

Precipitation Estimation and Analysis

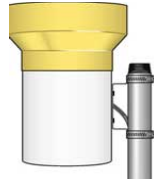
Colorado Basin River Forecast Center

Outline

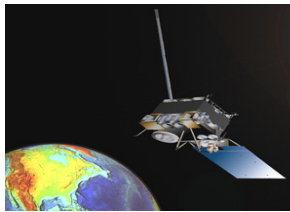
- Precipitation analysis methodology
- Web sites overview

Quantitative Precipitation Estimates (QPE)

Rain Gage Measurement



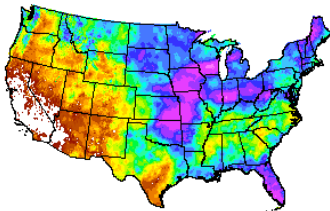
GOES Satellite Estimate



Radar Estimate

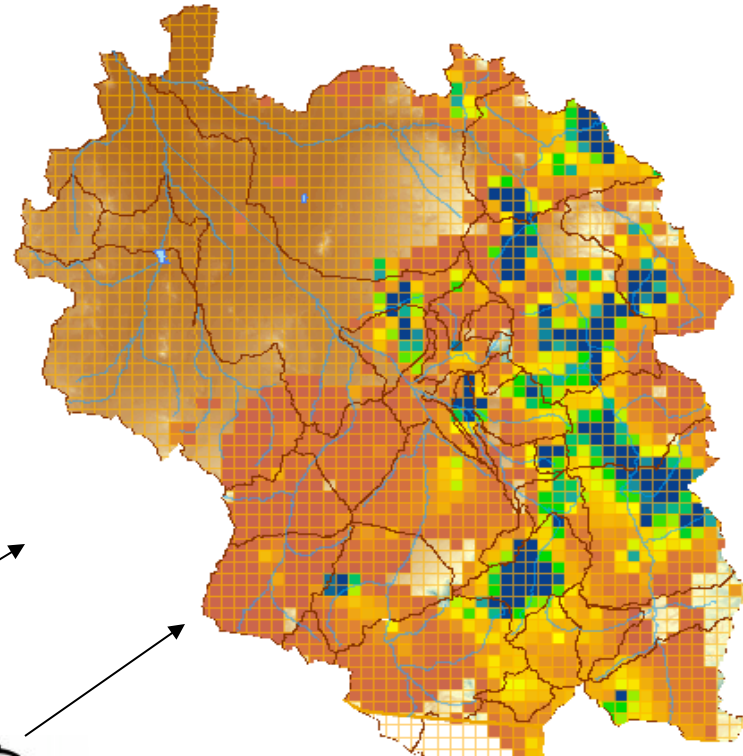


Climate patterns

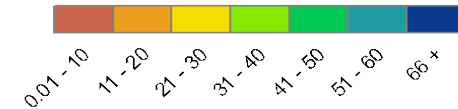


Forecaster Analysis

Gridded Precipitation Estimate

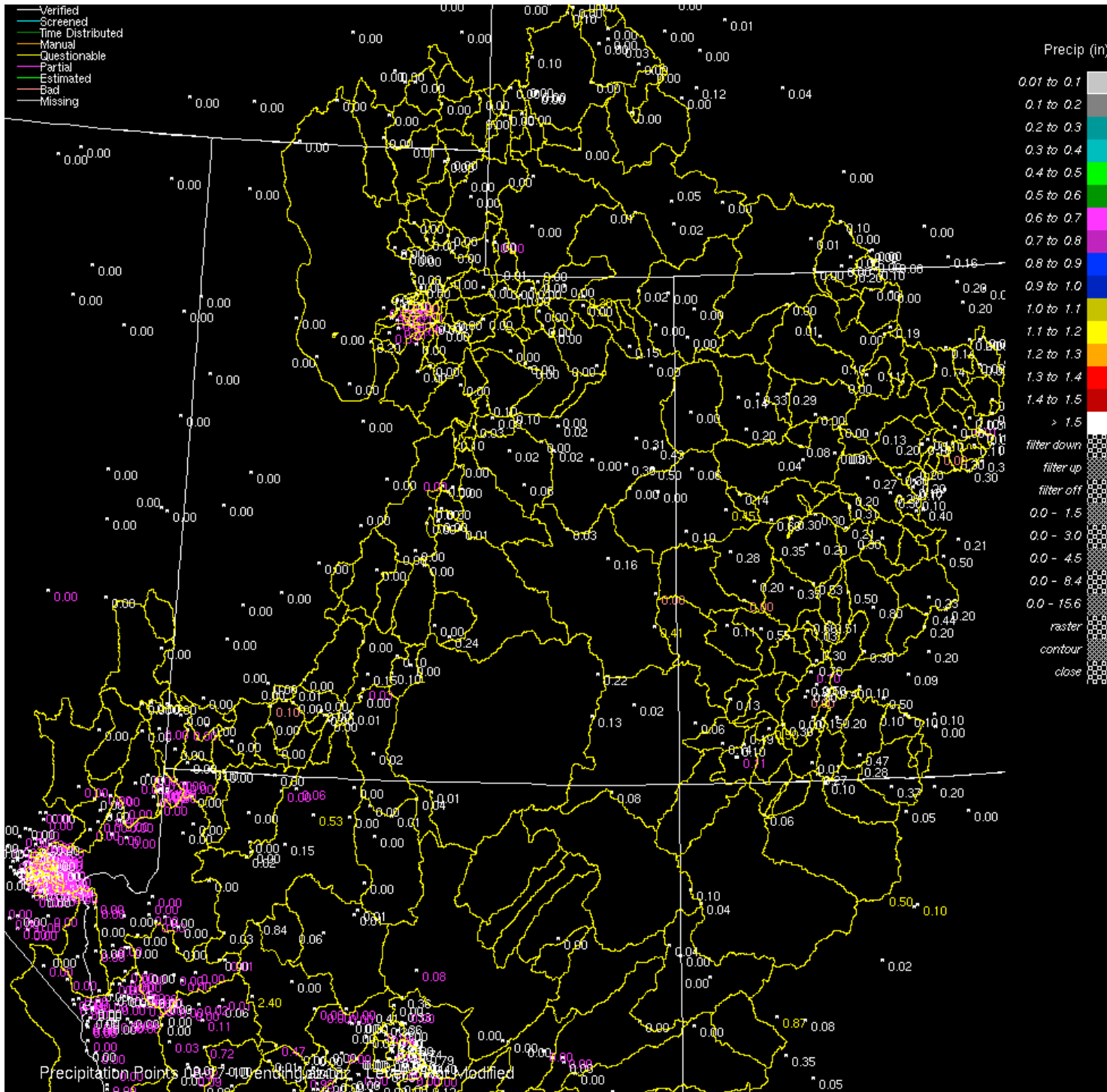


MM of Precip



QPE (con't)

- Produced hourly, daily, monthly and seasonally
- Analysis procedures address bad sensors (e.g. frozen gauges)
 - Daily_qc software: Screens gauges based on nearby gauges using PRISM climatology to spatially interpolate
 - Multi-sensor Precipitation Estimator: Combines gauge, radar, and sometimes satellite estimates
- Output available through webpages



Data options

24 hour

Points

Render Grids+MAPs

Precip type

Point type

NEXRAD ALERT COOP

GOES SNOTEL ALL

ALERT LARC

Point quality

Verified Partial

Screened Estimated

Time Dist Bad

Manual All

Questionable

Point character

Point display

Point screening

Point Tconsistency

Point Sconsistency

0.00

Point filter (inches)

