NOAA's Weather Prediction Center:

Part 1: "Quick" Overview with a Deeper Dive into Heavy Rainfall (QPF) Products

Gregg Gallina – "Metwatch" Forecaster (WPC)

CoCoRaHS WxTalk Webinar #69 April 30, 2020

Please sign up for

Part 2: WPC Winter Weather Wonderland*

Joshua Weiss - Winter Weather Forecaster

WxTalk Webniar #74 December 10, 2020 1pm EDT

*** Not actual title. May cause increased heart rate, excitement, and winter weather superiority complex and weather weenie-itus. Your experience may vary. Contact your local or national CoCoRaHS coordinator if you wish this experience to continue. or signup via the website (https://www.cocorahs.org/Content.aspx?page=wxtalk)**

The Overview:

Historical Roots:

- **March 16, 1942** - Rooted in **Analysis Center** as the **Forecast Operations Branch (FOB)** of National Weather Bureau located downtown Washington, DC
  - Produced CONUS Analysis and Forecast Products (1 to 3 days)
  - Though **surface analysis** maps are archived as far back as **1871!**
- **January 1958** - Merged with Joint Numerical Weather Prediction Unit (Suitland, MD)
  - Named **National Meteorological Center (NMC)**
  - First Global Weather Model output June 1966
- **October 3, 1970** - Weather Bureau becomes National Weather Service (NOAA created)
- **January 1975** - Moved to World Weather Building in Camp Springs MD
- **October 1, 1995** - NMC was reorganized into **National Centers for Environmental Prediction (NCEP)**
  - **HPC (Hydrometeorological Prediction Center)** is a subunit
  - Includes: **AWC, CPC, EMC, NHC/TAFB, OPC, SPC, SWPC, and Central Operations**

NOAA Center for Weather and Climate Prediction - NCWCP

College Park, Maryland (M Square @ Univ. of Maryland)

August 2012

- **March 5, 2013 - Renamed Weather Prediction Center**

World Weather Building
1975-2012

March 2020

National Centers for Environmental Prediction

NCEP — Central Operations

AWC — Aviation Wx Center, Kansas City MO

CPC — Climate Prediction Center

SPC — Storm Prediction Center, Norman OK

EMC — Environmental Modeling Center

WPC — Weather Prediction Center

SWPC — Space Wx Pred. Center, Boulder CO

OPC — Ocean Prediction Center

NHC — Climate Prediction Center, Miami, FL

Located @ NCWCP

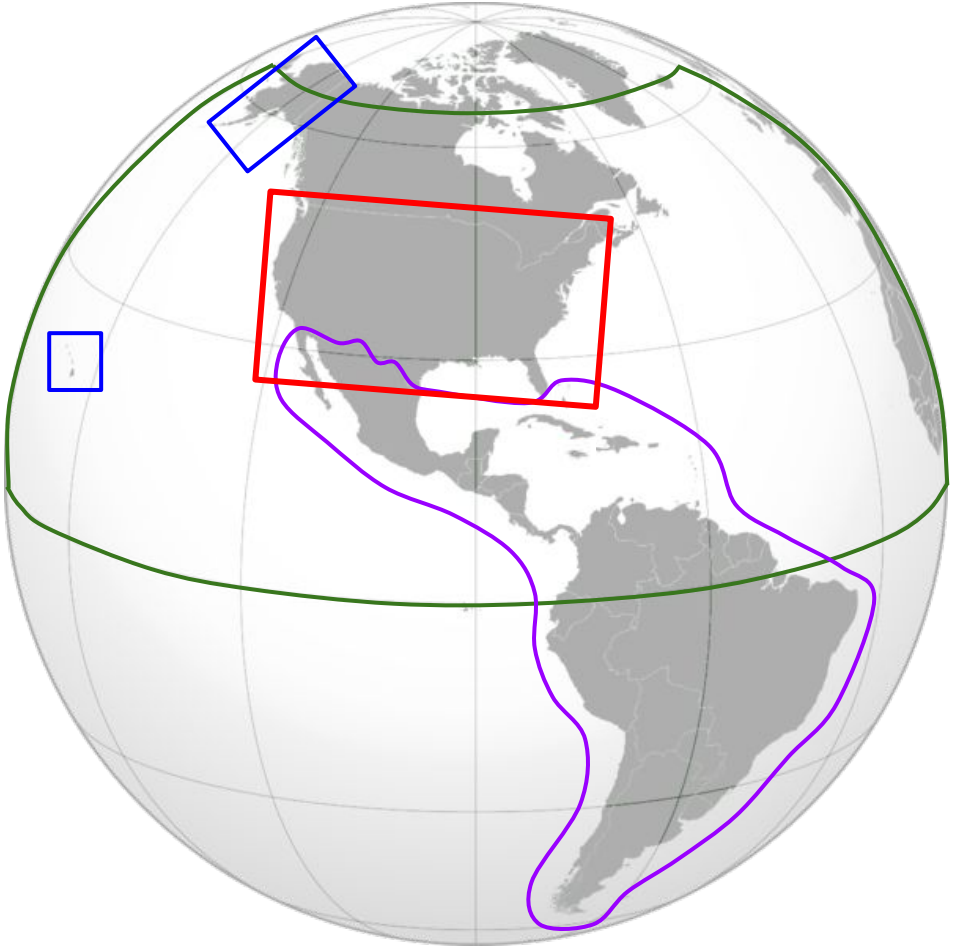
National Centers:

Provide specialized overview with daily national-level expertise

WPC's expertise being broader: Model Preference, Heavy Rain, Winter Weather, Pressures/Fronts
Hence : *WEATHER* Prediction Center (even though every other Center is Predicting Weather)

WPC has a total of 9 specialized desks staffed at any given time, plus the International Desks, Developers, as well as, backup responsibilities to the National Hurricane Center.

32 Forecasters, 2 International Experts, 6 Managers, 3 Admin, 15 Developers (incl. contracts), 1 MetTech

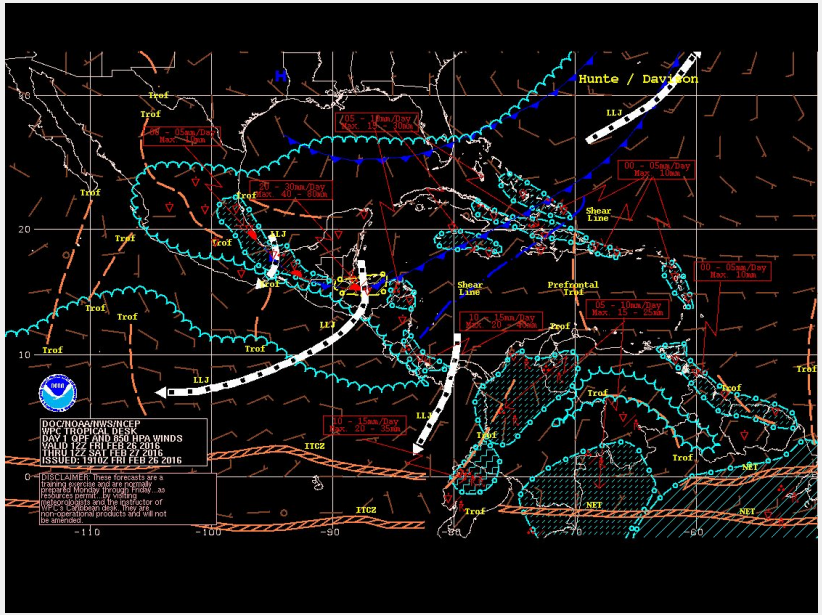


Large Domain

- CONUS: multitude of forecasts
- OCONUS: Alaska medium range grids and Hawaii forecast discussion
- Tropical cyclone rainfall statements with NHC and CPHC
- International Desk trains forecasters from Central and South America and the Caribbean

WPC's International Desks

- Train visiting scientists from Caribbean and Latin America on numerical weather products and forecasting techniques
- Visitors come for 4 month visits
- Started in 1988, hosted over 350 total visitors
- 2 desks (non-operational):
  - <u>**Tropical**</u>
    - Forecast Bulletin (English)
    - QPF Charts for days 1-3
    - QPF for Puerto Rico
  - <u>**South America**</u>
    - Forecast Bulletin (in English, Español, and Português)
    - Surface Analysis Chart
    - Upper Jet Analysis Chart
    - QPF Charts for days 1-6



WPC Missions

National situational awareness and readiness for hazardous weather.
Providing actionable information that is scientific, probabilistic, & impact-based.

Routine/Event driven products produced by WPC

Analysis

Unified Surface Analysis
Social Media
Storm Summaries
CONUS High/Low
Day 1-3 Hazards

Short Range
Days 1-3
6 to 84 hrs

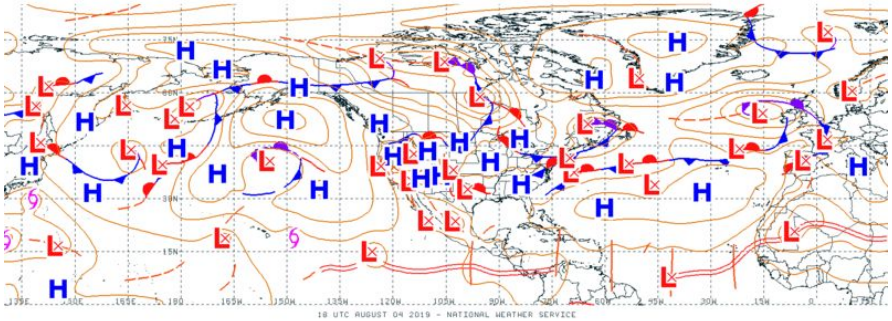
Fronts/Press. & Discussion
Precipitation(QPF) → Winter Weather
Excessive Rainfall Outlook
Metwatch - Mesoscale Precip Discussion
National Media Phone Calls

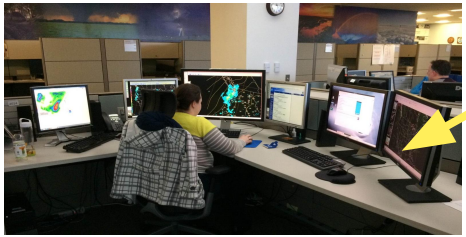
Rainfall Statements for TCs
Service Backup for NHC in the Atlantic
Advisories for Inland Depressions
(CONUS)

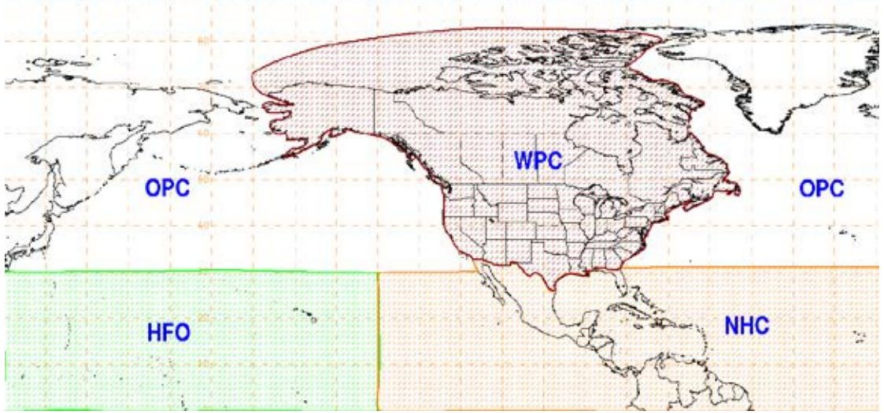
Medium Range
Day 3-8
72 to 204 hrs

Days 3-7 Fronts/Pressures
Max/Min Temps,
QPF, Precip Prob,
Cloud Cover, Wx Type
Tropical Coordination - VTC
Day 3-8 Hazards
Chart

Surface Analysis: Fronts and Pressures







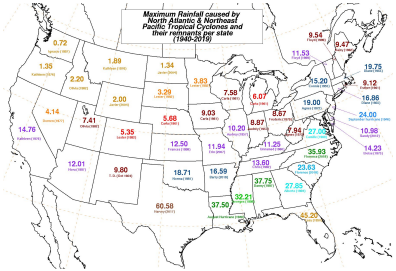
- WPC is responsible for surface analysis over most of North America north of 30N.
- Ocean Prediction Center (OPC), Tropical Analysis and Forecast Branch (TAFB), and NWS Honolulu (HFO) also have surface analysis responsibility.
- These are collaborated and combined into the Unified Surface Analysis, which covers most of the Northern Hemisphere from East Asia to Europe and Africa.

Records Monitoring, Analysis and Tracking

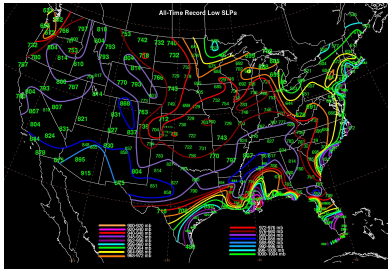
WPC is frequently asked about records and context for precipitation, temperature and pressure extremes. We maintain some records and have other tools and products to add context and monitor records in real time.

Many of these graphics show up in social media: **Facebook: /NWSWPC** **Twitter: @NWSWPC**

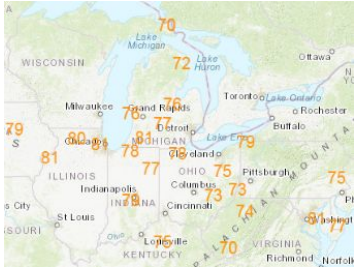
TC Rainfall Records



Pressure Records



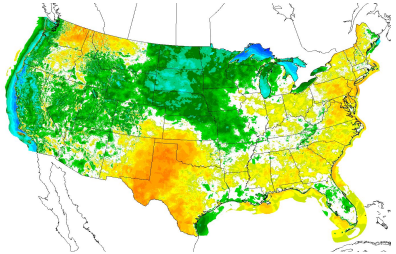
Temp Monitoring



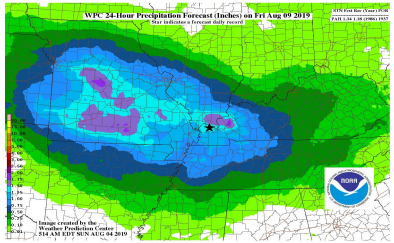
Note: **CoCoRaHS Rain and Snow reports populate much of the information on the storm summaries.**

www.wpc.ncep.noaa.gov
Top Stories - Right Side Banner

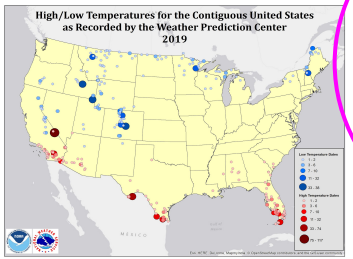
Fcst Temp Departure



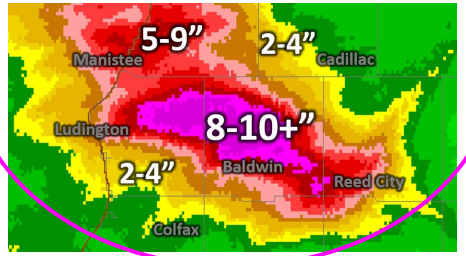
Fcst Rain Records



CONUS Hi/Lo



Storm Summary & Precip Records

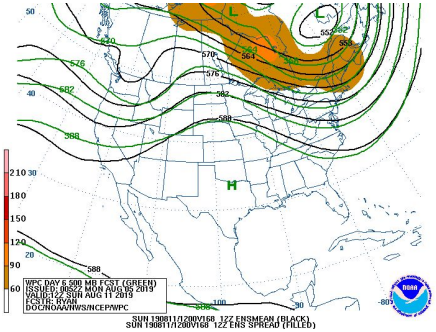


Short Range Forecasting

1 to 3 Days or 6 to 84 Hours

Quantitative Precipitation Forecast

Decisions on large-scale patterns…
…influence numerous products

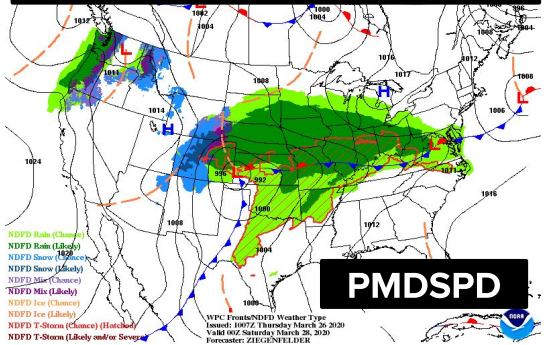


PMDHMD

Model Diagnostics Determination and Discussion

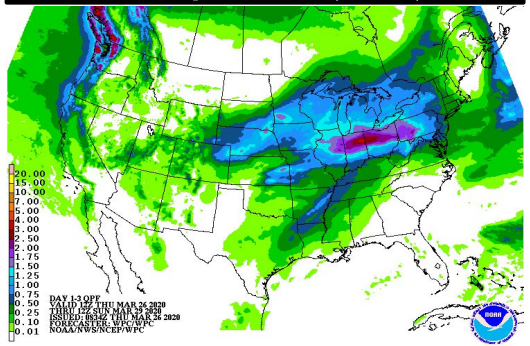
The short range is highly collaborated!
Both internally between forecasters and Local Forecast Offices and Nat'l Centers

Press. & Fronts w/Discussion

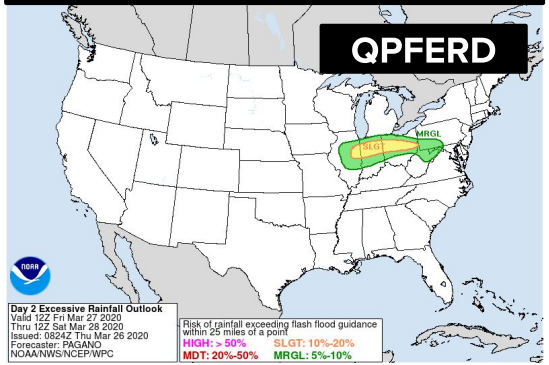


PMDSPD

Precipitation (QPF)

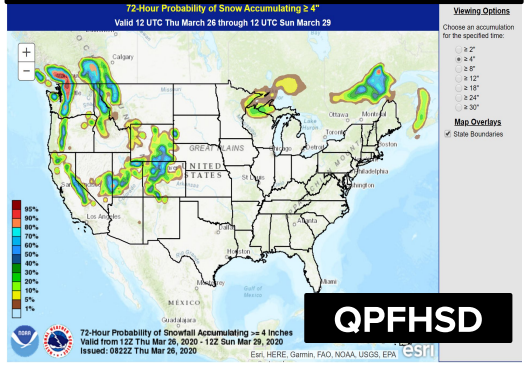


Excessive Rainfall Outlooks



QPFERD

Winter Wx w/Discussion

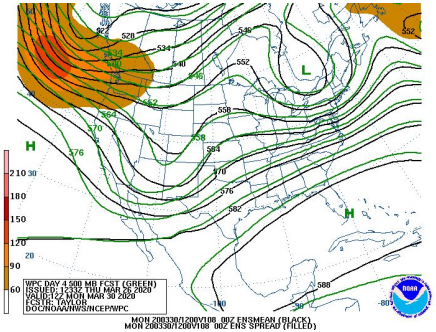


QPFHSD

Medium Range Forecasting

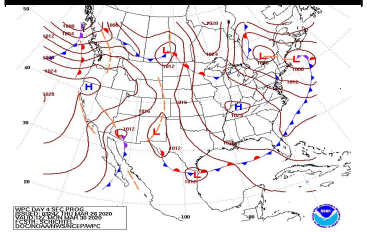
3.5 to 8 Days or 72 to 204 Hours

Less forecast certainty…
…even more fcst products!!!

