

Hydrometeorological Products for Hazard Mitigation



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Who/What is HPC?

- Part of NCEP & located a suburb of Washington, DC
- Resource to NWS field forecasters, partners & customers
- Produces a wide variety of products that can be used to mitigate
 - Loss of life
 - Injuries
 - Loss of property



Partners & Customers

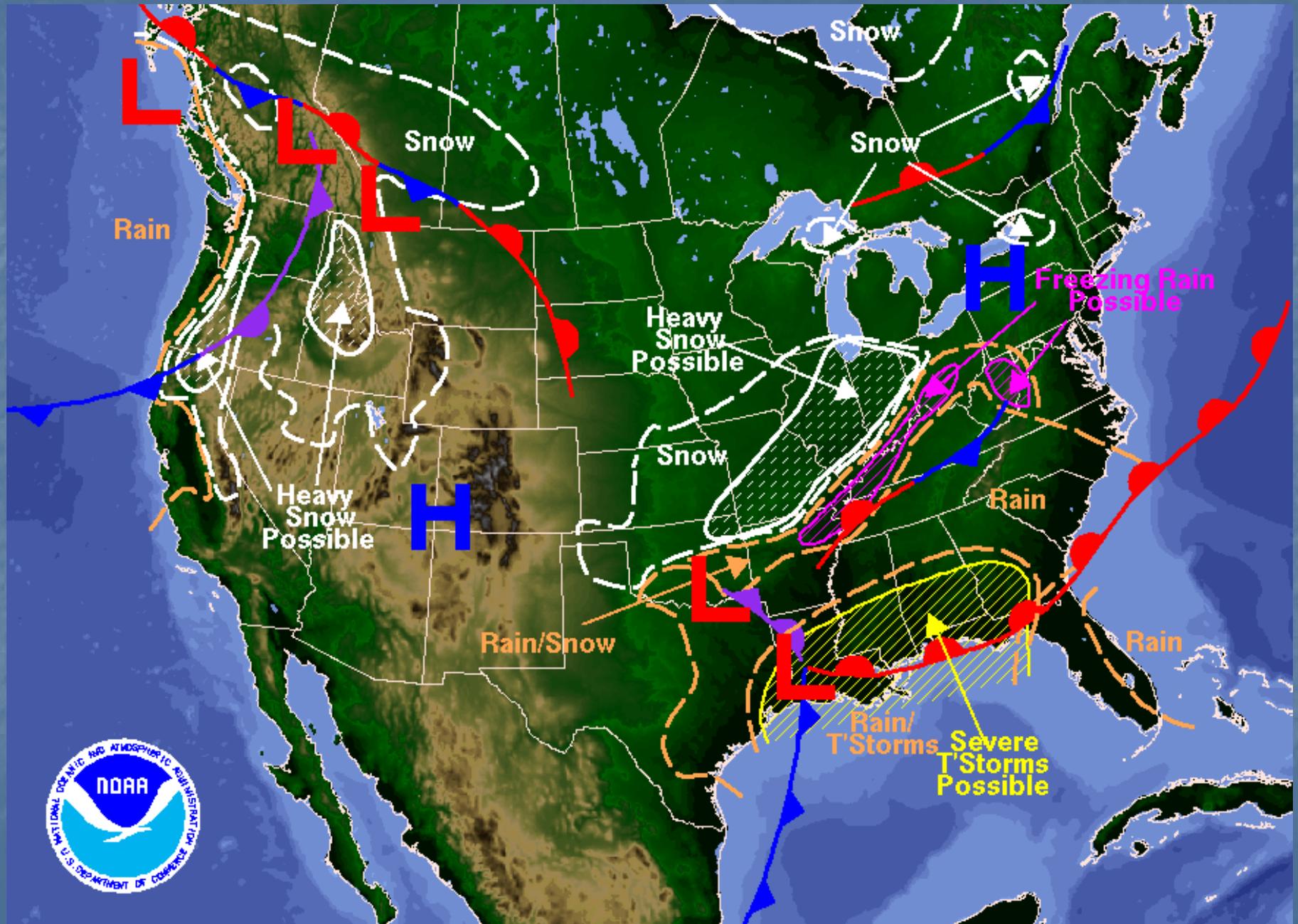
- NWS Field offices – WFOs, RFCs & CWSUs
- Other NCEP centers – OPC, TPC, AWC, SPC, EMC, NCO & CPC
- Federal Agencies - DHS/FEMA, COE, FAA, NTSB, DoD, EPA, White House
- State Agencies – EMA, water resources, flood management & DOT
- Media – TV, Radio, Internet, newspapers, wire services (AP/UPI)
- Private Sector – data vendors, forecast services, utilities, forensics, retailers, researchers
- Aviation – General aviation, AWC
- Academia – Universities & colleges
- International – MET services, media, travelers
- General Public – Analysis/forecast products



Products HPC Issues

- **QPF**
 - 6 hourly D1 - D3
 - 48 hr QPF D4-D5
 - D1 – D5 QPF
 - QPF/FPD
- **Flood Products**
 - Excessive Rainfall D1, D2 & D3
 - QPFERD
 - River Flood Outlook
- **Winter Weather** (9/15 - 5/15)
 - Snow/ZR Probability
 - Snow/ZR accumulation D1 - D3
 - QPFHSD
 - Winter Storm Summaries
 - Low Track Forecast
- 3 hourly Surface Analyses
- Short Range (D 1-2)
 - Fronts/Pressures
 - Instantaneous Pcpn & Pcpn Type
- Medium Range (D3-7)
 - 24 hr Front/Pressures
 - Max/Min/12 hr PoPs
 - PREEPD and PMDEPD
 - Hawaii Narrative
- Model Diagnostics
 - 500mb prog for West/E Pac
 - PMDHMD
 - PMDEPD
 - NDFD Chat Coordination
- Tropical Weather (6/1 – 11/30)
 - Backup/guidance for TPC
 - Public Advisories for inland tropical systems
 - South Amer. & Caribbean text products
- Selected Cities/Travelers
- Daily Weather Map
- Air Quality Narrative (summer)