20.00

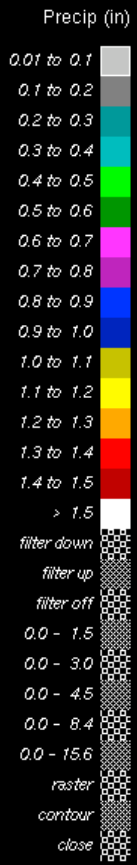
Point reverse filter (inches)

0

Point elevation (feet)

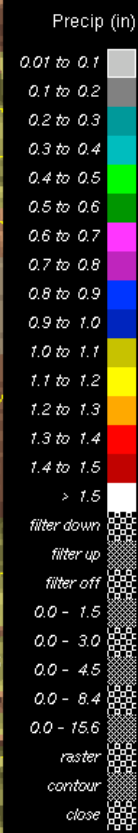
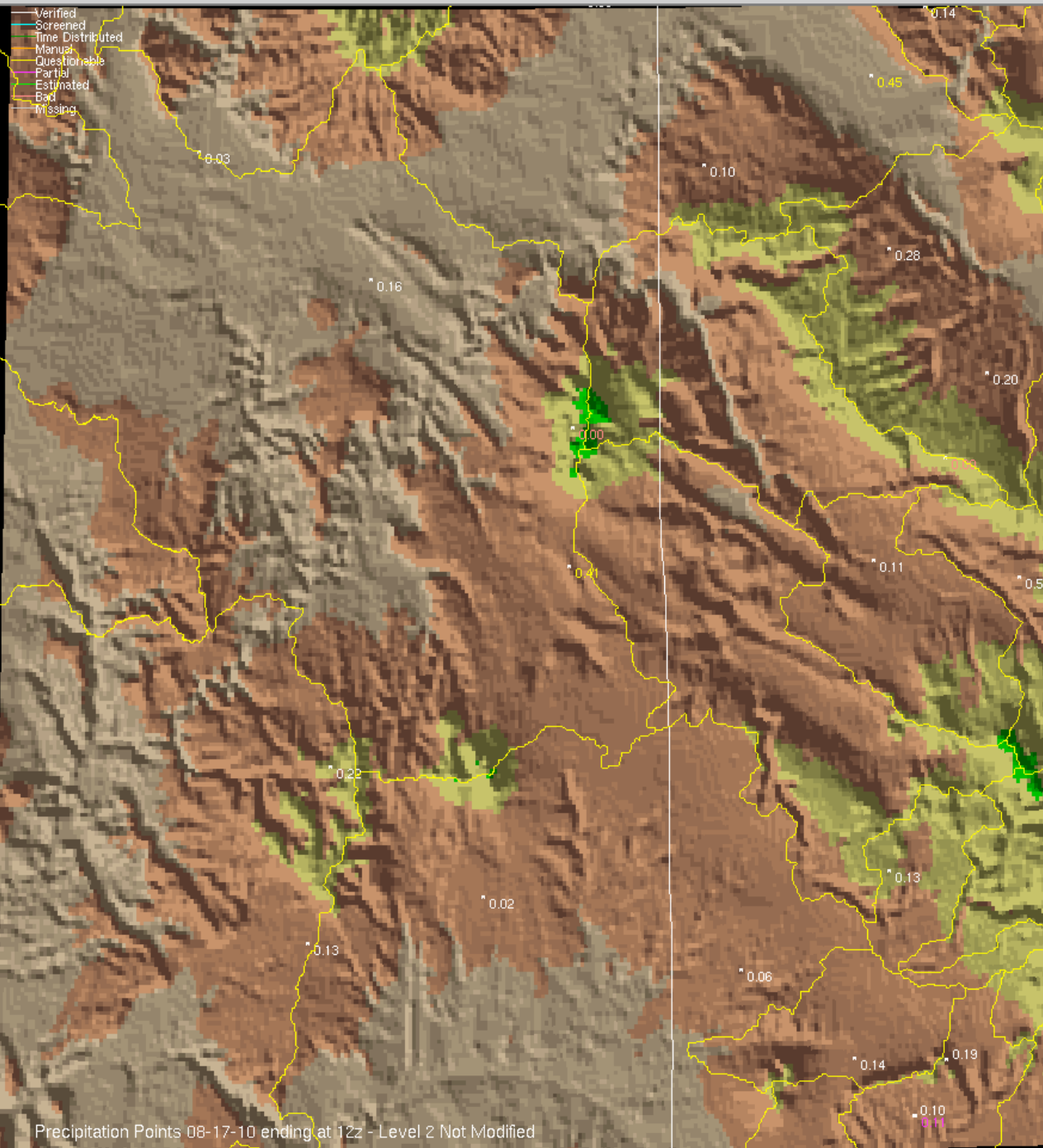
1.00

Pxtemp (deg C)



File Edit Backgrounds Options

- Verified
- Screened
- Time Distributed
- Manual
- Questionable
- Partial
- Estimated
- Bad
- Missing



Precipitation Points 08-17-10 ending at 12z - Level 2 Not Modified

Data options

24 hour

Points

Render Grids+MAPs Group Edit

Precip type All

Point type

- NEXRAD
- ALERT
- COOP
- GOES
- SNOTEL
- ALL
- ALERT
- LARC

Point quality

- Verified
- Partial
- Screened
- Estimated
- Time Dist
- Bad
- Manual
- All
- Questionable

Point character Tip+Weigh

Point display Data

Point screening Coarse

Point Tconsistency All

Point Sconsistency All

0.00

Point filter (inches)

20.00

Point reverse filter (inches)

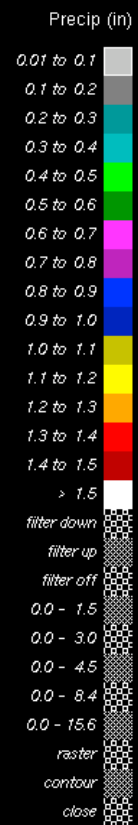
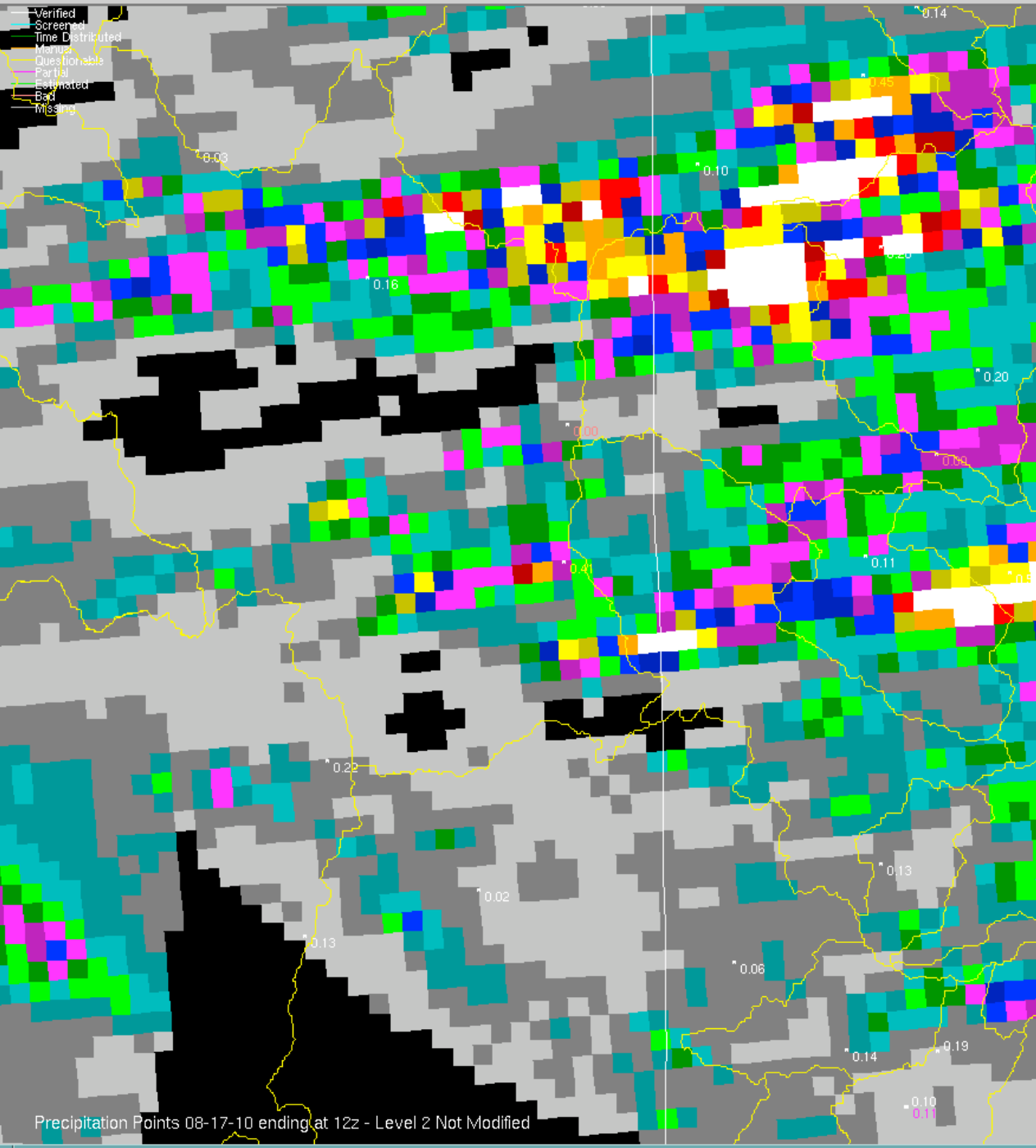
0

