

Arizona Center for Rural Health State Office of Rural Health Webinar Series

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ARIZONA
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PROGRAM



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THE UNIVERSITY OF ARIZONA
MEL & ENID ZUCKERMAN COLLEGE OF PUBLIC HEALTH

Center for Rural Health

Webinar notes:

Audience is muted during the presentation.
Please enter your questions into the chat box.
Please fill out the post-webinar survey.
Webinar is being recorded.

A link to the recording will be posted on:
AzCRH www.crh.arizona.edu



THE UNIVERSITY OF ARIZONA
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Marc J. Singer

Meteorologist in Charge
National Weather Service

National Weather Service - An Introduction and
the Latest Seasonal Outlooks



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Center for Rural Health

The National Weather Service

An Introduction and the Latest Seasonal Outlooks



Marc
Singer

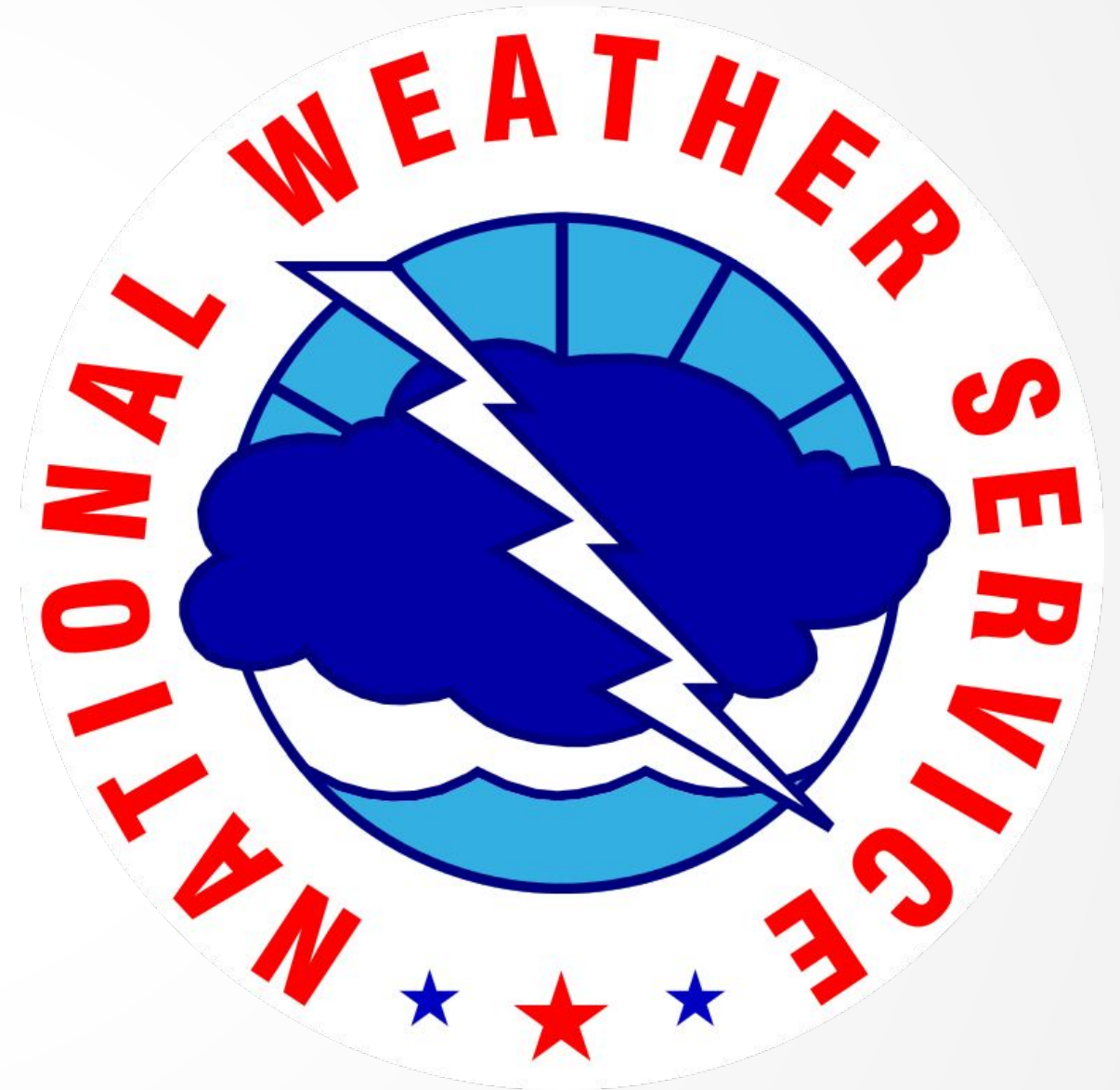


NOAA - NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION

NWS - Tucson, AZ

Presentation Summary

- Who We Are
- What We Do
- Monsoon Outlook and Beyond



Organizational Hierarchy



Department of Commerce



National Oceanic and Atmospheric
Administration



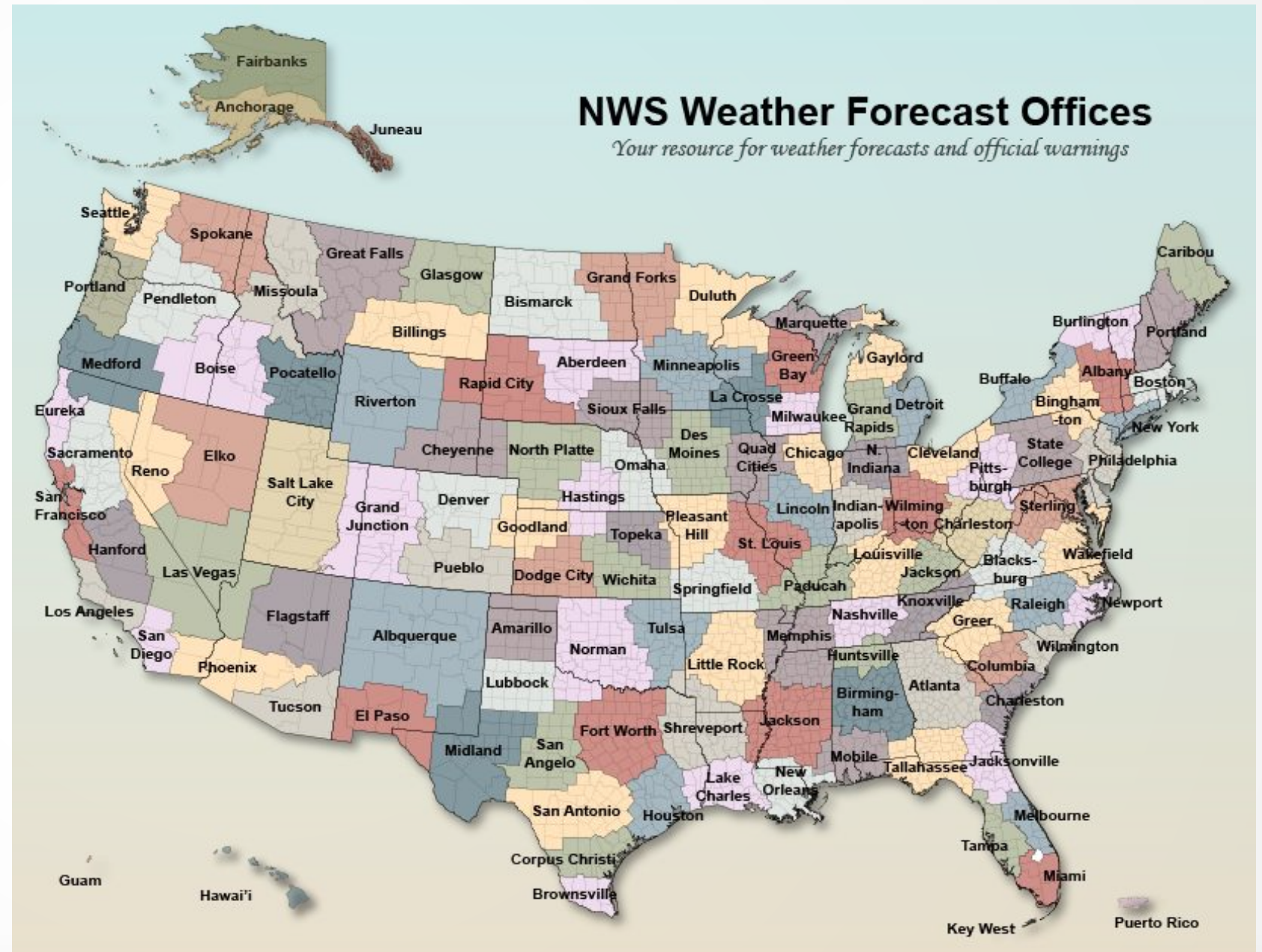
National Weather Service

We Are on Campus!