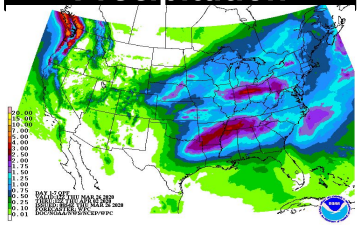


Model Diagnostics Determination and Discussion **PMDEMD**

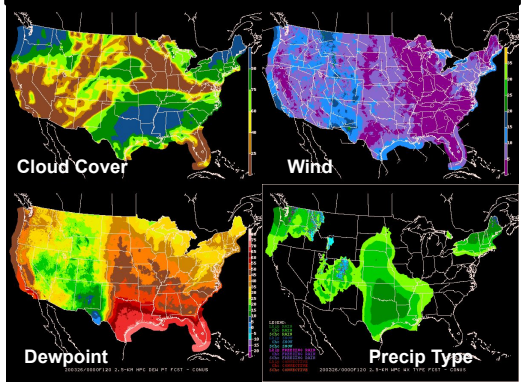
Pressure & Fronts



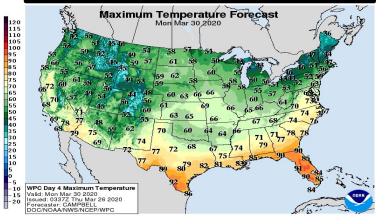
Precipitation



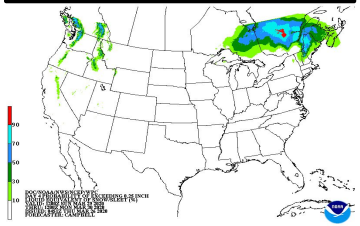
Other Grids



Max/Min Temps



Winter Probs

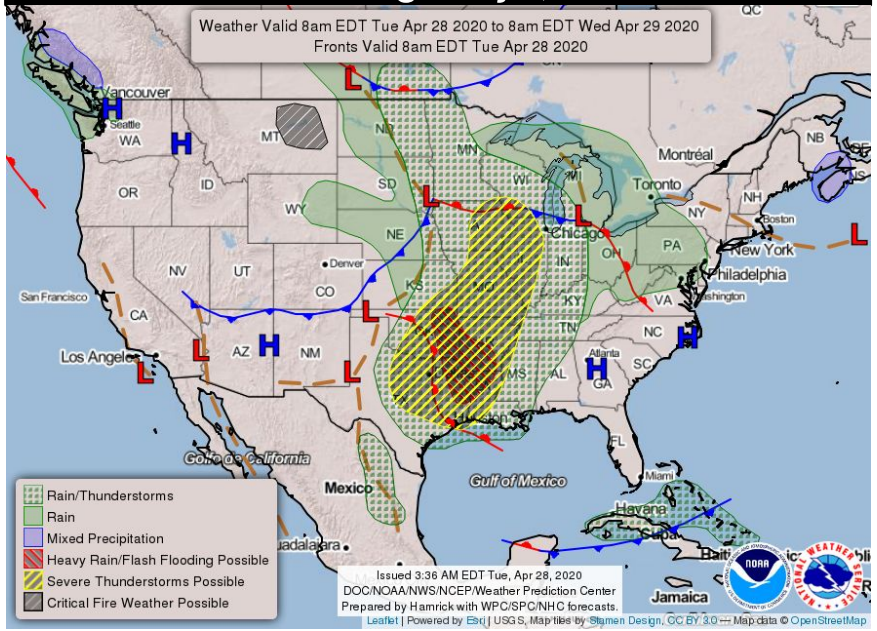


Other Discussions:
Alaska Extended Forecast
Hawai'i Message (PMDHI)

- **The medium range forecasts are sent to local forecast offices (including AK) and are highly influential**
- **Are collaborated but less frequently/specific as shorter range → Focus on nearest term hazard**
- **Daily video collaboration call with NHC for potential tropical cyclones (maps/charts)**

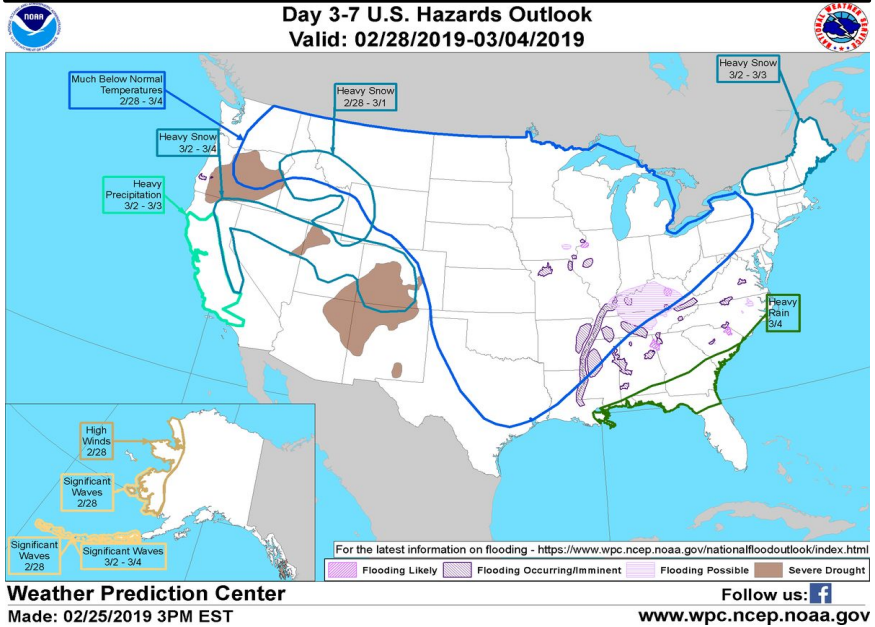
Graphical Hazards Depictions -- Our most viewed products

Short Range Day 1, 2 & 3



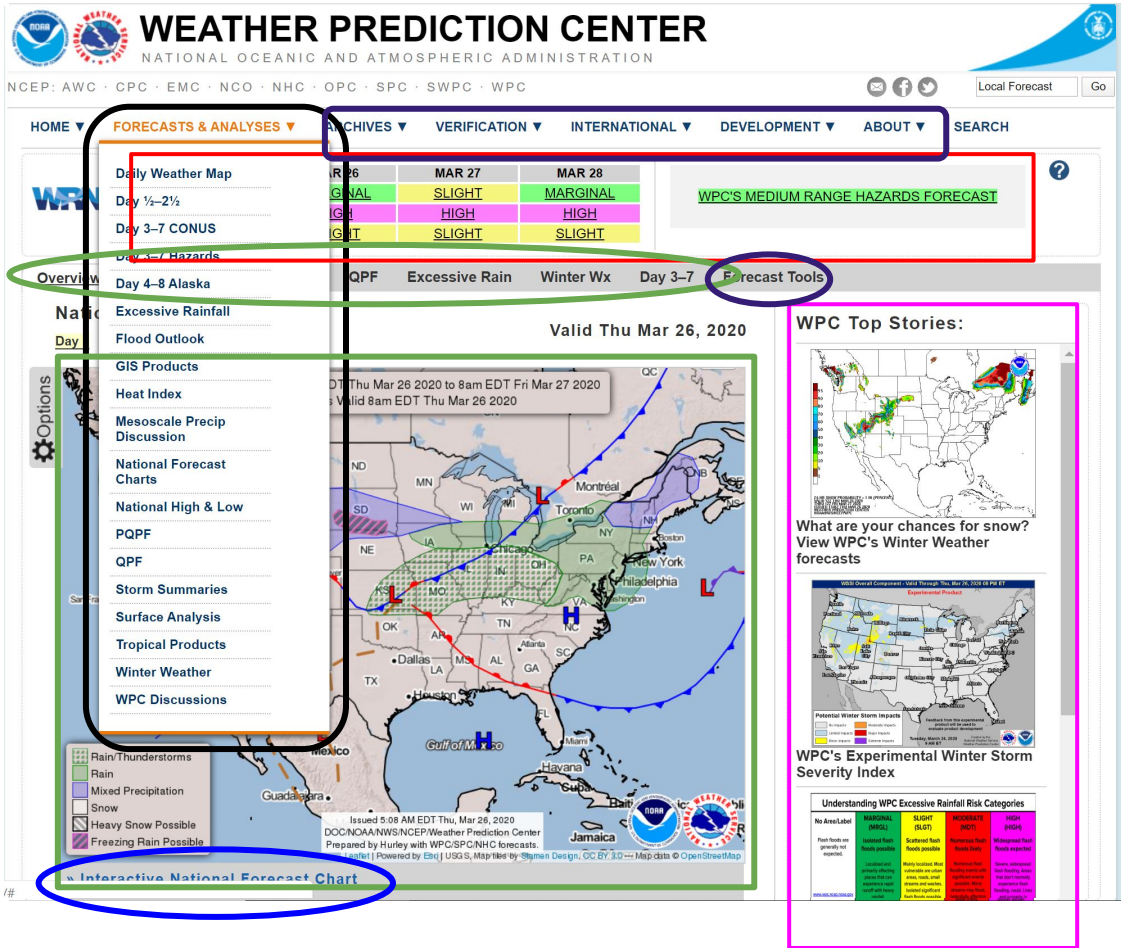
- Hatched areas are increased threats (Snow, Freezing Rain, Heavy Rain (ERO) and Severe
- Slight Risk or above
- SPC Fire Outlook added April 7, 2020
- Started Jan 2001 & only CONUS

Medium Range Day 3-8 Composite



- Transferred from Climate Prediction Center 25 Feb 2019
- Includes Alaska but not Hawaii
- Includes a Discussion
- https://www.wpc.ncep.noaa.gov/threats/threats.php

www.wpc.ncep.noaa.gov



Quick look Hazard Box by Date

Top Stories Box - Incl. ongoing threats
- Mesoscale Precip Discussions,
- Excessive Rainfall Outlook upgrades,
- Key Message Slides,
- Seasonal Highlight Slides

Pan over any tab, will change box below

Any discussion will be below box (+)

or Choose Drop Down Tab for
All Products and/or Discussions

Other Drop Down Tabs and links:
- Archive, Verification
- International Desk Products
- Forecast Tools - Interesting Graphics
- About Us

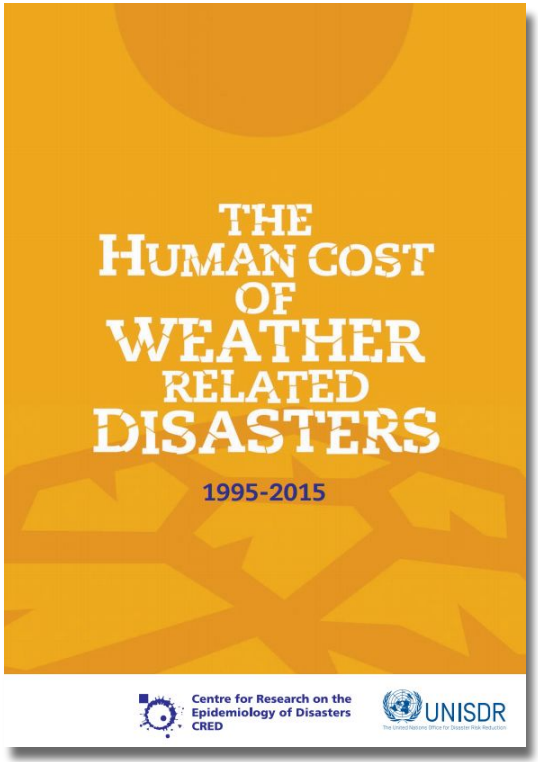
NOAA's Weather Prediction Center:

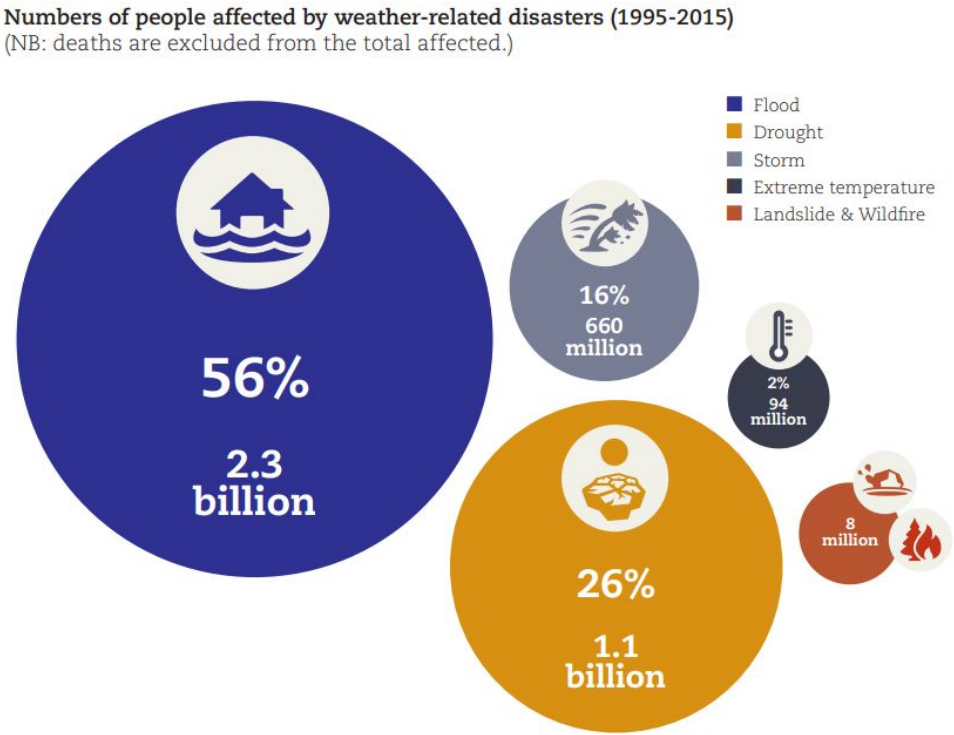
Part 1b: "Quick" Overview with a Deeper Dive into Heavy Rainfall (QPF) Products

Gregg Gallina – "Metwatch" Forecaster (WPC)

CoCoRaHS WxTalk Webinar #69 April 30, 2020

Rainfall Extremes are a Big Issue



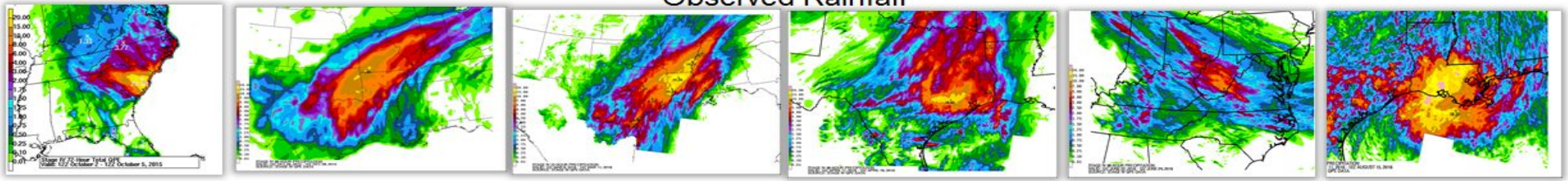


Six Separate Billion Dollar Flooding Disasters in FY16

$17.5 Billion in losses 124 Fatalities

South Carolina Floods	Midwest Holiday Storm	TX/Louisiana Flood	Houston Flash Flood	WV Flash Flood	Louisiana Flood
Oct 2015	**Dec 2015**	**March 2016**	**April 2016**	**June 2016**	**Aug 2016**

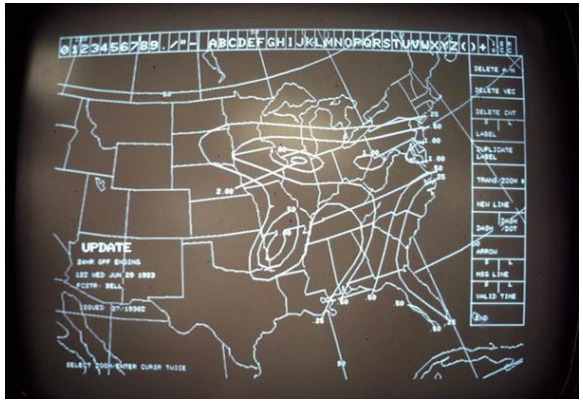
Observed Rainfall

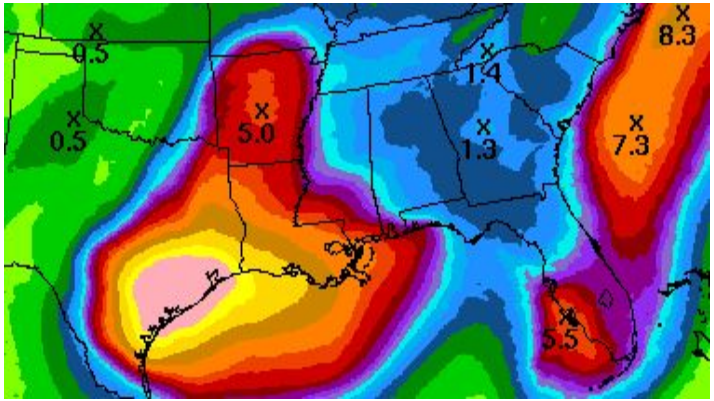


25 Fatalities	50 Fatalities	5 Fatalities	8 Fatalities	23 Fatalities	13 Fatalities

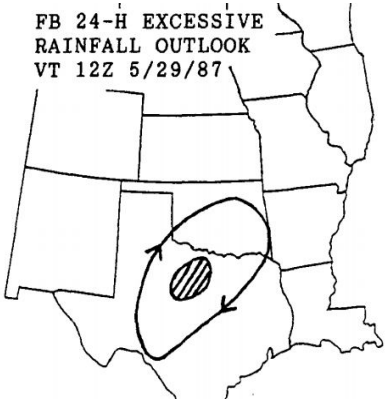
Purple: 2-4” Red: 4-6” Orange: 8-10” Yellow 15”+

Source: NCEI





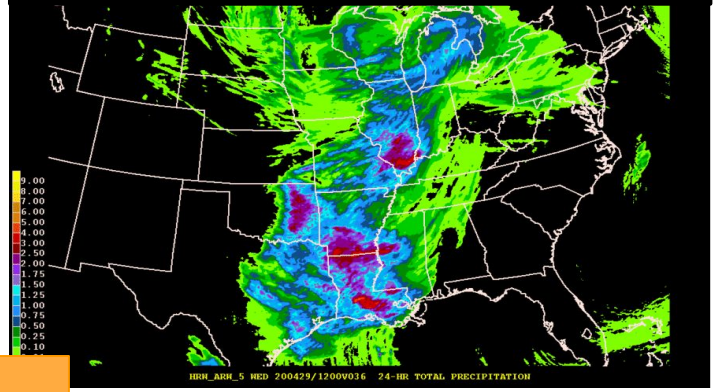
WPC has a 60 year legacy of Quantitative Precipitation Forecasting and over 30 years of Excessive Rainfall Outlooks



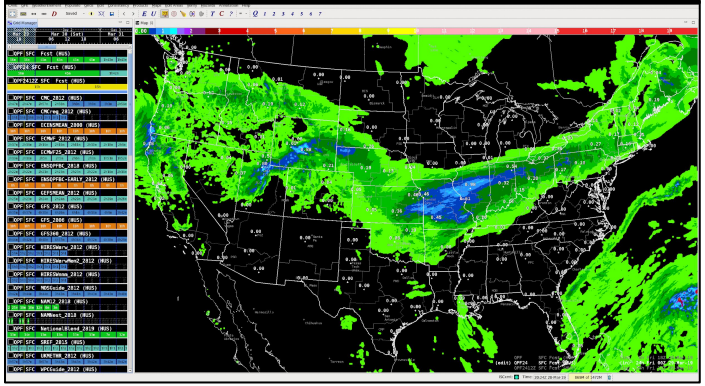
Quantitative Precipitation Forecasts (QPF)

- Two desks for both QPF and ERO: Day 1 and Day 2 & 3
  - (Days 4 -7 QPF are done in Medium Range)
- Generate areal-averaged 5km grids, downscaled to 2km QPF
  - Analyze environmental parameters such a temp, moisture, winds, instability, etc
  - Assess trends, skill, uncertainty and biases of all available numerical computer models (GFS, ECMWF, scores more)
  - Blend best models and enhance/remove precip totals
  - Liquid-equivalent precipitation amount including: rain, snow, sleet, freezing rain, hail
- 6-hour increments, 2x per day
  - Combined to produce 24, 48...7 day total graphics, etc
  - Deterministic (Specific/exact value)
  - Probabilistic (Range of possibilities)
- Drives the generation of the ERO Day 1, 2, & 3 (12z to 12z)
- Sent to winter weather forecaster to generate: (see Dec talk) Snow, Freezing Rain Products incl. Probabilities

Model Suite - Hi-Res, Global, Ensemble

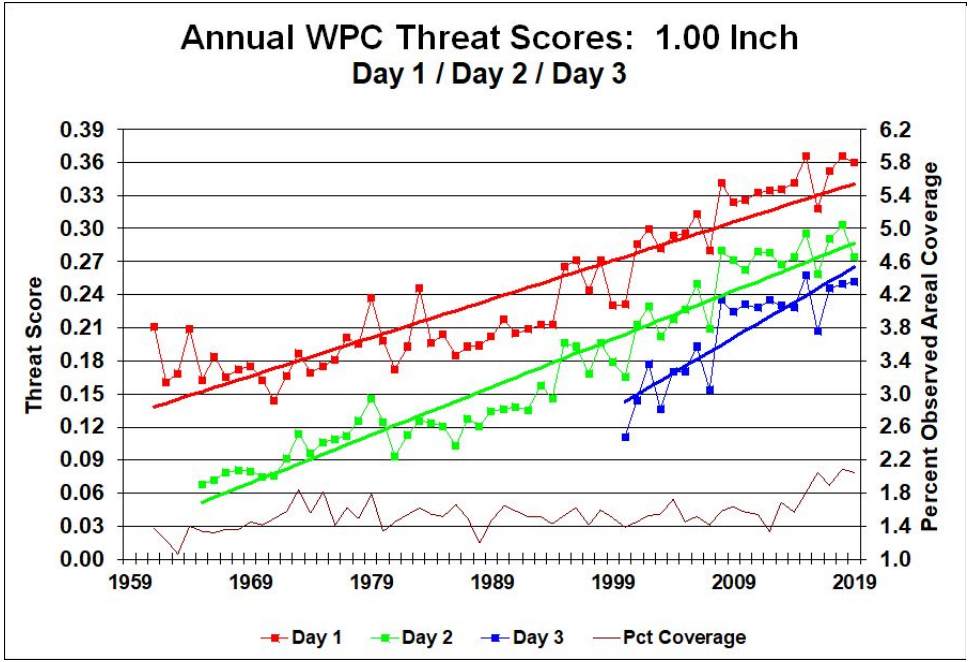


Gridded Forecast Editor (GFE) in AWIPS



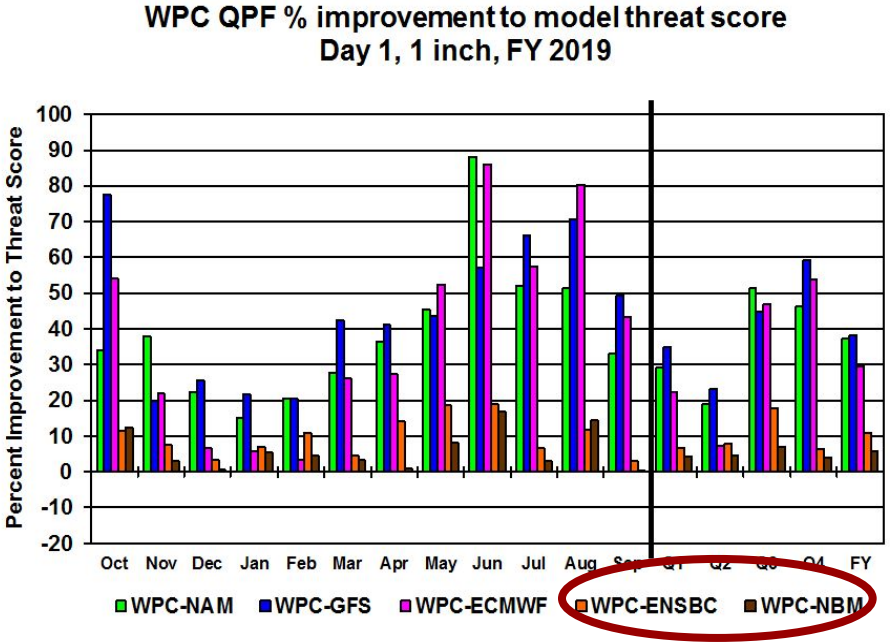
Precipitation Forecasting Expertise at WPC

WPC QPF Continues to Get Better



...and Improves Upon Models

(Multi-model ensembles more competitive)

