



# WGRFC and the Need for Satellite Precipitation Estimates

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3<sup>rd</sup> NOAA GPM User Workshop



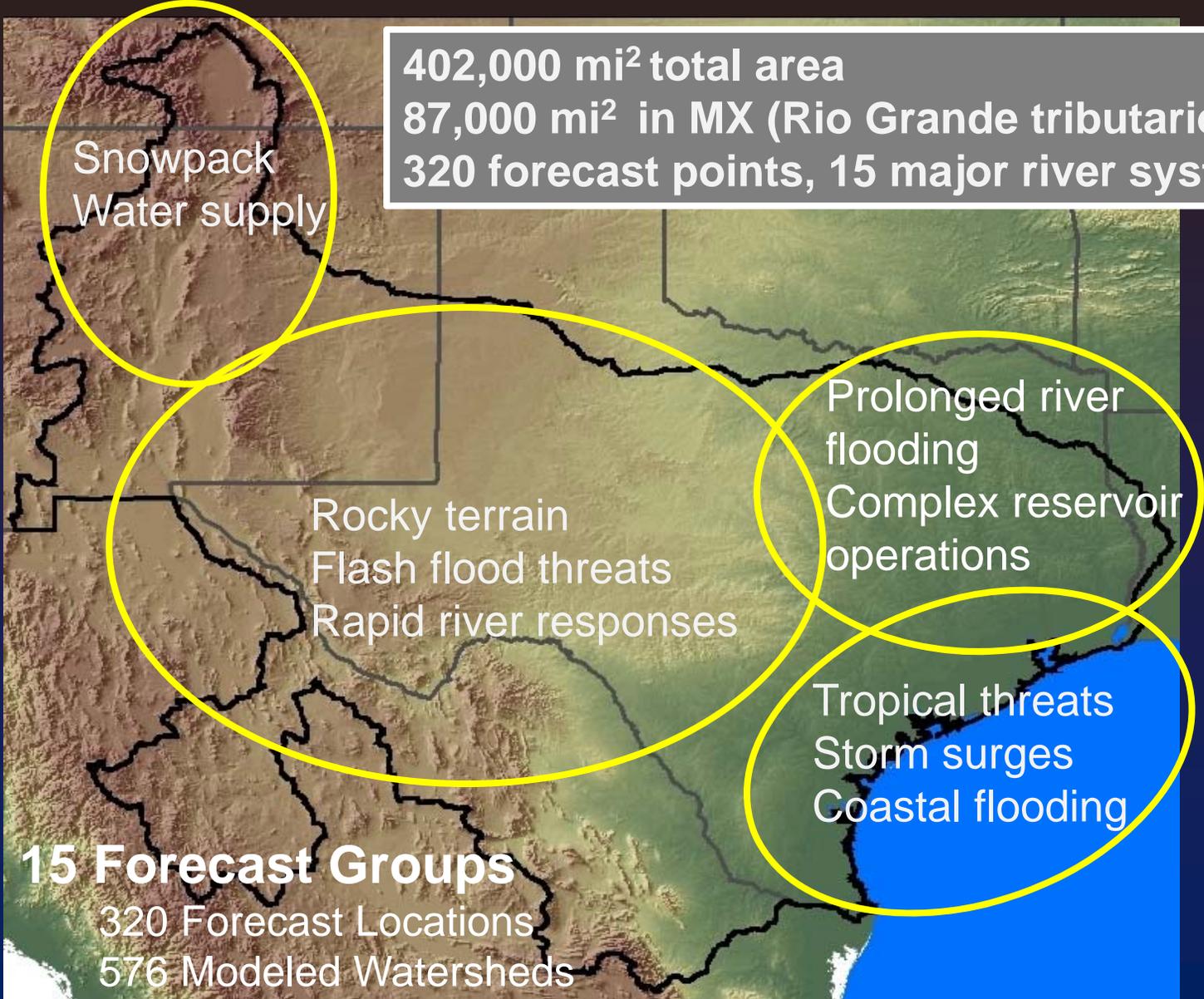
# Overview

- The WGRFC area
- Critical timing/fast responding basins
- Radar limitations
- Issues with Mexico estimates
- Real time needs



# The WGRFC Area

402,000 mi<sup>2</sup> total area  
87,000 mi<sup>2</sup> in MX (Rio Grande tributaries)  
320 forecast points, 15 major river systems