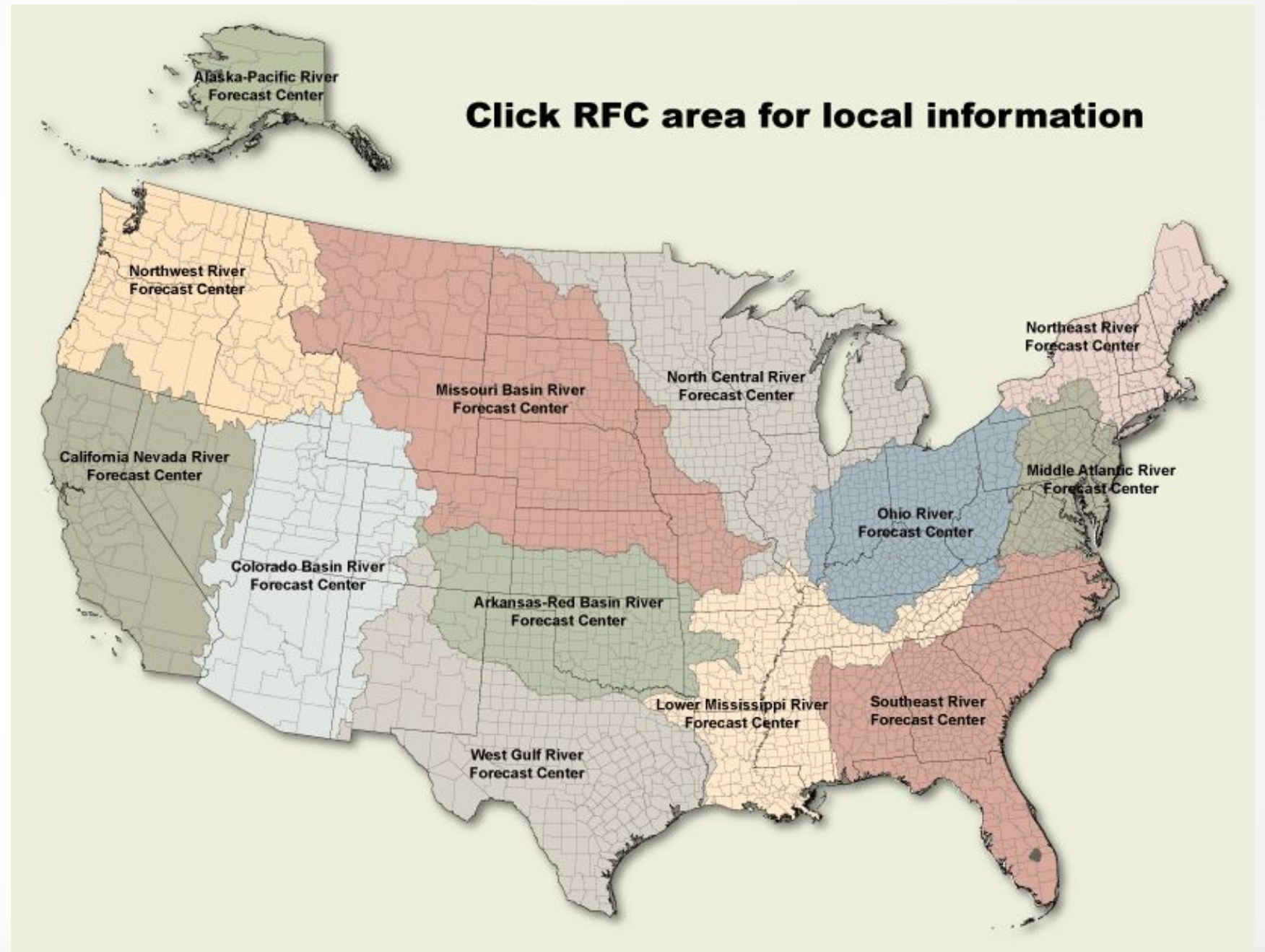
NWS Weather Forecast Offices

- 122 WFOs
- Structure remains the same since the 1990s



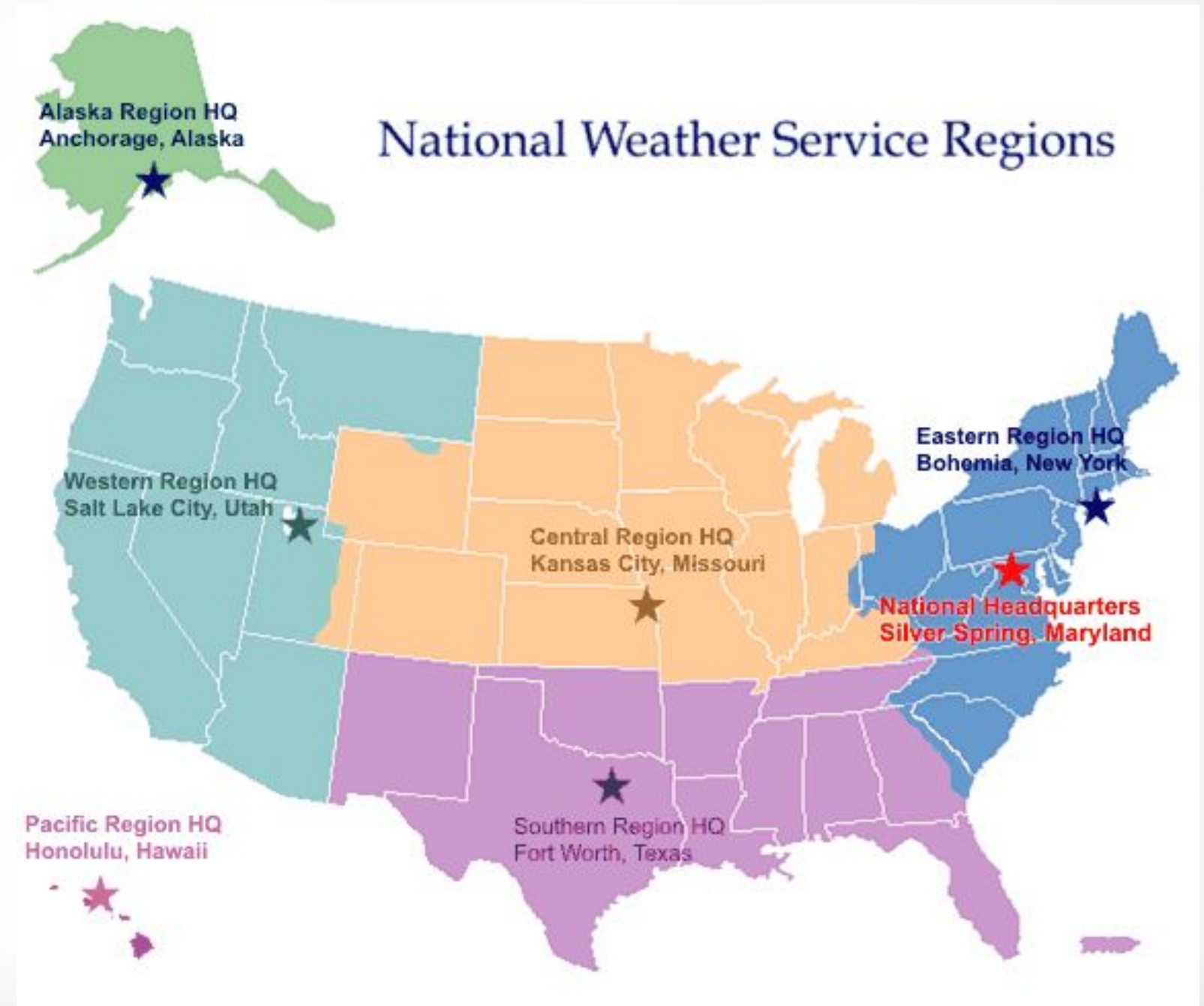