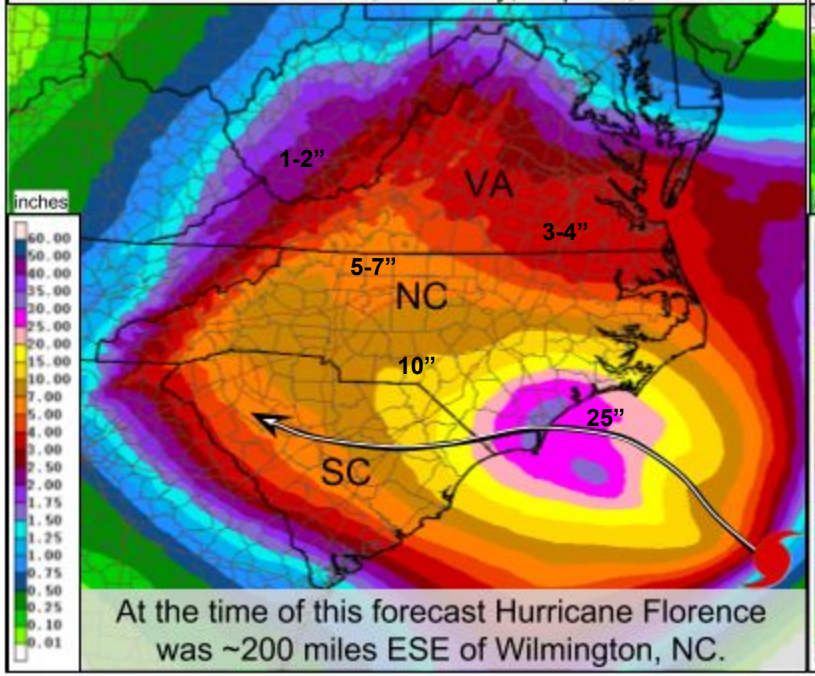


National Weather Service
Weather Prediction Center
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

5-Day Forecast vs. Observed Rainfall

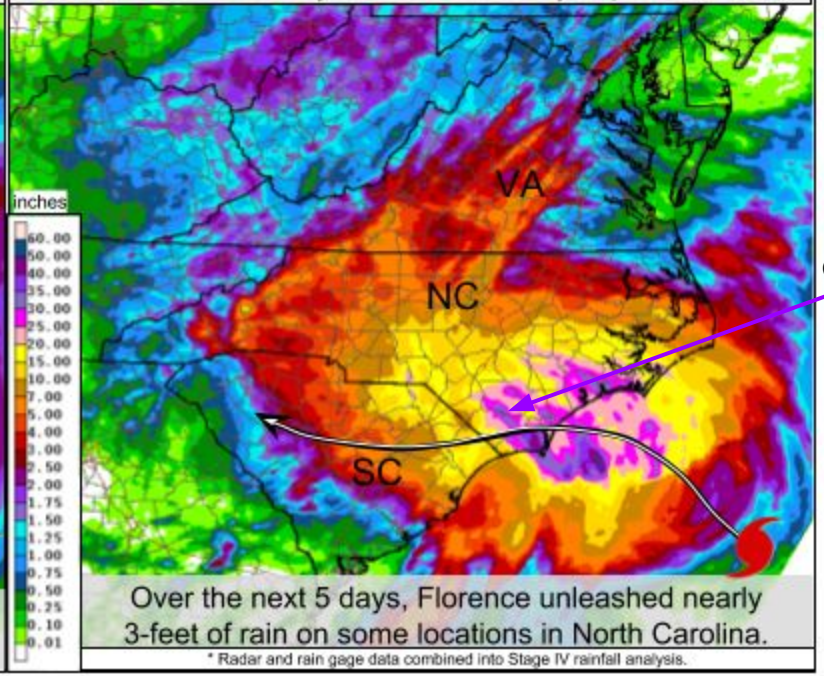
As Hurricane Florence approached the North Carolina coast last Thursday, Sep. 13, 2018, the NWS was forecasting extreme rainfall and catastrophic flooding in the coming days. Here's a look at how the forecast compares with the observed rainfall.

WPC 5-day Quantitative Precipitation Forecast (QPF)
Issued 4:51 am EDT, Thursday, Sep. 13, 2018



At the time of this forecast Hurricane Florence was ~200 miles ESE of Wilmington, NC.

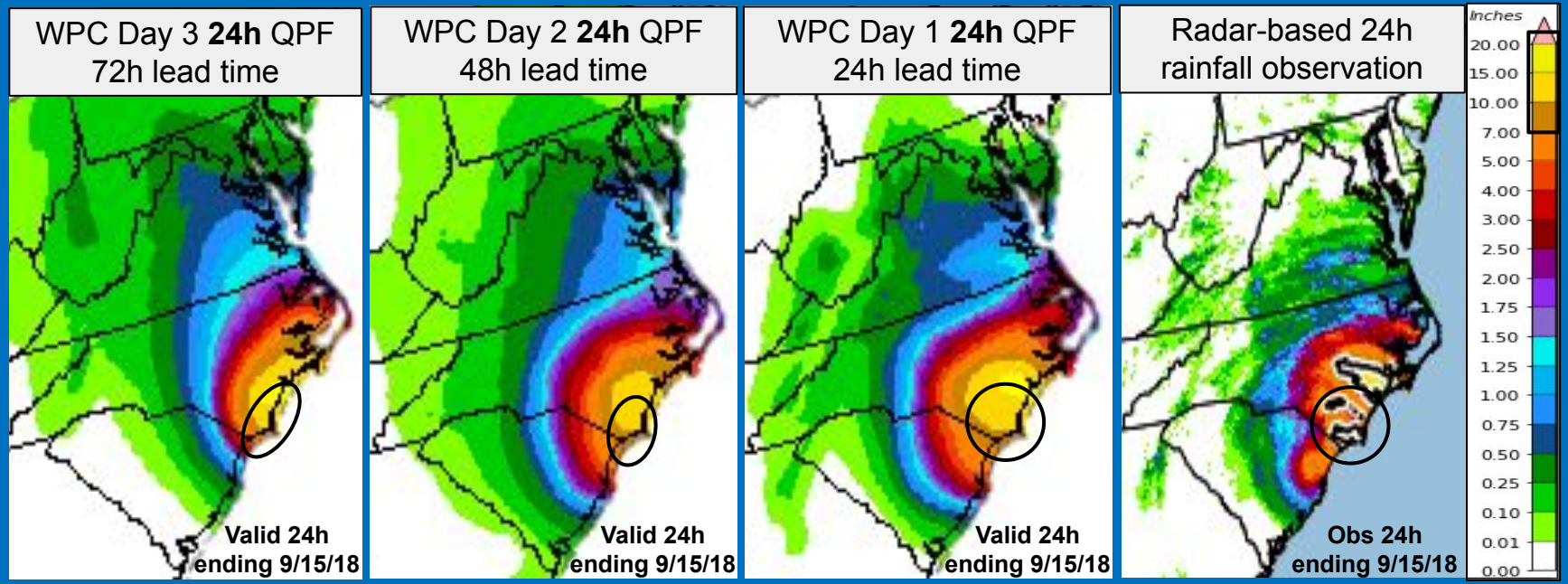
NWS 5-day Quantitative Precipitation Estimate* (QPE)
Valid 8 am EDT Thursday to 8 am EDT Tuesday, Sep. 13-18, 2018



Over the next 5 days, Florence unleashed nearly 3-feet of rain on some locations in North Carolina.

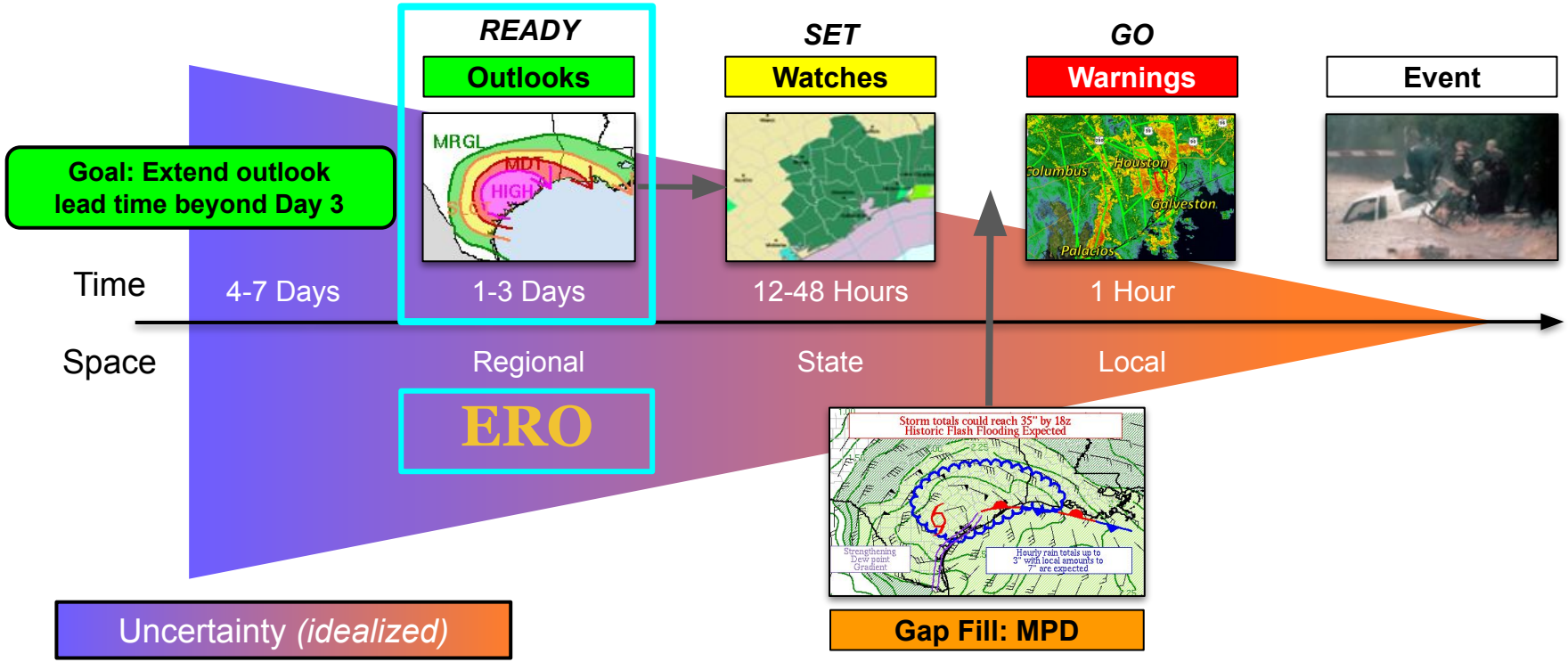
* Radar and rain gage data combined into Stage IV rainfall analysis.

Florence 1-day rainfall forecasts at days 3, 2, 1, and obs



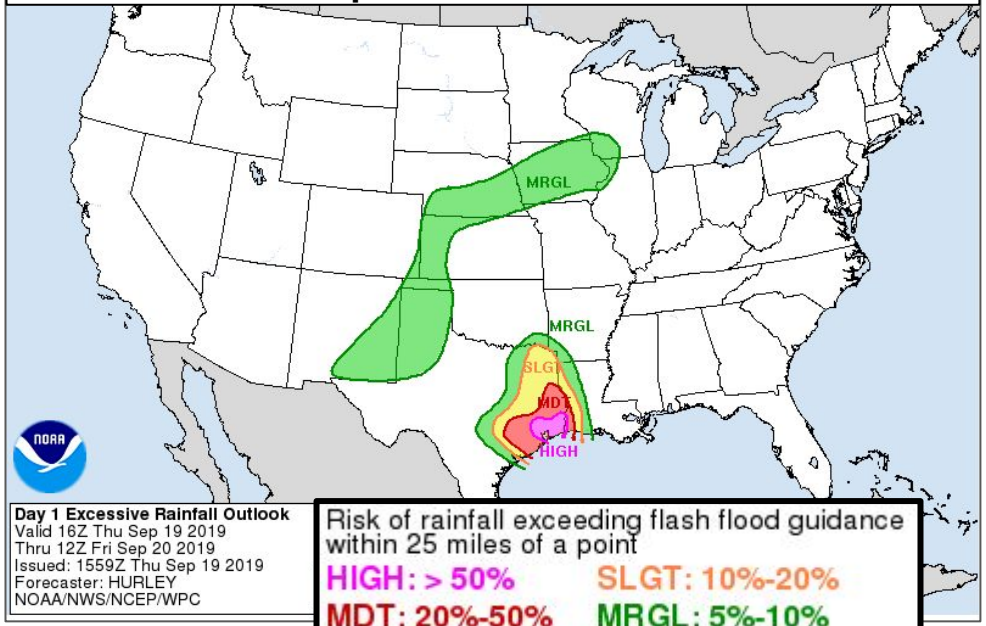
Evolution of a rare 10-inch forecast from 72h to 24h lead.

WPC Mission Shifting Toward Decision Support Services:
Example: Flow of Flash Flood Forecast Information



Excessive Rainfall Outlooks

Take this example ERO from TS Imelda 2019...



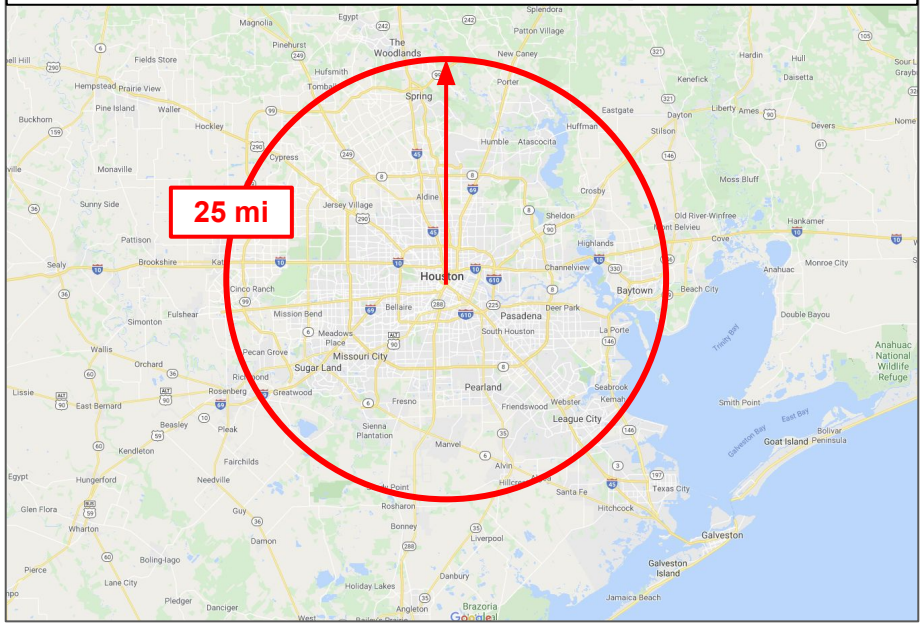
Risk of rainfall exceeding flash flood guidance within 25 miles of a point

HIGH: > 50% SLGT: 10%-20%

MDT: 20%-50% MRGL: 5%-10%

Definition

...what does "within 25 miles of a point" mean?



Greater than 50% Risk of exceeding flash flood guidance within 25 miles of anyone in this circle

Understanding WPC Excessive Rainfall Risk Categories

No Area/Label	MARGINAL (MRGL)	SLIGHT (SLGT)	MODERATE (MDT)	HIGH (HIGH)
Flash floods are generally not expected. **Probability <5 %**	**Isolated flash floods possible** **5 -10%** Localized and primarily affecting places that can experience rapid runoff with heavy rainfall.	**Scattered flash floods possible** **10 -20%** Mainly localized. Most vulnerable are urban areas, roads, small streams and washes. Isolated significant flash floods possible.	**Numerous flash floods likely** **20 -50%** Numerous flash flooding events with significant events possible. Many streams may flood, potentially affecting larger rivers.	**Widespread flash floods expected** **>50%** Severe, widespread flash flooding. Areas that don't normally experience flash flooding, could. Lives and property in greater danger.

www.wpc.ncep.noaa.gov
@NWSWPC

Flash flooding near me? — *Flash Flooding* / *NO Flash Flooding*

WEATHER PREDICTION CENTER

Characterizing High Risk Days

Hurricane Matthew SAR; FEMA Photo

Based on records over the past 9 years, we can say:

WPC High Risks are a strong indicator of a potentially deadly and damaging flash flood day

51% have **at least 1 fatality or injury**

Compared to 23% for Moderate Risk Days

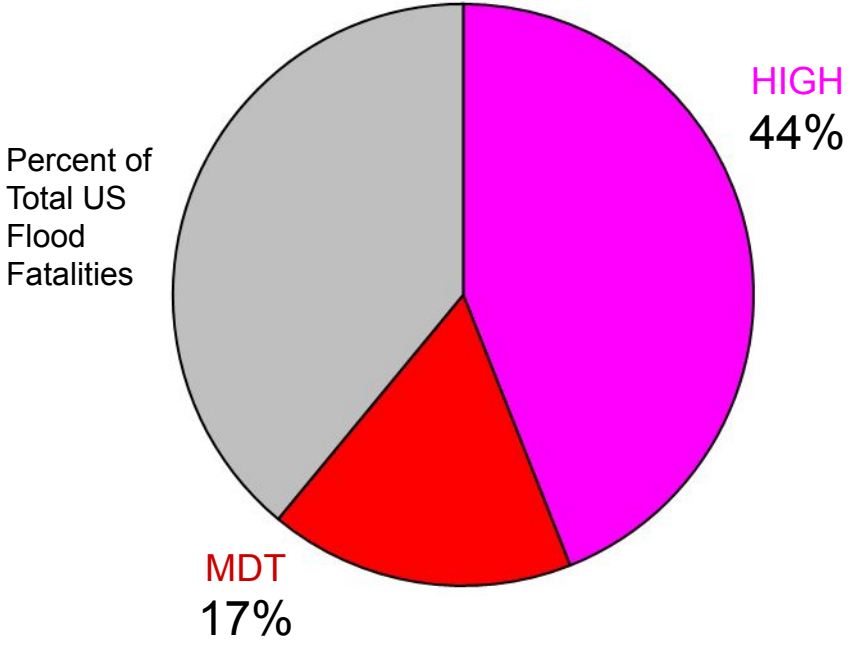
68% have **at least $1 million in damages**

Compared to 34% for Moderate Risk Days

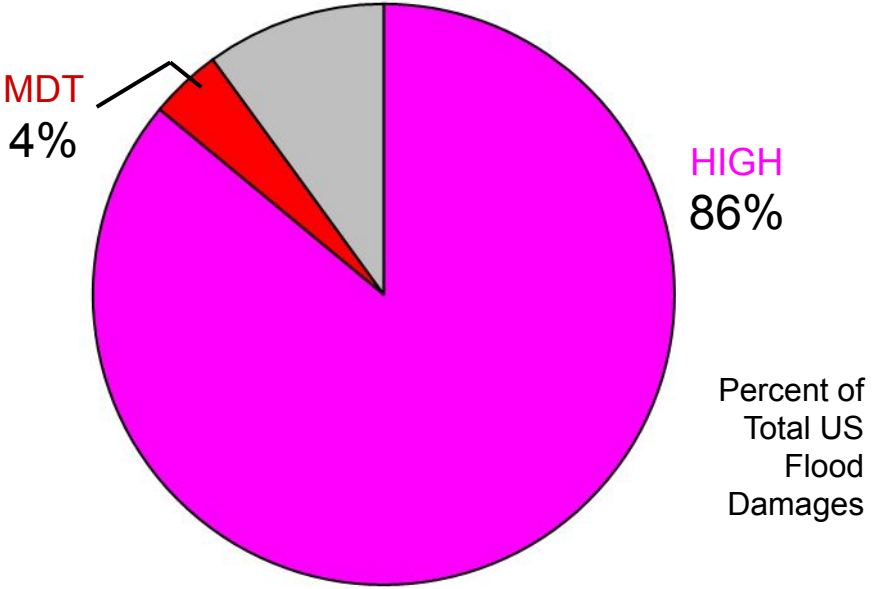
ERO Calibrated to Impacts on High End

High Risks are only issued by WPC on ~4% of days, but "High Risk Days" have accounted [1] for:

2/5 of ALL Flood-related **Fatalities**



9/10 of ALL Flood-related **Damages**

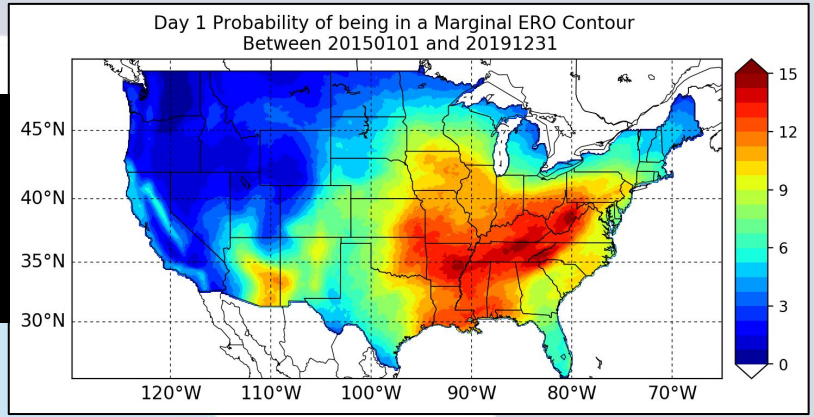


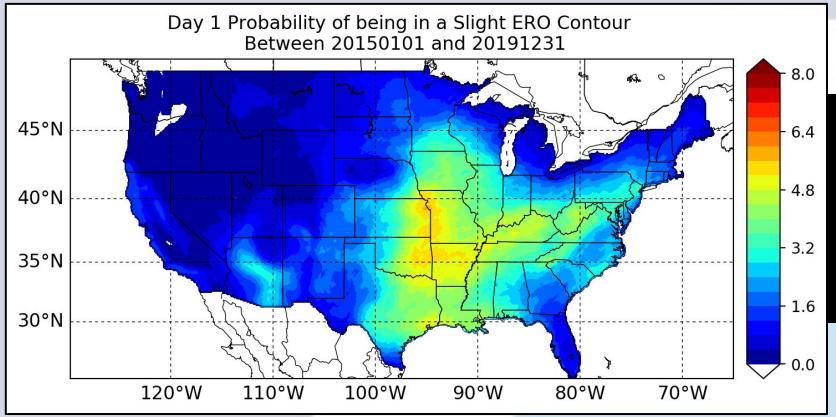
[1] *From 2010 to 2018. Includes flood, flash flood, heavy rain, and debris flow Storm Data. Excludes Oso, WA landslide which occurred well after rainfall and on a sunny day.*