Snowpack  
Water supply

Rocky terrain  
Flash flood threats  
Rapid river responses

Prolonged river  
flooding  
Complex reservoir  
operations

Tropical threats  
Storm surges  
Coastal flooding

**15 Forecast Groups**  
320 Forecast Locations  
576 Modeled Watersheds

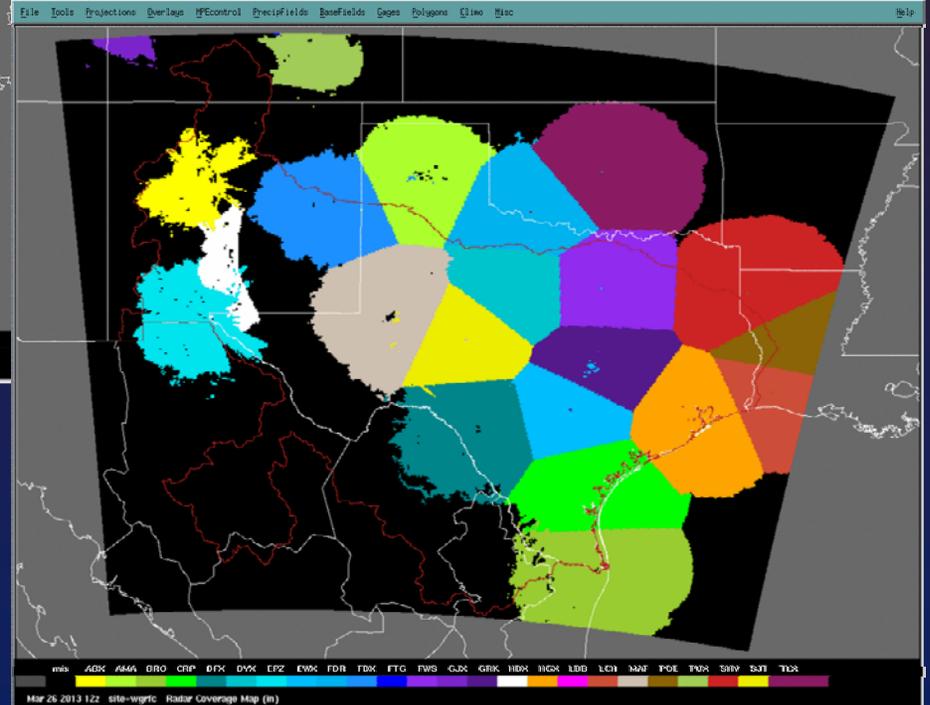
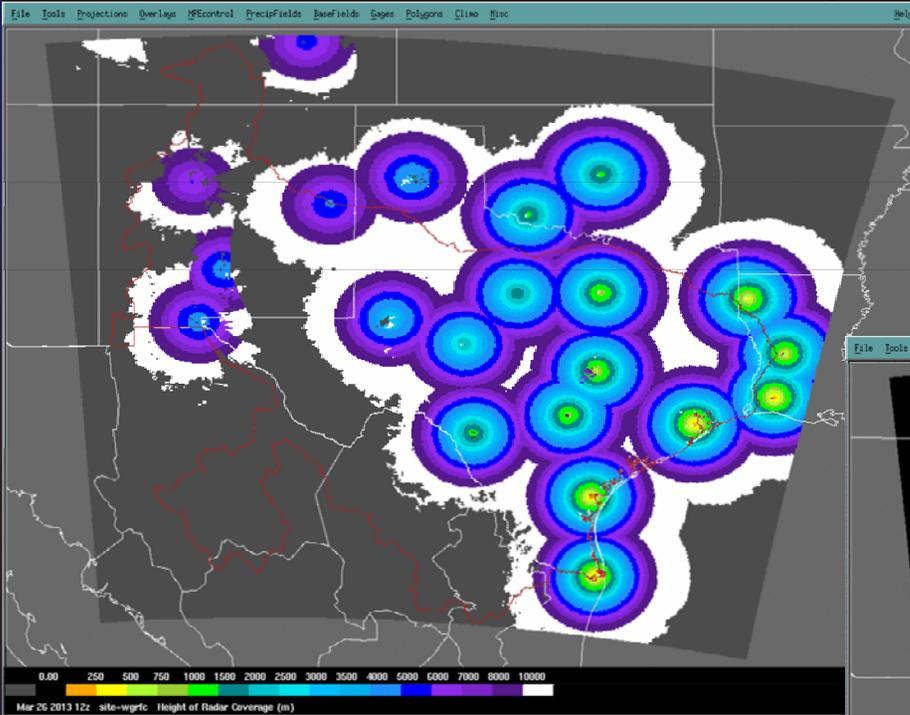
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[www.srh.noaa.gov/wgrfc](http://www.srh.noaa.gov/wgrfc)