River Forecast Centers

- 13 RFCs

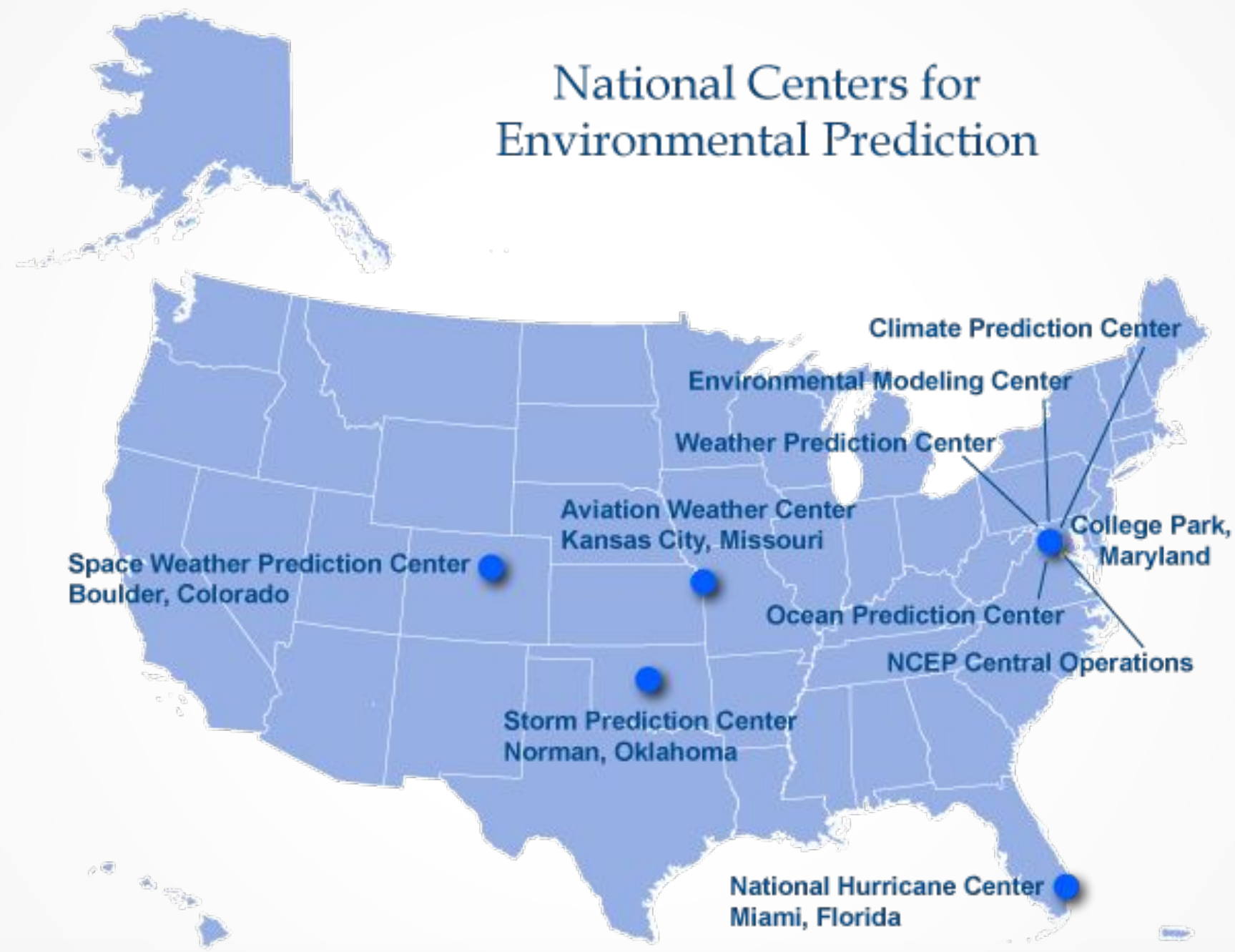


NWS Regional Headquarters

- 6 Regional Centers



NWS National Centers



What Questions Do You Have?