National Forecast Chart



Winter Weather

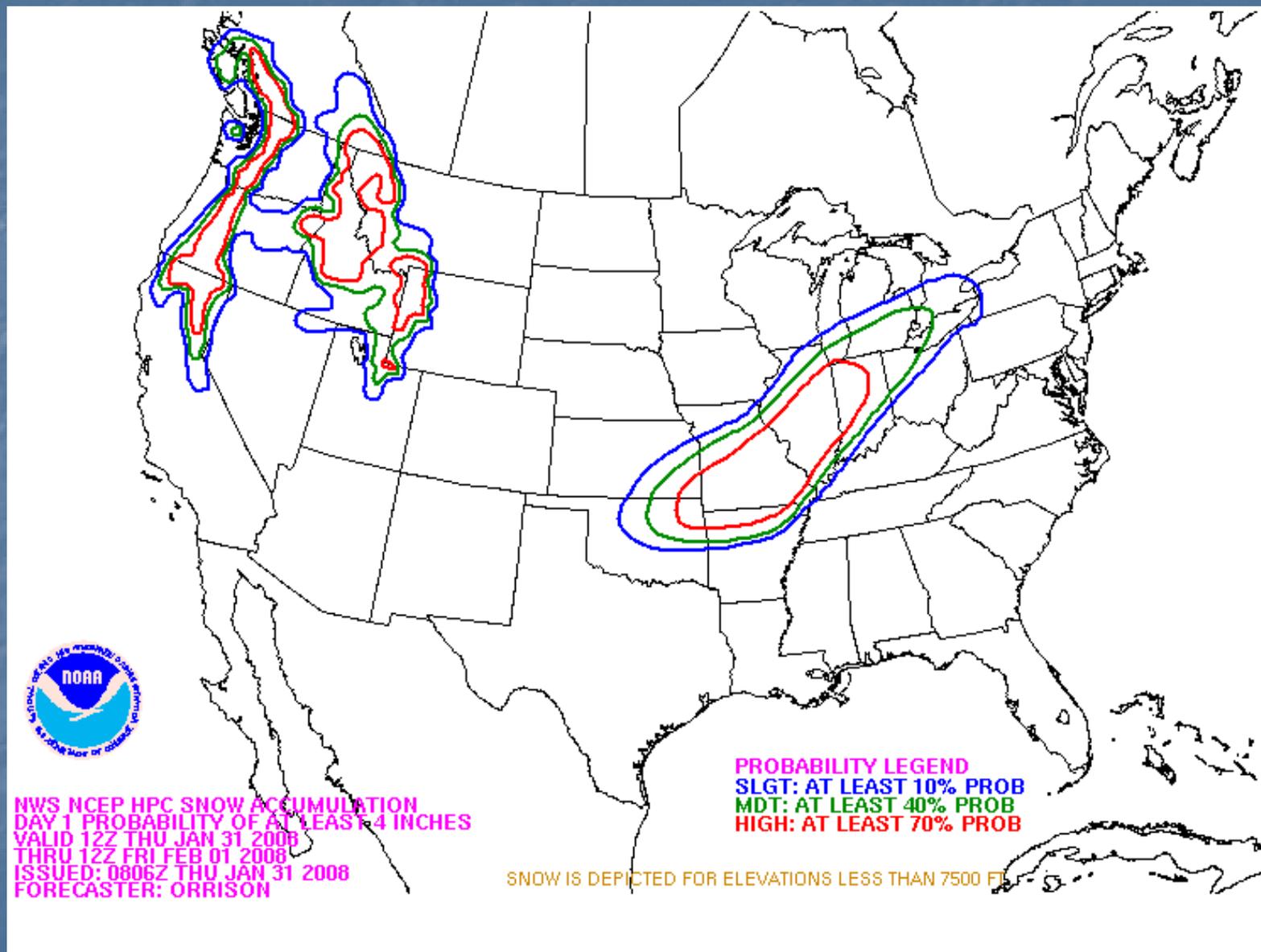
- Snow and ice accumulations
 - Days 1, 2 & 3
 - Probabilistic Accumulations
 - Low, Mod & High Risk
 - 4", 8" & 12" snow
 - 0.25" ice
- Impact Graphics
 - Based on SREF members
 - Eta, WRF & RSM
- Issued twice daily
- Longer lead-time allows for better preparation and placement of resources to minimize impacts to citizens