# Radar Coverage/Height Fields

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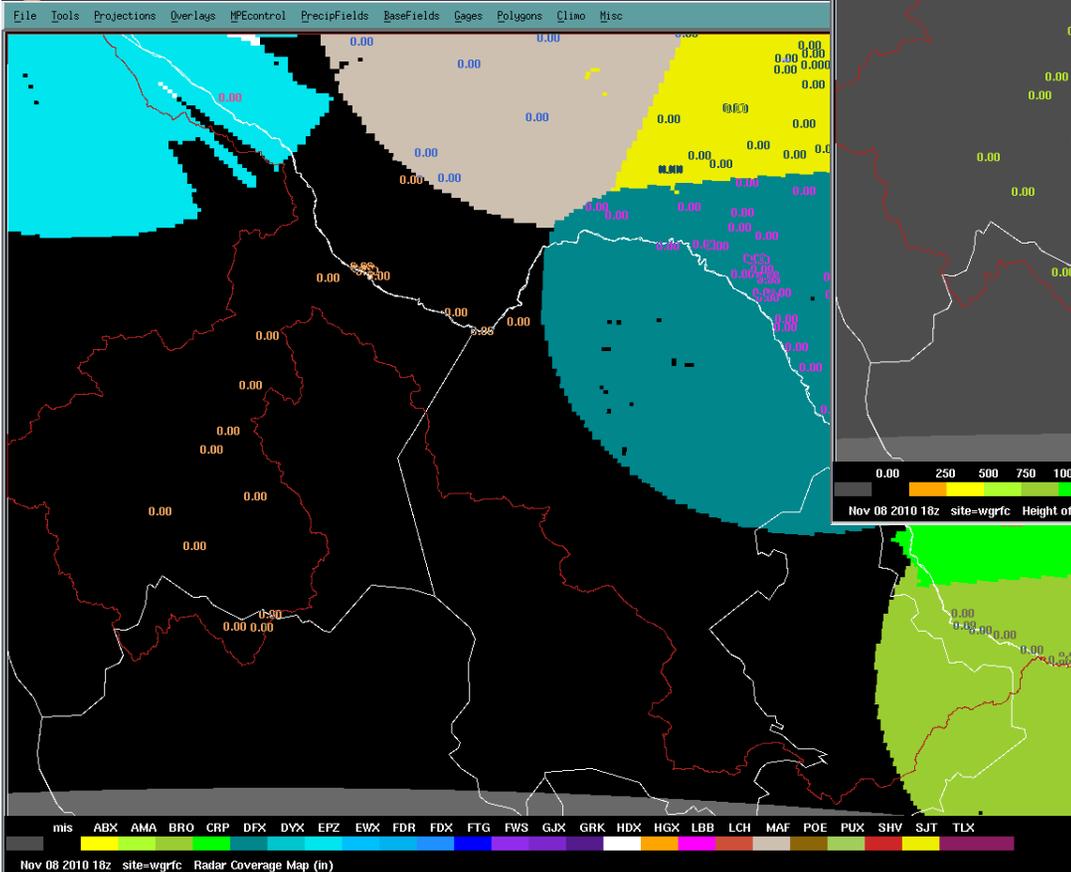
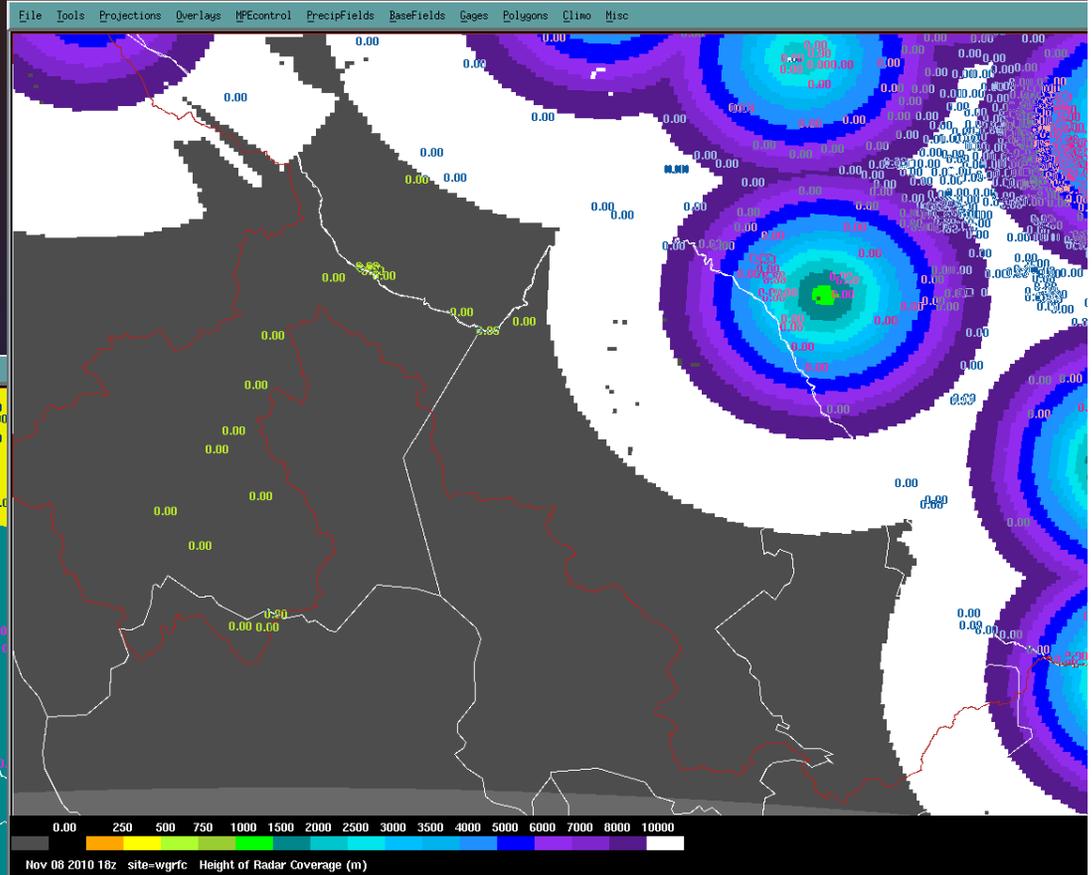