A Day in the Life at the NWS



NWS

NATIONAL WEATHER SERVICE
TUCSON, AZ

NWS Mission and Vision Statement

Mission

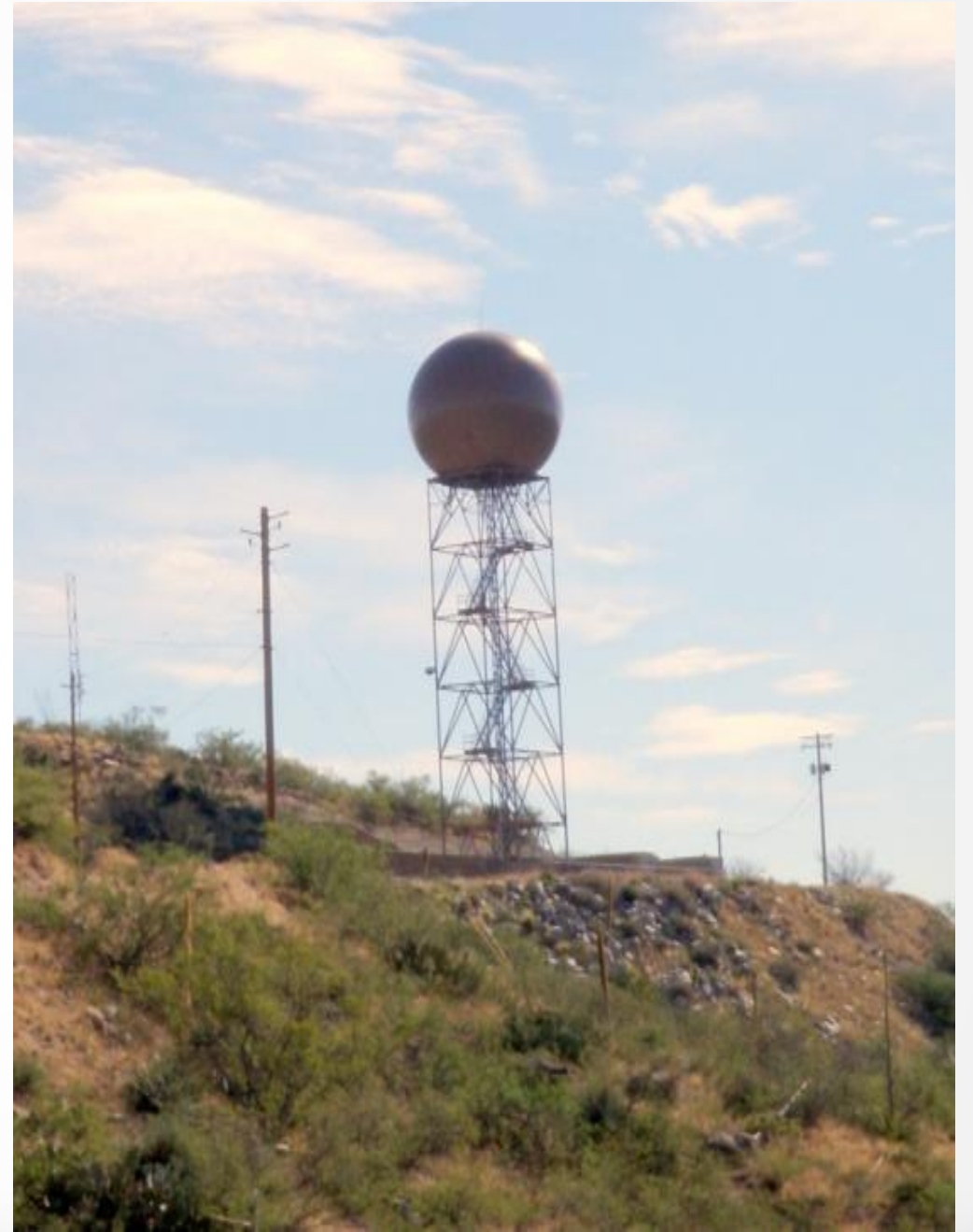
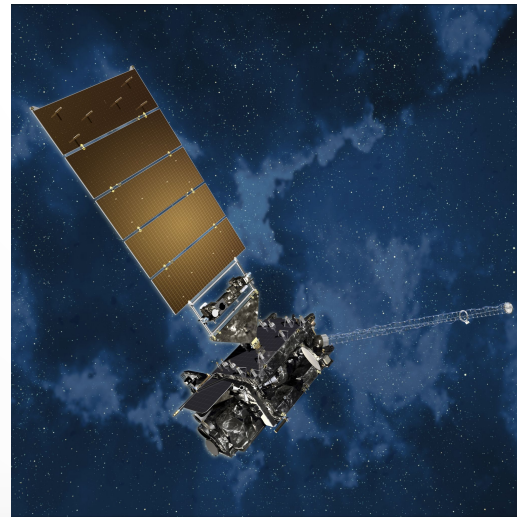
Provide weather, water and climate data, forecasts, warnings, and impact-based decision support services for the protection of life and property and enhancement of the national economy.

Vision

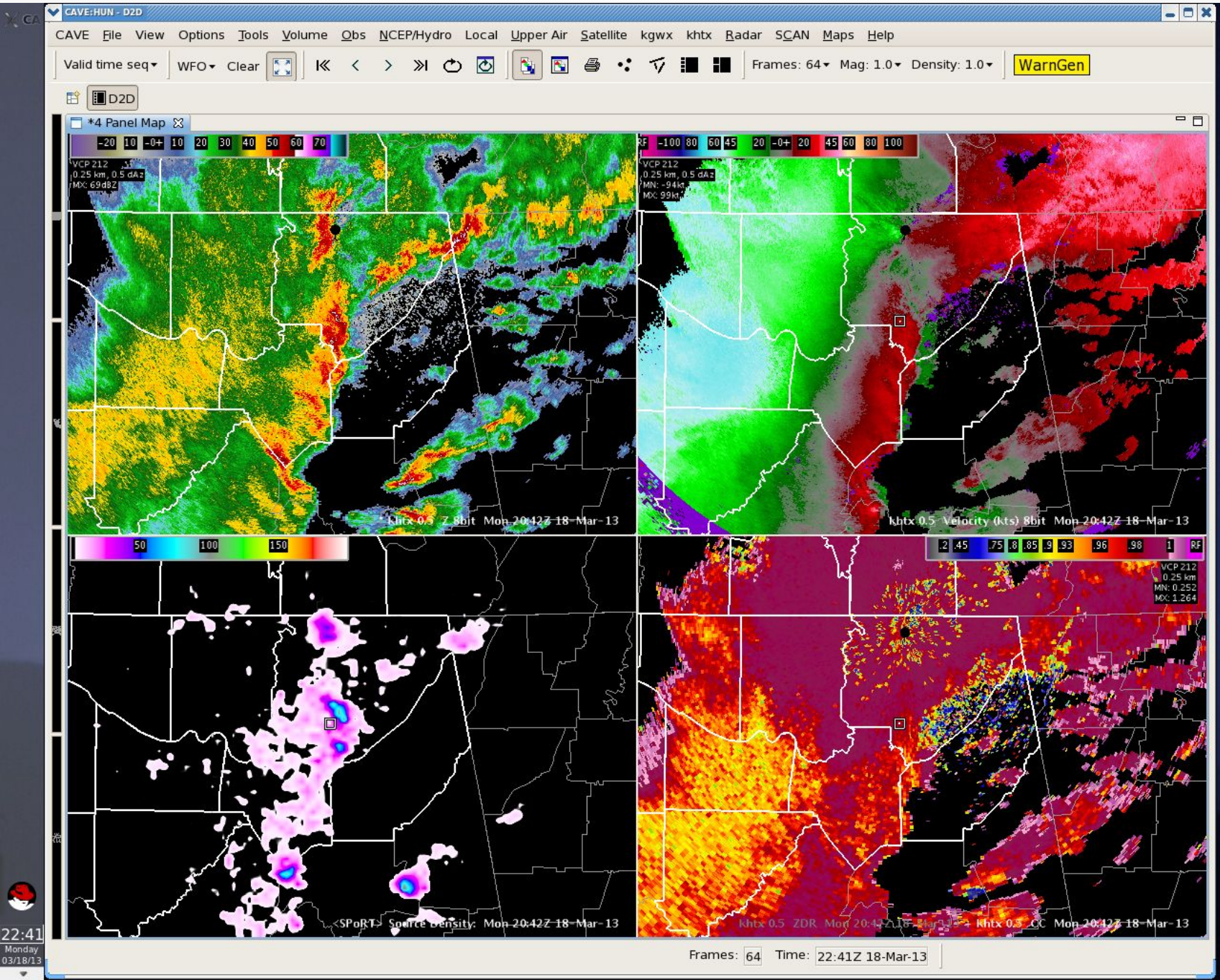
A Weather-Ready Nation: Society is prepared for and responds to weather, water, and climate-dependent events.



