RTMA/URMA v2.5.0

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Overview

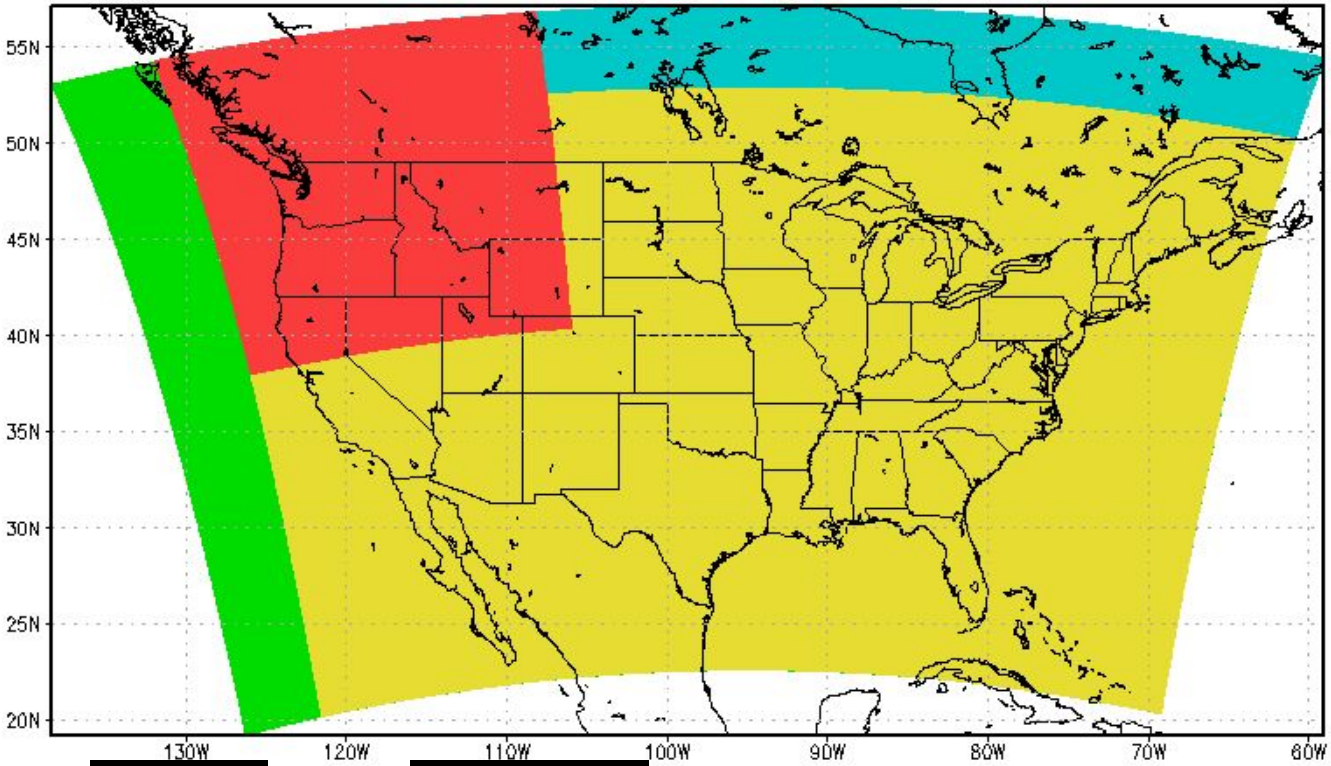
- Relatively small upgrade
  - Some components de-scoped, postponed to v2.6 (Q4FY17)
- Expanded CONUS domain westward by 200 points
  - Support OPC
- Changes to ceiling analysis
  - Use HRRR rather than RAP based background (RAP still used where HRRR is unavailable)
  - Ceiling analysis will be elevated from ‘experimental’ to operational
- Quality Control Improvements
  - Request from SOO-DOH advisory group (Andy Edman, Dave Bernhardt, etc.)
  - Remove an old static accept list
  - Updated wind-bin lists to reflect HRRR v2 background
- Add Alaska and Puerto Rico to 6h precip URMA (currently ConUS only)
- Technical Resource Changes (minimal)

