Stage IV/URMA upgrade
pcpanl.v2.3.0
To be implemented with RTMA/URMA v2.5
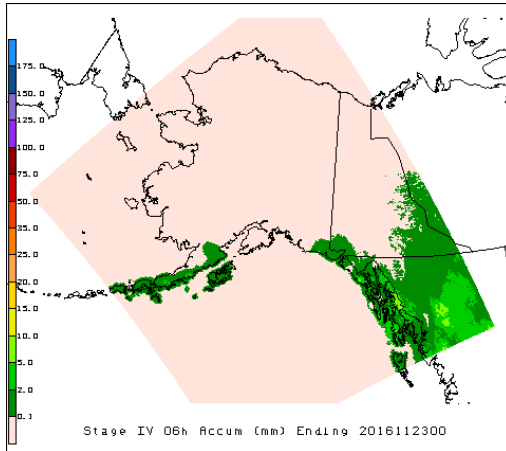Targeted implementation date: 28 Mar 2017

Changes to Stage IV:
- Adding Alaska 6h/24h; Puerto Rico 1h/6h/24h
- 24h ConUS mosaic using 24h QPE from RFCs when available; hourly updates of the 24h mosaic in the 12 hours after validation time (NCEP to provide ConUS mosaic for water.weather.gov)

Changes to precip 6h URMA:
- Adding Alaska and Puerto Rico

- Location of the unofficial parallel output (subject to machine/network outages): ftp://ftp.emc.ncep.noaa.gov/mmb/precip/pcpanl.v2.3.0/
- Official NCO parallel output: http://para.nomads.ncep.noaa.gov/pub/data/nccf/com/pcpanl/para/
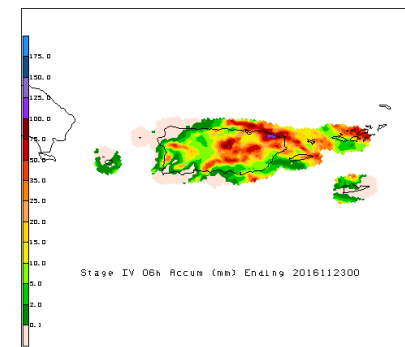
6h ending at 00Z 23 Nov 2016

st4_ak.2016112300.06h from QPE produced by APRFC. Due to the lack of reliable obs in Alaska, the QPE should be considered "qualitative" and should not be used in, *e.g.* model tuning.
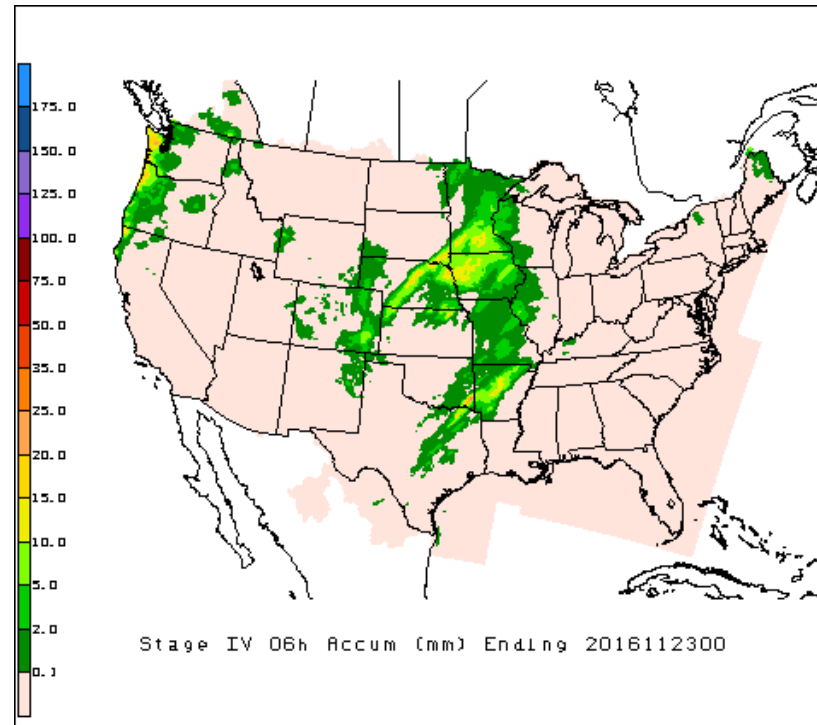
Existing: ConUS mosaic from QPEs from the 12 ConUS RFCs