Hydroestimator used to extend our precip estimates in the gaps



# Radar Coverage in Basin

Center Effective Total Coverage  
rfc (Warm Season)

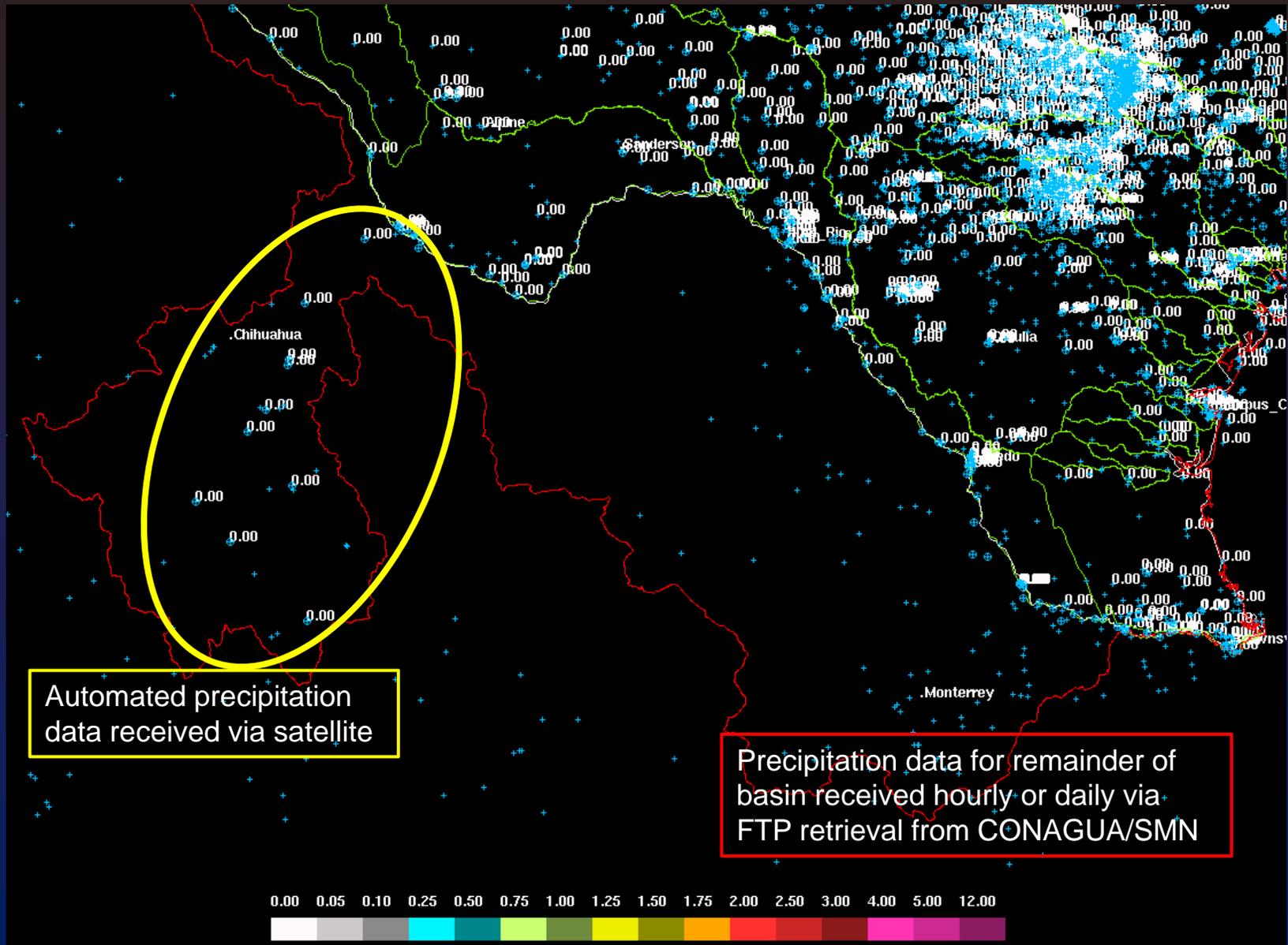


Radar Beam Heights  
(Warm Season)



