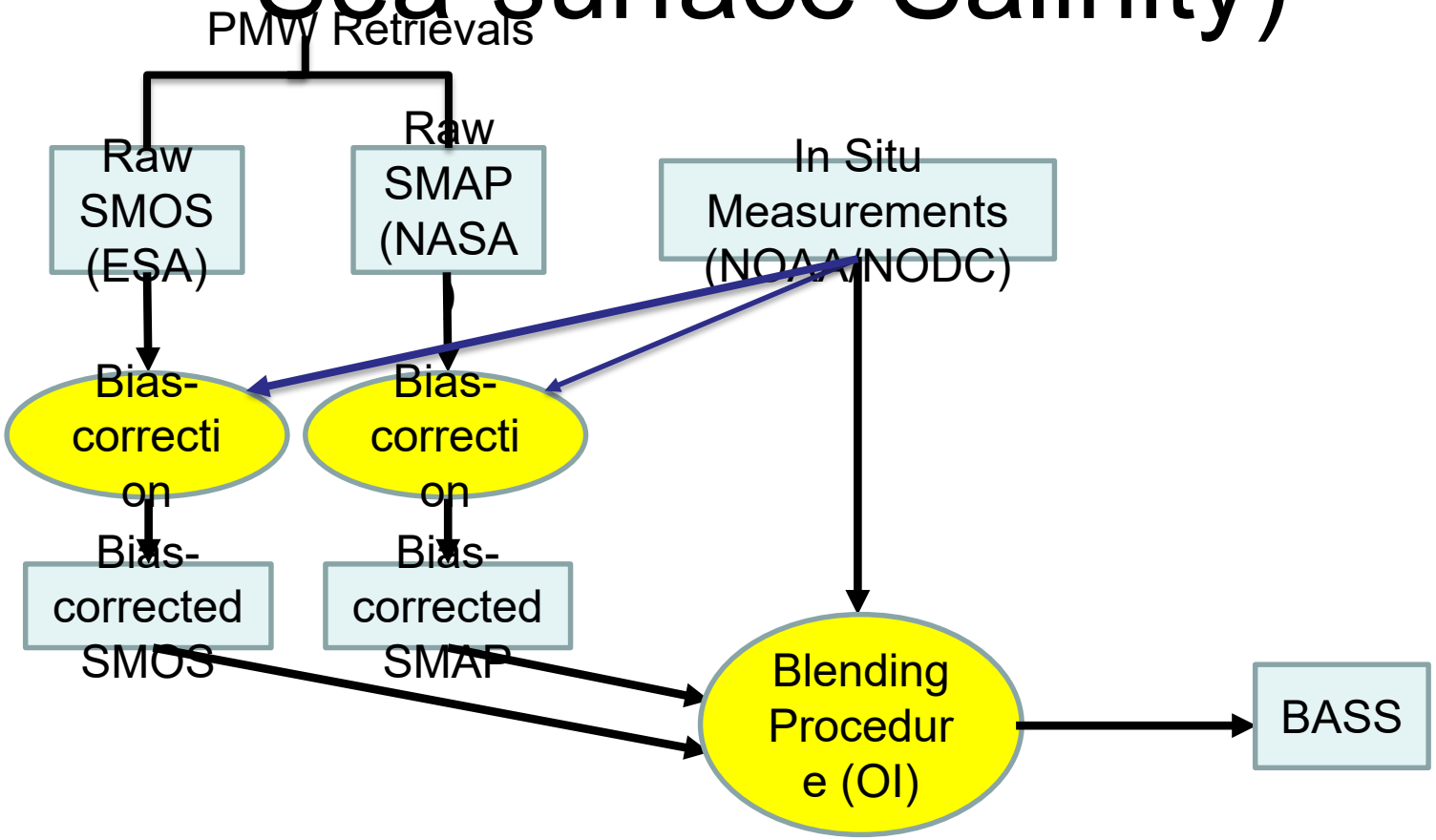
- tmax #= 38 tmin #= 38
- tmax #= 38 tmin #= 38
- tmax #= 37 tmin #= 36
- tmax #= 37 tmin #= **16**
- tmax #= 38 tmin #= **10**

Eric Sinsky

Summary

- Reviewed scientific literature for CMORPH1.
  - Xie et al. 2017 – AMS's Journal of Hydrometeorology
- Reviewed some of the basics of CMORPH2.
  - Xie et al. 2019 – CDPW (2019)
- Reviewed some of the CMORPH1 and BASS scripts and code.
- Reviewed scientific literature for BASS.
  - Xie et al. 2014 – AGU's Journal of Geophysical Research – Oceans
- Got my Windows , Linux and Gaea accounts for CPC.
- In the process of reactivating my WCOSS2 and modifying my RZDM account as a CPC user.

BASS (Blended Analysis of Sea-surface Salinity)



Pingping Xie

Things This Week

- Precipitation
  - *Updated WMO Weekly Summary*
  - *completed 1st step of CONUS gauge QC for May 2022*
  - *resumed work on parallax correction*
  - *presentation at CPC All on SHEF processing system*
  - *drought monitoring applications of precipitation analysis*
- *Salinity / ocean color / evaporation / Temperature*
  - *GSOD Tmax/Tmin grid climo check-ups*
- *OLR*
  -
- *Reviewing papers*
  -
- *CPC business / administrative*
  - *Work group meetings*
  -
- *Other things*
  -

Emphasis of next two weeks

Critical

- ***CMORPH2 migration (Real-Time Production; Retrospective Processing / adding in MT/FY3B,C,D)***
- ***T2m analysis new implementation***
- ***SHEF migration (1st step, MRMS on CF)***
- ***Mexico Data / Canadian Data***
- ***CMORPH2 HPSS storage strategy***

Individual

- Bert CMORPH2 migration (Generalized coding, Retro decoding); WCOSS2
- Yanjuan T2m analysis (testing new implementation strategy)
- Eric: Spin-up, CMORPH inputs / SSS / WCOSS2 storage
- Pingping: Parallax / SHEF report / CMORPH2 / Mexico+Canada data

Other things