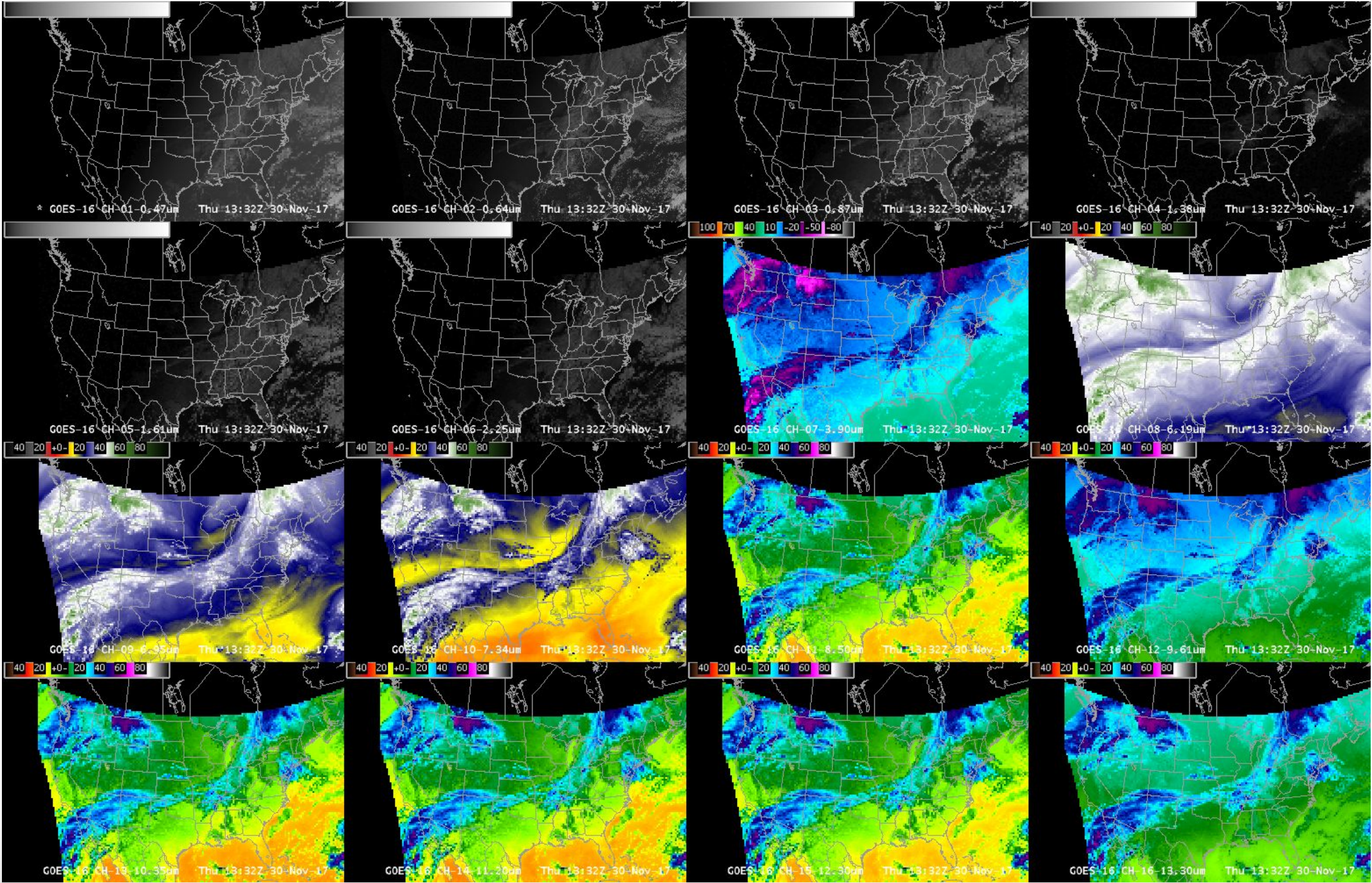
Data Acquisition and Situational Awareness



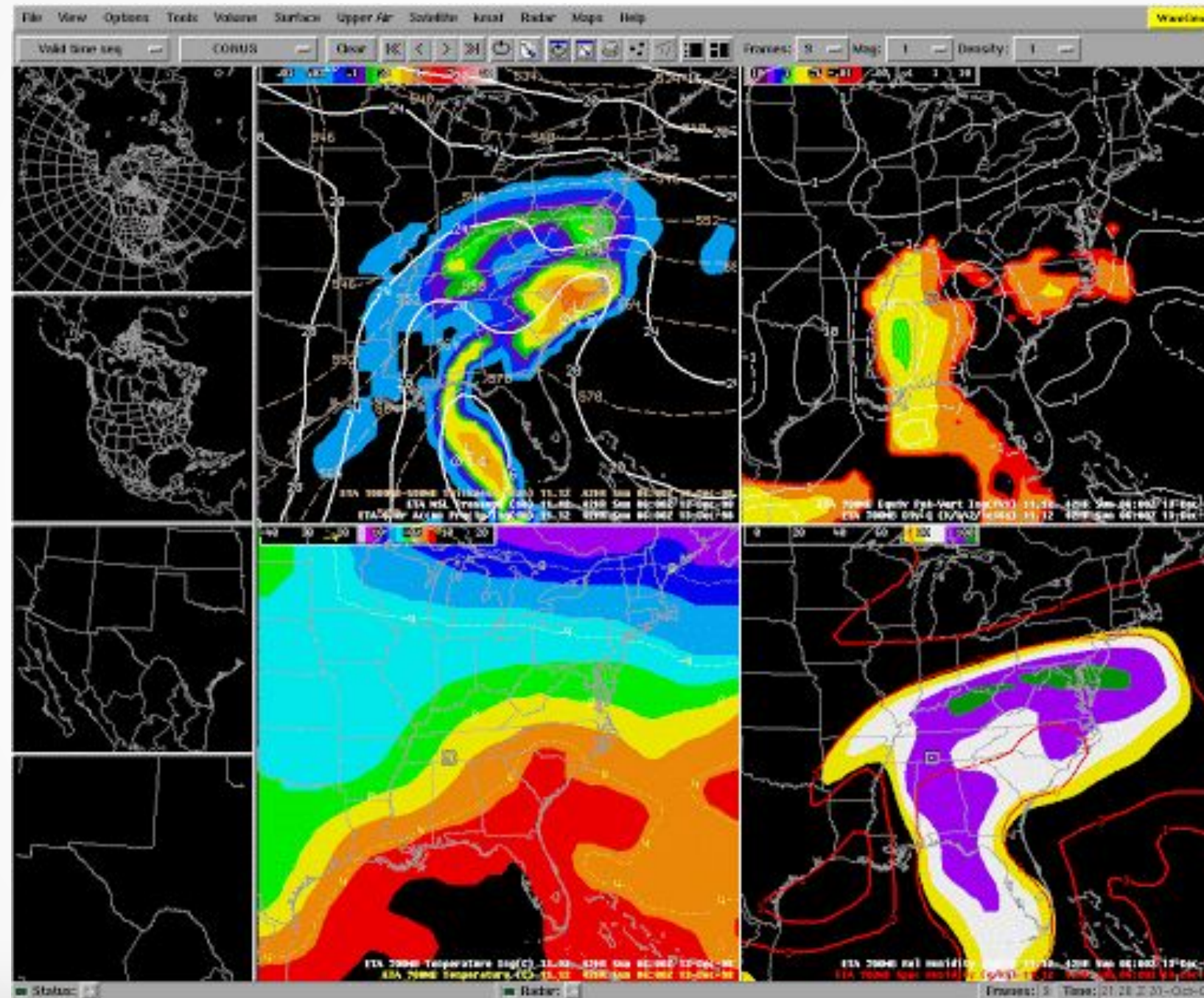
Data Acquisition and Situational Awareness