Point elevation (feet)

1.00

Pxtemp (deg C)

- Verified
- Screened
- Time Distributed
- Manual
- Questionable
- Partial
- Estimated
- Bad
- Missing



Data options

24 hour

Points

Render

Precip type

Point type

NEXRAD ALERT COOP

GOES SNOTEL ALL

ALERT LARC

Point quality

Verified Partial

Screened Estimated

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Questionable

Point character

Point display

Point screening

Point Tconsistency

Point Sconsistency

0.00

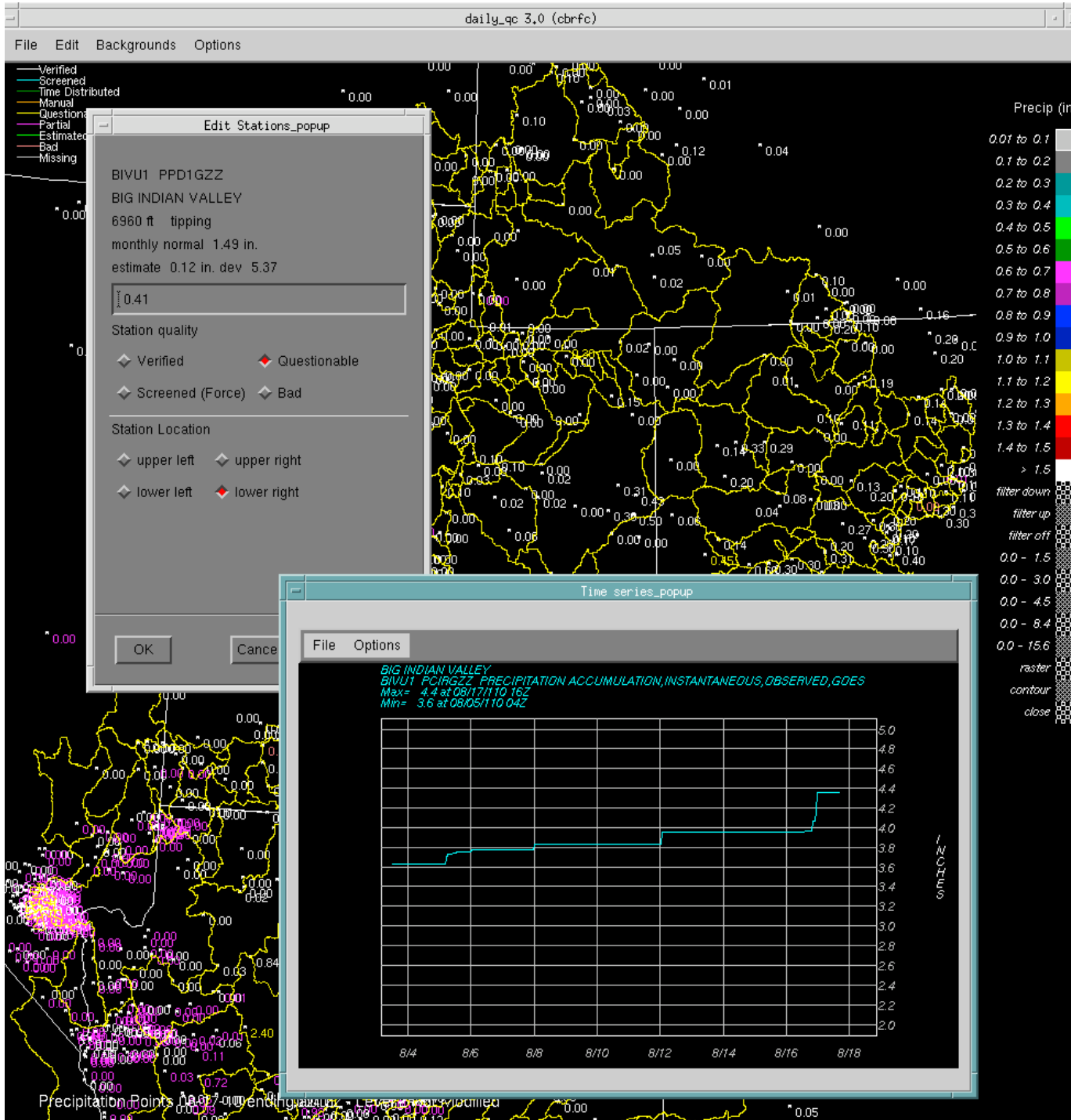
Point filter (inches)

Point reverse filter (inches)

Point elevation (feet)

Pxtemp (deg C)

Precipitation Points 08-17-10 ending at 12z - Level 2 Not Modified



QC_stations_popup

Data options

24 hour

Points

Render: Grids+MAPs Group Edit

Precip type All

Point type

NEXRAD ALERT COOP
 GOES SNOTEL ALL
 ALERT LARC

Point quality

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 Questionable

Point character Tip+Weigh

Point display Data

Point screening Coarse

Point Tconsistency All

Point Sconsistency All

0.00

Point filter (inches)