Items De-Scoped From This Version

- 15-minute Rapid Update RTMA
  - Delays in getting 15-minute dumps prod-ready
  - Parallel feed is up for testing, to be available to FAA and AWC shortly
  - Still issues with NCO that need to be worked out re: file names, ecFlow timing, etc.
- GLERL enhancement
  - Obs processing enhancement is ready, but no field evaluation has taken place yet.
  - Parallel with GLERL will be made available shortly after hand off.
  - Some slight ob location adjustments still needed
- Further QC improvements
  - ‘Real-time’ mesonet QC via SDM list is part of aircraft obs package
  - Further work on wind bin lists and provider QC lists

ALL will be ready for handoff with v2.6!
(Handoff in May 2017, implementation in Q4FY17)
Real time parallels available to field soon after New Year

CONUS Grids: NDFD NWRFC EXT WEXP

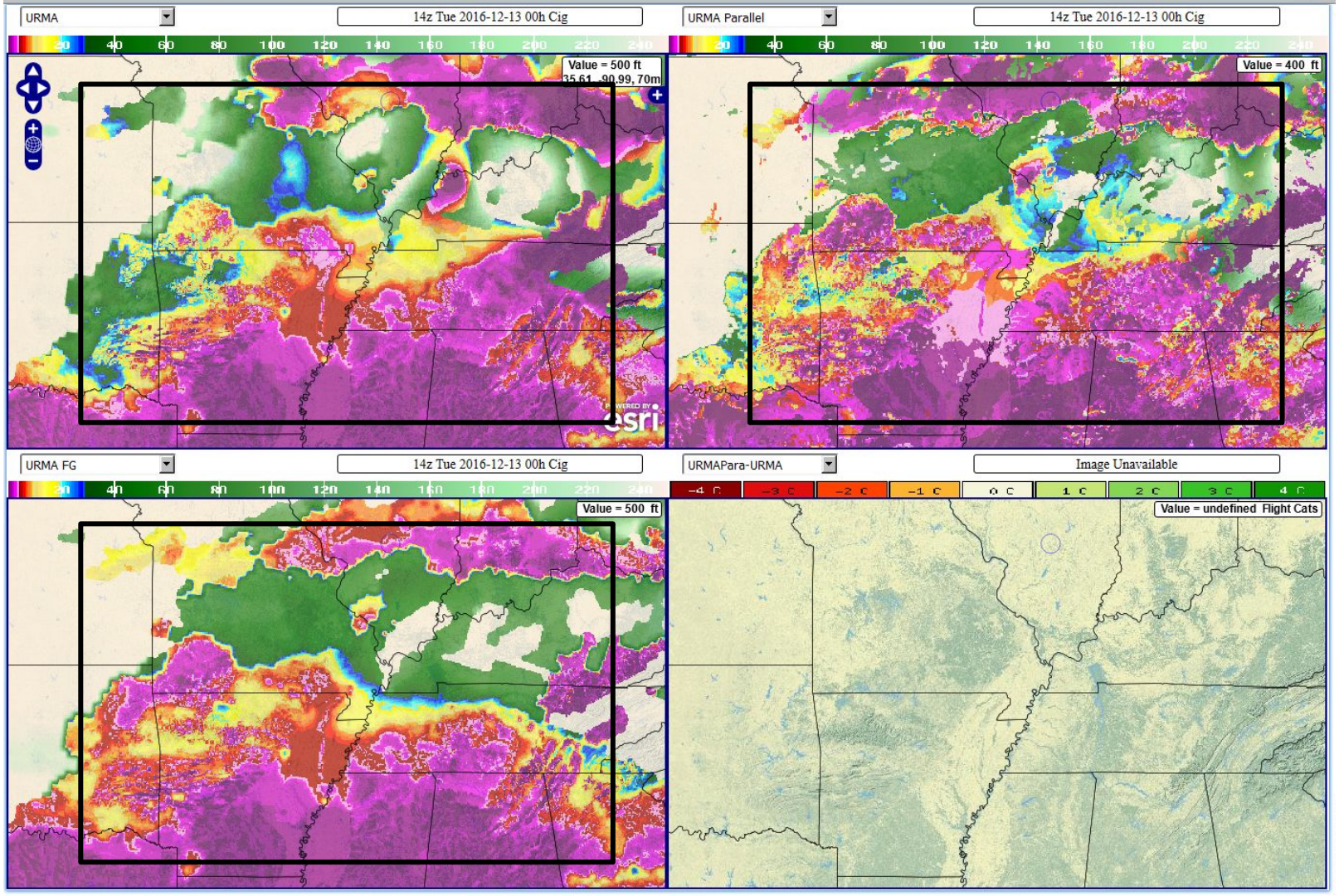


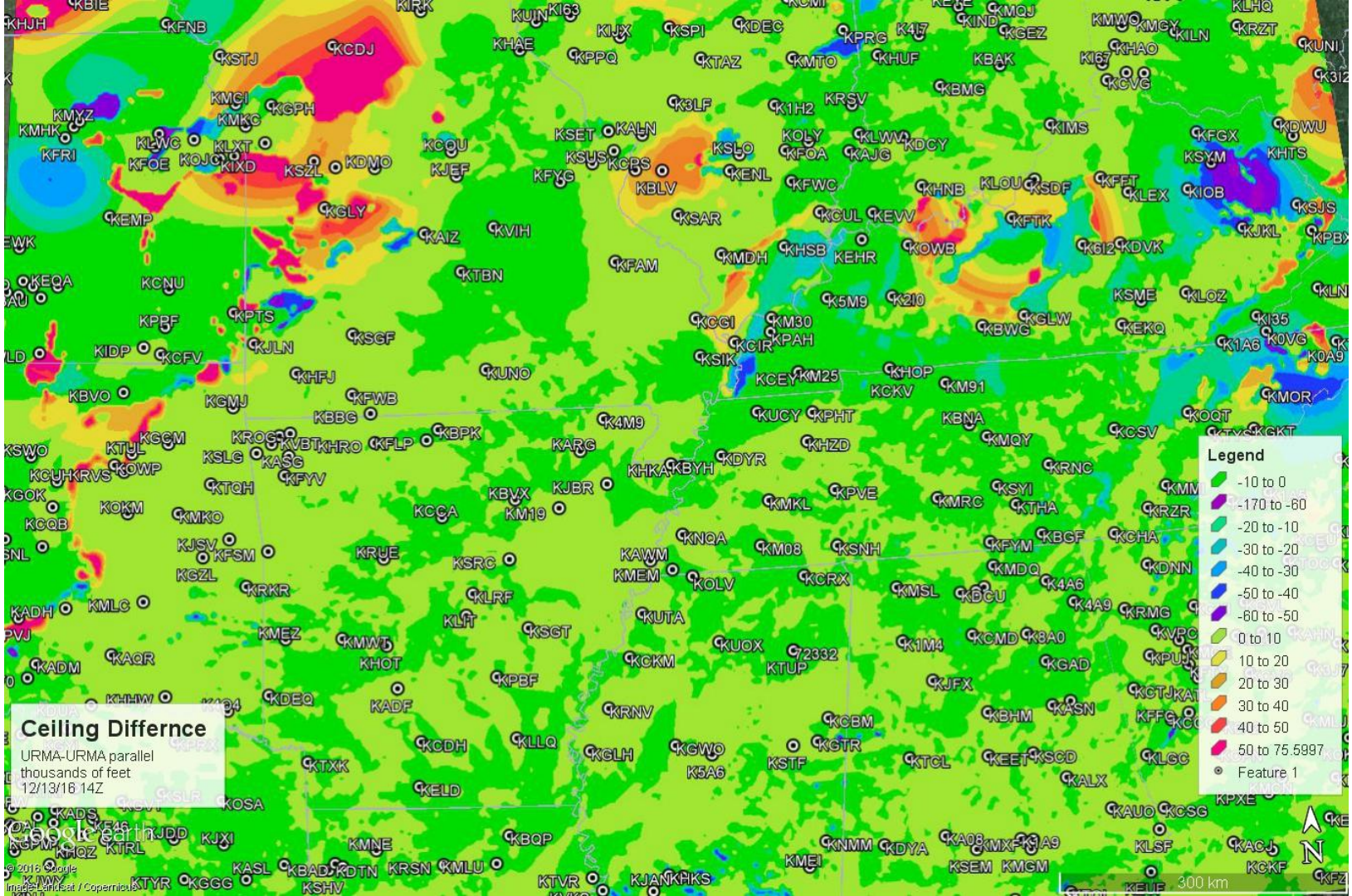
Only NDFD and NWRFC to be distributed on AWIPS