ERO Relevance to your Area

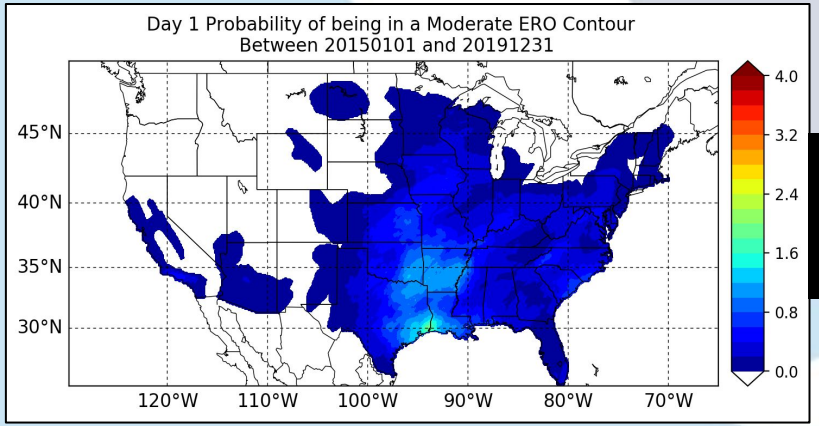
*(From 2015 thru all of 2019)

MRGL



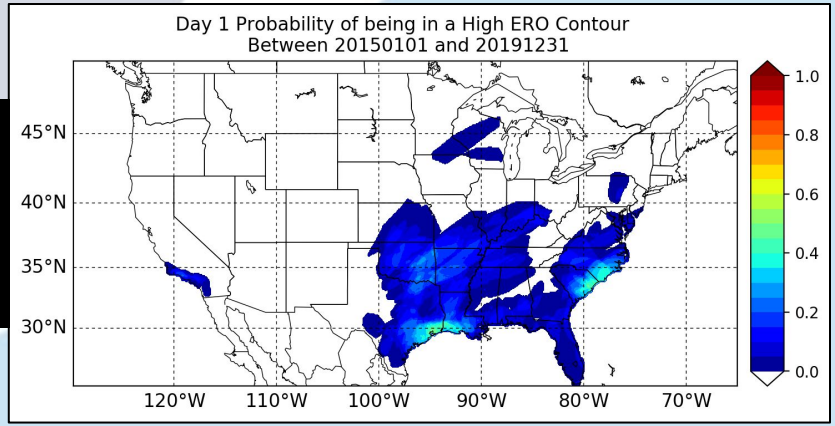


SLGT



MDT

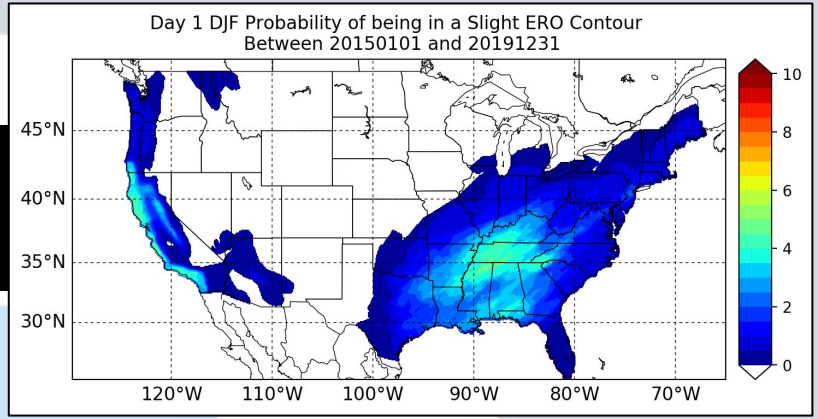
HIGH

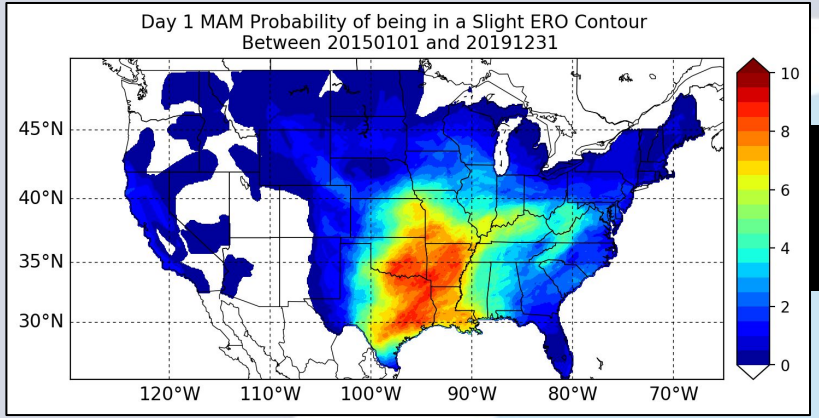


ERO by Season

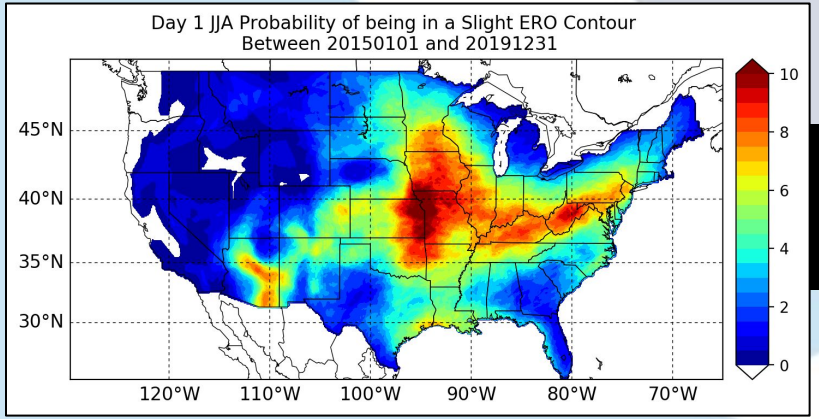
*(From 2015 thru all of 2019)

Dec
Jan
Feb



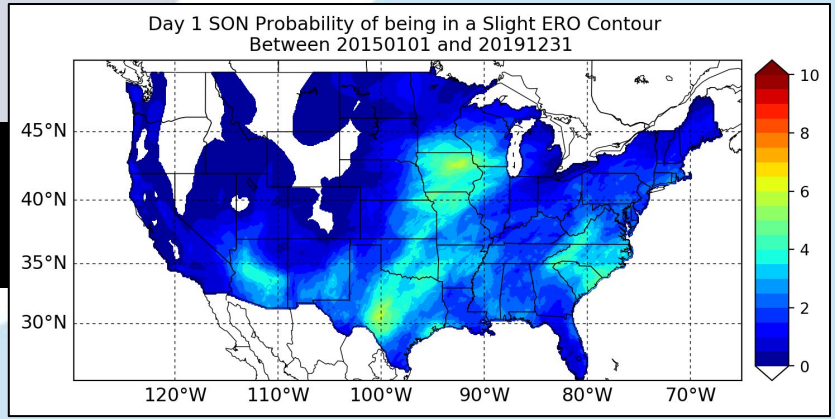


Mar
Apr
May

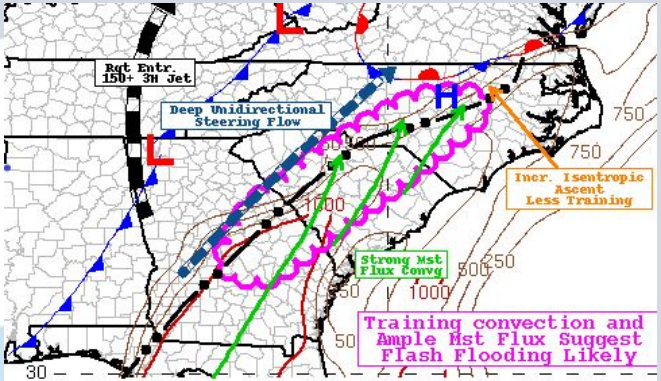


Jun
Jul
Aug

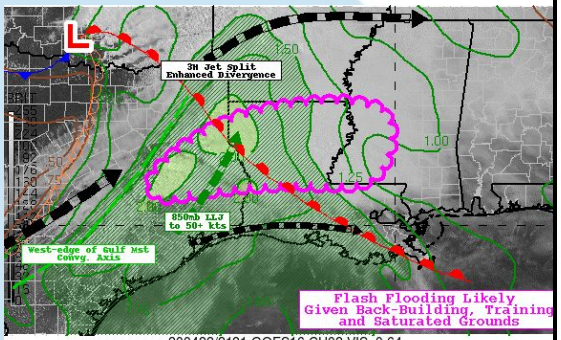
Sep
Oct
Nov



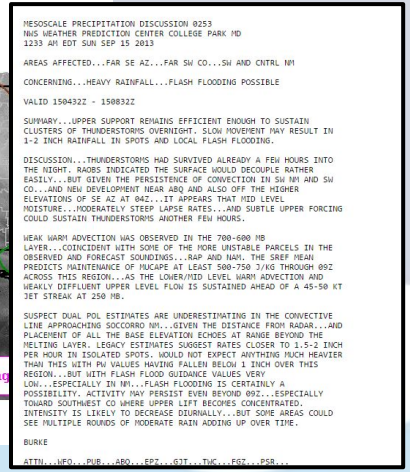
Mesoscale Precipitation Discussions (MPD)



RAP32 ML CAPE (lowest 90MB) j/kg 200206/1900f002
WPC MPD #0041



200422/2121 GOES16 CH02 VIS 0.64
RAP32 PRECIP WATER 200422/2000f002
WPC MPD #0154



MESOSCALE PRECIPITATION DISCUSSION 0253
NWS WEATHER PREDICTION CENTER COLLEGE PARK MD
1233 AM EDT SUN SEP 15 2013

AREAS AFFECTED...FAR SE AZ...FAR SW CO...SW AND CNTRL NM

CONCERNING...HEAVY RAINFALL...FLASH FLOODING POSSIBLE

VALID 150432Z - 150832Z

SUMMARY...UPPER SUPPORT REMAINS EFFICIENT ENOUGH TO SUSTAIN CLUSTERS OF THUNDERSTORMS OVERNIGHT. SLOW MOVEMENT MAY RESULT IN 1-2 INCH RAINFALL IN SPOTS AND LOCAL FLASH FLOODING.

DISCUSSION...THUNDERSTORMS HAD SURVIVED ALREADY A FEW HOURS INTO THE NIGHT. RAOBS INDICATED THE SURFACE WOULD DECOUPLE RATHER EASILY...BUT GIVEN THE PERSISTENCE OF CONVECTION IN SW NM AND SW CO...AND NEW DEVELOPMENT NEAR ABQ AND ALSO OFF THE HIGHER ELEVATIONS OF SE AZ AT 04Z...IT APPEARS THAT MID LEVEL MOISTURE...MODERATELY STEEP LAPSE RATES...AND SUBTLE UPPER FORCING COULD SUSTAIN THUNDERSTORMS ANOTHER FEW HOURS.

WEAK WARM ADVECTION WAS OBSERVED IN THE 700-600 MB LAYER...COINCIDENT WITH SOME OF THE MORE UNSTABLE PARCELS IN THE OBSERVED AND FORECAST SOUNDINGS...RAP AND NAM. THE SREF MEAN PREDICTS MAINTENANCE OF MUCAPE AT LEAST 500-750 J/KG THROUGH 09Z ACROSS THIS REGION...AS THE LOWER/MID LEVEL WARM ADVECTION AND WEAKLY DIFFLUENT UPPER LEVEL FLOW IS SUSTAINED AHEAD OF A 45-50 KT JET STREAK AT 250 MB.

SUSPECT DUAL POL ESTIMATES ARE UNDERESTIMATING IN THE CONVECTIVE LINE APPROACHING SOCCORRO NM...GIVEN THE DISTANCE FROM RADAR...AND PLACEMENT OF ALL THE BASE ELEVATION ECHOES AT RANGE BEYOND THE MELTING LAYER. LEGACY ESTIMATES SUGGEST RATES CLOSER TO 1.5-2 INCH PER HOUR IN ISOLATED SPOTS. WOULD NOT EXPECT ANYTHING MUCH HEAVIER THAN THIS WITH PW VALUES HAVING FALLEN BELOW 1 INCH OVER THIS REGION...BUT WITH FLASH FLOOD GUIDANCE VALUES VERY LOW...ESPECIALLY IN NM...FLASH FLOODING IS CERTAINLY A POSSIBILITY. ACTIVITY MAY PERSIST EVEN BEYOND 09Z...ESPECIALLY TOWARD SOUTHWEST CO WHERE UPPER LIFT BECOMES CONCENTRATED. INTENSITY IS LIKELY TO DECREASE DIURNALLY...BUT SOME AREAS COULD SEE MULTIPLE ROUNDS OF MODERATE RAIN ADDING UP OVER TIME.

BURKE

ATTN...WFO...PUB...ABQ...EPZ...GJT...TWC...FGZ...PSR...

- **Technical description of <u>near-term</u> environment and forecast regarding Flooding, emphasis on rapid-rise or "Flash" Flooding to aid local forecast office warning decisions**
- **Accompanying MPD graphic via WPC website or Twitter**
- **Fills the information "Gap" between ERO and Warnings**

Duration: 2-6 hours
Goal: 1-3 hours prior to flooding onset

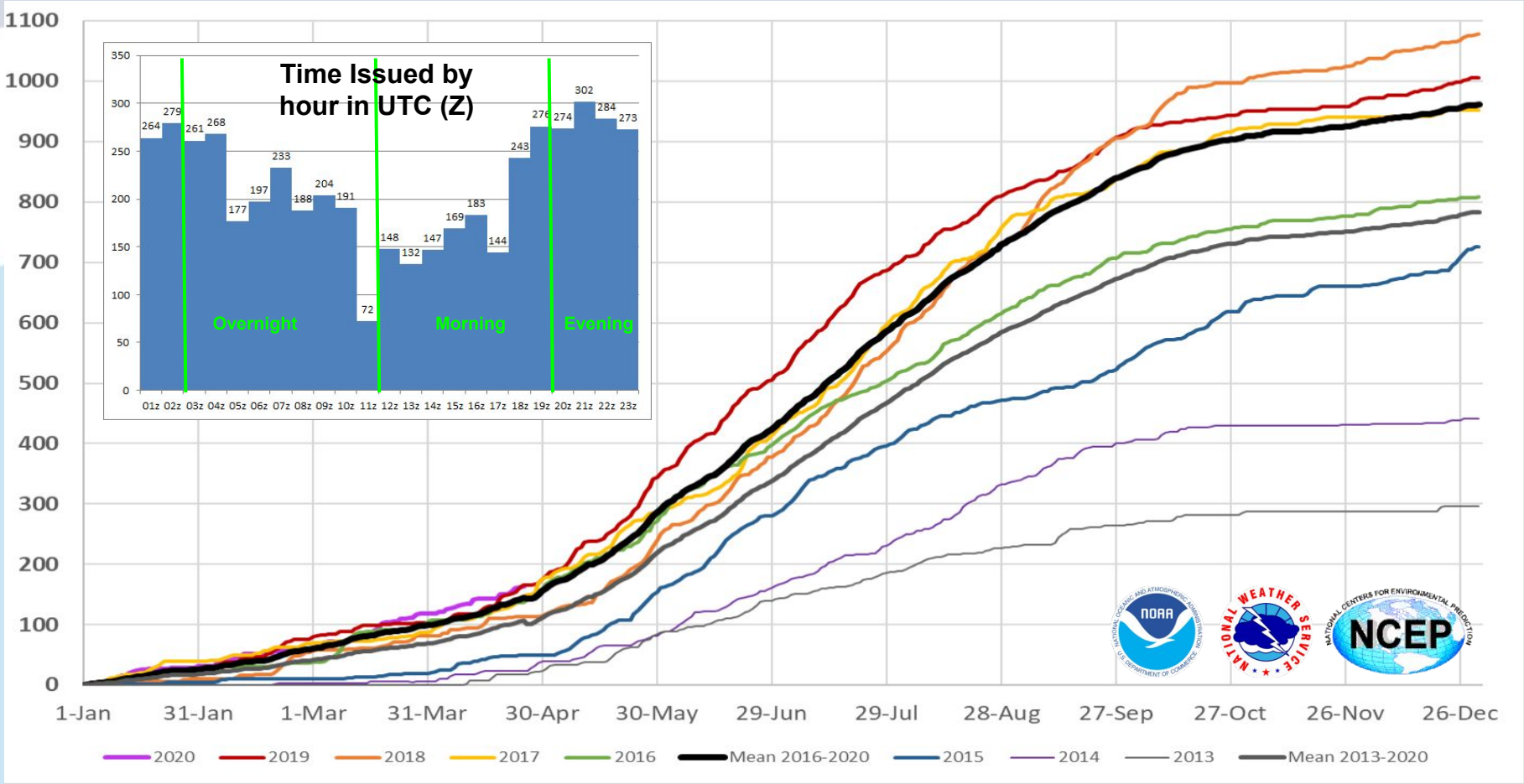
Categories: Possible, Likely, Heavy Rainfall

Familiarity: Use similar format/style as SPC MCD
- WPC started issuing April 10, 2013

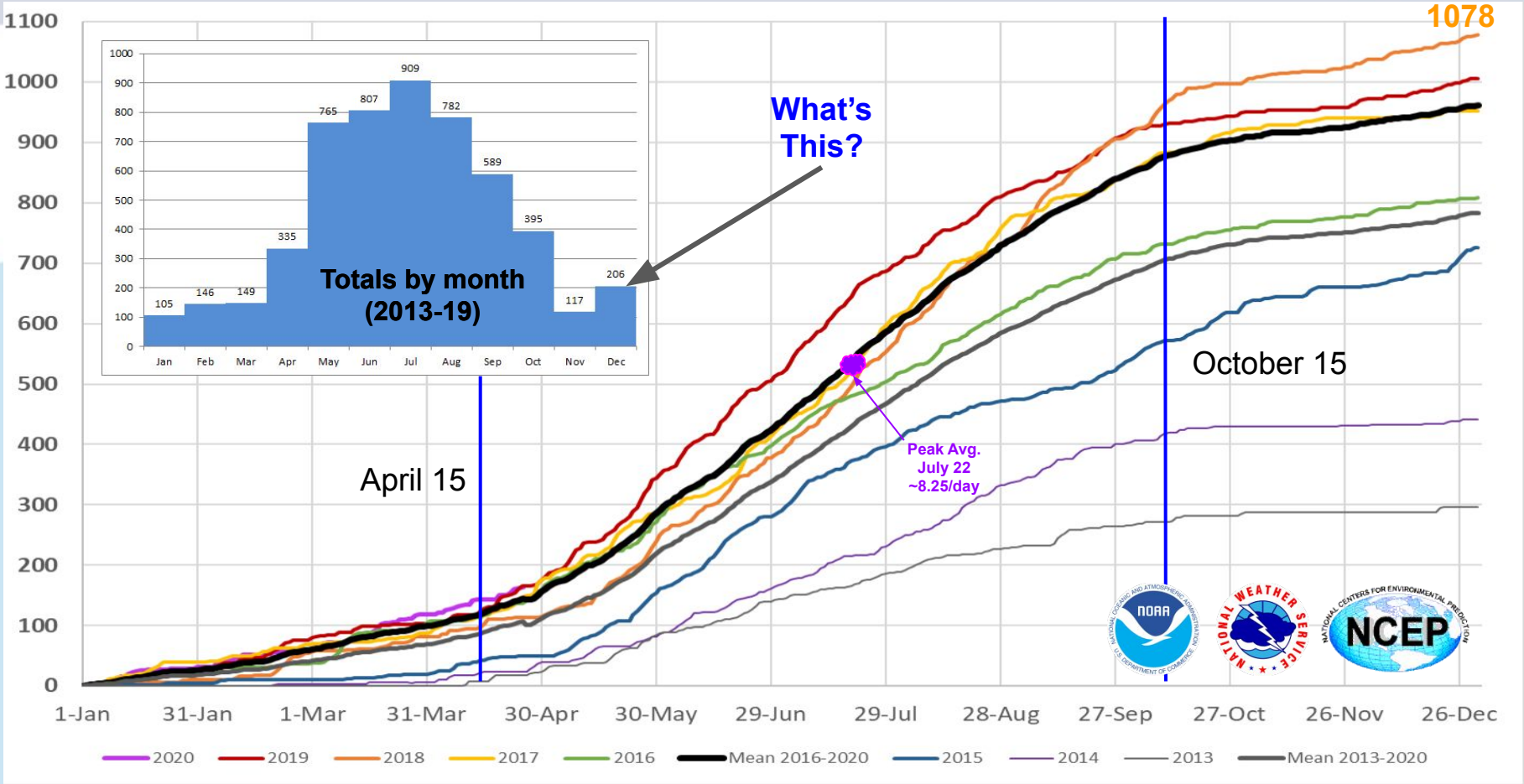
Size: Generally half of KS , Multiple NWSFOs

Event Driven: This is a unique style of product within WPC's schedule based routine

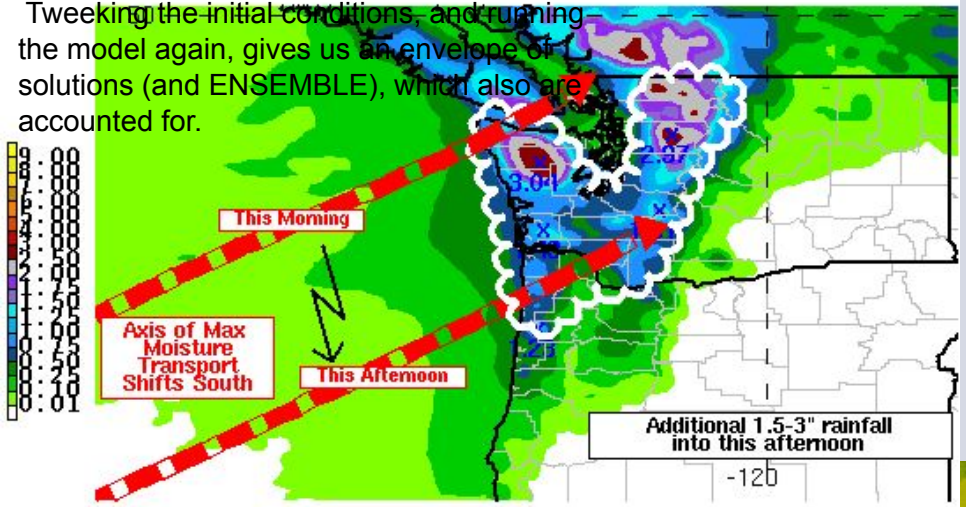
MPD Trend - When Should I expect them?