www.hpc.ncep.noaa.gov/wwd/winter_wx.shtml

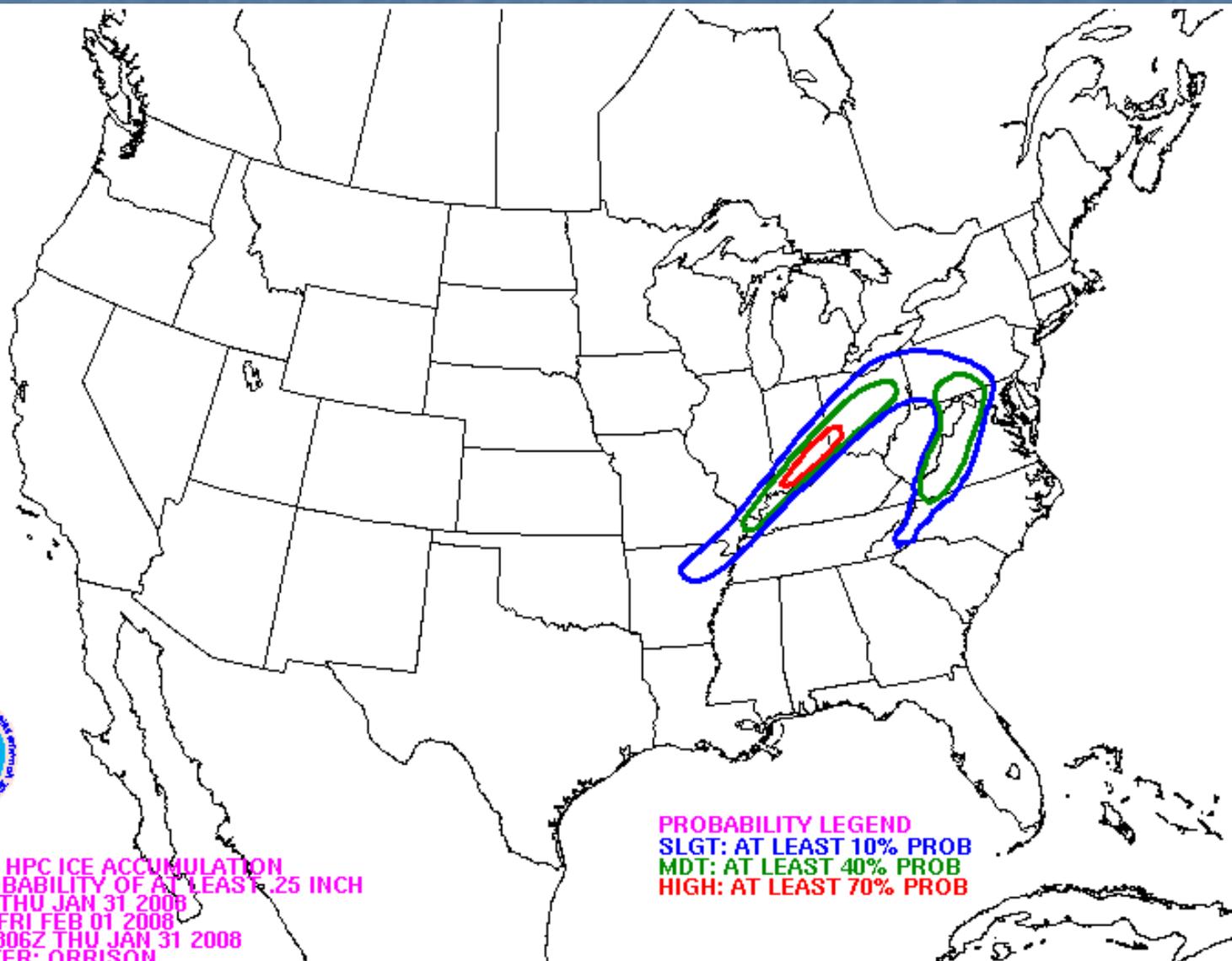
Winter Weather

Probabilistic Snow accumulations



Winter Weather

Probabilistic Ice accumulations



NWS NCEP HPC ICE ACCUMULATION
DAY 1 PROBABILITY OF AT LEAST .25 INCH
VALID 12Z THU JAN 31 2008
THRU 12Z FRI FEB 01 2008
ISSUED: 0806Z THU JAN 31 2008
FORECASTER: ORRISON

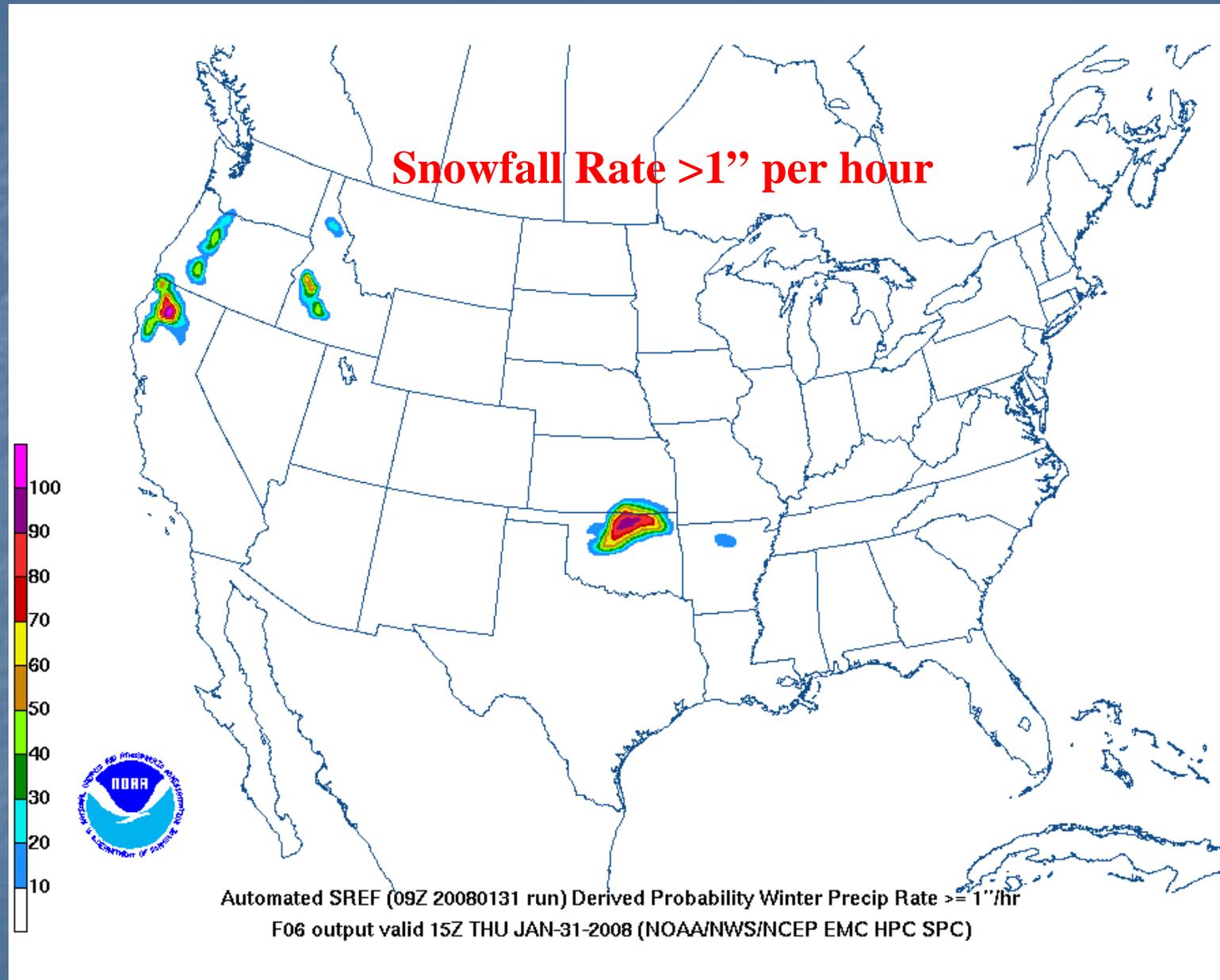
Impact Graphics

- Surface visibility
 - Eighth, quarter & half mile
- Snowfall accumulation rate
 - 1", 2" & 3" per hour
- Duration
 - 12, 24 & 48 hours
- Probability of accumulation on roads
- Probability of freezing rain >0.01 "
- Probability of Blizzard Conditions
- Exceedance of NWS WSW Criteria
 - Snow and Freezing Rain
- Mean event total accumulations
 - Snow & Sleet
 - Freezing Rain