Others on ftpprd/com to be used as needed

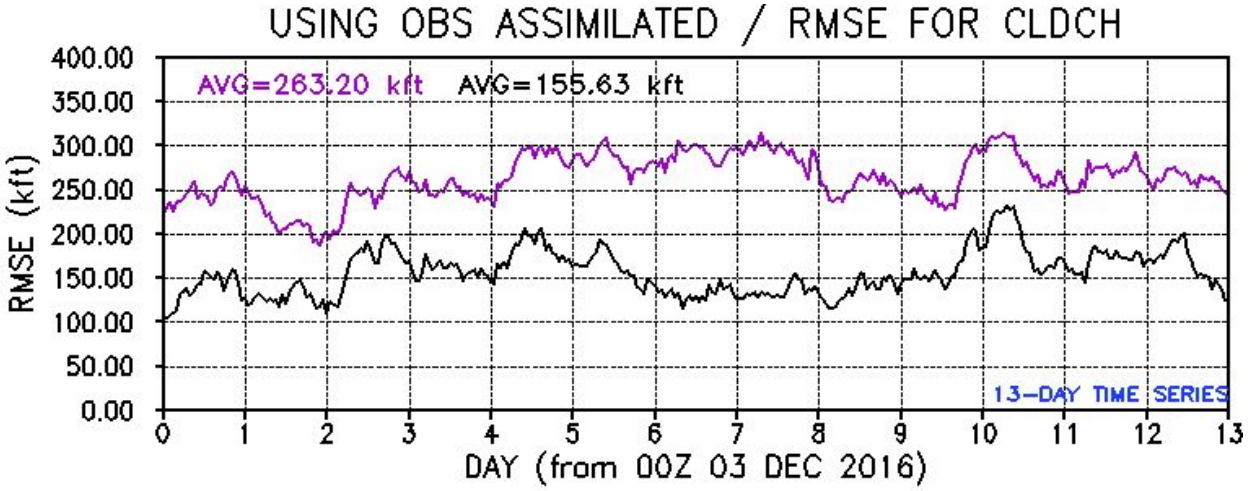
Cloud Ceiling Height Changes

- HRRR/RAP blend for background
  - Use HRRR where available, use RAP to fill in around edges, smoother provided by Jim Purser
  - Previous version used RAP only
- Ceiling is elevated from ‘experimental’ to ‘operational’
  - No more separate file for ceiling - one grib file contains all fields
  - Previous version was considered experimental due to RAP-only background and lack of evaluation prior to hand-off
  - Ceiling will continue to be disseminated via NCO’s FTP server only. Will work to have it added to the SBN
- Fulfills request from FAA/AWC
  - V2.6 RU-RTMA 15-minute analysis of ceiling and visibility will be used in HEMS tool from AWC


URMA
14z Tue 2016-12-13 00h Cig
20 40 60 80 100 120 140 160 180 200 220 240
Value = 500 ft
35.61, -90.99, 70m
URMA Parallel
14z Tue 2016-12-13 00h Cig
20 40 60 80 100 120 140 160 180 200 220 240
Value = 400 ft
URMA FG
14z Tue 2016-12-13 00h Cig
20 40 60 80 100 120 140 160 180 200 220 240
Value = 500 ft
URMAPara-URMA
Image Unavailable
-4 C -3 C -2 C -1 C 0 C 1 C 2 C 3 C 4 C
Value = undefined Flight Cats