20.00

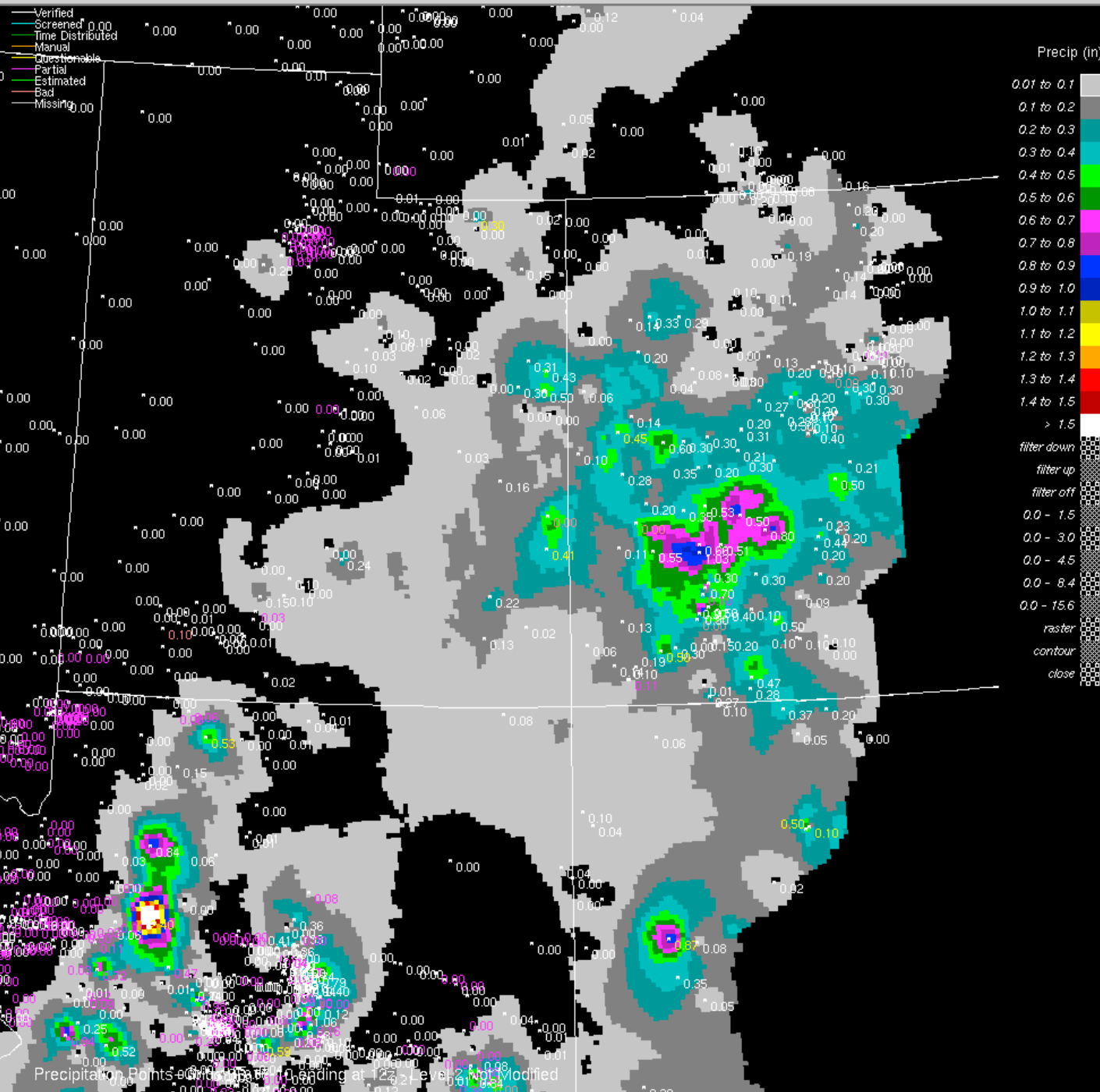
Point reverse filter (inches)

0

Point elevation (feet)

1.00

Ptemp (deg C)



Data options

24 hour

Points+Grids

Render Grids+MAPs

Group Edit

Precip type All

Point type

- NEXRAD
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Point character Tip+Weigh

Point display Data

Point screening Coarse

Point Tconsistency All

Point Sconsistency All

0.00

Point filter (inches)

20.00

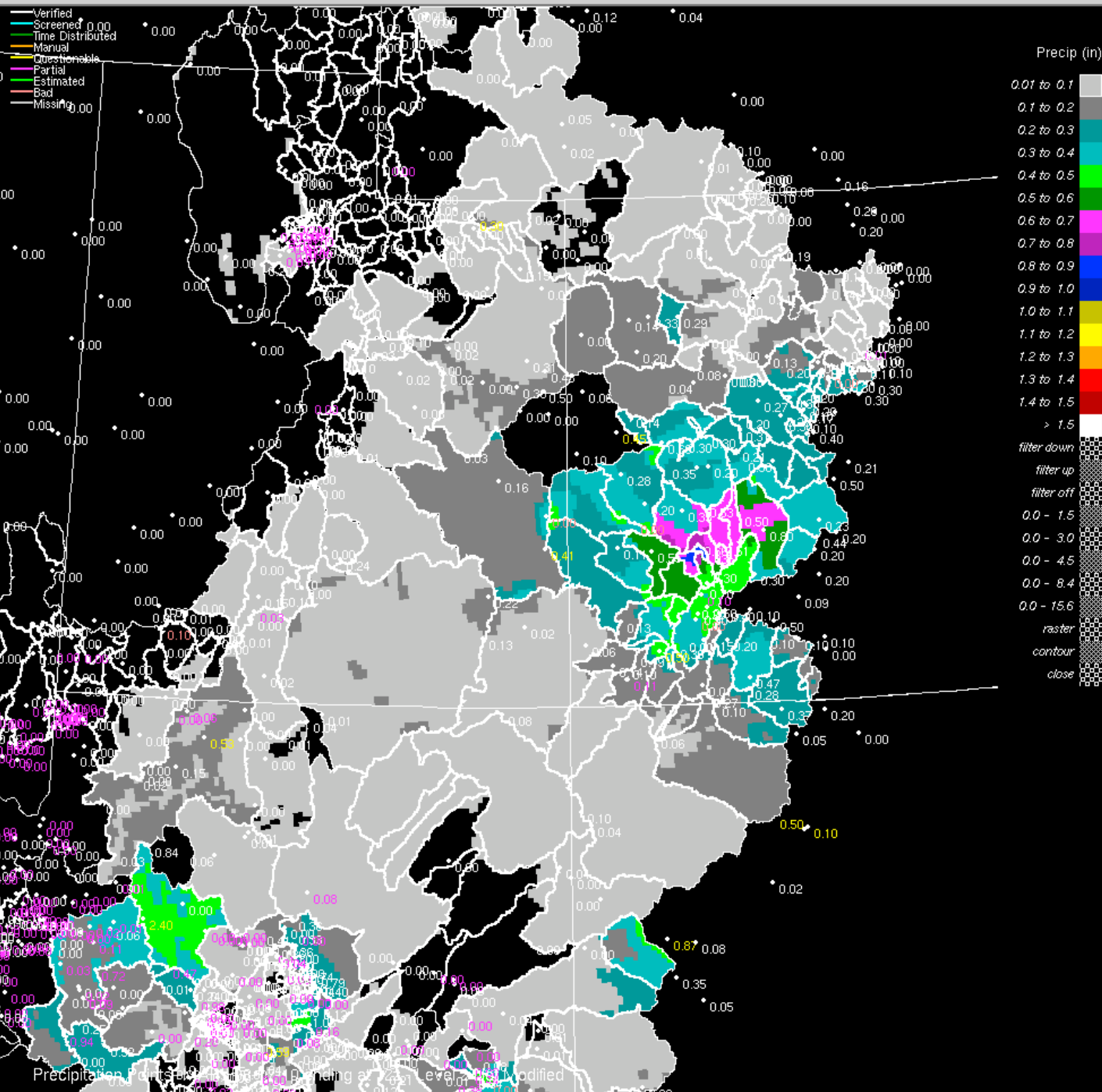
Point reverse filter (inches)

0

Point elevation (feet)

1.00

Pxtemp (deg C)



Data options

24 hour

Points+MAPs

Render Grids+MAPs Group Edit

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Point Sconsistency All

0.00

Point filter (inches)