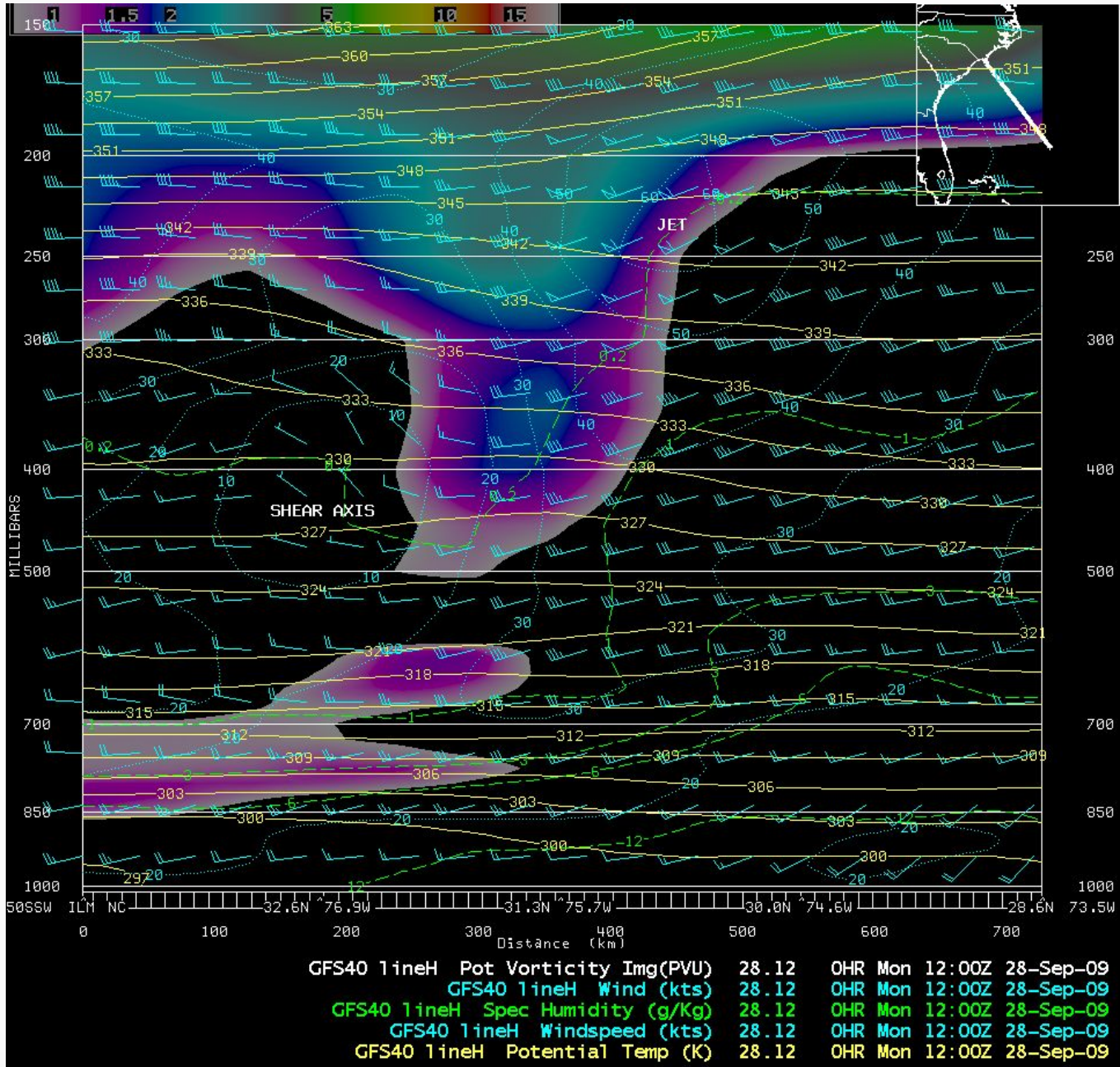
Data Acquisition and Situational Awareness



Data Acquisition and Situational Awareness



Data Acquisition and Situational Awareness

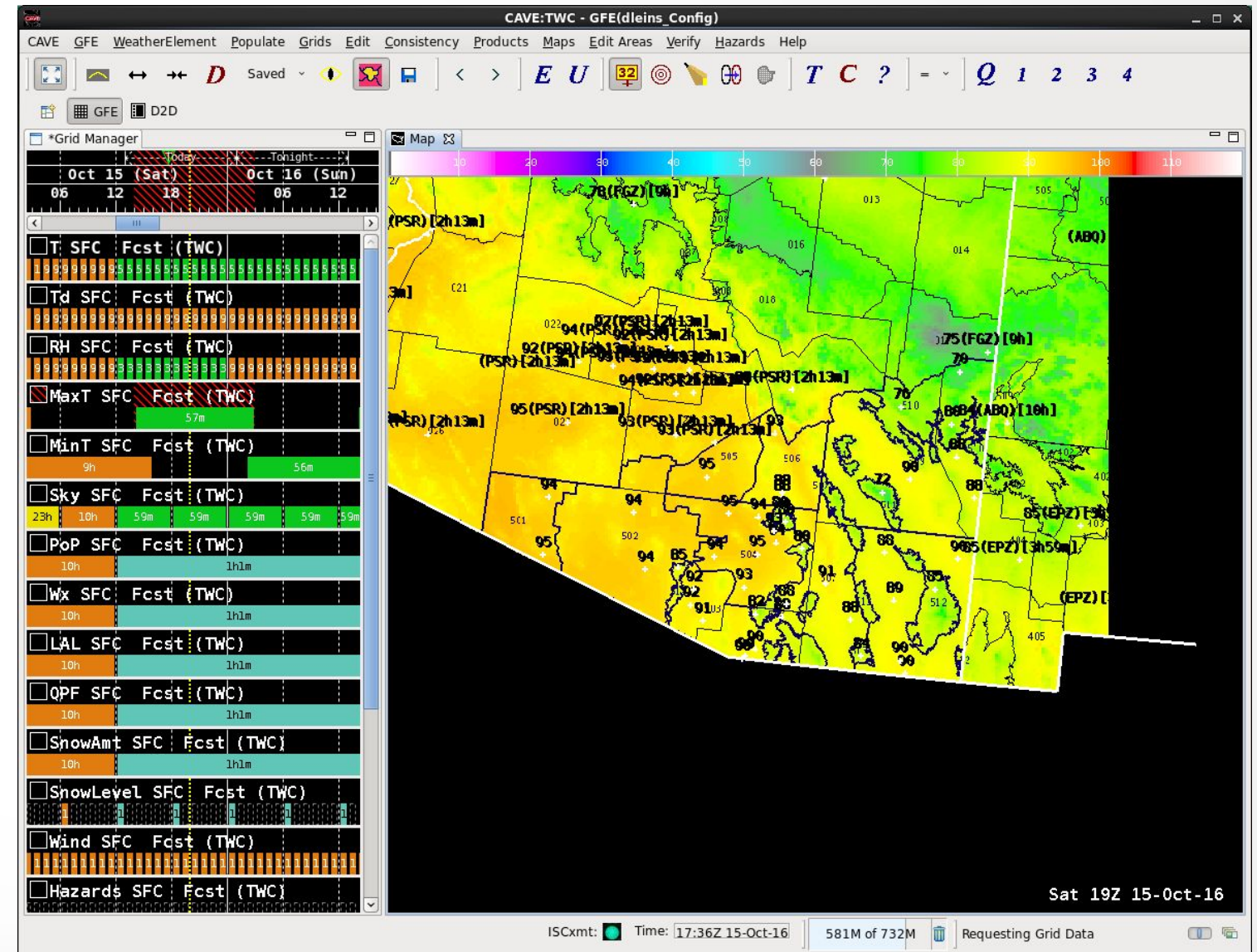


Data Acquisition and Situational Awareness



Public Forecasts

- Graphical Forecasts of Weather Elements
- “Paint a Picture”
- Routine 2x a Day
- Occasional Updates



Aviation Forecasts

- Terminal Aerodrome Forecasts (TAFs)
- 24-30 hour forecasts of wind, weather, sky, low level wind shear
- Aviation Weather Center, CWSU also provide forecasts



Fire Weather Forecasts

- Specialized forecasts of temperature, RH, wind
- Red Flag Warnings, Fire Weather Watches
- Specialized briefings for fire weather community



Hydrology Forecasts

- Areal Flooding, Flash Flooding, River Flooding
- Debris Flows



Winter Weather Forecasts

- Winter Weather Warnings, Advisories, Watches
- Freezing Rain
- Lake Effect Snow
- Snow Squalls



What Questions Do You Have?