Ceiling Differnce
URMA-URMA parallel
thousands of feet
12/13/16 14Z
Legend
-10 to 0
-170 to -60
-20 to -10
-30 to -20
-40 to -30
-50 to -40
-60 to -50
0 to 10
10 to 20
20 to 30
30 to 40
40 to 50
50 to 75.5997
Feature 1
N
300 km
Google Earth
© 2016 Google
Image Landsat / Copernicus

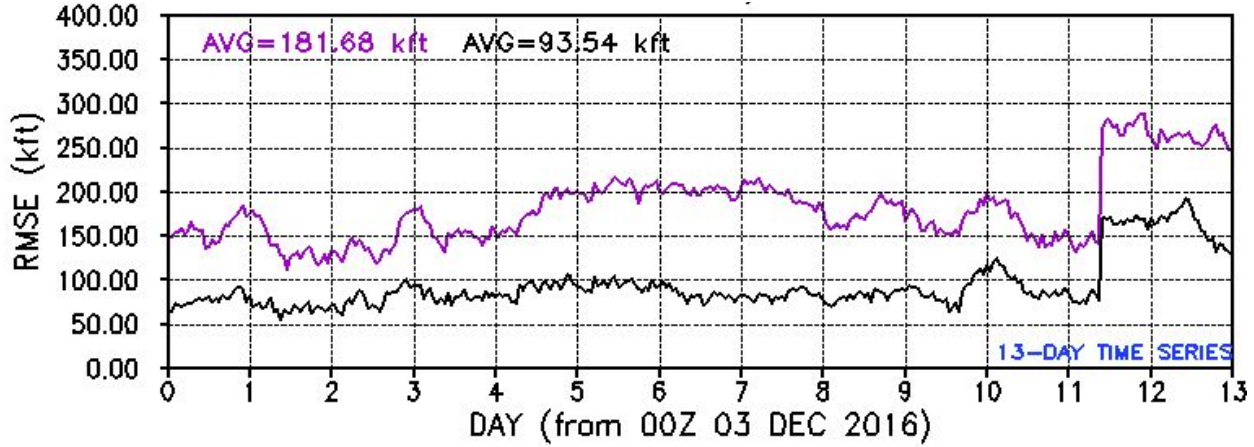
Domain averaged Fit to Obs - Ceiling



OLD URMA

BACKGROUND

ANALYSIS

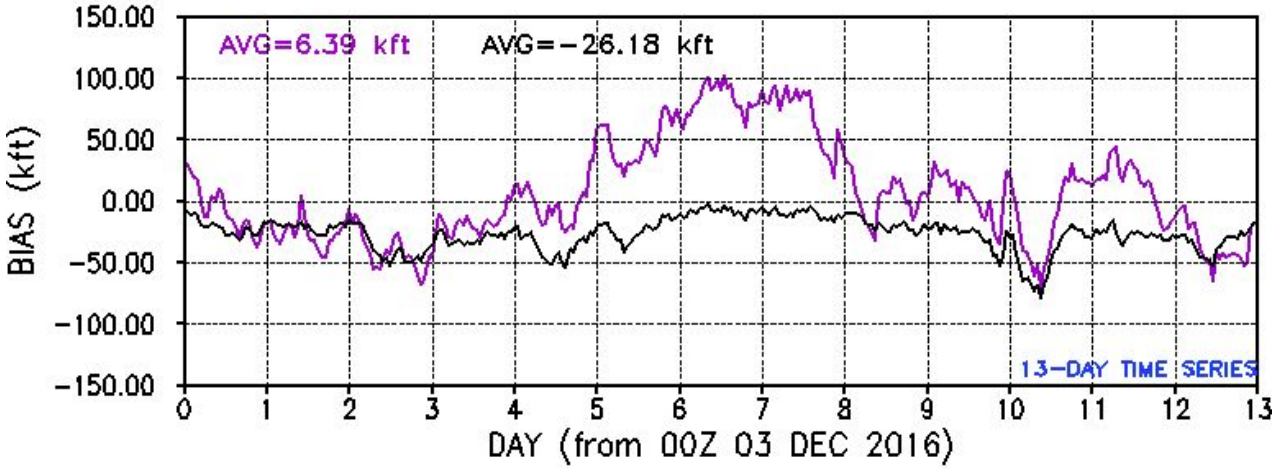


NEW URMA

BACKGROUND

ANALYSIS

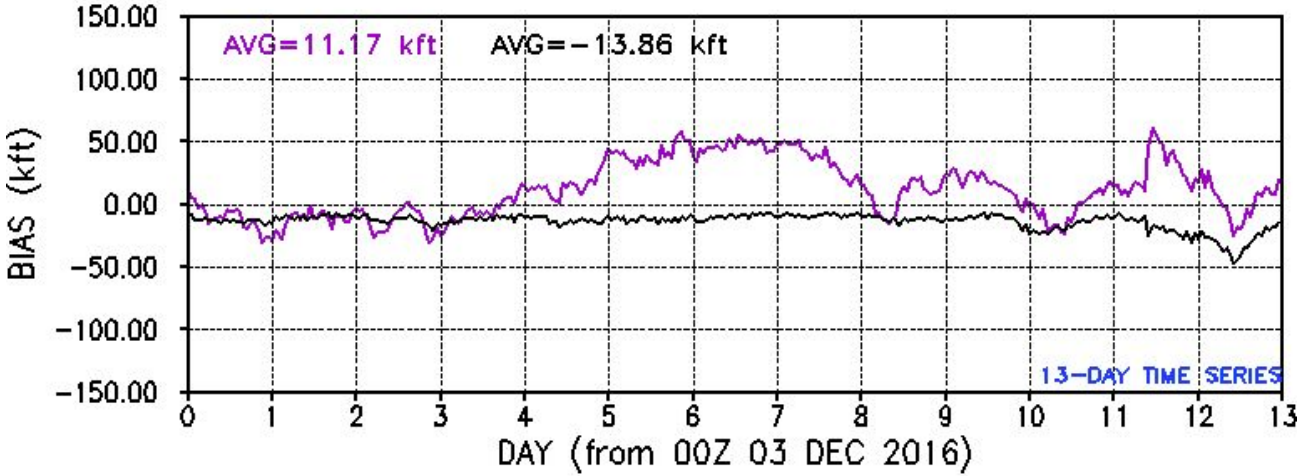
Domain averaged Fit to Obs - Ceiling



OLD URMA

BACKGROUND

ANALYSIS



NEW URMA

BACKGROUND

ANALYSIS

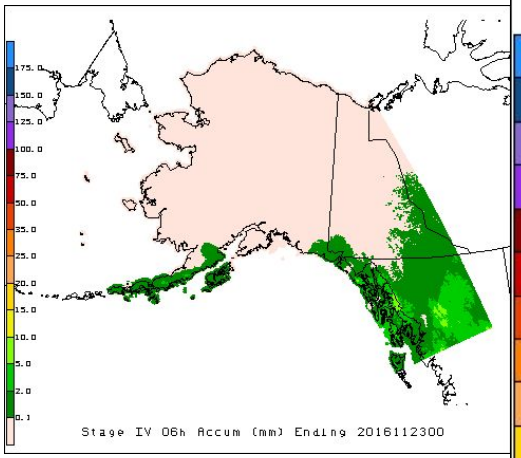
Wind Quality Control Enhancements

- Mesonet wind pose significant challenge due to siting issues
- Users have noticed a recent low-speed bias in RTMA/URMA
- Legacy station accept lists and bin lists were based on RUC and RAP based statistics
  - List code has been re-run based on HRRRv2 background
  - Mesonet stations with O-B stats similar to nearby METARs (within 100 km) are used
- Directional wind bins (45 degree pie slices) allow us to work around wind obstructions.
  - In practice, many stations pass for all bins
  - Bug fix: When being applied, calm wind obs from mesonets are not considered part of any bin (previously assumed to be from due north)
- Changes to ‘fixed’ files only