MPD Trend - When should I expect them?



Tweeking the initial conditions, and running the model again, gives us an envelope of solutions (and ENSEMBLE), which also are accounted for.



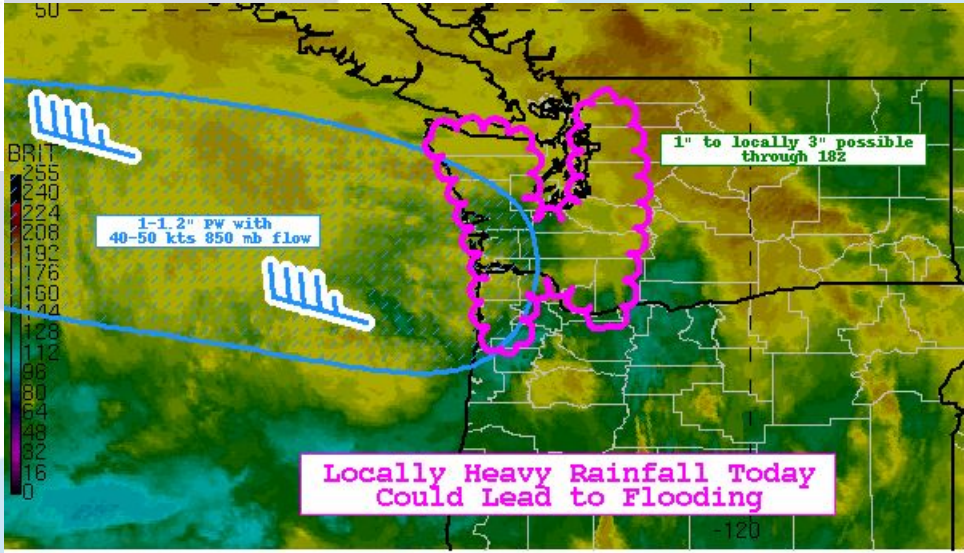
WPC QPF p12i 200201/0600f012
WPC MPD #0032

Special MPDs -- Atmospheric River

- **Stream of Tropical or Sub-Tropical Moisture**
  - **Pineapple express**
- **Prolonged Light to Moderate Rains (days)**
- **Enhanced by Coastal Topography**
- **No FFG values "It doesn't Flash Flood here"**
- **Atmospheric River MPDs ~ 223 total or about 50-60/yr since starting in Sept 2016**

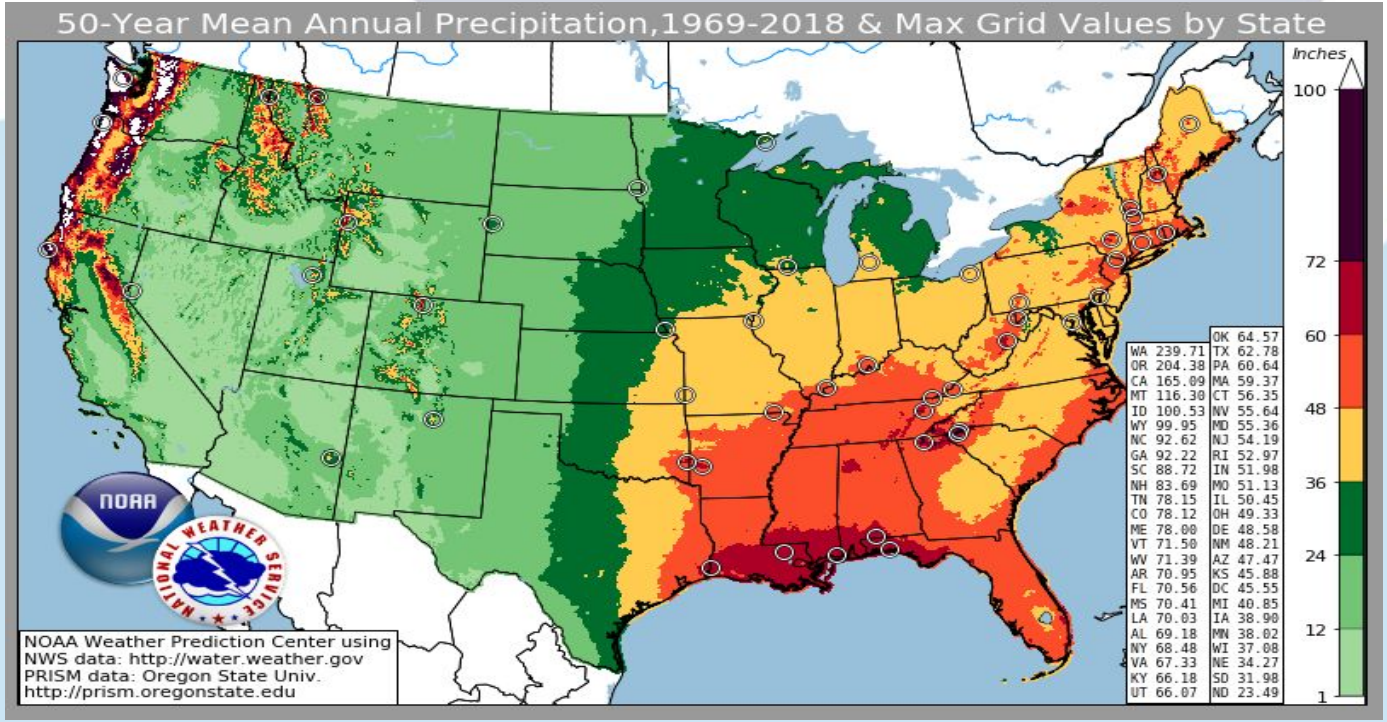
This atmospheric river MPD was issued as "Flash flooding possible" Rates over .75-1"/hr are good sign

This atmospheric river MPD was issued as "Heavy Rainfall" Longer duration of .1-.25"/hr total 10 hrs to get same 1-3"

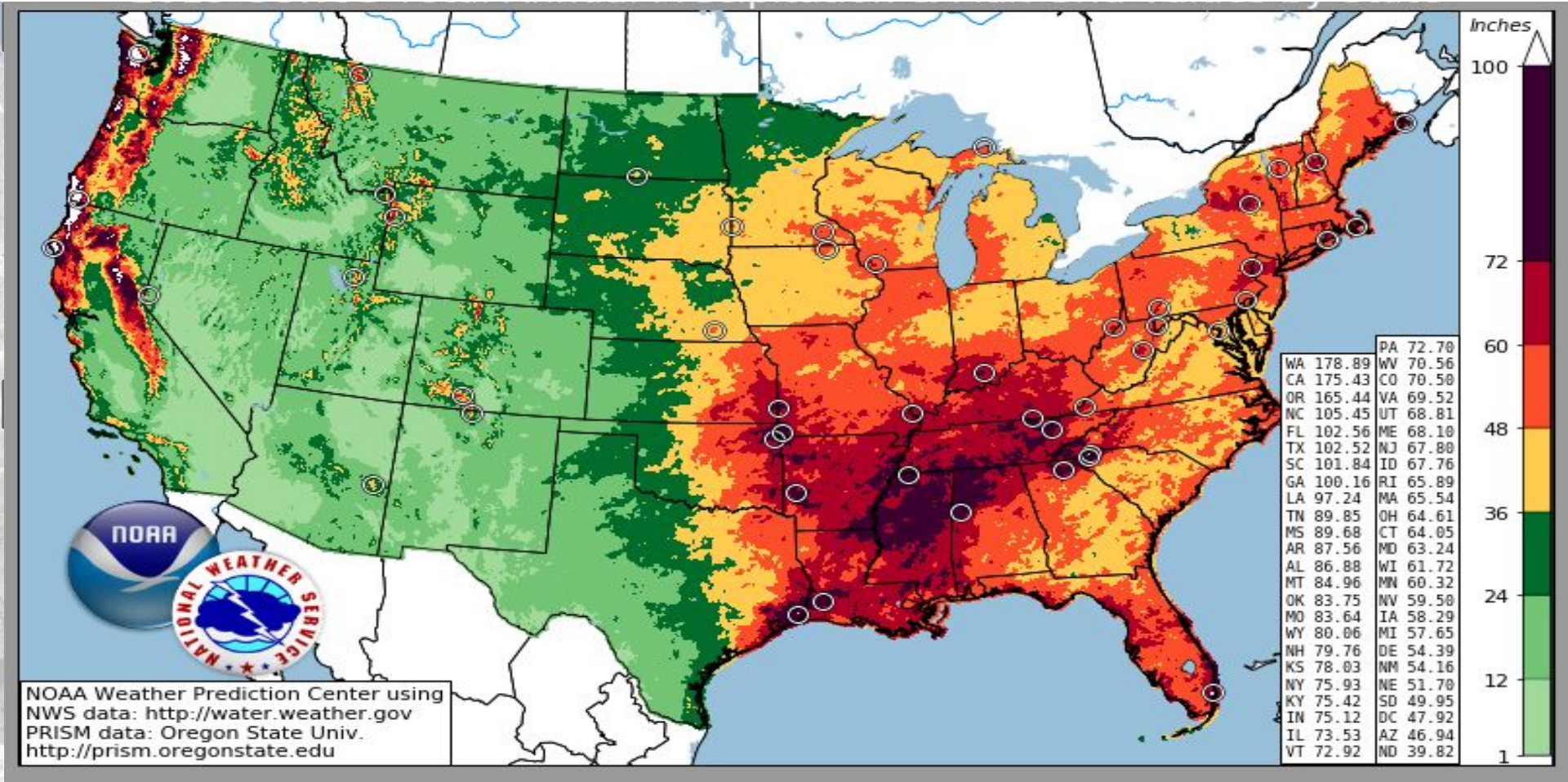


200205/0856 GOES17 CH13 IR_10.3
WPC MPD #0033

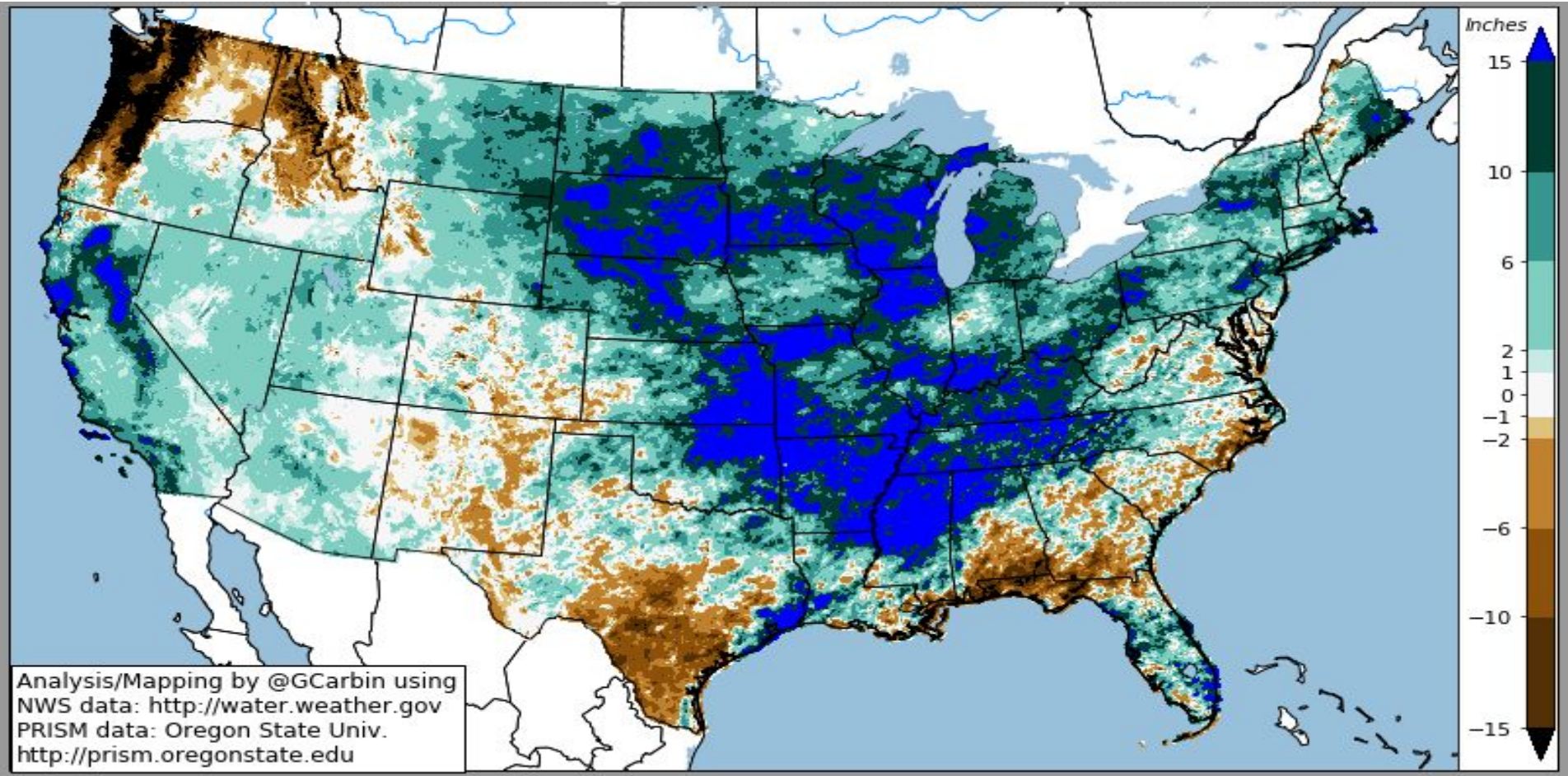
Challenges for the Future



2019 Annual Total Precipitation

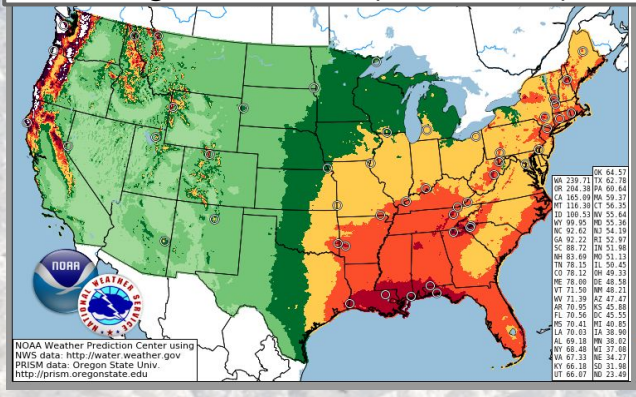


2019 Precipitation - Departure from Normal

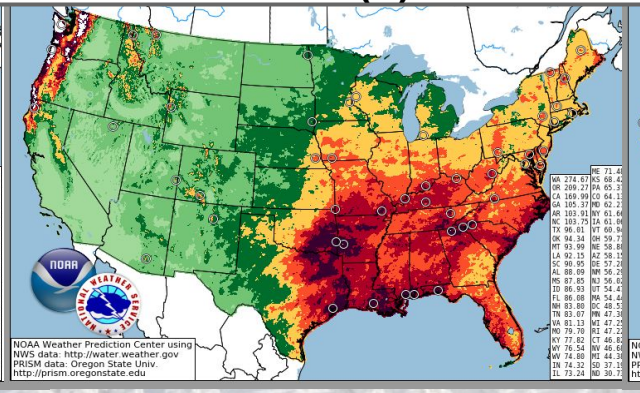


Annual Total Precipitation and Rank*

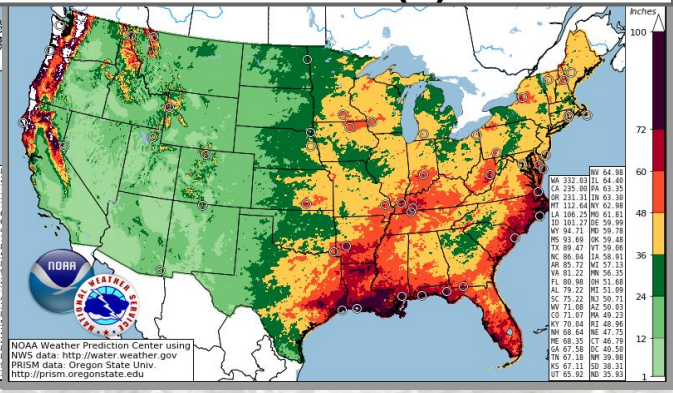
Long-term Mean (1969-2018)



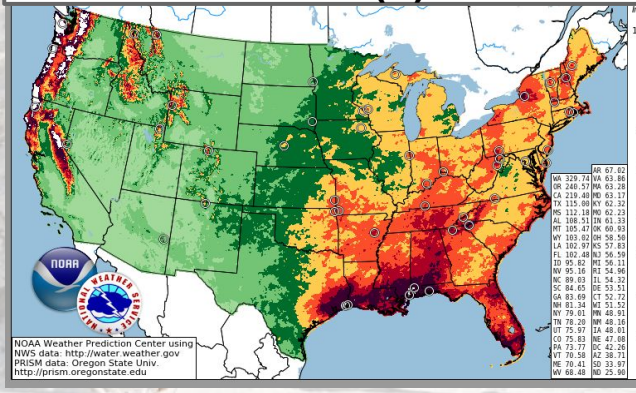
2015 (1)



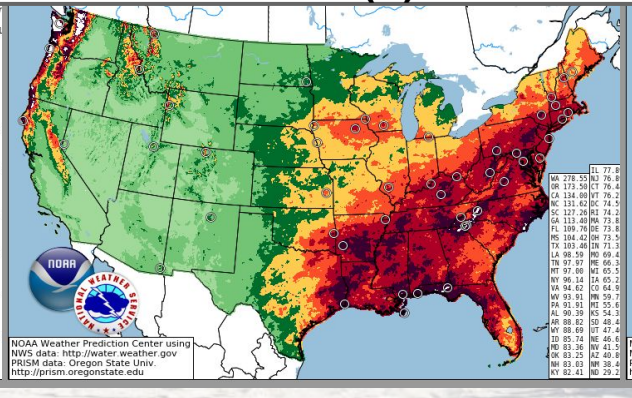
2016 (7)



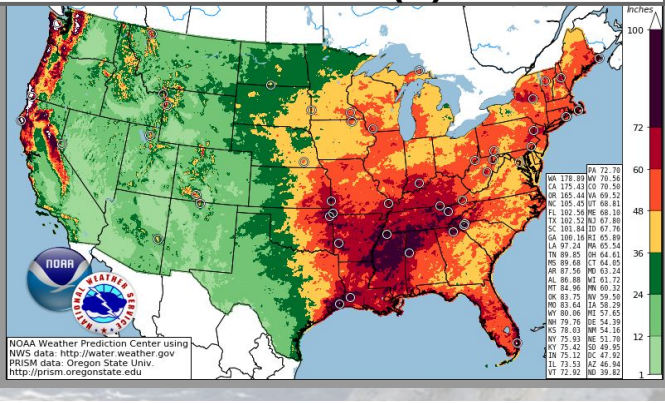
2017 (3)



2018 (2)

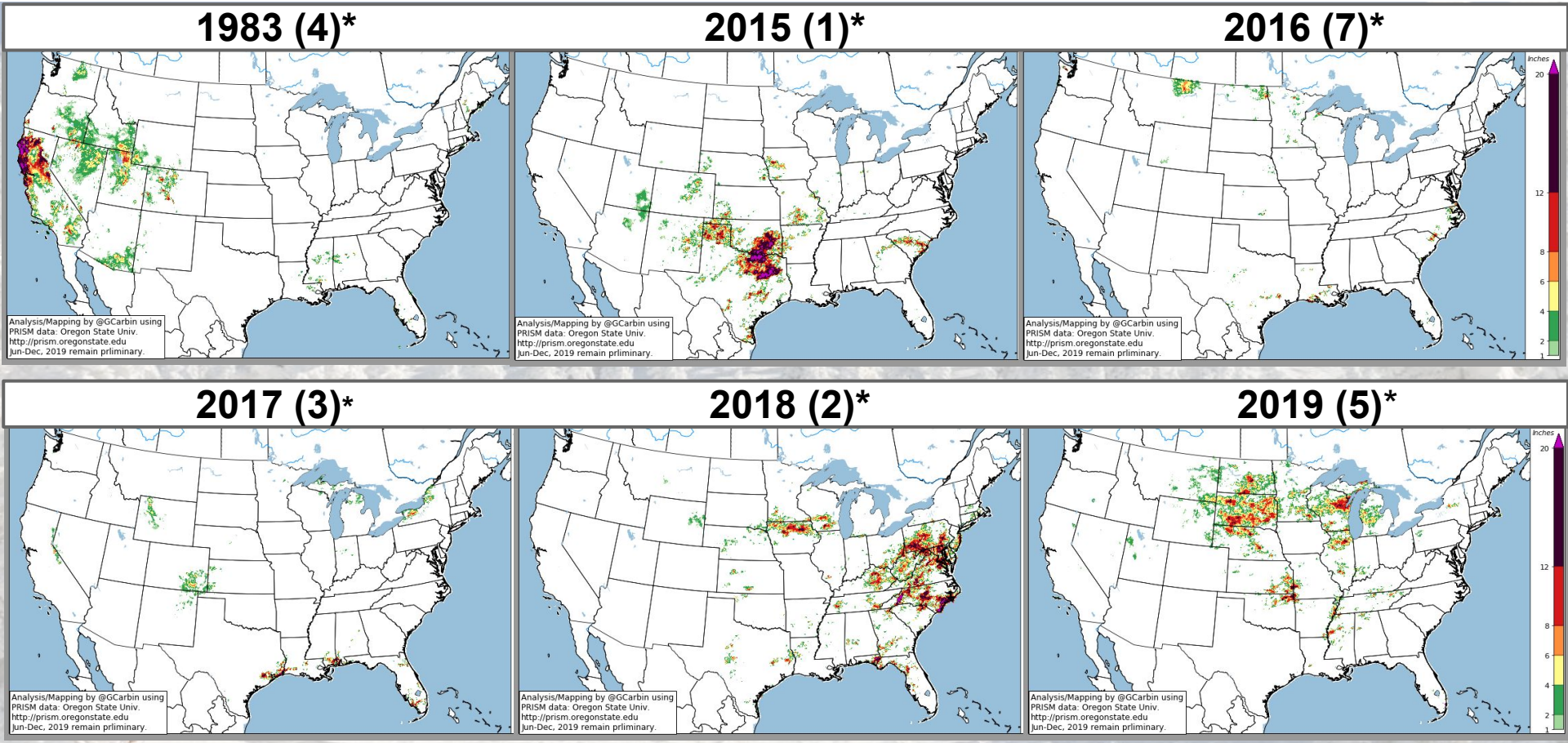


2019 (5)



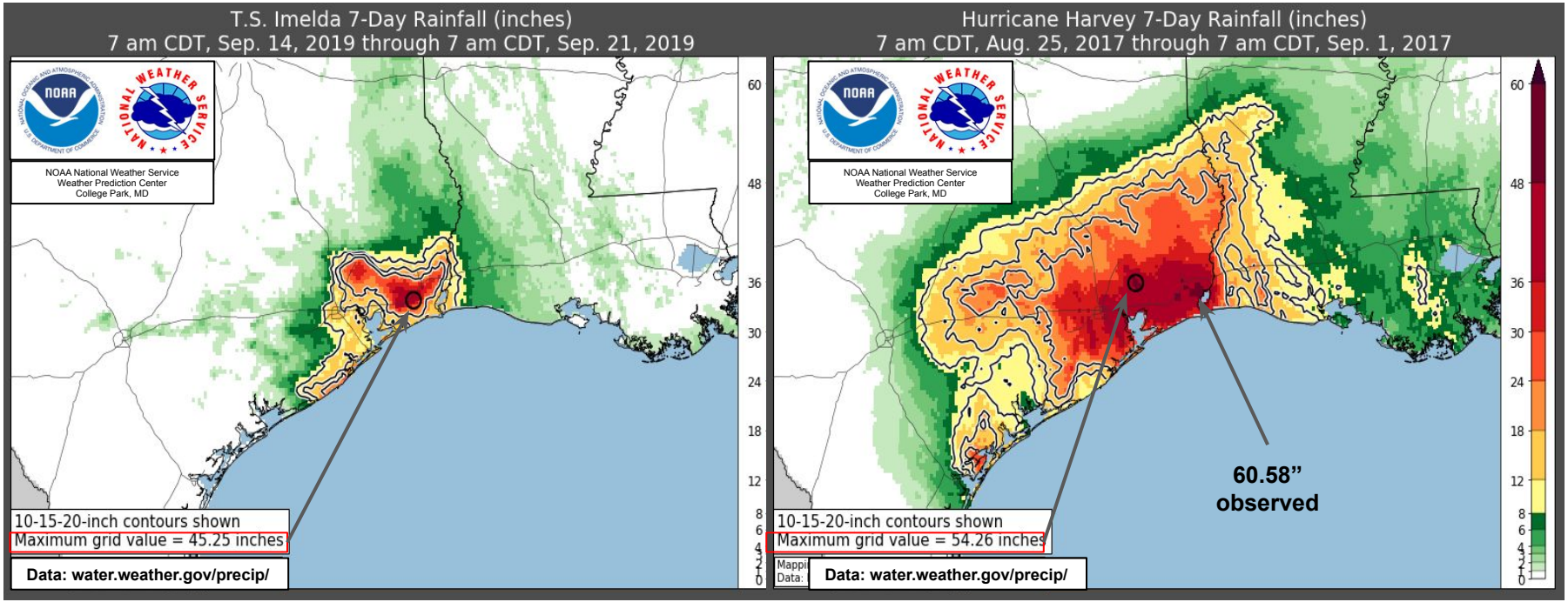
*** Based on 10-inch isohyet coverage**

How Much Above Observed 50y Max?