Changing Science and Technology in the NWS



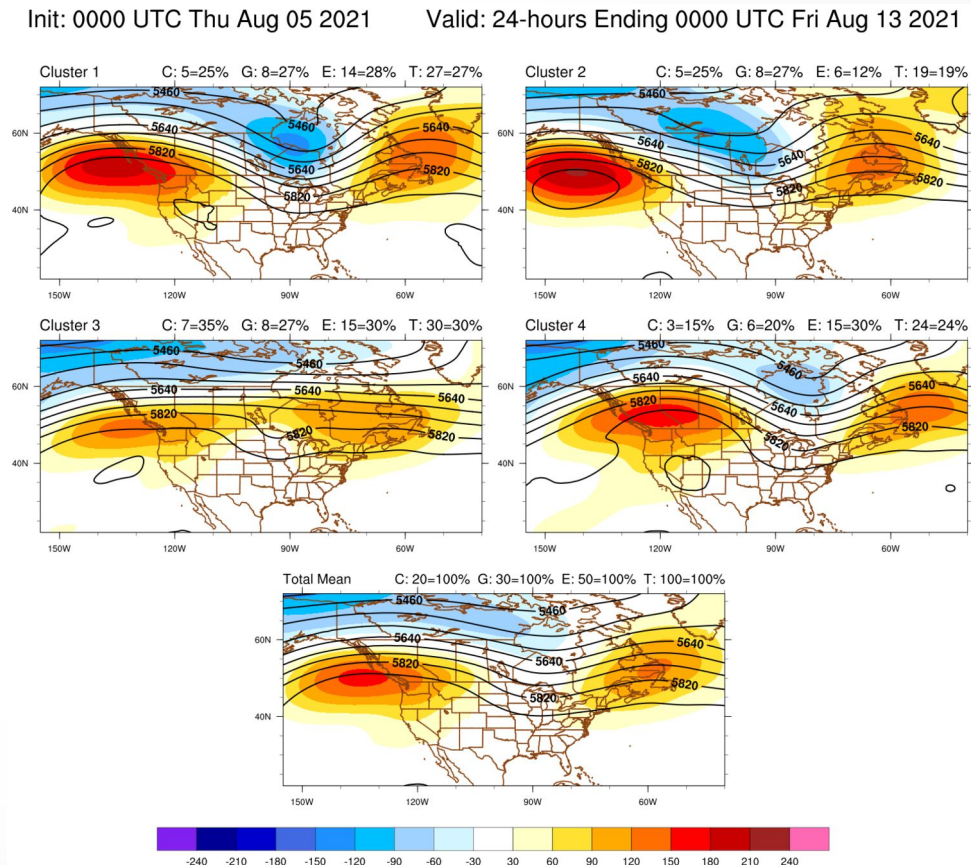
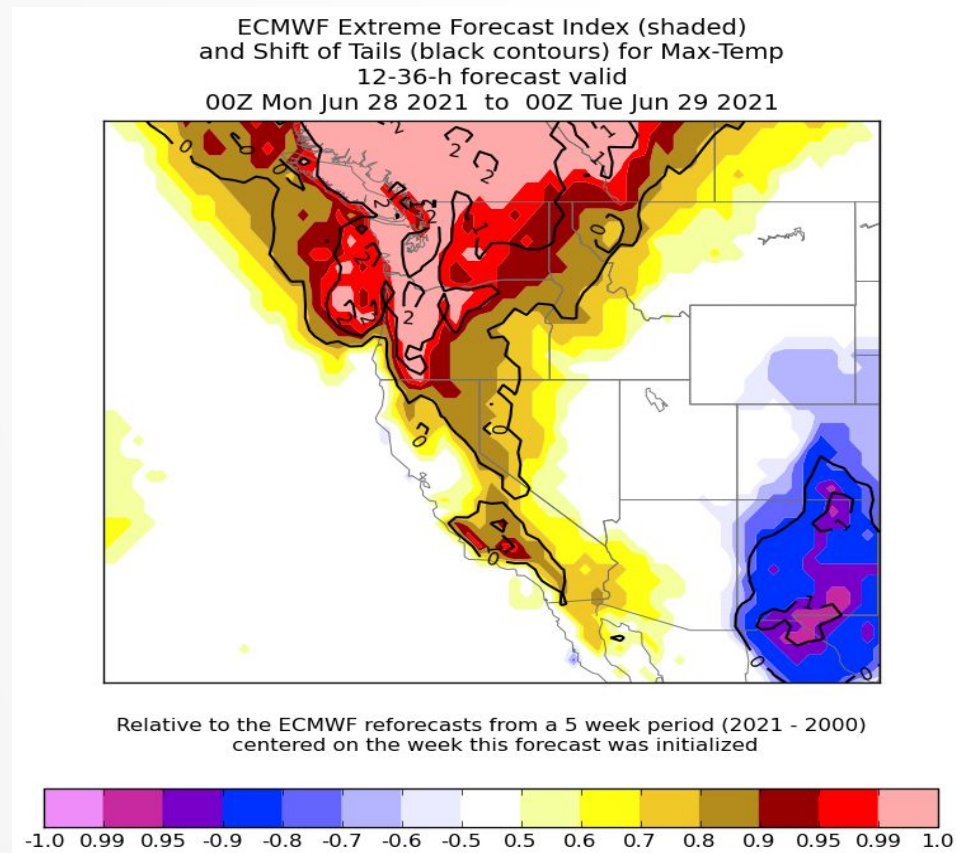
NWS

NATIONAL WEATHER SERVICE
TUCSON, AZ

Ensembles and Post-Processing

Increases in computing power have led to an explosion in numerical weather prediction ensembles and our ability to post-process their output

- Add value via bias correction, comparison to observed or model climate, clustering, etc.