# Precipitation Gaging in Basin

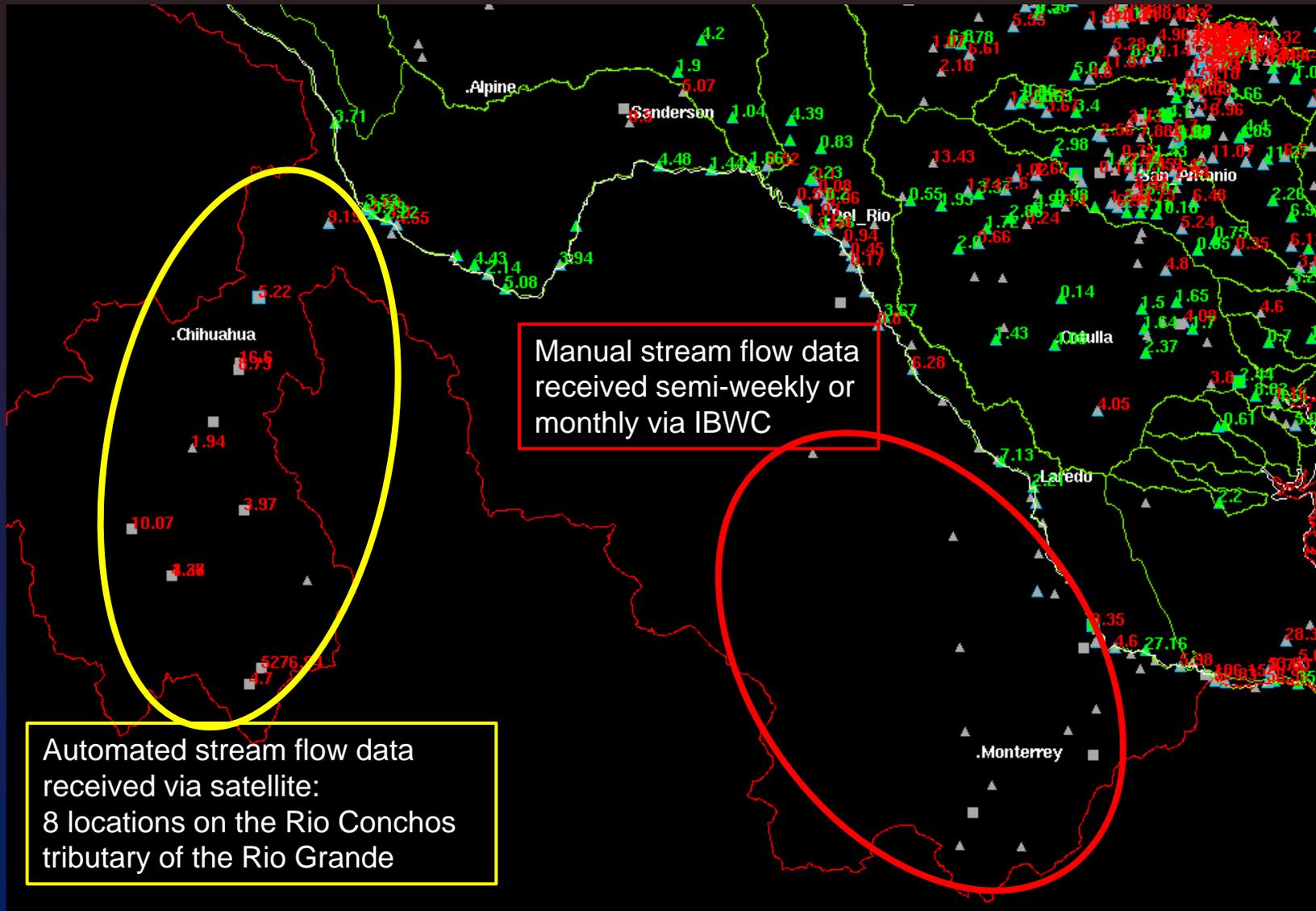
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# Stream Flow Data in Basin

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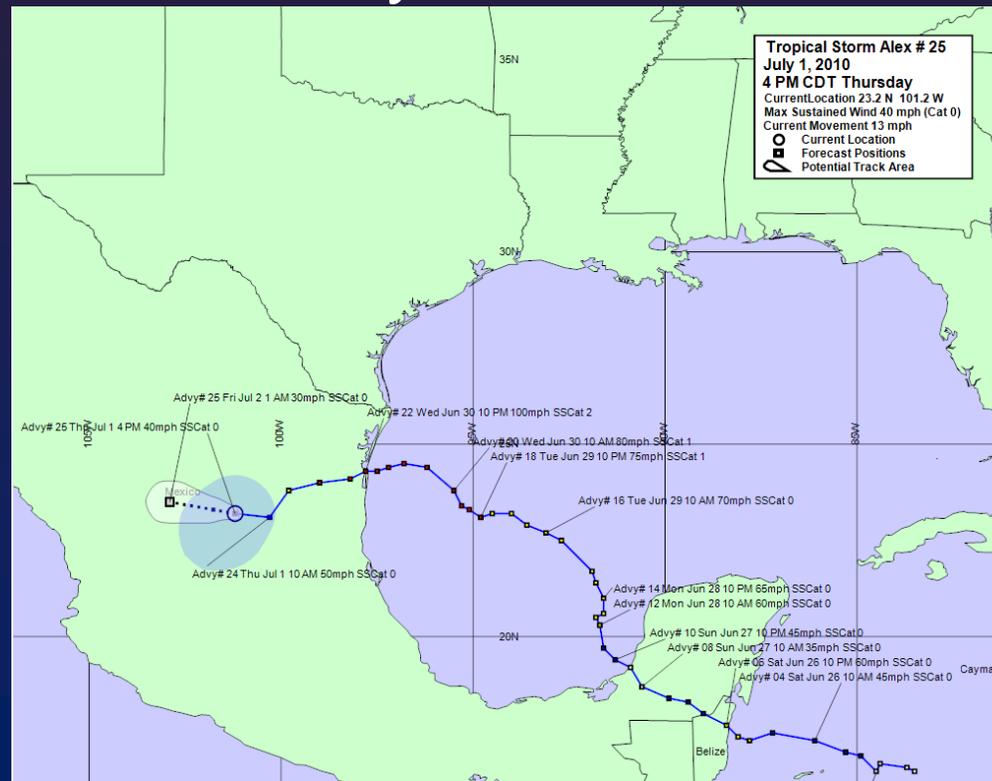