20.00

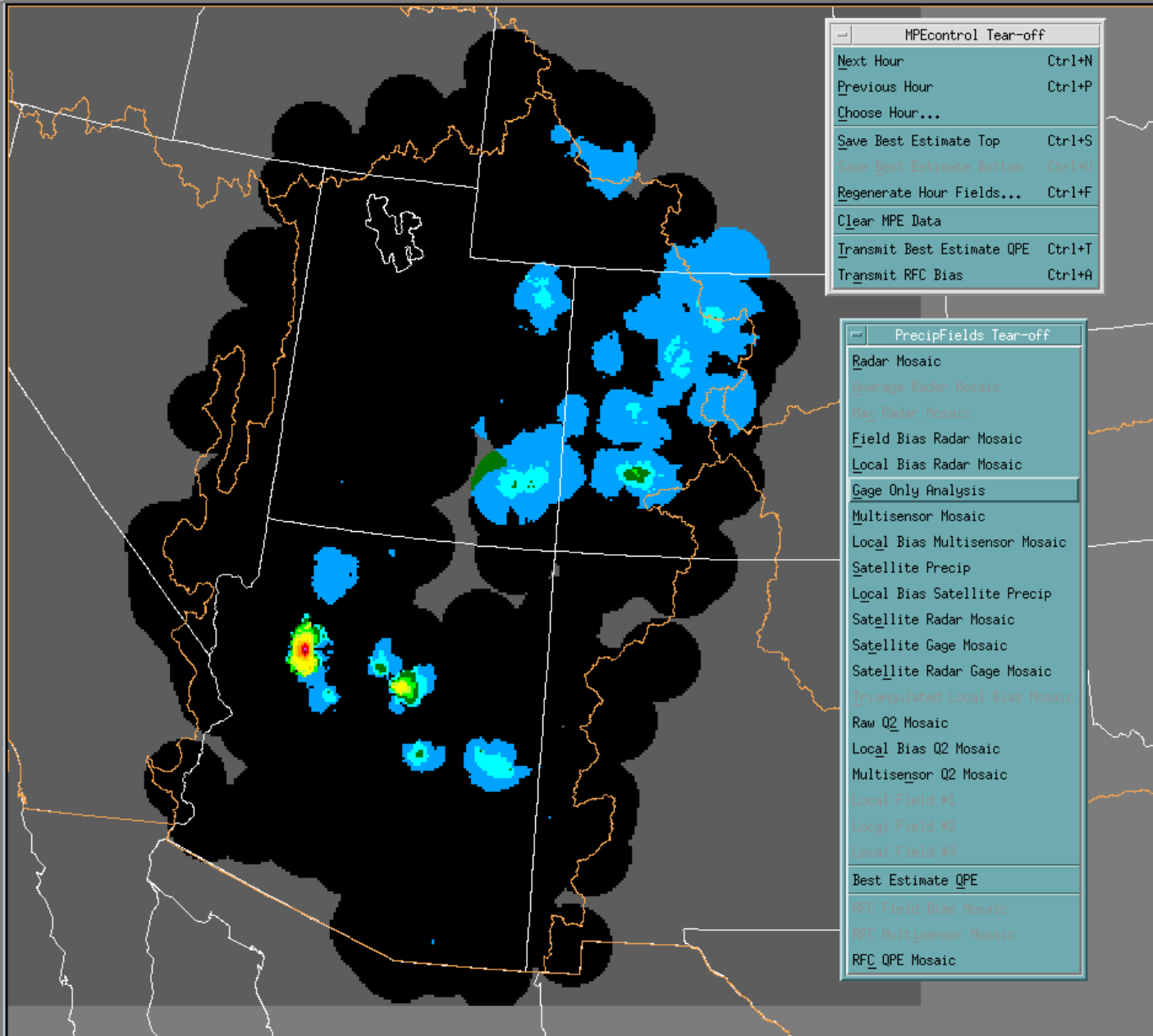
Point reverse filter (inches)

0

Point elevation (feet)

1.00

Pxtemp (deg C)

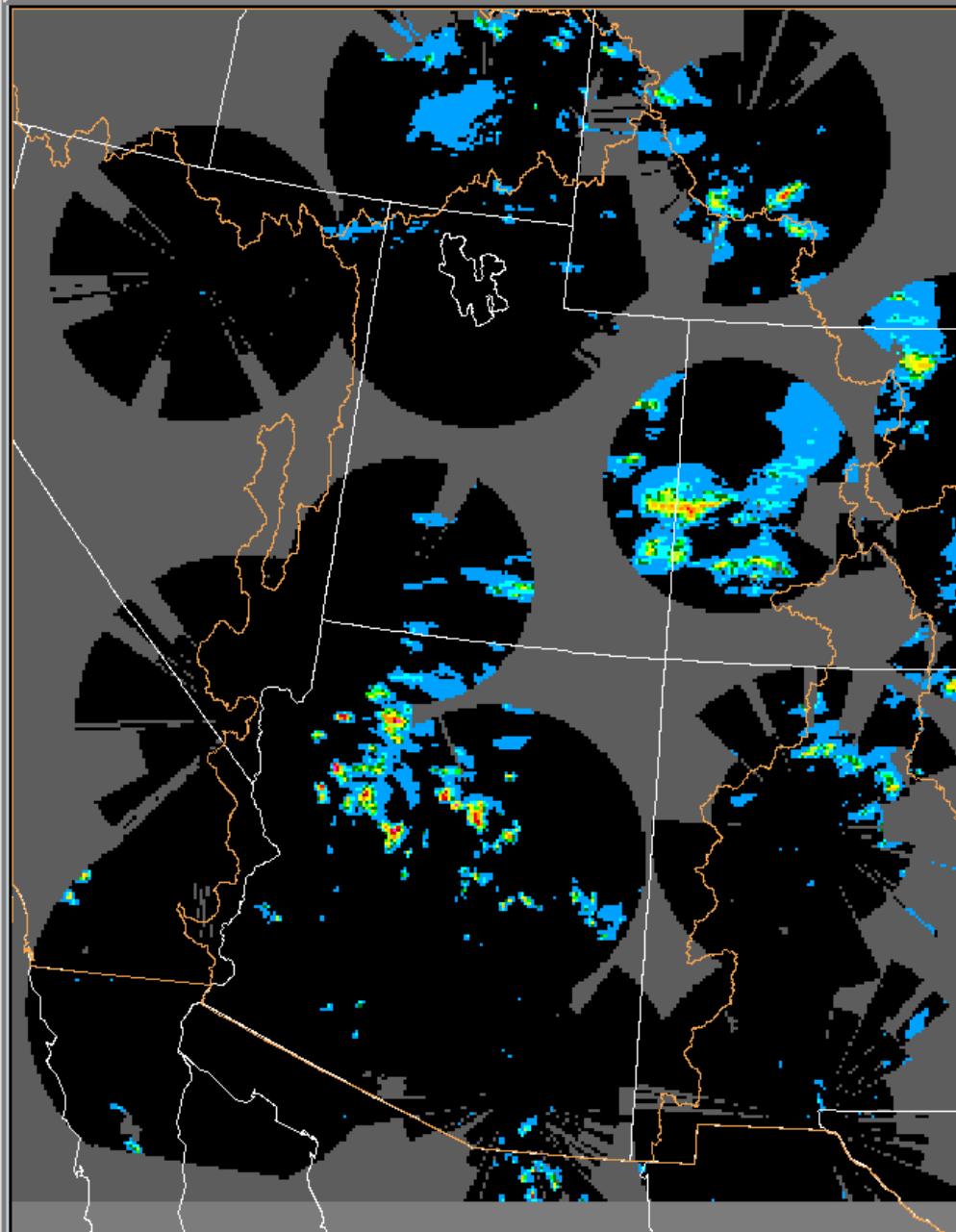


- MPEcontrol Tear-off
 - Next Hour Ctrl+N
 - Previous Hour Ctrl+P
 - Choose Hour...
 - Save Best Estimate Top Ctrl+S
 - Save Best Estimate Bottom Ctrl+B
 - Regenerate Hour Fields... Ctrl+F
 - Clear MPE Data
 - Transmit Best Estimate QPE Ctrl+T
 - Transmit RFC Bias Ctrl+A