ST4.2016112300.06h

st4_pr.2016112300.06h from QPE produced for PR region by SERFC

ConUS 24h Mosaic

- Currently the Stage IV ConUS 24h total (12Z-12Z) is simply a sum of the 6h Stage IV (from 6h QPEs of four Western RFCs and hourly QPEs from the 8 Eastern/Central RFCs)

- We learned that sometimes a western RFC's (chiefly MBRFC) 24h QPE might be different and superior to its sum of 6h QPEs

- New Stage IV 24h total is created from the hourly QPEs from the 8 Eastern/Central RFCs (NE/MA/SE/OH/NC/LM/AB/WG); 6h QPEs from CN and CB RFCs (where the 24h QPEs are simply sums of 6h QPEs); and 24h QPEs from NWRFC and MBRFC (program falls back to using 6h QPEs from these two RFCs if the 24h is not available. We do not yet receive the 24h QPE from MBRFC).

- Currently the Stage IV 24h total is made at 15:33/21:33/23:33Z after the ending 12Z, then remade at 12:33Z 1/3/5/7 days later. In the new package, the Stage IV 24h mosaicking is done hourly for 12 hours after validation time (12:33/13:33.../23:33Z), then again at 12:33Z 1/3/5/7 days later. This is in support of the AHPS web site water.weather.gov.

Alaska and Puerto Rico QPEs

- We receive 6h and 24h QPEs from Alaska and 1h/6h/24h Puerto Rico QPEs from SERFC

- These are made into 6h/24h Alaska "Stage IV" and 1h/6h/24h Puerto Rico "Stage IV" after redefining the grids as having each grid box's coordinate defined at the center of the box, rather than at the "lower-left corner" (same physical grid, just the grid definition shifted by ½ of a grid box). ST4_pr.yyyymmdd.24h is summed from hourly PR QPEs, following the current practice of ABRFC for AHPS

- 6h AK and PR QPEs are mapped to NDFD grid to serve as precip URMA

- Each time a new AK or PR QPE is received at NCEP, the afffected Stage IV and URMA are updated (at the next run time, which is 33min past every hour), going back to 7 days. A final re-run is made at 7 days after validation time for each analysis (this is put in place to guard against the unlikely – so far hypothetical – event of two back-to-back prod/dev machine switch (with dev maintenance down time) in quick succession that could in theory cause some loss of input QPE

Sundry Notes

- New Stage IV files for AK/PR will be named st4_ak[pr].*yyyymmddhh.xx*h*. ConUS Stage IV files will remain ST4.*yyyymmddhh.xx*h*, where *yyyymmddhh.xx* denotes *xx* hr accumulation ending at yyyymmddhh.

- New URMA files: pcpurma_ak[pr].*yyyymmddhh.06*h

- Stage IV plot files: st4[_ak/pr].*yyyymmddhh.xx*h.gif*

  * New implementation standard requires that output files be in lower case. ST4.*yyyymmddhh.xx*h retains the 'ST4' prefix for now since it is an exising product and we don't want to disrupt user programs that ingest the product automatically.

- Run directory on wcoss: will be changing from /com/hourly/prod/nam_pcpn_anal.${yyyymmdd} to /com2/pcpanl/prod/pcpanl.${yyyymmdd}

- NOMADS site changing from http://nomads.ncep.noaa.gov/pub/data/nccf/com/hourly/prod/nam_pcpn_anal.yyyymmdd/ to http://nomads.ncep.noaa.gov/pub/data/nccf/com/pcpanl/prod/pcpanl.yyyymmdd/