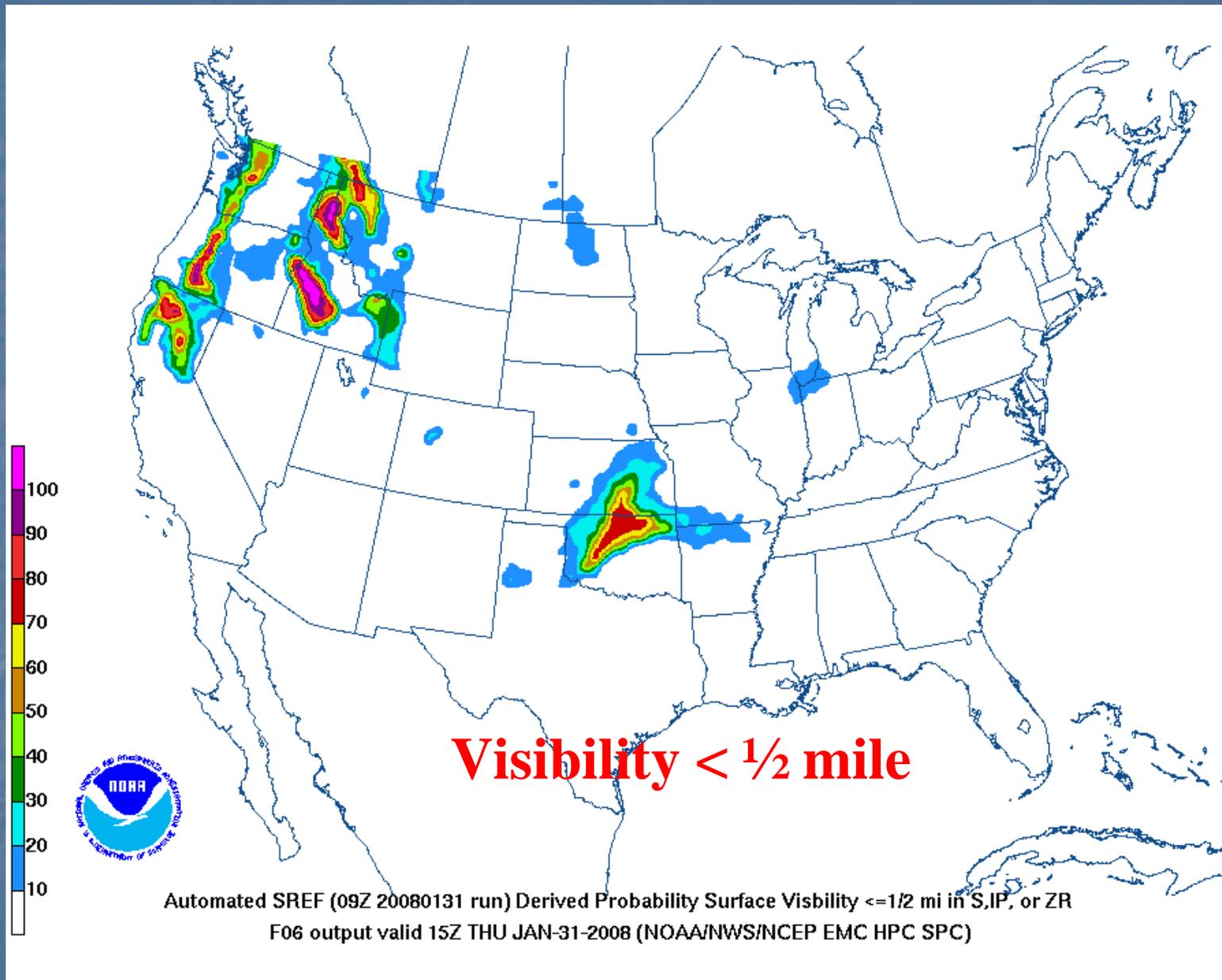


<http://www.hpc.ncep.noaa.gov/wd/impactgraphics/>

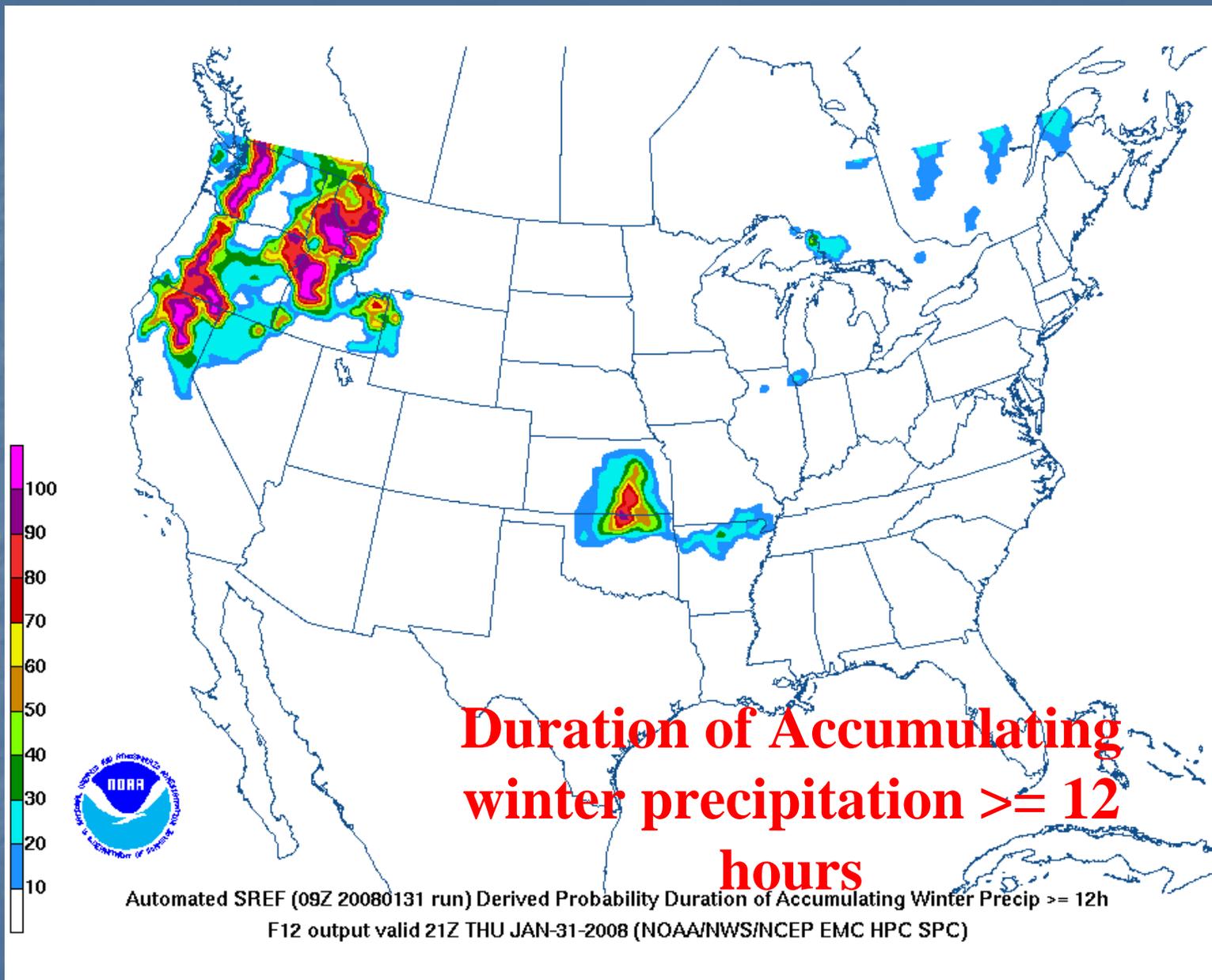
Impact Graphics



Impact Graphics



Impact Graphics



Quantitative Precipitation Forecasts

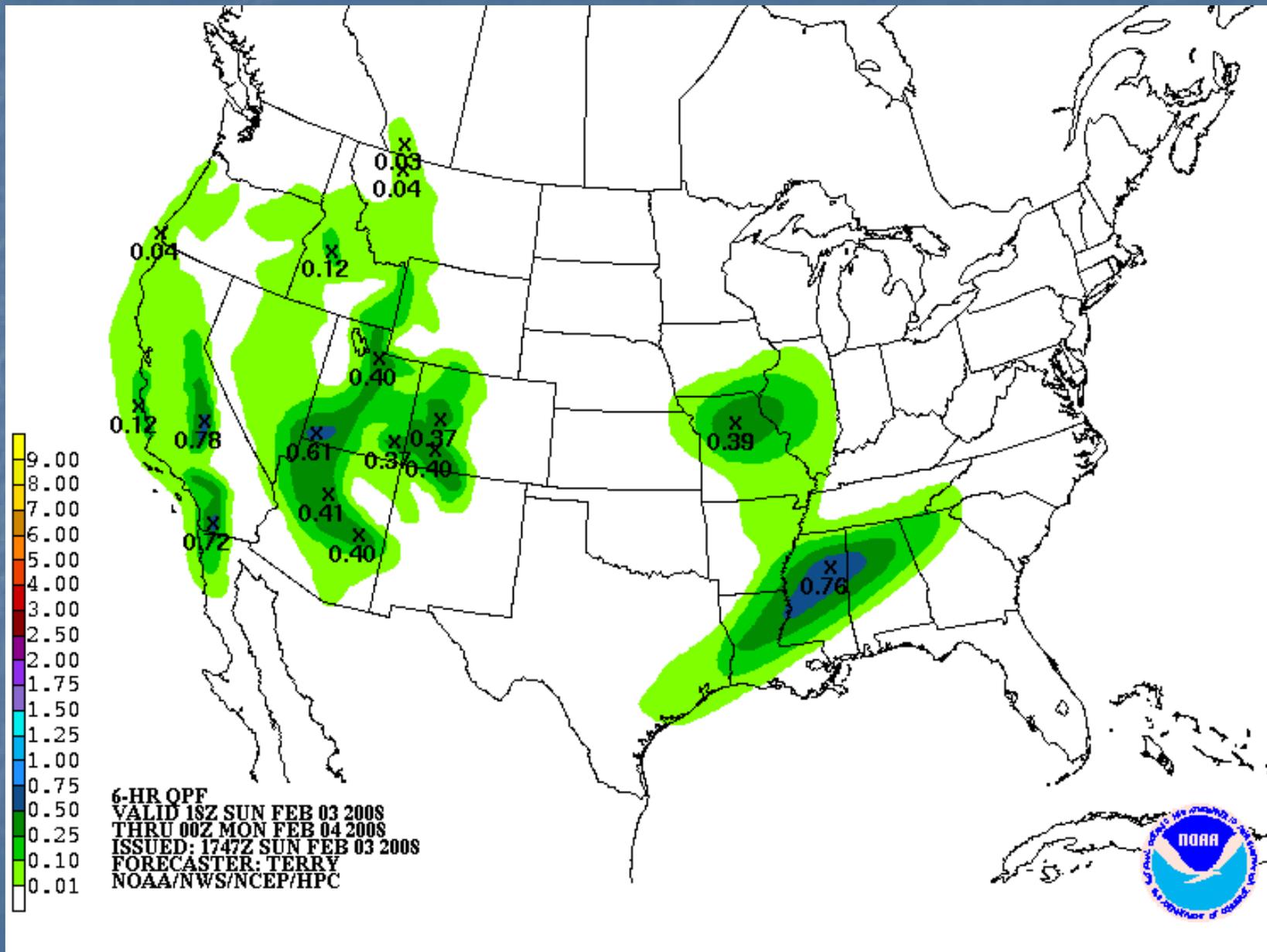
- Six hour QPF through Day 3
 - Day 1 & 2 – 06z, 10z, 18z & 22z
 - Day 3 – 10z & 22z
- 24 hour QPF through Day 3
 - Day 1 & 2 – 06z, 10z, 18z & 22z
 - Day 3 – 10z & 22z
- 48 hour QPF for Days 4-5
- 120 hour QPF for Days 1-5
 - 12z & 00z
- QPF = Fuel for Hydrologic Models