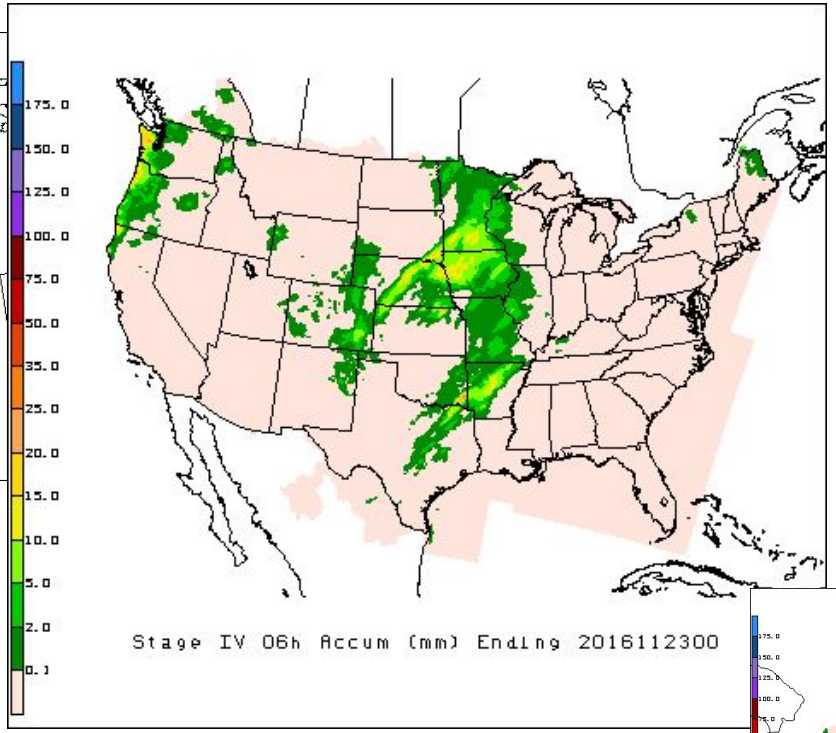
Use EDTBFR for Mesonet QC

- Current mesonet reject lists are ‘fixed files’, difficult to edit
  - Field does not like because changes cannot be made easily
- SDM-edit reject list can be edited in near-real time via the SDM
  - Already done for most surface marine obs and METARs
- Part of obs processing bundle being handed off now, will be implemented around same time as RTMA/URMA
  - Obsproc bundle deals mostly with aircraft obs
- Mesonet temp/moisture reject lists will likely be RFC’d out after implementation or for v2.6
  - Wind lists will (mostly) stay

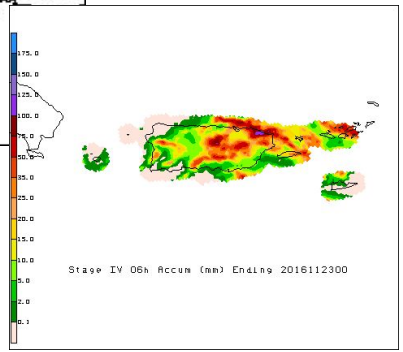
6h ending at 00Z 23 Nov 2016: add AK and PR URMA to current opnl ConUS URMA



AK URMA: QPE from APRFC
(gauge only; Mountain Mapper)



PR URMA: QPE from SERFC
(radar+gauges)



Technical Resources Changes (minor)

/com2 disk space: Current daily usage : 7 TB

(Note: accounts for multi-day RTMA & URMA output residing on disk!)

Additional 635 GB required due to expanded domain ⇒ 9% increase

HPSS usage:

Currently: 149 GB/day of permanent storage + 130 GB/day of 2-year storage.

Additional 13 GB of permanent storage required ⇒ 9% increase

Number of WCOSS2 compute nodes and cores: *No changes*

Continue to use: 24 nodes / 320 cores