# How would the GPM project help WGRFC...

- We have “big” events in places with less than ideal radar coverage, over flashy basins, or both.
- Hurricane Alex – July 2010

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[www.srh.noaa.gov/wgrfc](http://www.srh.noaa.gov/wgrfc)

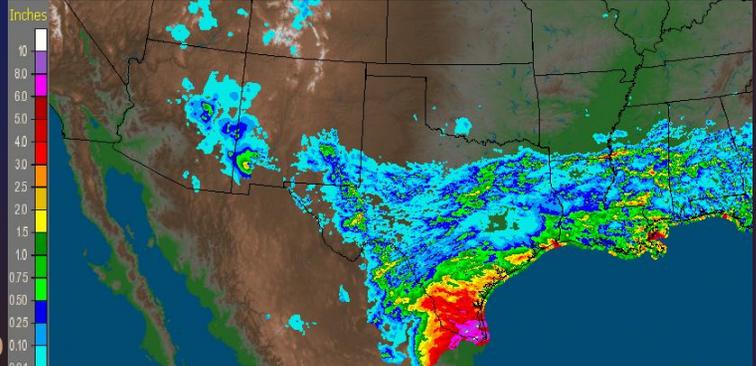




# Alex – AHPS Images

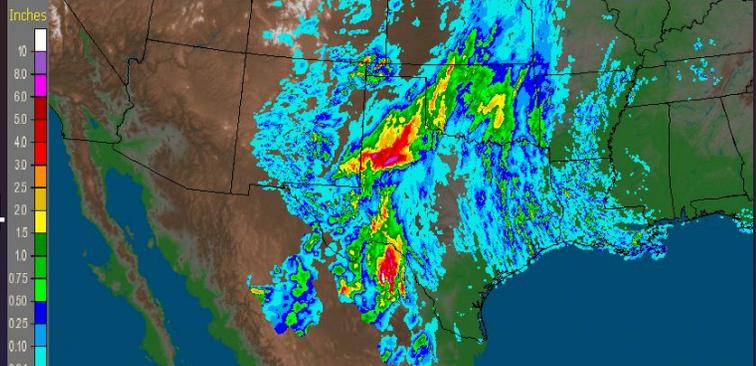
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West Gulf RFC Ft Worth, TX: 7/1/2010 1-Day Observed Precipitation  
Valid at 7/1/2010 1200 UTC- Created 10/13/12 20:07 UTC

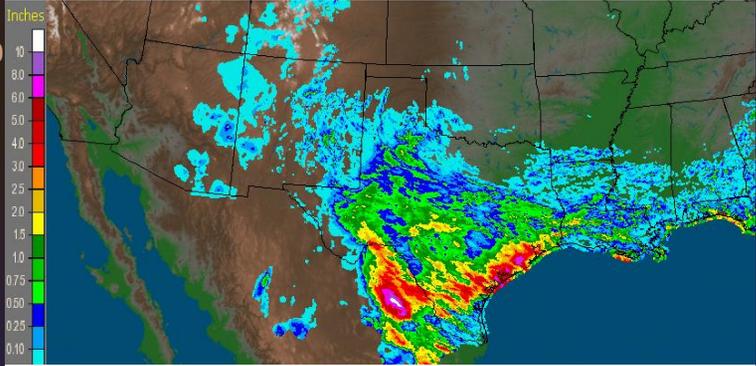


7/1 7/4

West Gulf RFC Ft Worth, TX: 7/4/2010 1-Day Observed Precipitation  
Valid at 7/4/2010 1200 UTC- Created 10/13/12 21:19 UTC



West Gulf RFC Ft Worth, TX: 7/2/2010 1-Day Observed Precipitation  
Valid at 7/2/2010 1200 UTC- Created 10/13/12 21:14 UTC

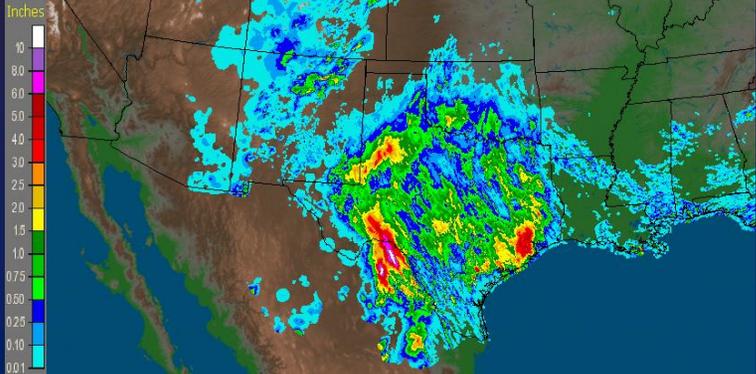


7/2 7/5

West Gulf RFC Ft Worth, TX: 7/5/2010 1-Day Observed Precipitation  
Valid at 7/5/2010 1200 UTC- Created 10/13/12 21:21 UTC