<http://www.hpc.ncep.noaa.gov/qpf/qpf2.shtml>

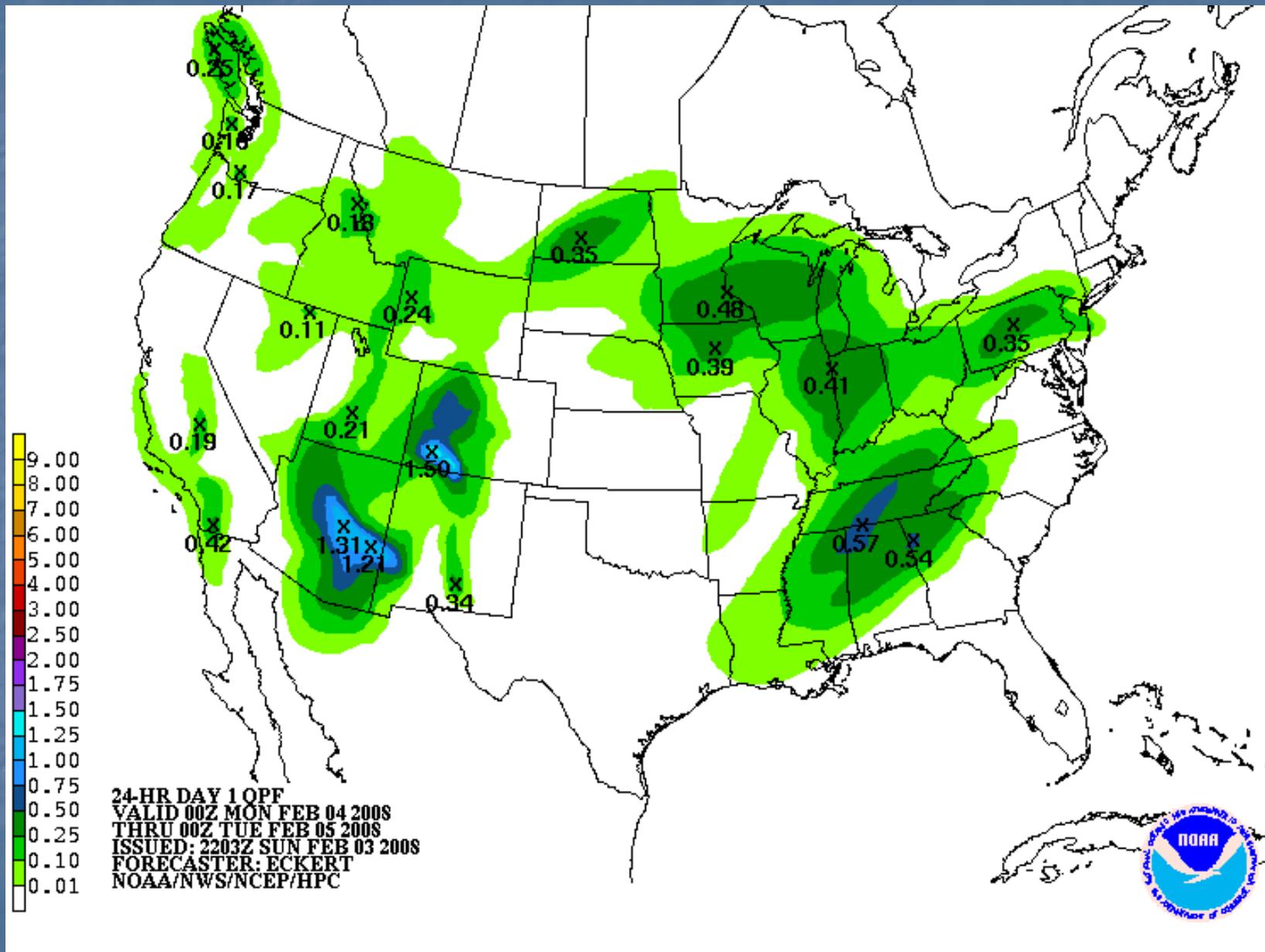
Quantitative Precipitation Forecasts

Six hour forecasts



Quantitative Precipitation Forecasts

24 hour forecasts

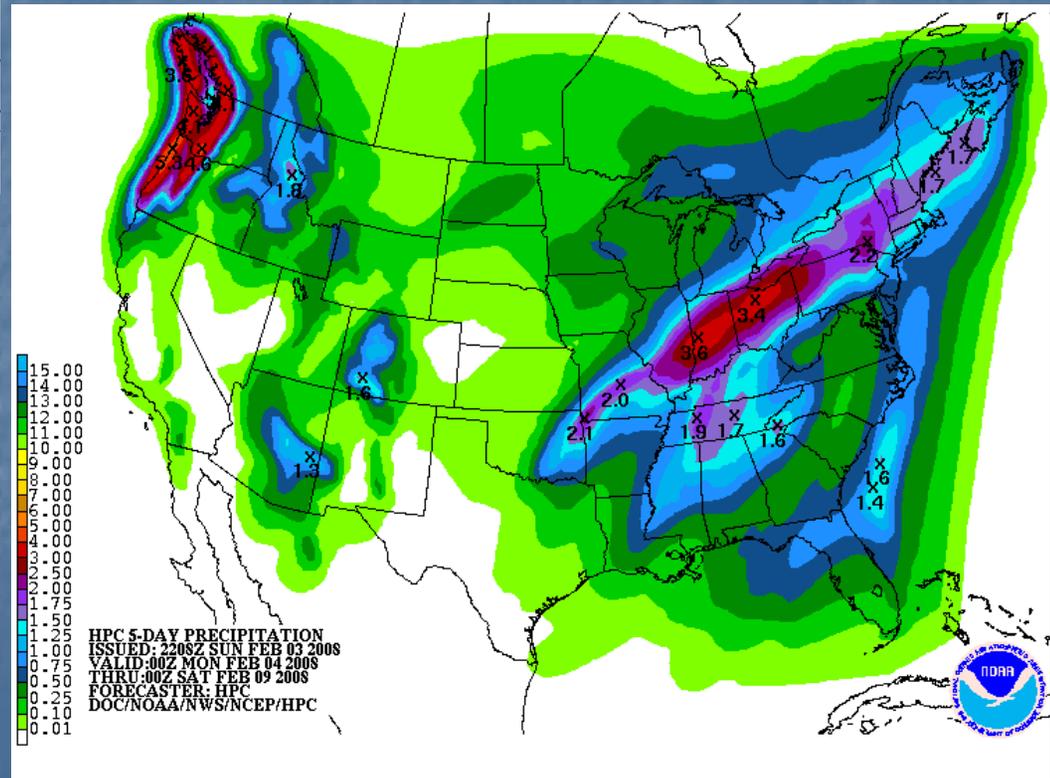
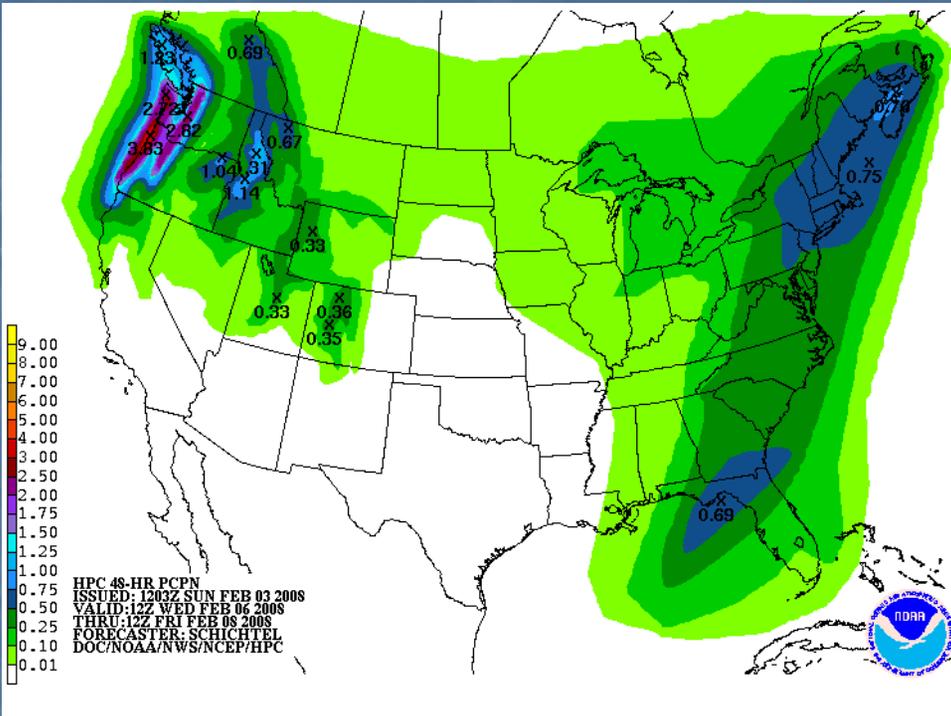