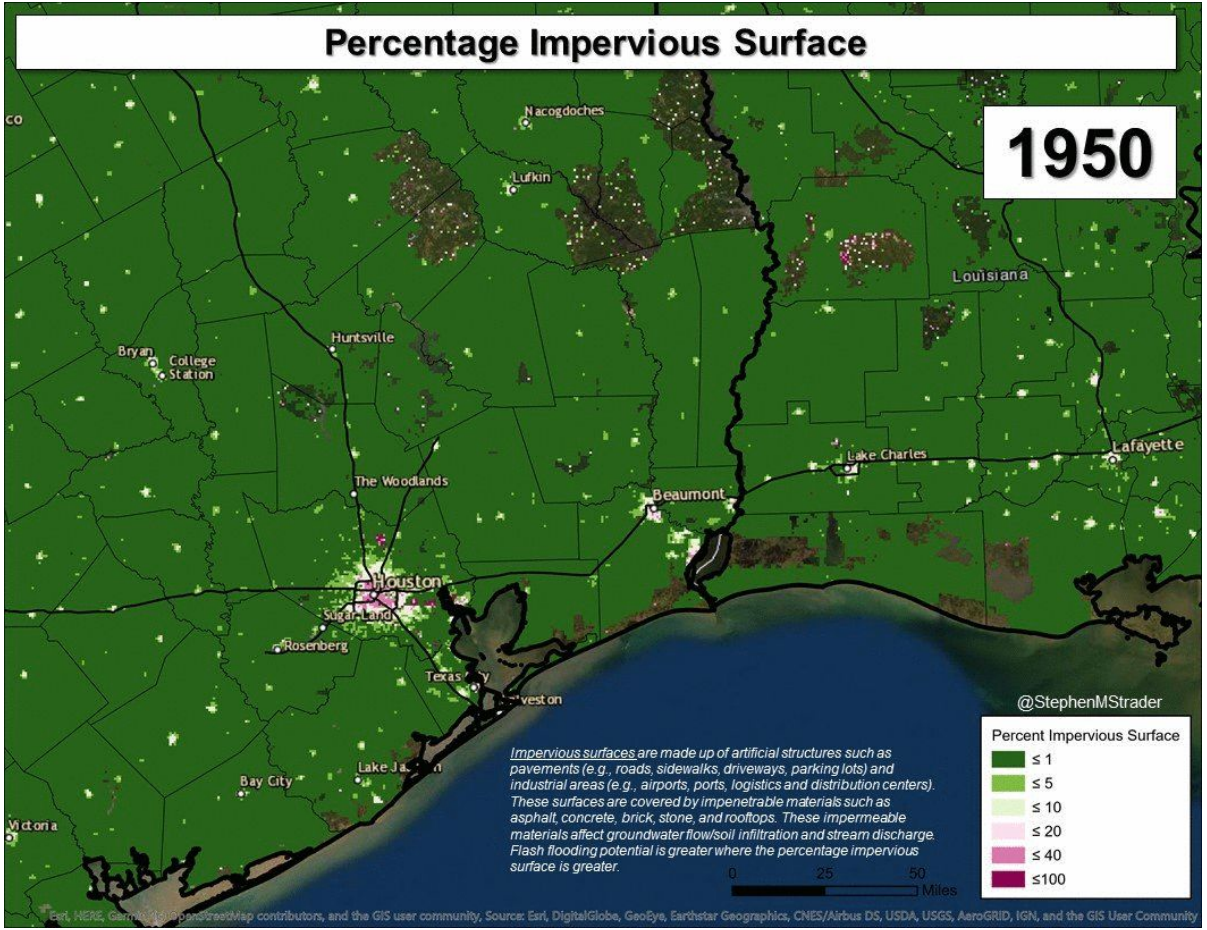


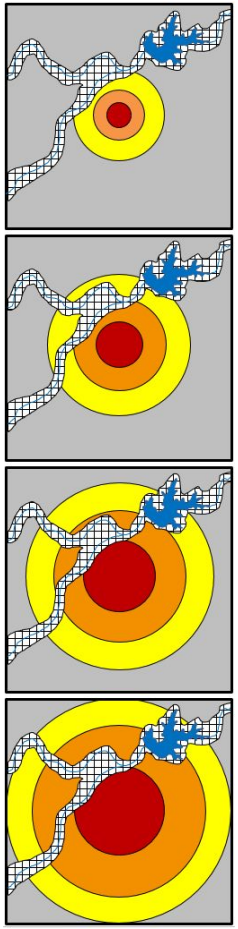
* Ranks based on 10-inch isohyet coverage

Challenges of Scale (ex: Tropical Cyclone)

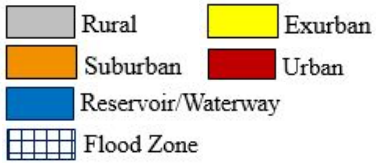


The Expanding Bullseye Effect





We are changing the land surface and this has implications in relation to extreme rainfall events



Graphics from Stephen M. Strader

Questions?

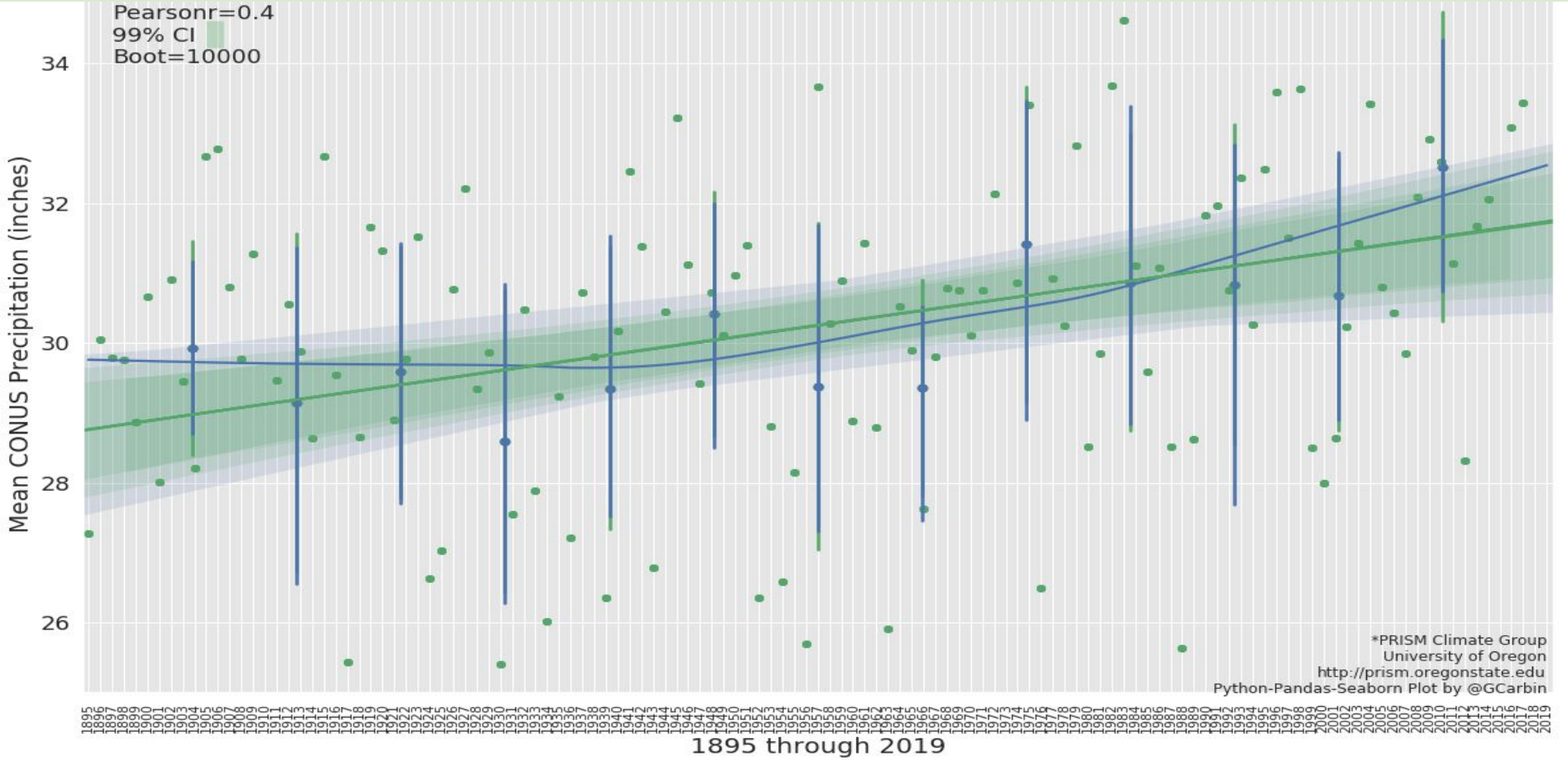
greg.gallina@noaa.gov

Webpage: https://www.wpc.ncep.noaa.gov

Facebook: /NWSWPC Twitter: @NWSWPC

Extra Slides

Annual CONUS Mean Precipitation, 1895-2019

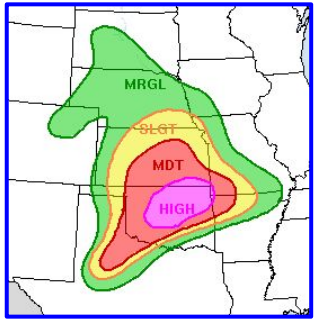


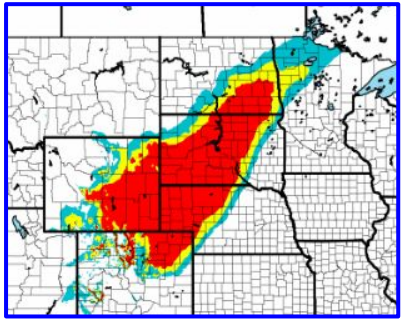
@GCarbin based on concept from Prof. Ed Hawkins (https://www.climate-lab-book.ac.uk/) using PRISM data, Oregon State Univ.

Collaboration: Major Precipitation Events

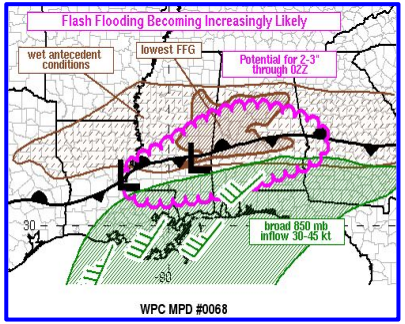
WPC engages entire NWS field structure including Forecast Offices, River Forecast Centers, National Water Center

Higher outlook probabilities drive conference calls — Excessive Rainfall Outlook and Winter Storm Outlook





Near-term Flash Flooding Risk drive - Mesoscale Precipitation Discussions (MPDs) w/ Graphic

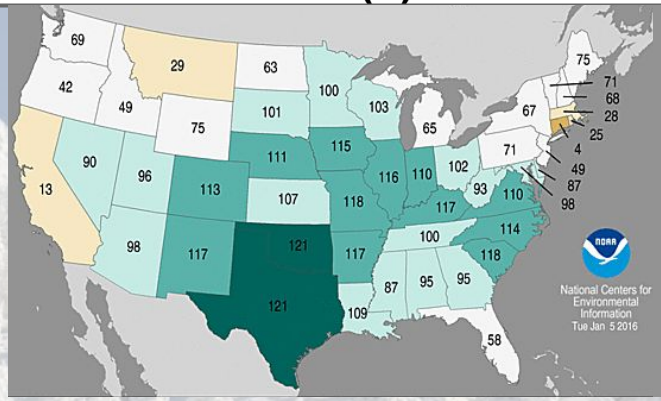


Annual Precipitation *NCEI State Rankings*

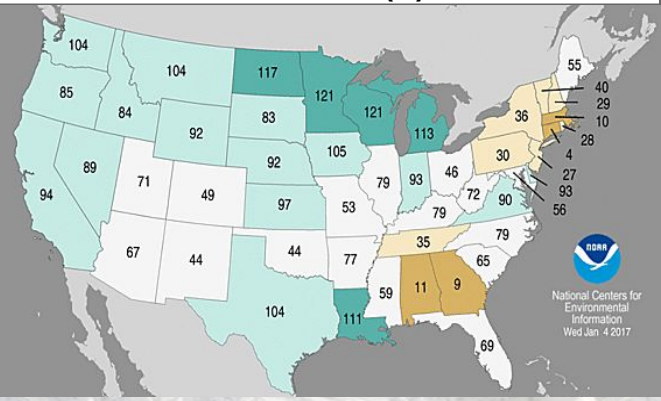
Courtesy: NOAA/NCEI

Darker green states have measured their "wettest" years since 1895!

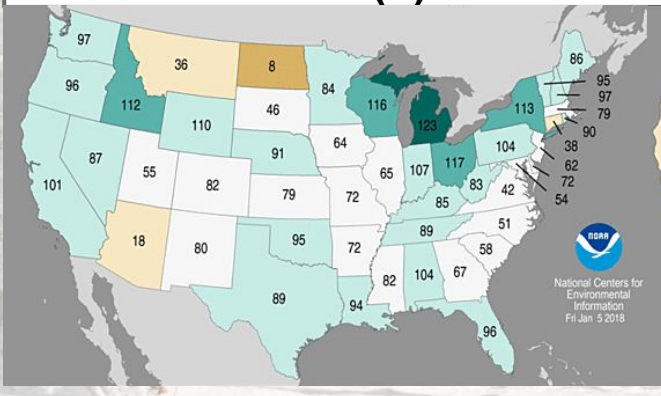
2015 (1)*



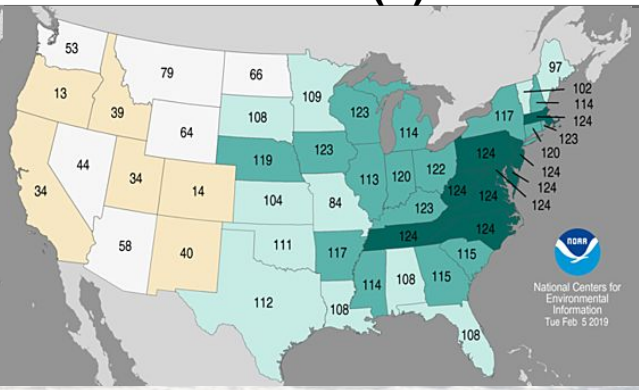
2016 (7)*



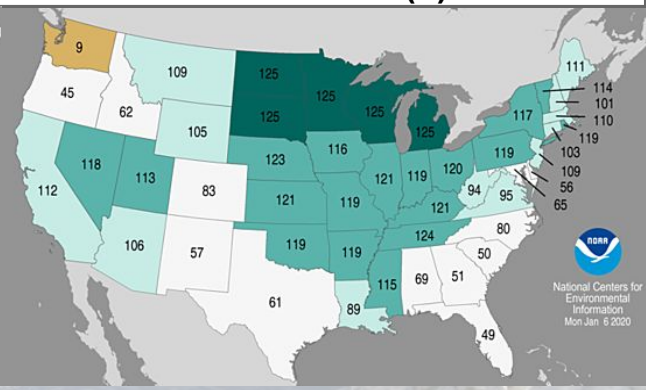
2017 (3)*



2018 (2)*

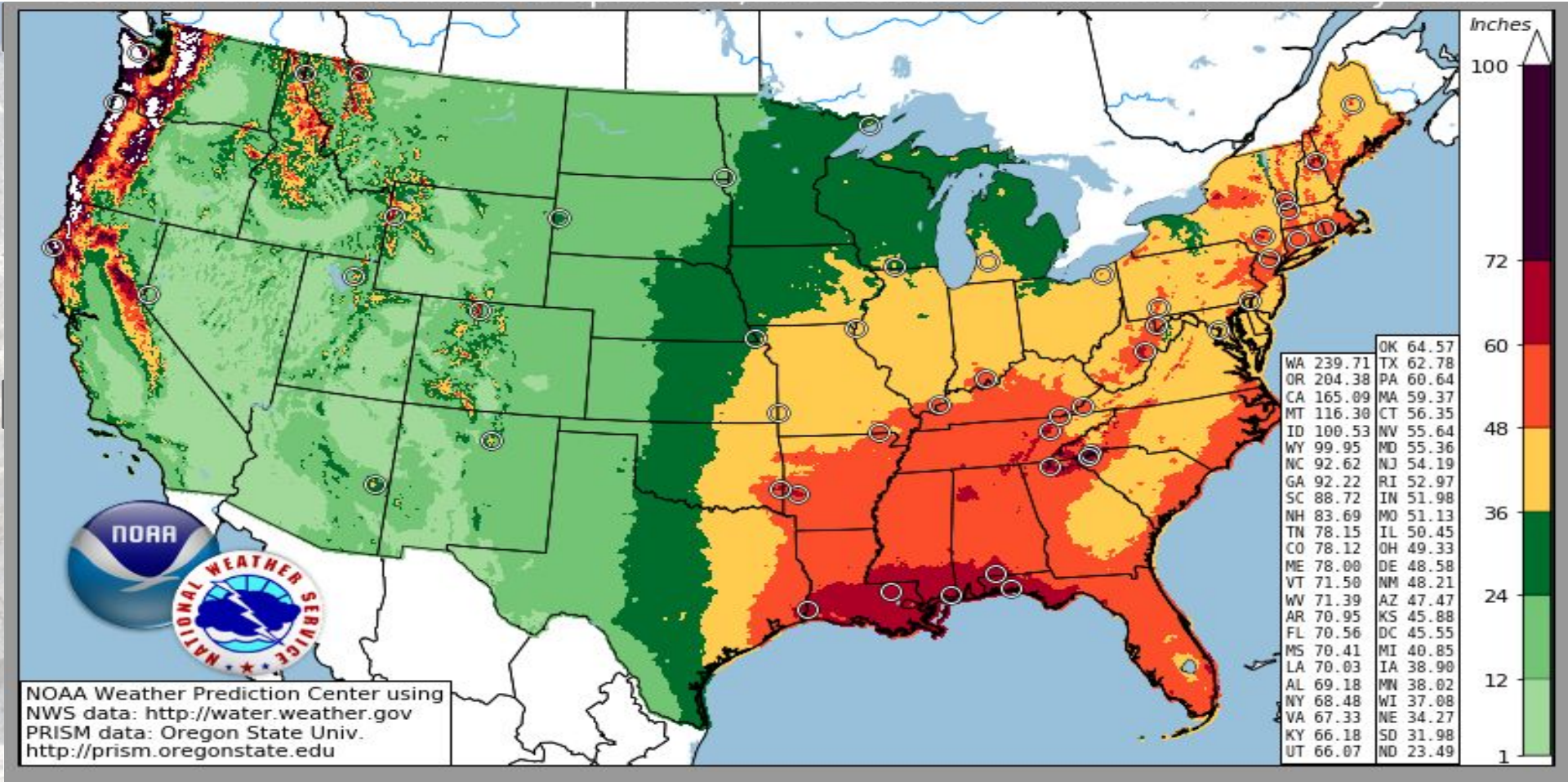


2019 (5)*



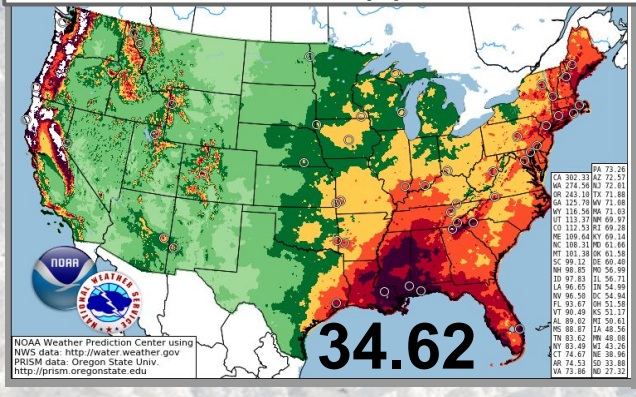
*** Ranks based on 10-inch isohyet coverage**