- PrecipFields Tear-off
 - Radar Mosaic
 - Average Radar Mosaic
 - Max Radar Mosaic
 - Field Bias Radar Mosaic
 - Local Bias Radar Mosaic
 - Gage Only Analysis
 - Multisensor Mosaic
 - Local Bias Multisensor Mosaic
 - Satellite Precip
 - Local Bias Satellite Precip
 - Satellite Radar Mosaic
 - Satellite Gage Mosaic
 - Satellite Radar Gage Mosaic
 - Triangulated Local Bias Mosaic
 - Raw Q2 Mosaic
 - Local Bias Q2 Mosaic
 - Multisensor Q2 Mosaic
 - Local Field #1
 - Local Field #2
 - Local Field #3
 - Best Estimate QPE
 - RFC Field Bias Mosaic
 - RFC Multisensor Mosaic
 - RFC QPE Mosaic



Aug 16 2010 23z site=chrfc Gage Only Analysis (in)



MPEcontrol Tear-off	
Next Hour	Ctrl+N
Previous Hour	Ctrl+P
Choose Hour...	
Save Best Estimate Top	Ctrl+S
Save Best Estimate Bottom	Ctrl+B
Regenerate Hour Fields...	Ctrl+F
Clear MPE Data	
Transmit Best Estimate QPE	Ctrl+T
Transmit RFC Bias	Ctrl+A

PrecipFields Tear-off	
Radar Mosaic	
Average Radar Mosaic	
Avg Radar Mosaic	
Field Bias Radar Mosaic	
Local Bias Radar Mosaic	
Gage Only Analysis	
Multisensor Mosaic	
Local Bias Multisensor Mosaic	
Satellite Precip	
Local Bias Satellite Precip	
Satellite Radar Mosaic	
Satellite Gage Mosaic	
Satellite Radar Gage Mosaic	
Triangulated Local Bias Mosaic	
Raw Q2 Mosaic	
Local Bias Q2 Mosaic	
Multisensor Q2 Mosaic	
Local Field #1	
Local Field #2	
Local Field #3	
Best Estimate QPE	
RFC Field Bias Mosaic	
RFC Multisensor Mosaic	
RFC QPE Mosaic	



IWA - PHOENIX - AZ

DATE/TIME	BIAS	ED	IG	AV	NPRS	ORIG	SAVE
2010081516Z	0.70	n	n	z	0	0.70	N
2010081517Z	0.70	n	n	z	0	0.70	N
2010081518Z	0.70	n	n	z	0	0.70	N
2010081519Z	0.70	n	n	z	0	0.70	N
2010081520Z	0.70	n	n	y	0	0.70	N
2010081521Z	0.70	n	n	y	0	0.70	N
2010081522Z	0.70	n	n	y	0	0.70	N
2010081523Z	0.69	n	n	y	2	0.69	N
2010081600Z	0.67	n	n	y	6	0.67	N
2010081601Z	0.47	n	n	y	11	0.47	N
2010081602Z	0.51	n	n	y	6	0.51	N
2010081603Z	0.50	n	n	y	4	0.50	N
2010081604Z	0.52	n	n	y	7	0.52	N
2010081605Z	0.49	n	n	y	6	0.49	N
2010081606Z	0.62	n	n	y	13	0.62	N
2010081607Z	0.74	n	n	y	12	0.74	N
2010081608Z	0.51	n	n	y	6	0.51	N
2010081609Z	0.55	n	n	y	0	0.55	N
2010081610Z	0.55	n	n	y	1	0.55	N
2010081611Z	0.74	n	n	y	6	0.74	N
2010081612Z	0.57	n	n	y	8	0.57	N
2010081613Z	0.58	n	n	y	1	0.58	N
2010081614Z	0.58	n	n	y	0	0.58	N
2010081615Z	0.57	n	n	n	0	0.57	N
2010081616Z	0.57	n	n	n	0	0.57	N
2010081617Z	0.57	n	n	n	0	0.57	N
2010081618Z	0.55	n	n	y	0	0.55	N
2010081619Z	0.55	n	n	y	0	0.55	N
2010081620Z	0.55	n	n	y	0	0.55	N
2010081621Z	0.55	n	n	y	1	0.55	N

BIAS: bias value being used
ED: y = bias manually edited
IG: y = radar set to be ignored
AV: n = radar not available
z = radar available but 0 precip
NPRS: number of gage-radar pairs
ORIG: original bias value
SAVE: Y = manually saved