Quantitative Precipitation Forecasts

Day 4-5 & Day 1-5 forecasts

Mainly used for longer term planning

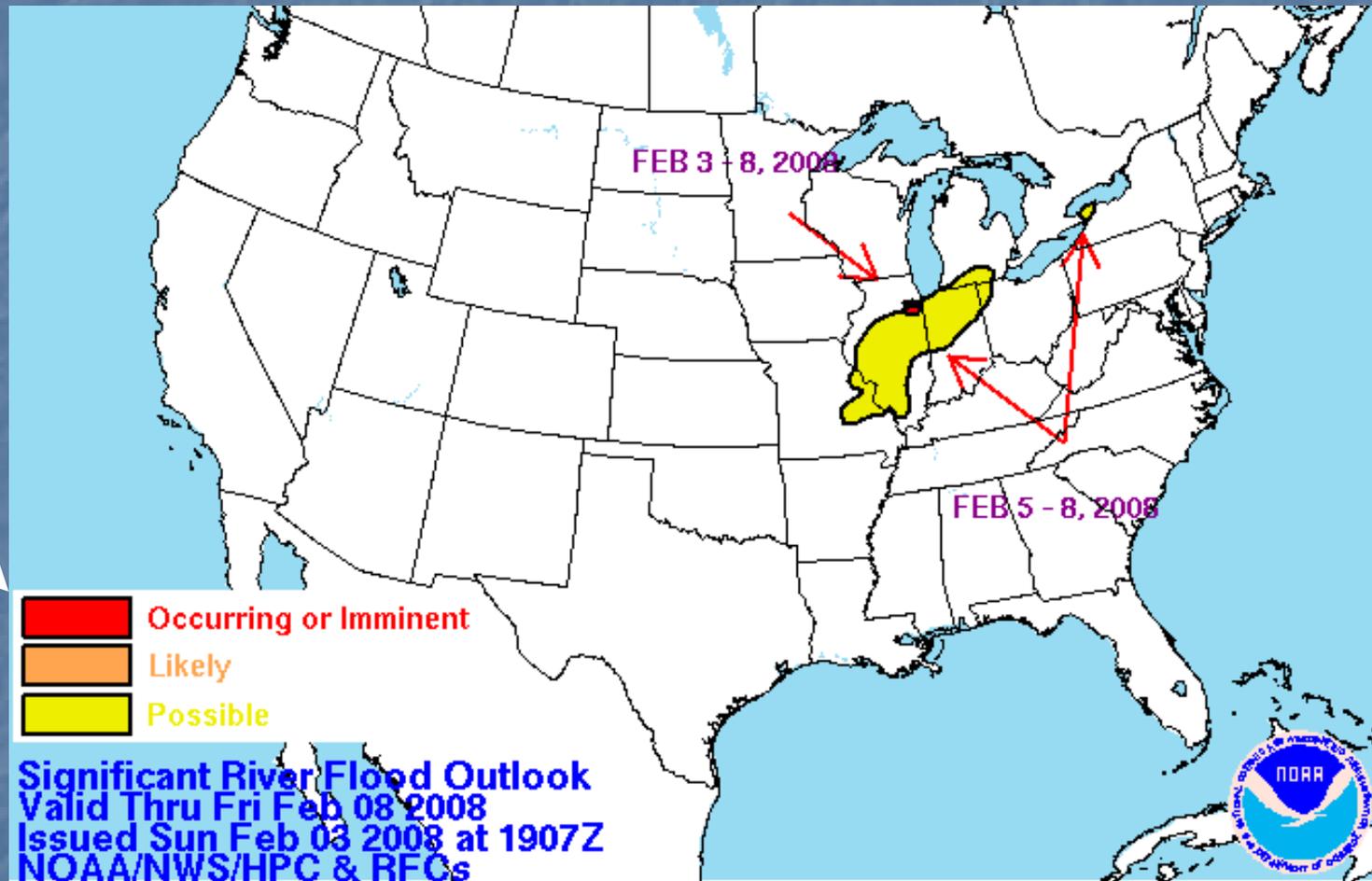
Give users an idea of where to begin to focus mitigation services before an event