Mean Annual Total Precipitation

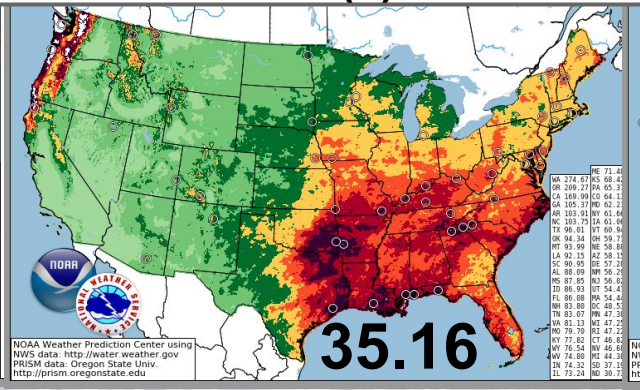


Mean Precipitation over U.S. Domain (Rank*)

1983 (5)*



2015 (3)*



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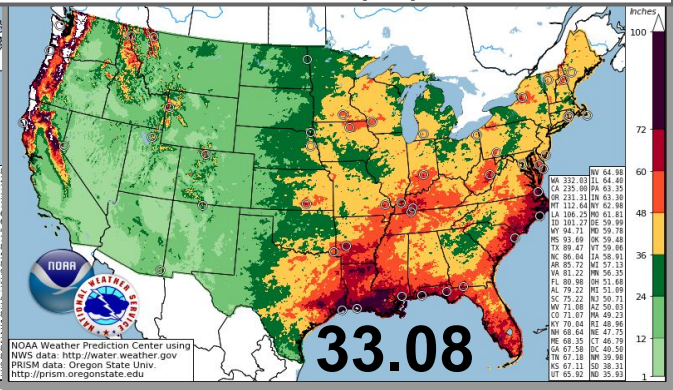

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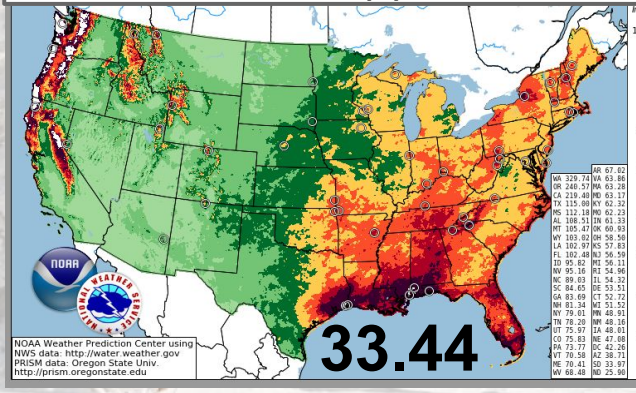
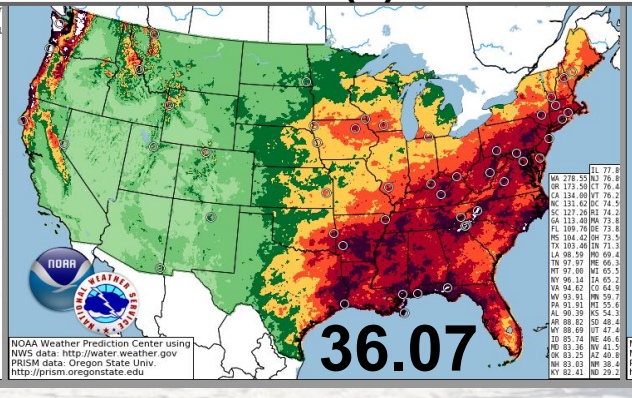
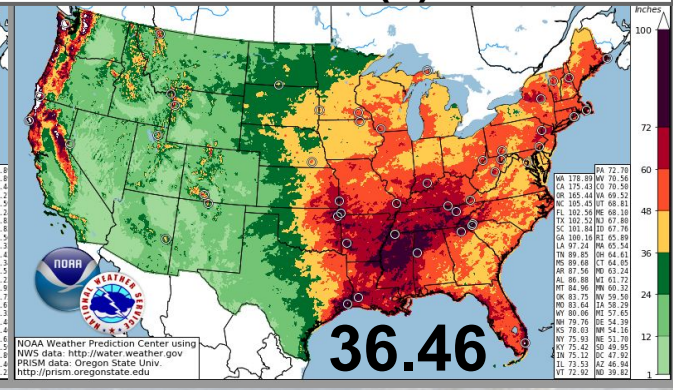


2018 (2)*

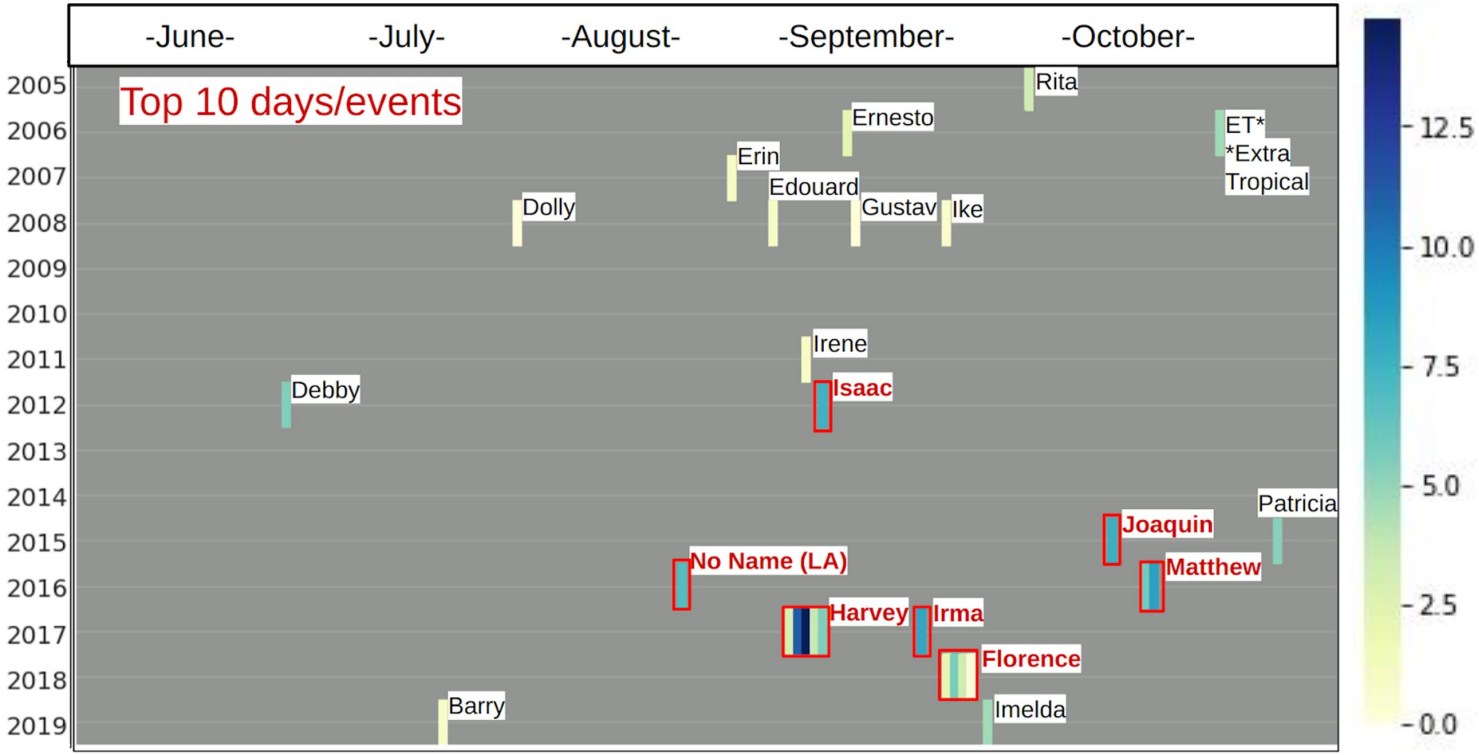


2019 (1)*



* Based on mean inches over entire domain

Tropical Cyclones: Prolific Rainfall Machines



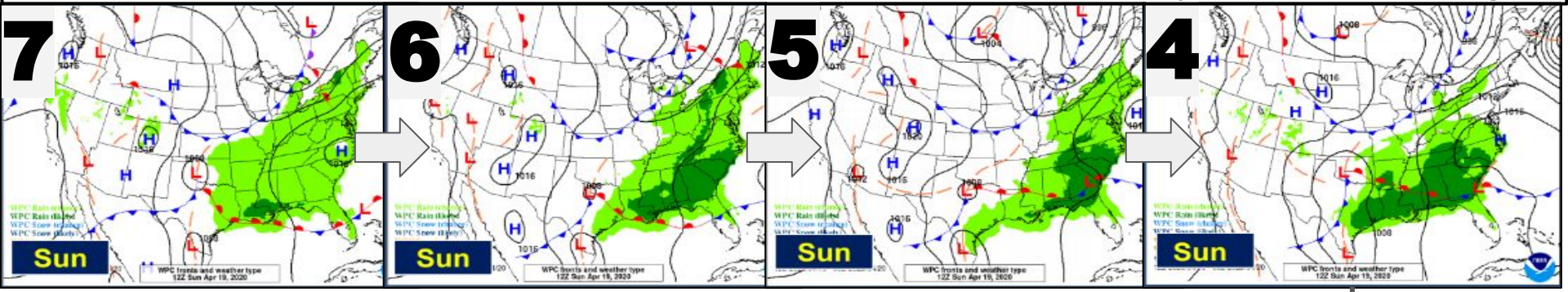
Areal coverage of the daily 10-inch isohyet in 1000 km² during the tropical season.

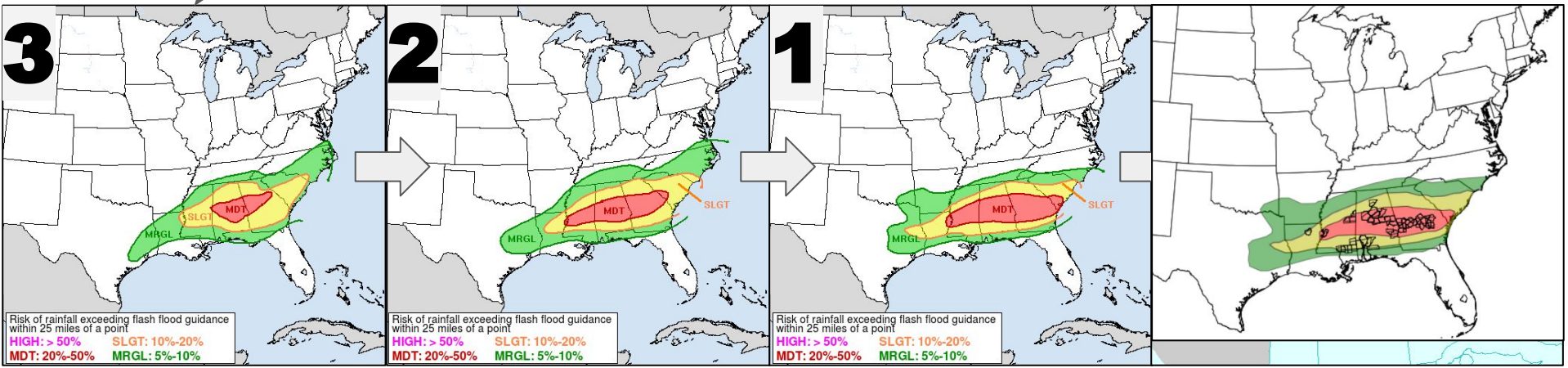
WEATHER PREDICTION CENTER

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Weather-Ready Nation

Evolution of NWS Forecasts for April 19-20, 2020 Hvy Rain/Flooding





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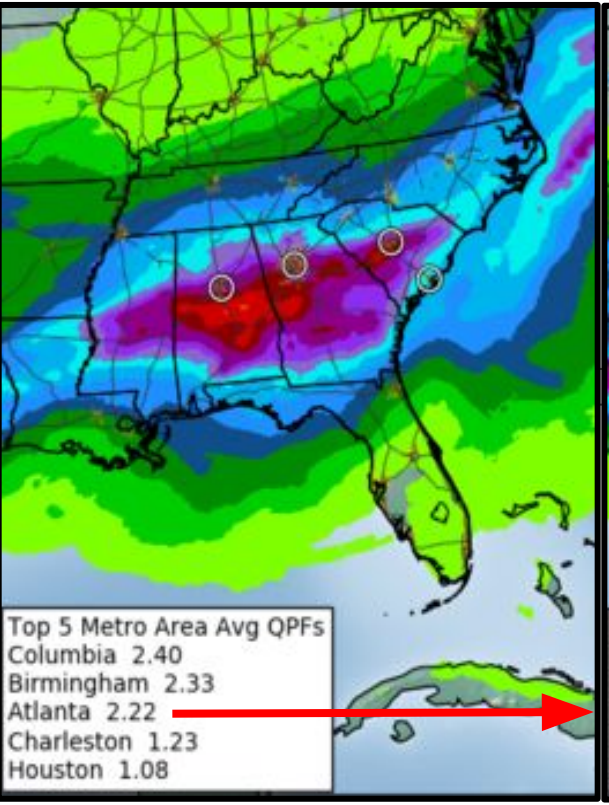
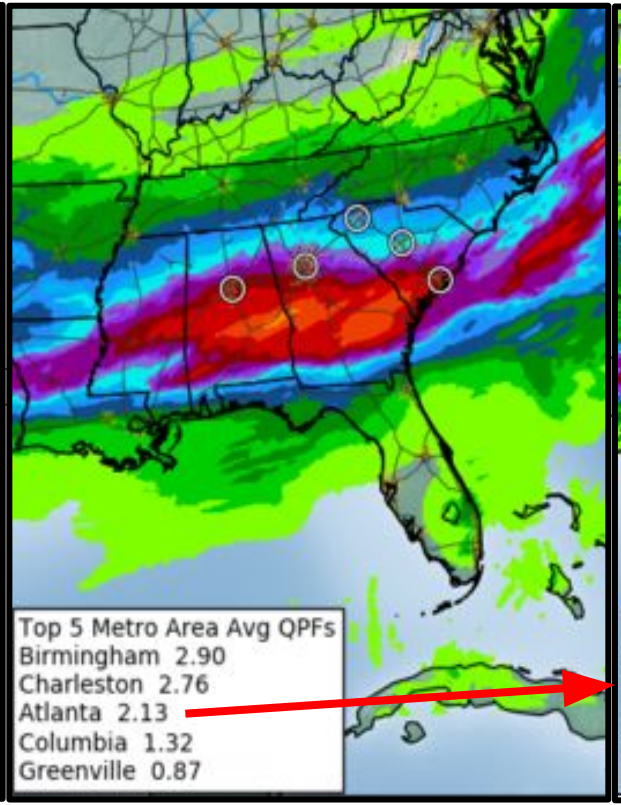
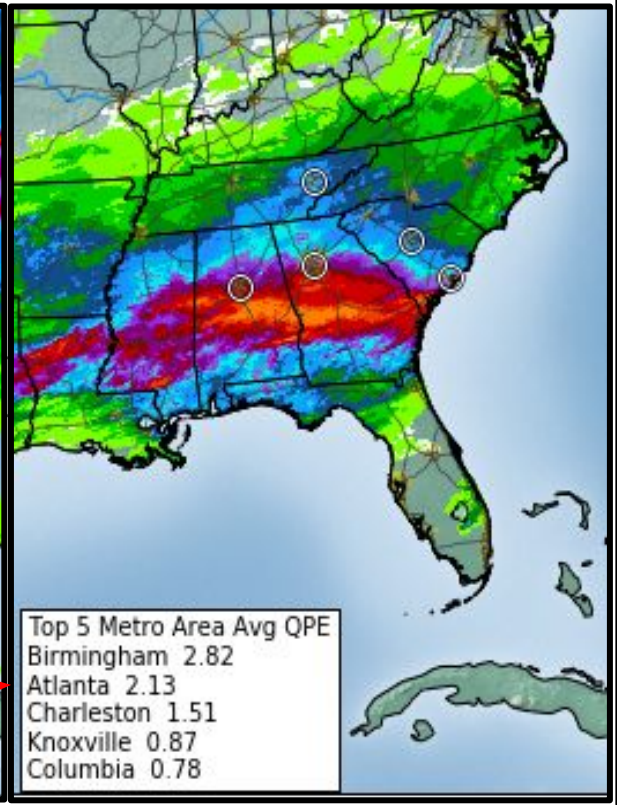
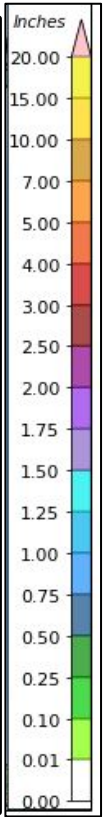
72h Lead QPF | 24h Lead QPF | Observed, April 20

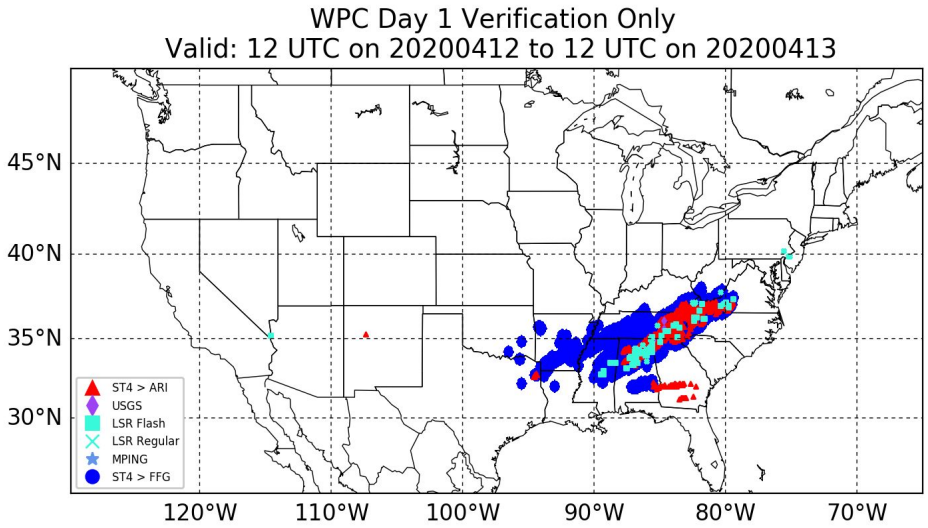


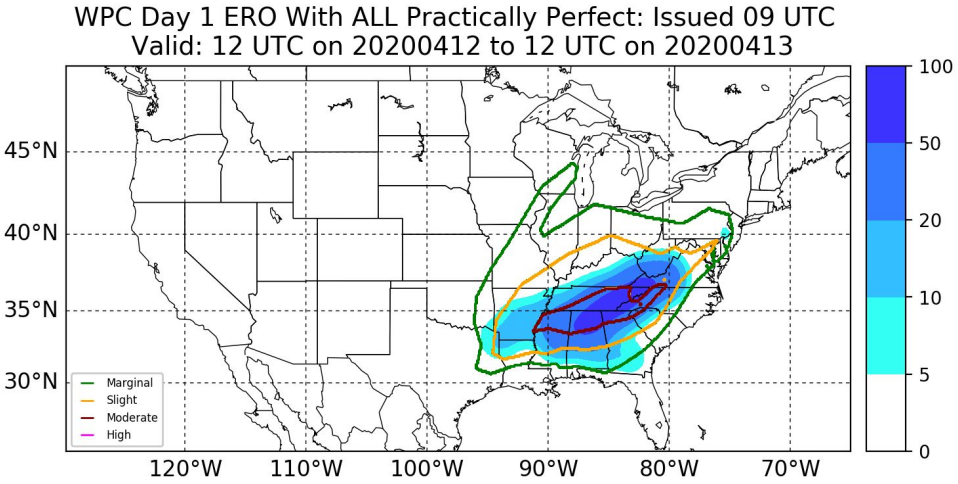






ERO Verification (reports) and Practically Perfect w/Forecast ERO



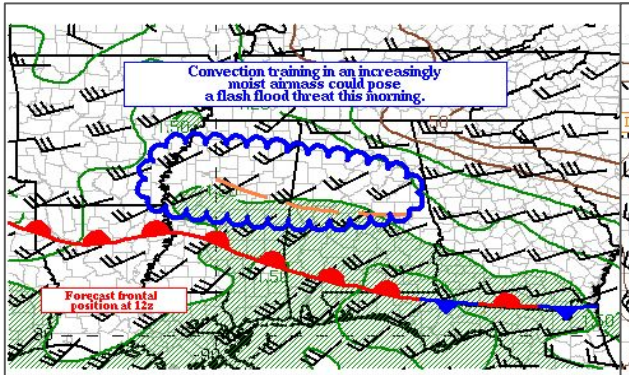


WEATHER PREDICTION CENTER

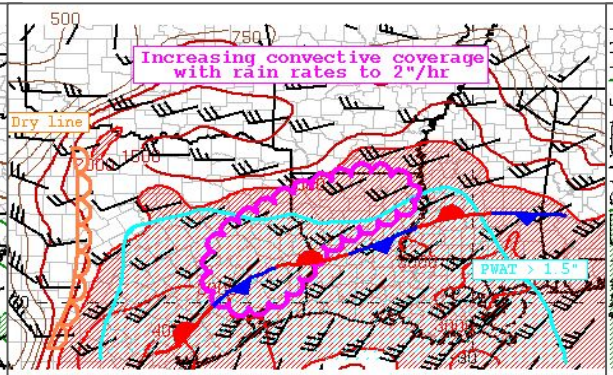
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Weather-Ready Nation