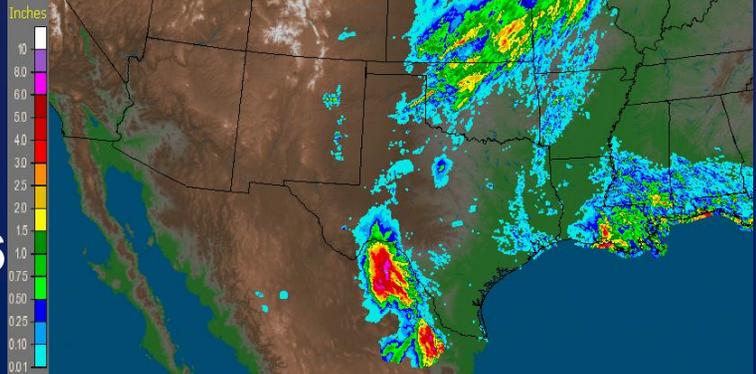


West Gulf RFC Ft Worth, TX: 7/3/2010 1-Day Observed Precipitation  
Valid at 7/3/2010 1200 UTC- Created 10/13/12 21:16 UTC



7/3 7/6

West Gulf RFC Ft Worth, TX: 7/6/2010 1-Day Observed Precipitation  
Valid at 7/6/2010 1200 UTC- Created 10/13/12 21:23 UTC

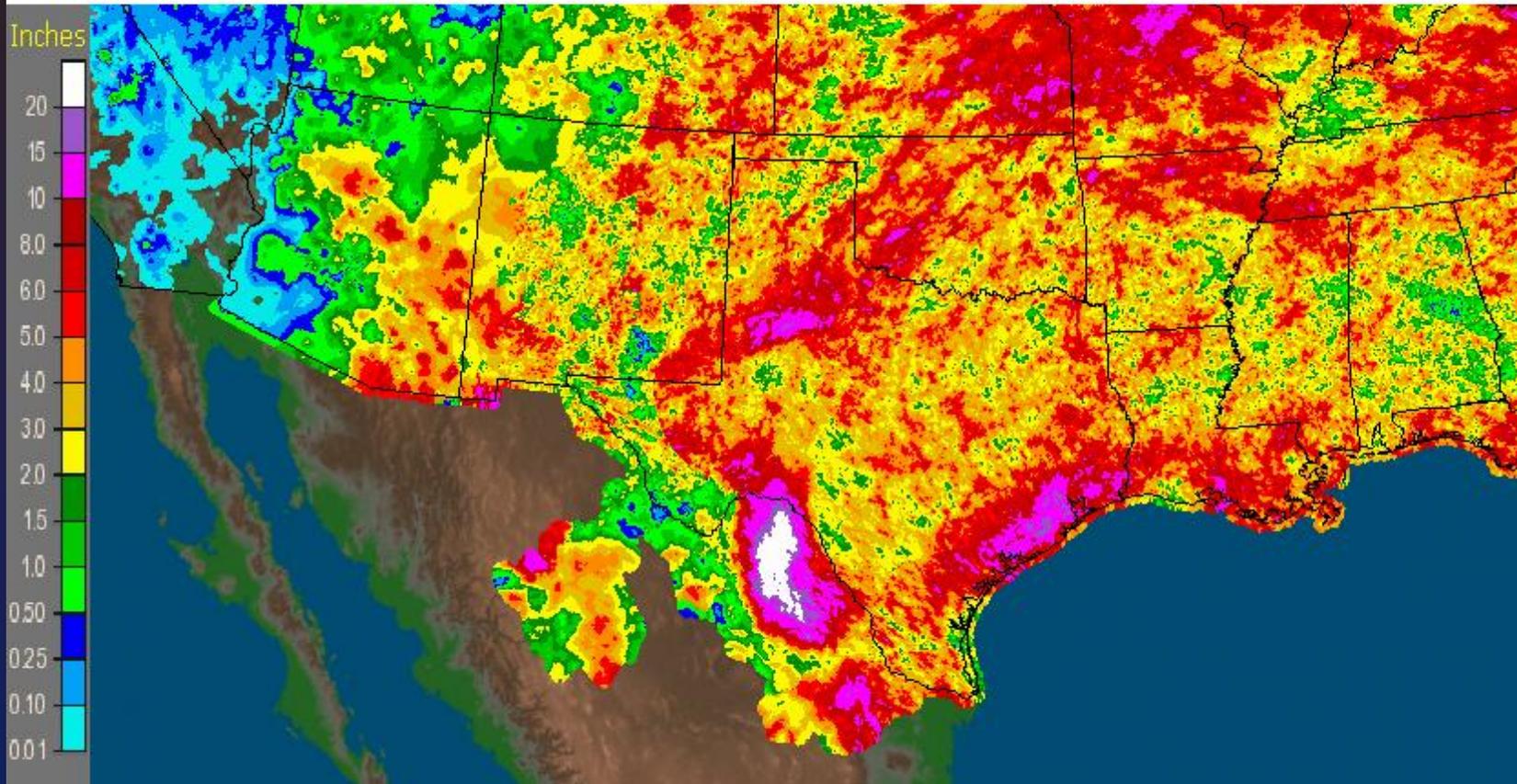




# Alex Cont.

West Gulf RFC Ft Worth, TX: July, 2010 Monthly Observed Precipitation  
Valid at 8/1/2010 1200 UTC- Created 10/13/12 22:34 UTC