Significant River Flood Outlook

RFCs produce river forecasts
and HPC compiles into a
National Chart

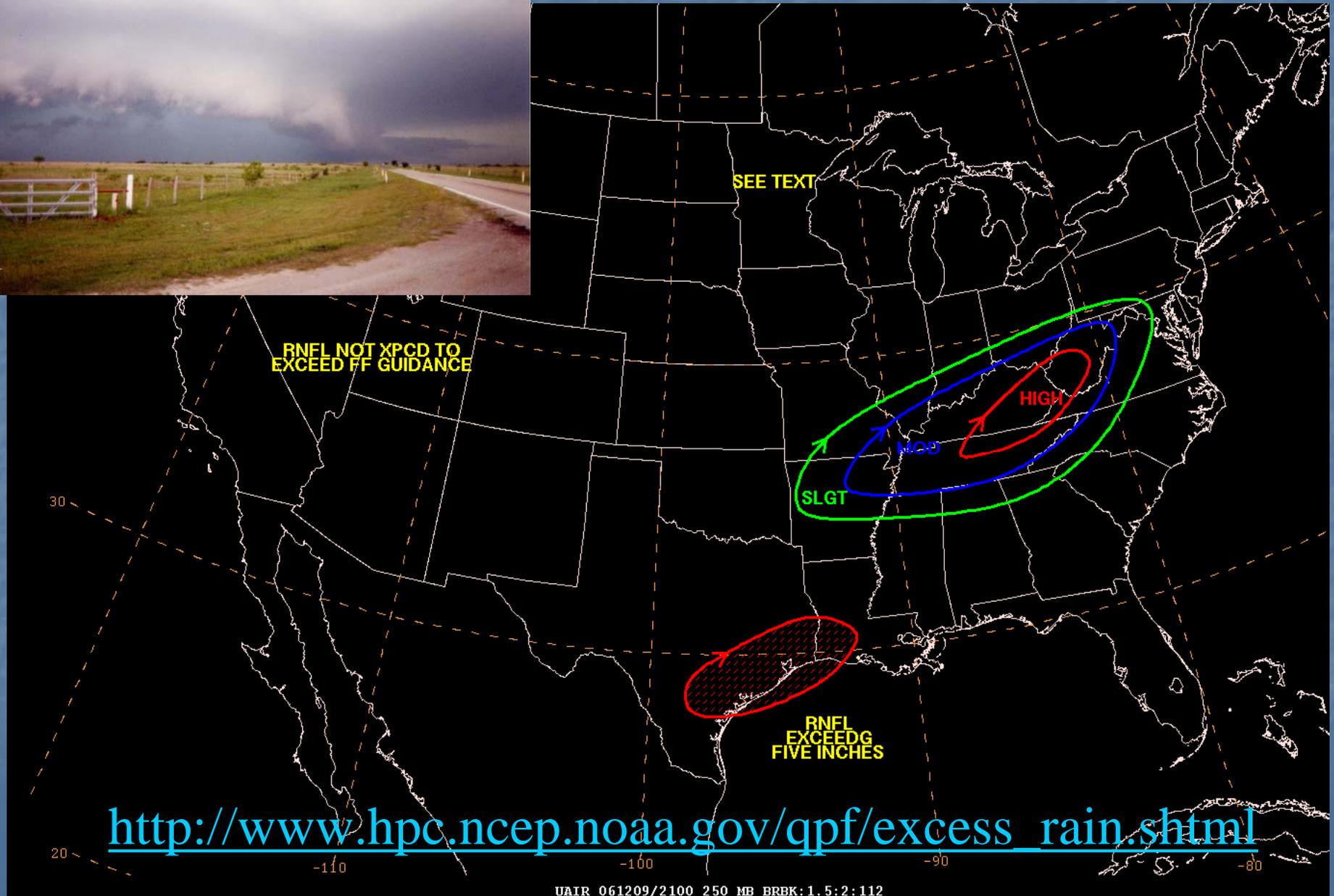
Threat Levels



<http://www.hpc.ncep.noaa.gov/nationalfloodoutlook/index.html>

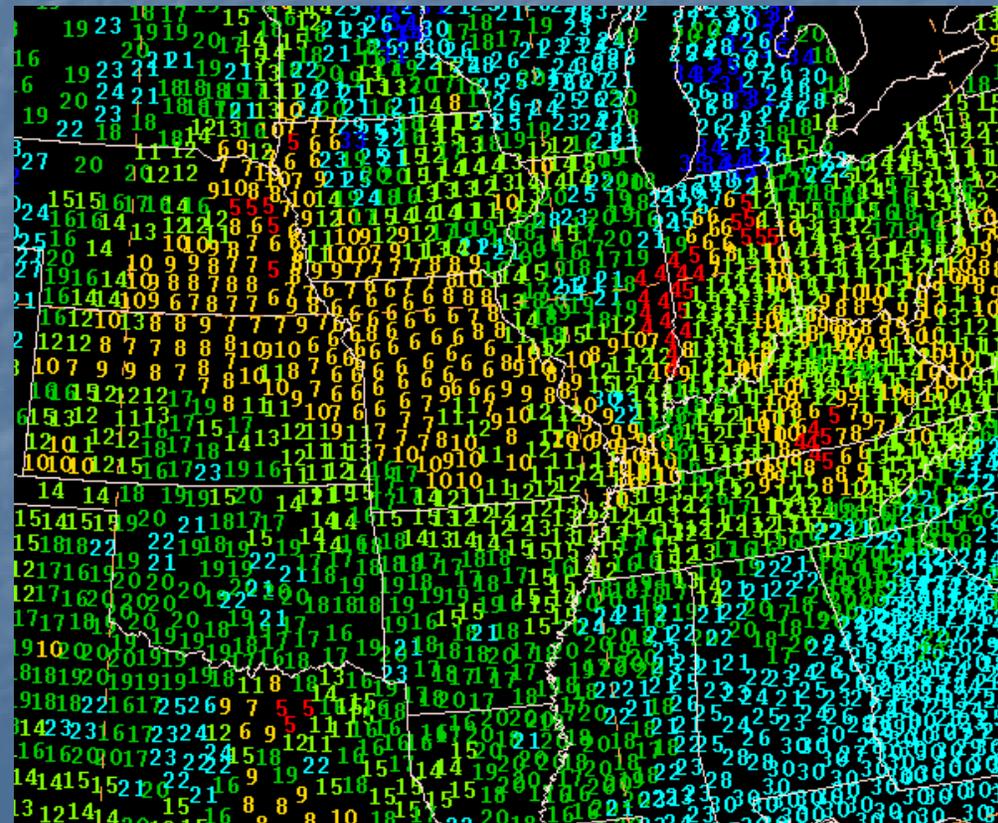
Excessive Rainfall Part Flash Flood Guidance

Part Rainfall



What is Flash Flood Guidance?

- County “average” rainfall needed to cause flash flooding
- Always in flux (up or down), especially during heavy rainfall events
- One hour FFG generally used for convective rainfall
- Three hour FFG generally used for convective/stratiform rainfall
- Can be misleading at times
- FFG in steep terrain & urban areas is not very useful
- High FFG does not necessarily mean a low excessive rainfall threat and associated Flash Flood Threat



Little or no threat

- Rainfall not expected to exceed FFG
 - No excessive rainfall is expected during the forecast time period
- SEE TEXT
 - < 5% chance of rainfall exceeding FFG
- Slight Risk of rainfall exceeding FFG
 - 5% - 10% chance of rainfall exceeding FFG
 - Delineated by a **green** arrow/line encompassing an area



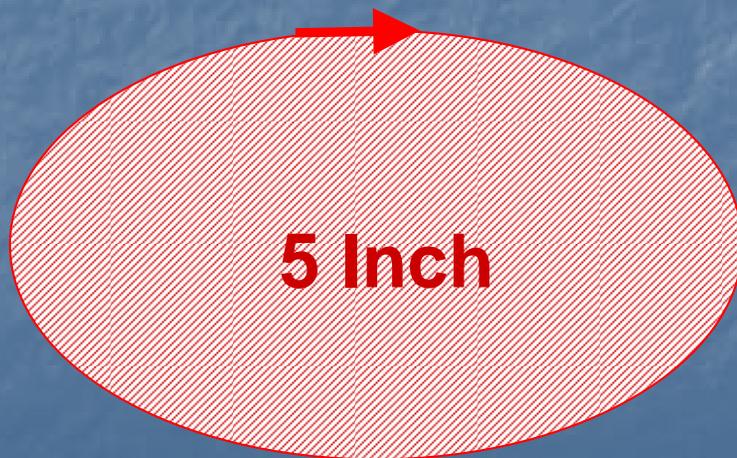
Moderate & High Risk

- Moderate Risk of rainfall exceeding FFG
 - 10% - 15% chance of rainfall exceeding FFG
 - **blue** arrow/line encompassing an area
- High Risk of rainfall exceeding FFG
 - >15% chance of rainfall exceeding FFG
 - **red** arrow/line encompassing an area



Total Rainfall > 5 inches

- Threat of 5 or more inches of rain during the forecast period
- Used mostly for:
 - Well organized MCS
 - Tropical systems
 - Persistent overrunning events



Questions ???



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