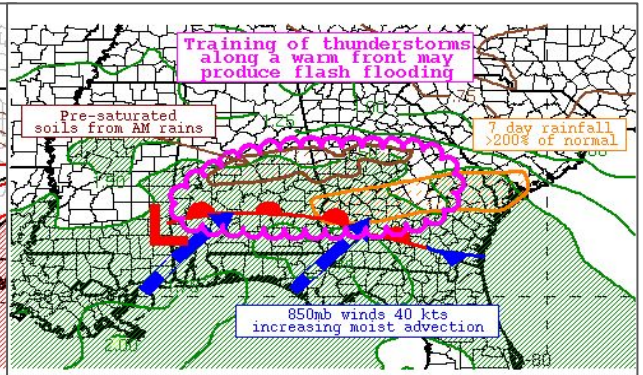
WPC MPDs for Flash Flooding, April 19-20, 2020



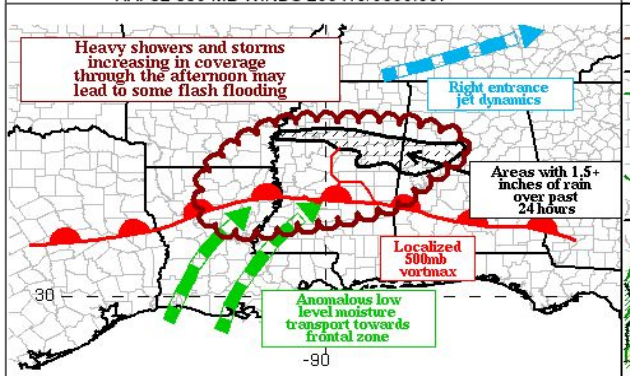
RAP32 PRECIP WATER 200419/0600f007
RAP32 850 MB WINDS 200419/0600f007



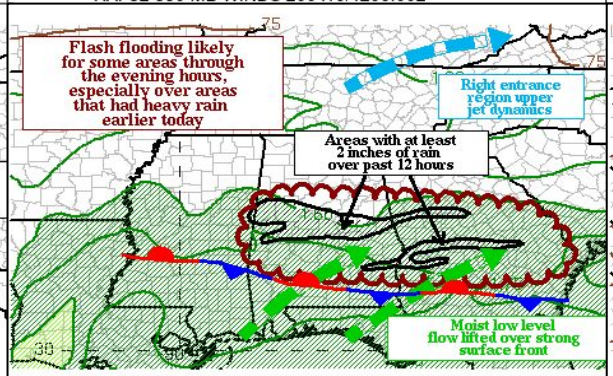
RAP32 MU CAPE 200419/1200f002
RAP32 850 MB WINDS 200419/1200f002



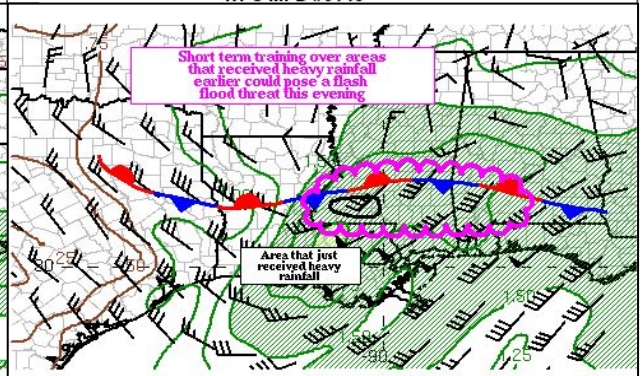
RAP32 PRECIP WATER 200419/1400f002
WPC MPD #0146



WPC MPD #0147



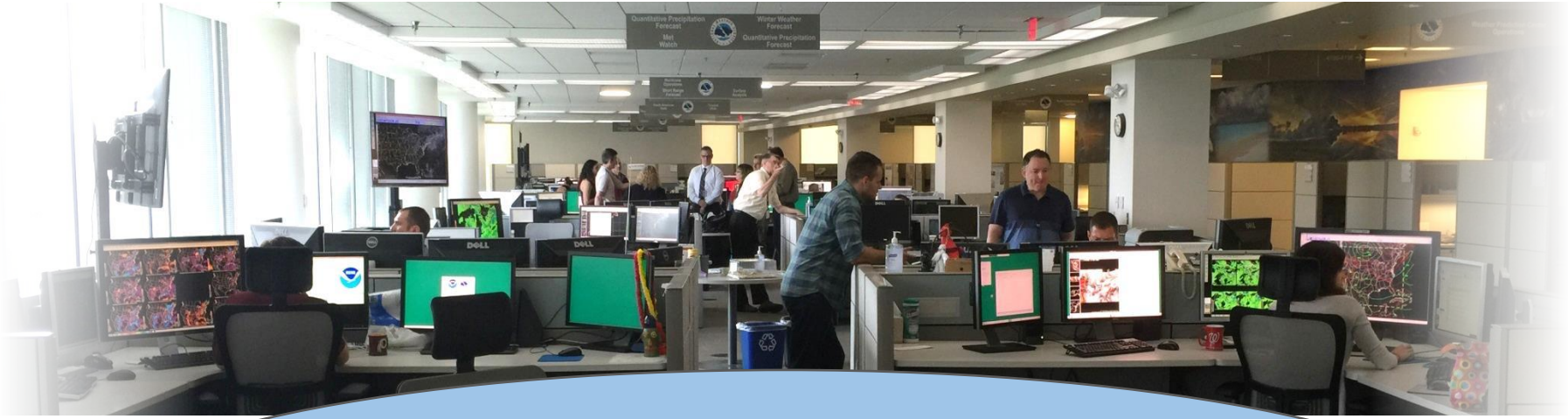
RAP32 PRECIP WATER 200419/2000f004



RAP32 PRECIP WATER 200419/2300f003

NOAA Turns 50 and NWS Turns 150!

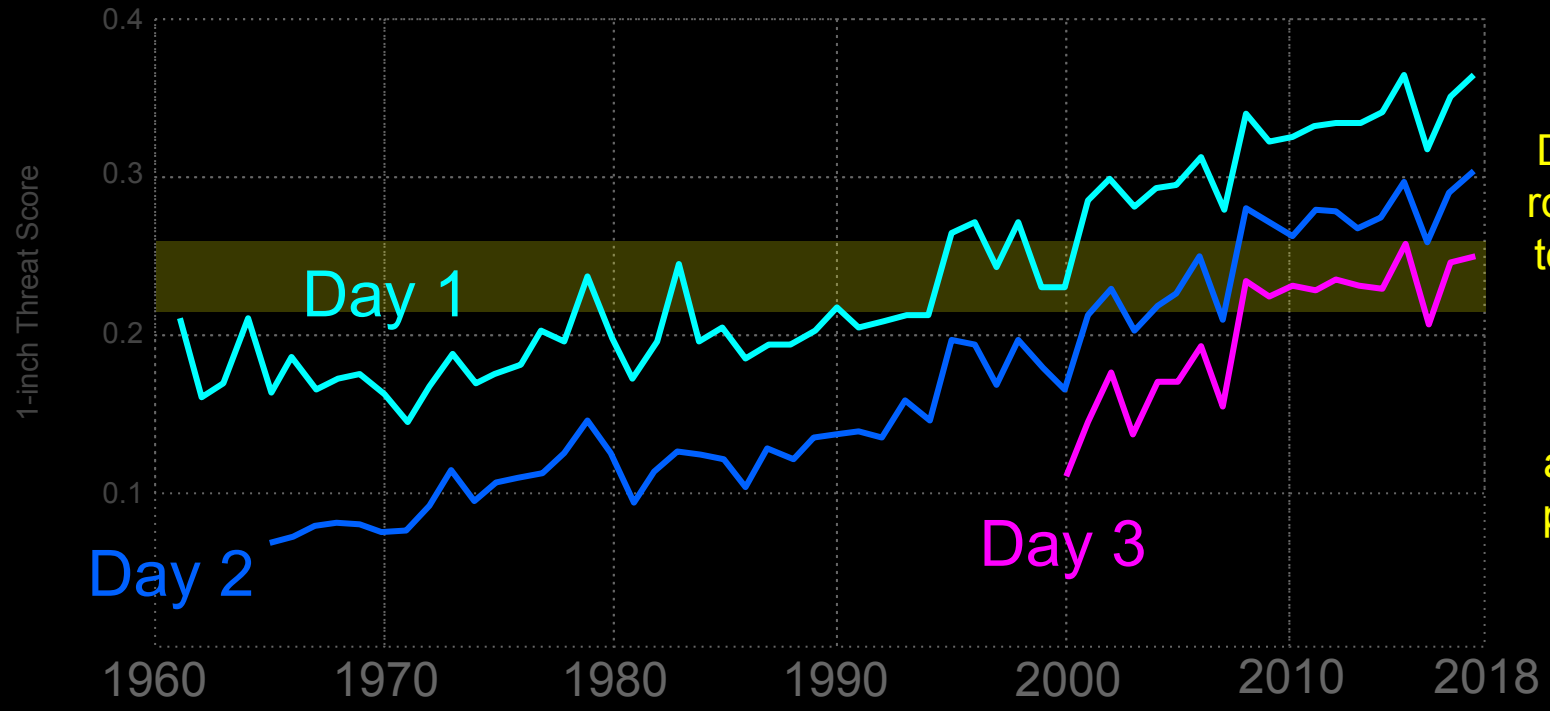
Where does the Weather Prediction Center fit?



WPC: National Weather Situational Awareness

- Heavy Rainfall
- Winter Weather
- Upcoming Hazards

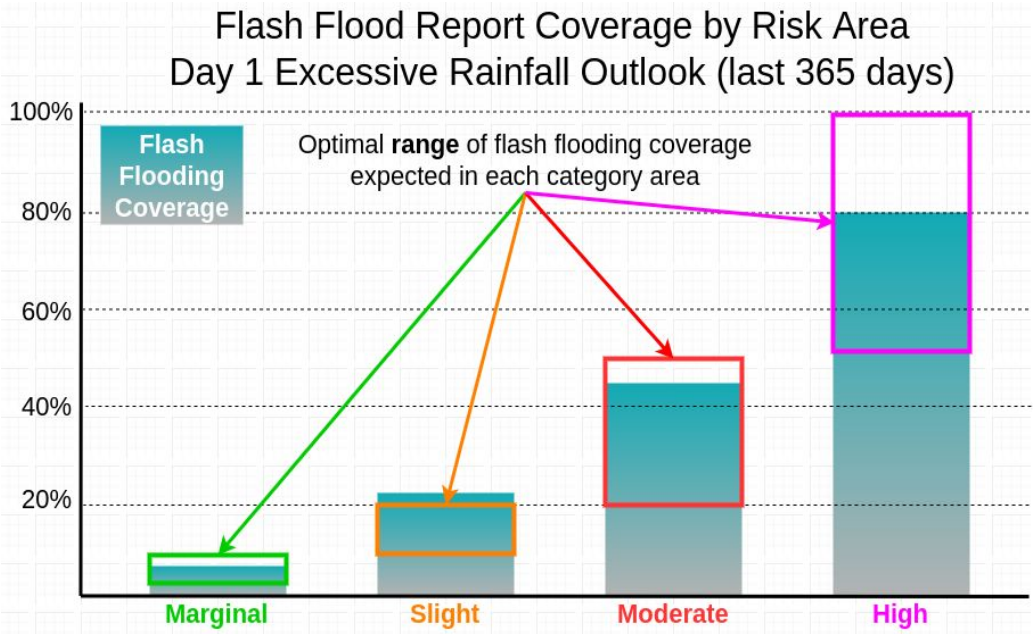
Rainfall Forecasts Continue to Improve



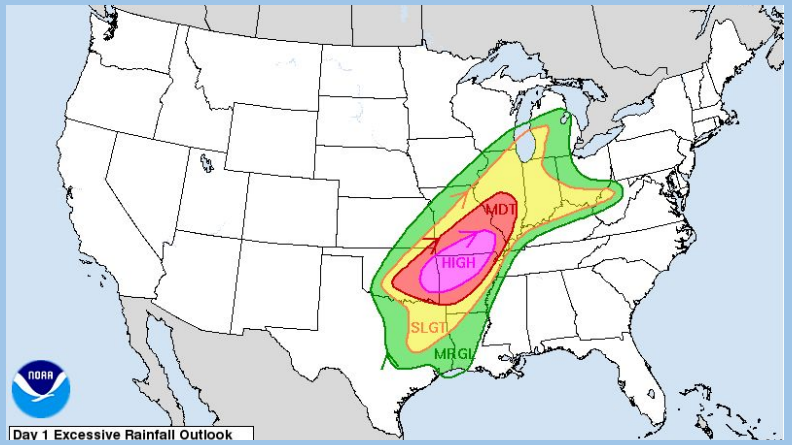
Day 3 skill is roughly equal to Day 1 skill in the late 1990s. Improving about a day per decade.

Excessive Rainfall Outlook Verification

- Outlook areas must account for uncertainty. Flash flooding is often difficult to pinpoint.
- WPC tends to be fairly well calibrated. Example: flash flooding tends to occur over about 45% of the Moderate Risk areas.
- Some users with a low risk tolerance may find Marginal or Slight Risks more meaningful in preparation.

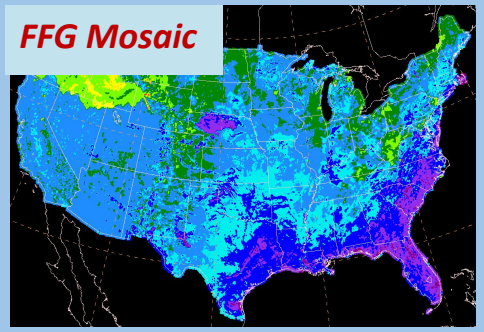


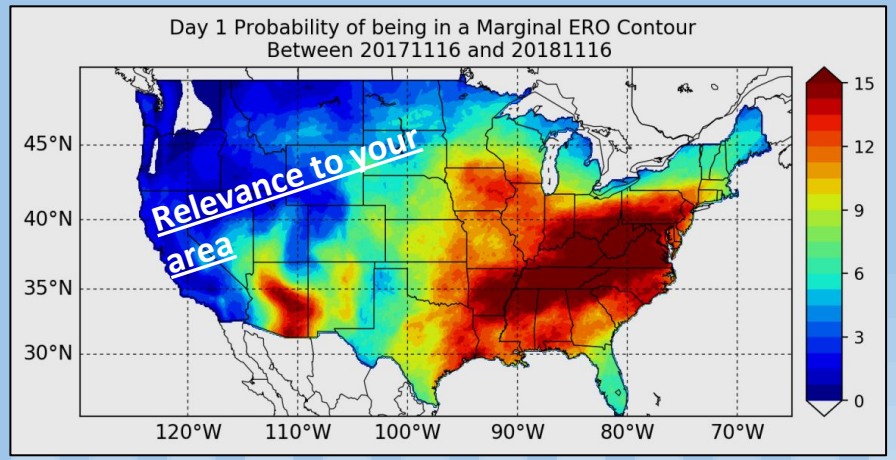
WPC Excessive Rainfall Outlooks, Days 1,2,3



The probability of rainfall exceeding Flash Flood Guidance within 25nm (40km) of a point.

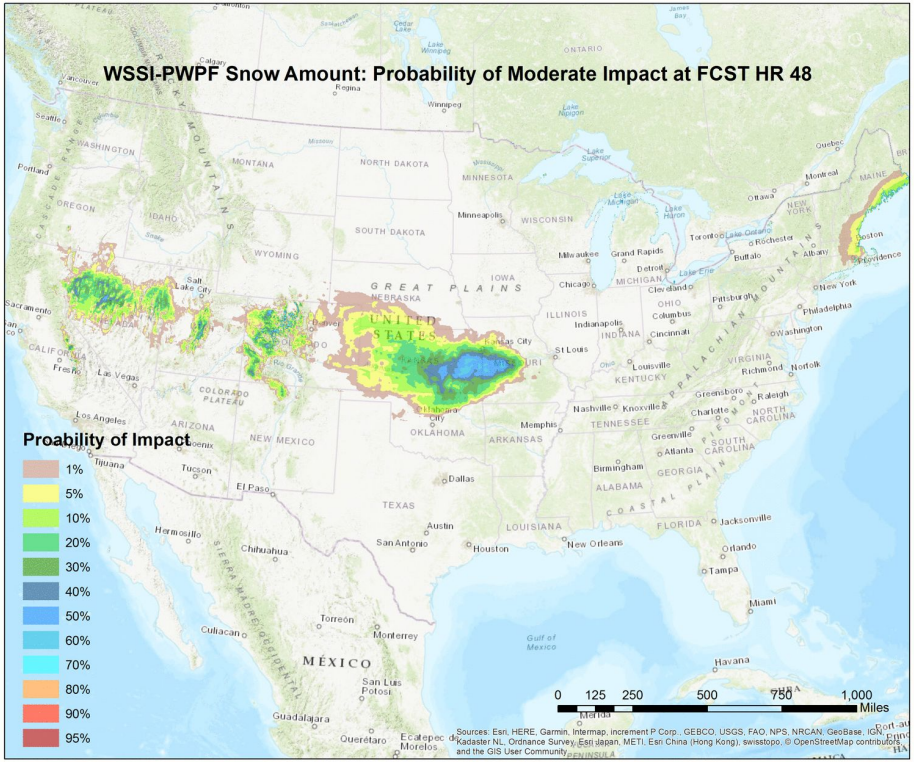
***Always* 12 UTC – 12 UTC**





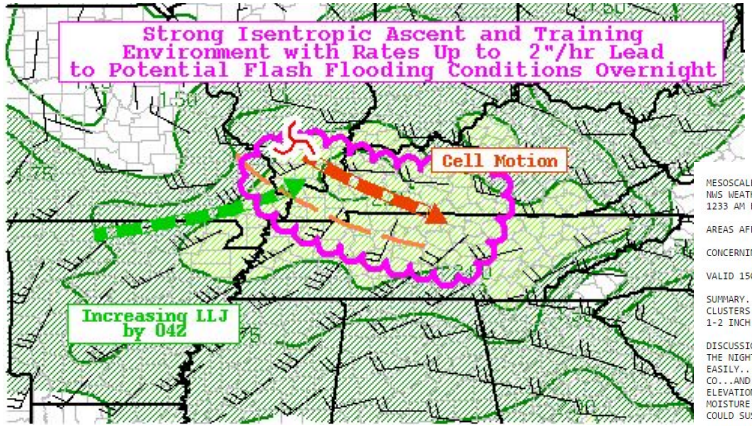
Marginal	5 – 10 %
Slight Risk	10 – 20 %
Moderate Risk	20 – 50 %
High Risk	>50%

Increasing Impacts and Hazards Focus



- Increasing focus on forecast methods that can add important impact information, scaled across the country
- Leveraging WPC forecaster expertise and the full suite of ensemble models
- WPC Development and Training Branch (DTB) working closely with forecasters
- Potential for future collaborations across the NWS and with key partners on impact-based forecasts and the best ways to deliver that information

Mesoscale Precipitation Discussion - the “Gap” filler between ERO and Warning



MESOSCALE PRECIPITATION DISCUSSION 0253
NWS WEATHER PREDICTION CENTER COLLEGE PARK MD
1233 AM EDT SUN SEP 15 2013

AREAS AFFECTED...FAR SE AZ...FAR SW CO...SW AND CNTRL NM

CONCERNING...HEAVY RAINFALL...FLASH FLOODING POSSIBLE

VALID 150432Z - 150832Z

SUMMARY...UPPER SUPPORT REMAINS EFFICIENT ENOUGH TO SUSTAIN CLUSTERS OF THUNDERSTORMS OVERNIGHT. SLOW MOVEMENT MAY RESULT IN 1-2 INCH RAINFALL IN SPOTS AND LOCAL FLASH FLOODING.

DISCUSSION...THUNDERSTORMS HAD SURVIVED ALREADY A FEW HOURS INTO THE NIGHT. RAOBS INDICATED THE SURFACE WOULD DECOUPLE RATHER EASILY...BUT GIVEN THE PERSISTENCE OF CONVECTION IN SW NM AND SW CO...AND NEW DEVELOPMENT NEAR ABQ AND ALSO OFF THE HIGHER ELEVATIONS OF SE AZ AT 04Z...IT APPEARS THAT MID LEVEL MOISTURE...MODERATELY STEEP LAPSE RATES...AND SUBTLE UPPER FORCING COULD SUSTAIN THUNDERSTORMS ANOTHER FEW HOURS.

WEAK WARM ADVECTION WAS OBSERVED IN THE 700-600 MB LAYER...COINCIDENT WITH SOME OF THE MORE UNSTABLE PARCELS IN THE OBSERVED AND FORECAST SOUNDINGS...RAP AND NAM. THE SREF MEAN PREDICTS MAINTENANCE OF MUCAPE AT LEAST 500-750 J/KG THROUGH 09Z ACROSS THIS REGION...AS THE LOWER/MID LEVEL WARM ADVECTION AND WEAKLY DIFFLUENT UPPER LEVEL FLOW IS SUSTAINED AHEAD OF A 45-50 KT JET STREAK AT 250 MB.

SUSPECT DUAL POL ESTIMATES ARE UNDERESTIMATING IN THE CONVECTIVE LINE APPROACHING SOCCORRO NM...GIVEN THE DISTANCE FROM RADAR...AND PLACEMENT OF ALL THE BASE ELEVATION ECHOES AT RANGE BEYOND THE MELTING LAYER. LEGACY ESTIMATES SUGGEST RATES CLOSER TO 1.5-2 INCH PER HOUR IN ISOLATED SPOTS. WOULD NOT EXPECT ANYTHING MUCH HEAVIER THAN THIS WITH PW VALUES HAVING FALLEN BELOW 1 INCH OVER THIS REGION...BUT WITH FLASH FLOOD GUIDANCE VALUES VERY LOW...ESPECIALLY IN NM...FLASH FLOODING IS CERTAINLY A POSSIBILITY. ACTIVITY MAY PERSIST EVEN BEYOND 09Z..ESPECIALLY TOWARD SOUTHWEST CO WHERE UPPER LIFT BECOMES CONCENTRATED. INTENSITY IS LIKELY TO DECREASE DIURNALLY...BUT SOME AREAS COULD SEE MULTIPLE ROUNDS OF MODERATE RAIN ADDING UP OVER TIME.

BURKE

ATTN...WFO...PUB...ABQ...EPZ...GJT...TWC...FGZ...PSR...

- Mesoanalysis…
- Full suite of hi-res guidance…
- Dual Pol QPE Discussion…
- Satellite perspective…
- Event totals…
- Timing & evolution…
- Worst case scenarios expressed