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We do not know exactly how much rain fell in Northern Mexico. As a result of this rainfall, WGRFC extended flood operations for the Rio Grande/Rio Bravo well into August.



# The Help???

- Accurate, timely estimates of heavy rainfall
  - ◆ Not limited to Tropical Events, although the current Hydroestimator is often too low in the tropics
  - ◆ Over critical/flashy basins
  - ◆ Over areas with less than ideal radar coverage
- Accurate precipitation estimates will help the initial hydrologic forecasts



# What We (WGRFC) Need?

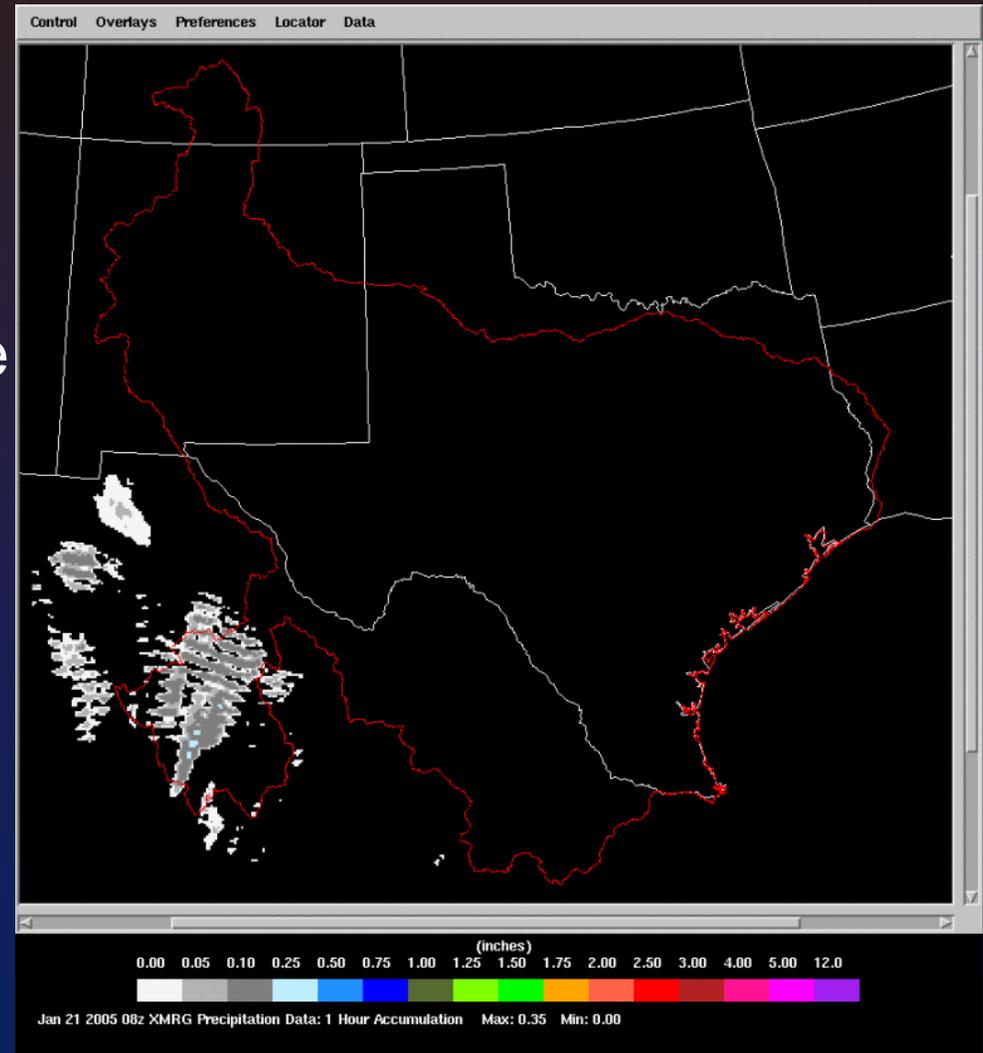
## ■ Training

- ◆ Suggest that the WGRFC HAS unit get trained on the details of the GPM project
  - ◆ Strengths
  - ◆ Weaknesses
  - ◆ Operations
    - Time of delivery
    - Availability in MPE (Multi-Sensor Precipitation Estimator)



# More Training

- WGRFC HAS unit would serve as trainer to staff
  - ◆ When to use/not use satellite data
    - ◆ Existing Hydroestimator data
    - ◆ Data from GPM
      - Event
      - Location



Questionable data

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# Thank You

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