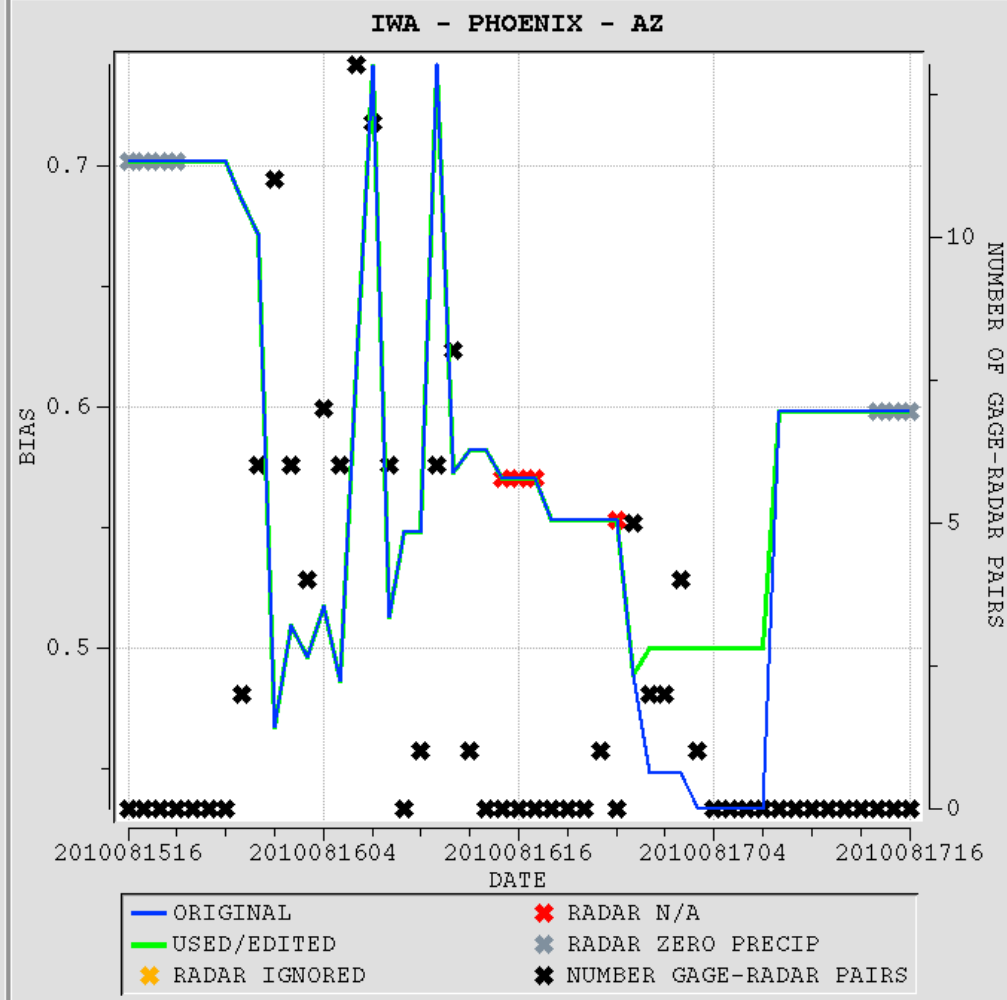
EDIT
BIAS

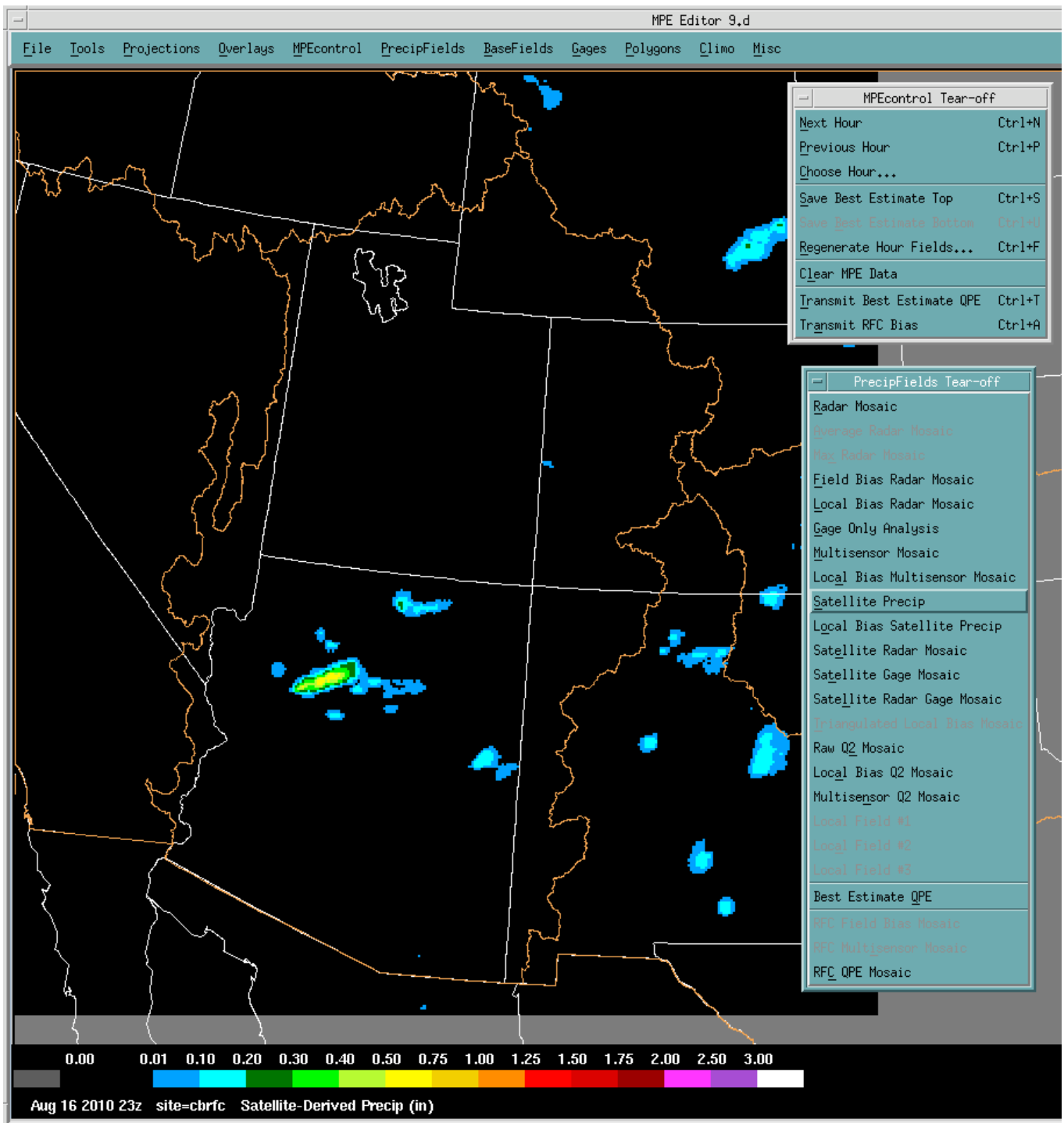
IGNORE

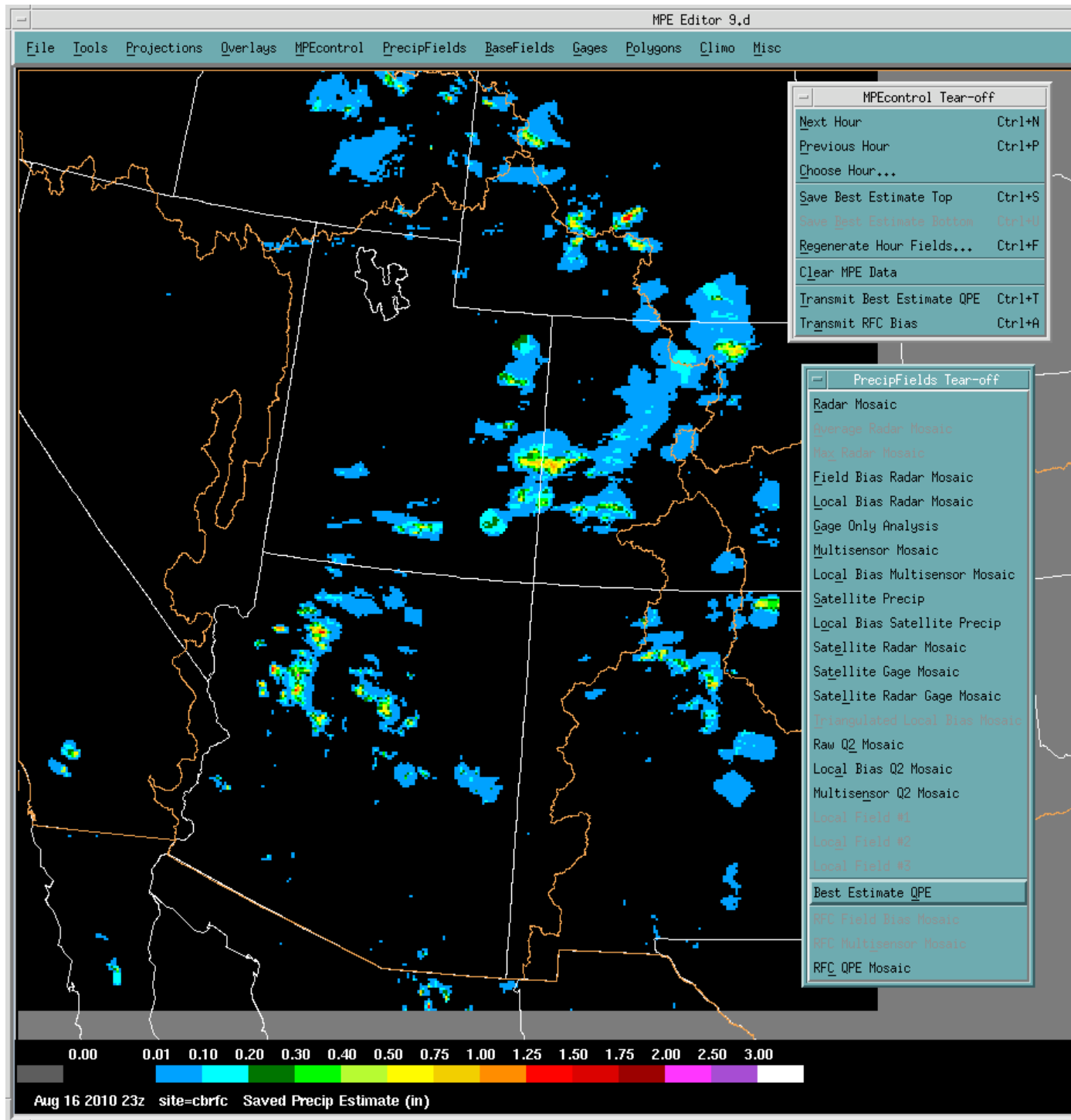
UNIGNORE

UNSAVE
HOUR

QUIT







National Weather Service
NEW Hourly Precipitation Analysis
 This is an experimental product.

Local weather forecast by "City, St" or zip code City, St

Images Download About NWS Precip Analysis Other Useful Information Survey & Feedback

CONUS + Puerto Rico Click on the image to zoom in
Click on "NWS RFCs" to zoom out

1-Hour Observed Precipitation - Endina 1/29/2009 1500 UTC

Topo Precip Amount Counties Rivers States Highway/City RFC Boundary Last Update: 4/3/2009 1952 UTC

1. Timeframe
 Current Data
 Archive: Hourly
 Year:
 Month:
 Day:
 Hour:

2. Location
 States
 NWS RFCs
 CONUS + Puerto Rico
 NWS Southern Region
 NWS Central Region
 NWS Eastern Region
 NWS Western Region

3. Units
 English
 Metric

NOTE TO USERS: The data presented on this web page is preliminary, subject to additional quality control, and may change substantially as it is used for National Weather Service hydrologic forecast operations. As part of the testing and evaluation process, we would like to hear your feedback. Please take a moment to complete our brief survey.

Time period selection

Area selection (or just click on map)

www.srh.noaa.gov/rfcshare/precip_analysis_hourly.php

National Weather Service
Advanced Hydrologic Prediction Service

Home News Organization Search for: NWS

Local weather forecast by "City, ST"

XML RSS Feeds
 Warnings Current
 By State/County...
 UV Alerts
 Observations
 Radar
 Satellite
 Snow Cover
 Surface Weather...
 Observed Precip
 Forecasts
 Local
 Graphical
 Aviation
 Marine
 Hurricanes
 Severe Weather
 Fire Weather
 Text Messages
 By State
 By Message Type
 National
 Forecast Models
 Numerical Models
 Statistical Models...
 Climate
 Past Weather
 Predictions
 Weather Safety
 Weather Radio
 Hazard Ready
 StormReady /
 TsunamiReady
 Education/Outreach
 Information Center
 Tsunamis
 Publications...
 Contact Us
 FAQ
 Comments

Red River Will Crest Again in Late April. Details...

Warnings & Forecasts Graphical Forecasts National Maps Radar Water Air Quality Satellite Climate
 River Observations River Forecasts Precipitation River Download Other Information

Images Download About NWS Precip Analysis Other Useful Information Survey & Feedback Regional / RFC Precip Data

CONUS + Puerto Rico: Current 1-Day Observed Precipitation
 Valid at 4/3/2009 1200 UTC - Created 4/3/09 20:36 UTC

1. Timeframe
 Current Data
 Archive: Month/Year
 Archive: Daily
 April 3, 2009 - Today
 April 3, 2009 - Last 7 Days
 April 3, 2009 - Last 14 Days
 April 3, 2009 - Last 30 Days
 April 3, 2009 - Last 60 Days

2. Product

3. Location
 States
 NWS RFC/Regions
 NWS WFOs
 CONUS + Puerto Rico
 Alabama
 Arizona
 Arkansas
 California

4. Units
 English
 Metric

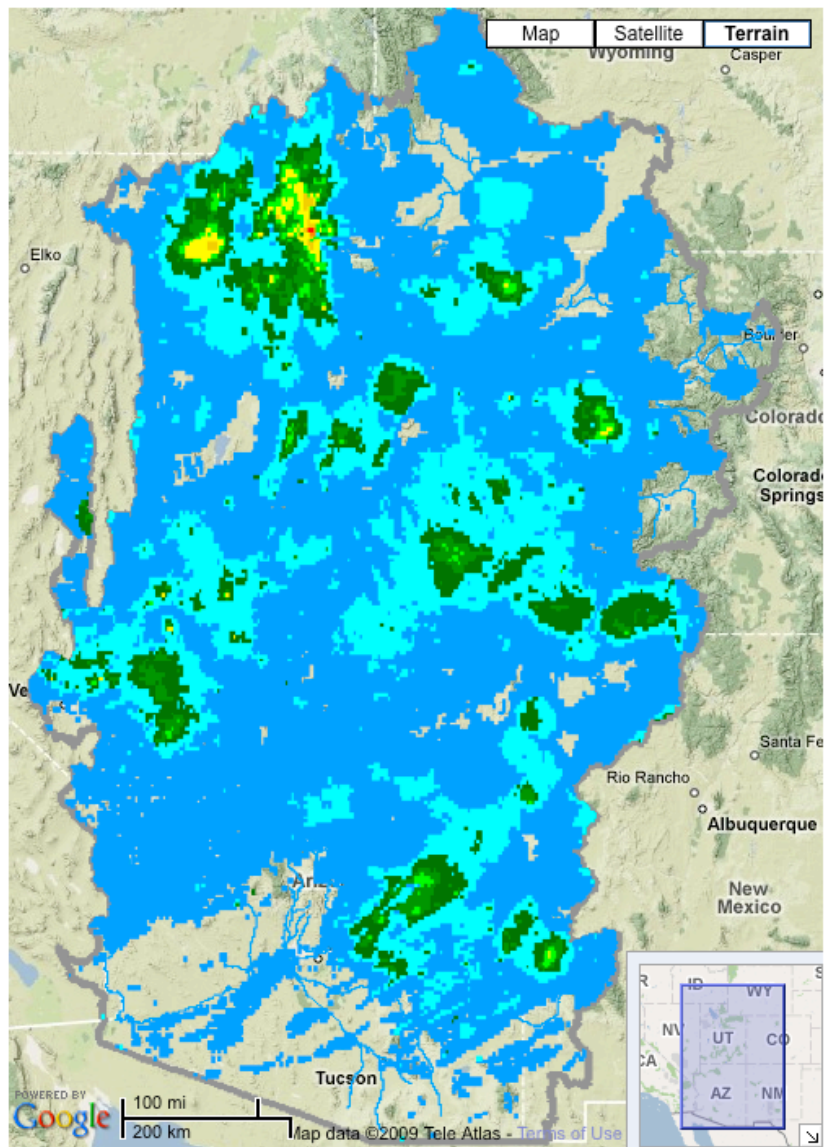
Time period selection

Product selection

Area selection (or just click on map)

CBRFC Grids

Zoom Level: 200km 50km 20km 10km 2km 1km 0.5km 0.2km



Data Types

River Snow Water Supply Grids Overlays

Allow Multiple Data Types

Grid Type

- None
- Precipitation**
- Soil Moisture
- Discharge Response
- Surface Response

Choose Date: 10/5/2008

Month:

Day:

Inches

- 0.01
- 0.1
- 0.2
- 0.3
- 0.4
- 0.5
- 0.75
- 1
- 1.25
- 1.5
- 1.75
- 2
- 2.5

lat: 37.6 lng: -110.5, Updated:

Discussion Questions

- What information – if any – do you need about how the precipitation analysis was constructed?
- How useful is the precipitation analysis? How could it be more useful?
- How do you know if the analysis is “good enough” for your purposes? What is “good enough”?
- Are the precipitation pages useful?
- Is there anything you particularly like about the precipitation webpages?
- Is there anything you dislike about the precipitation webpages?
- What additional features would you like to see on the webpages?