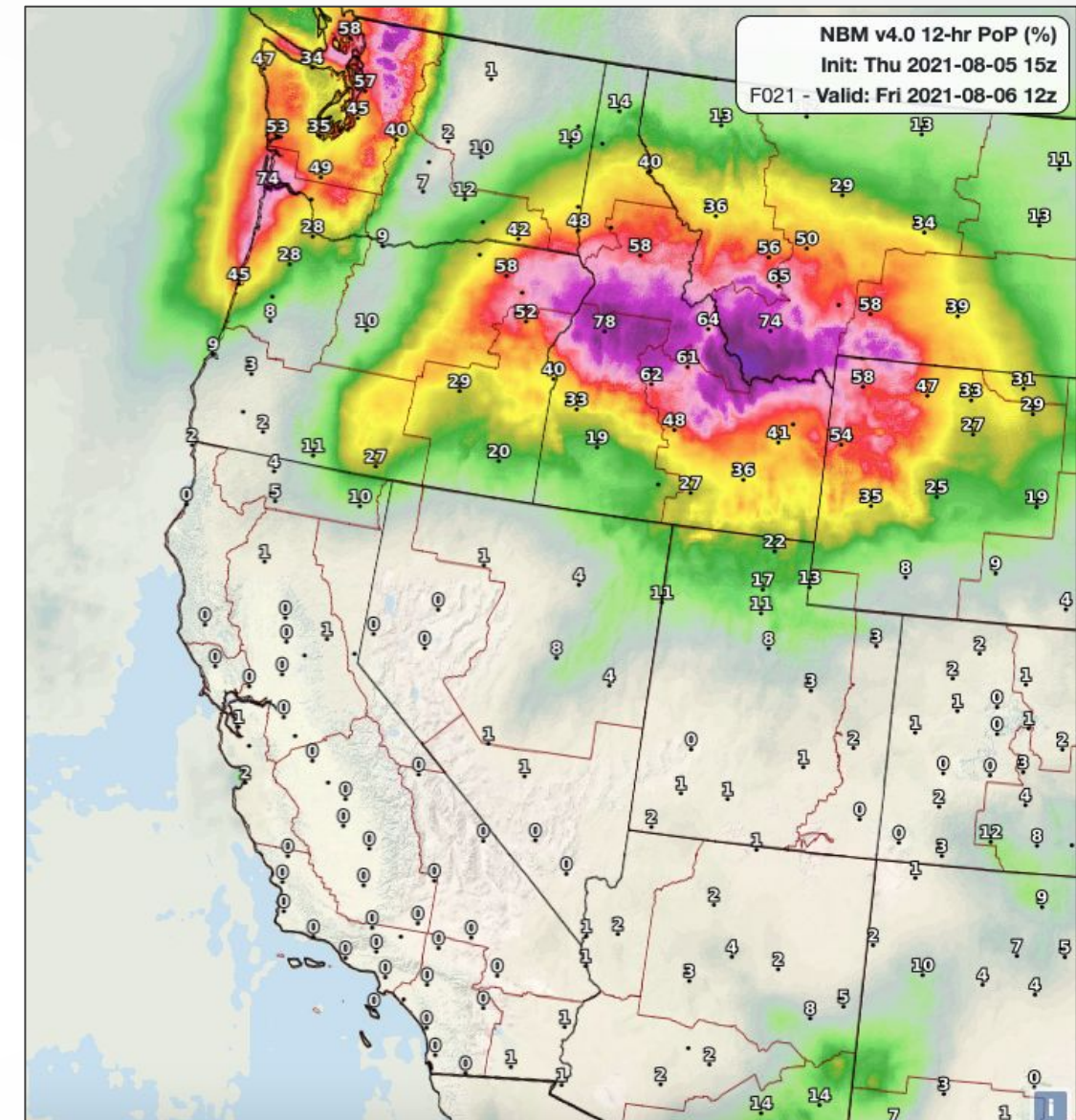


Ensembles and Post-Processing



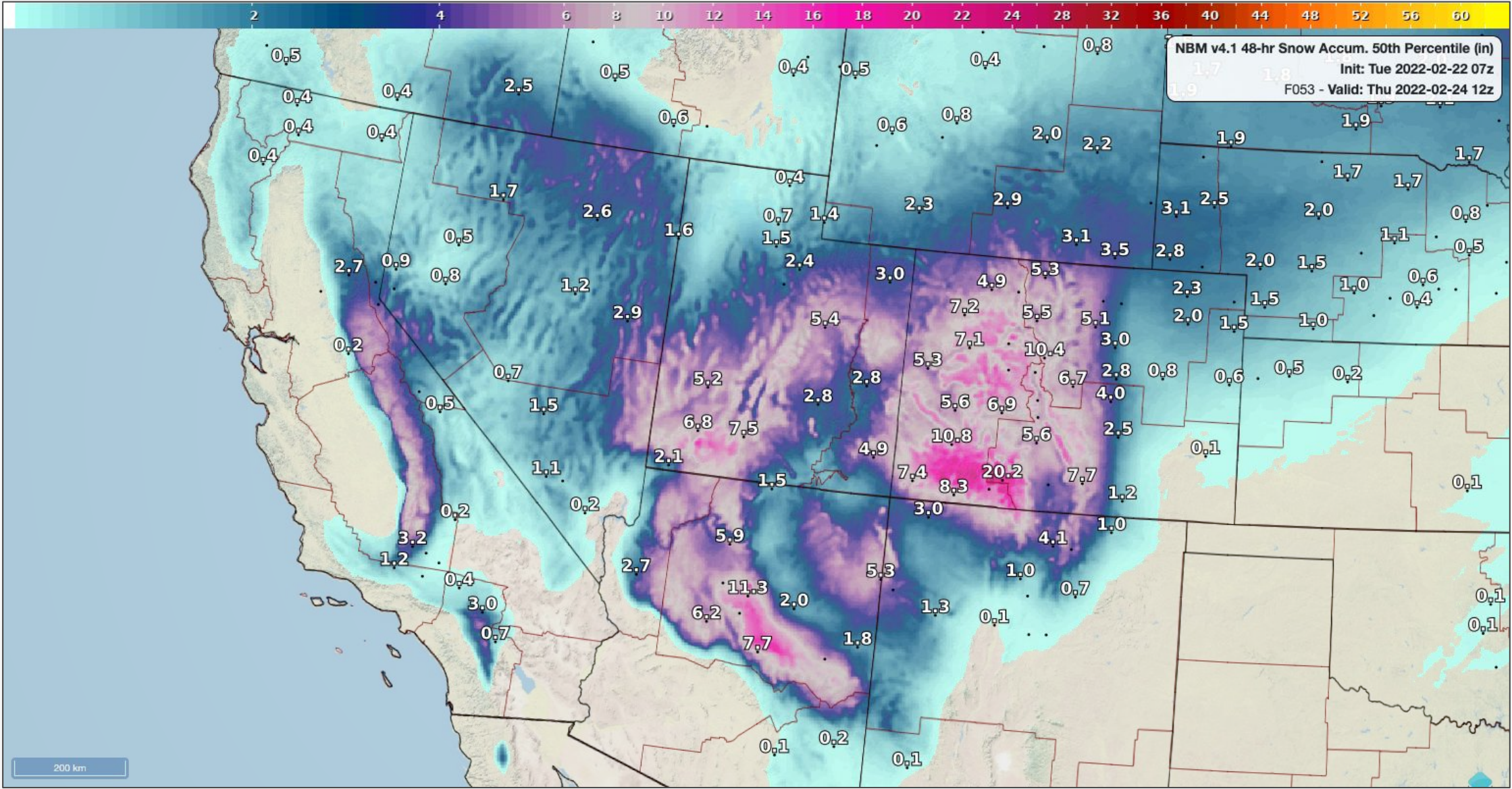
National Blend of Models

- The National Blend of Models (NBM) is a multi-model, ensemble-based, and calibrated forecast product intended to be the starting point for NWS forecasts.
- The NBM currently produces probabilistic output for some variables (e.g., precip, temp), allowing for much better decision support than a deterministic forecast.
 - [more information \(albeit dated version\) on production of NBM deterministic values, percentiles, etc.](#)



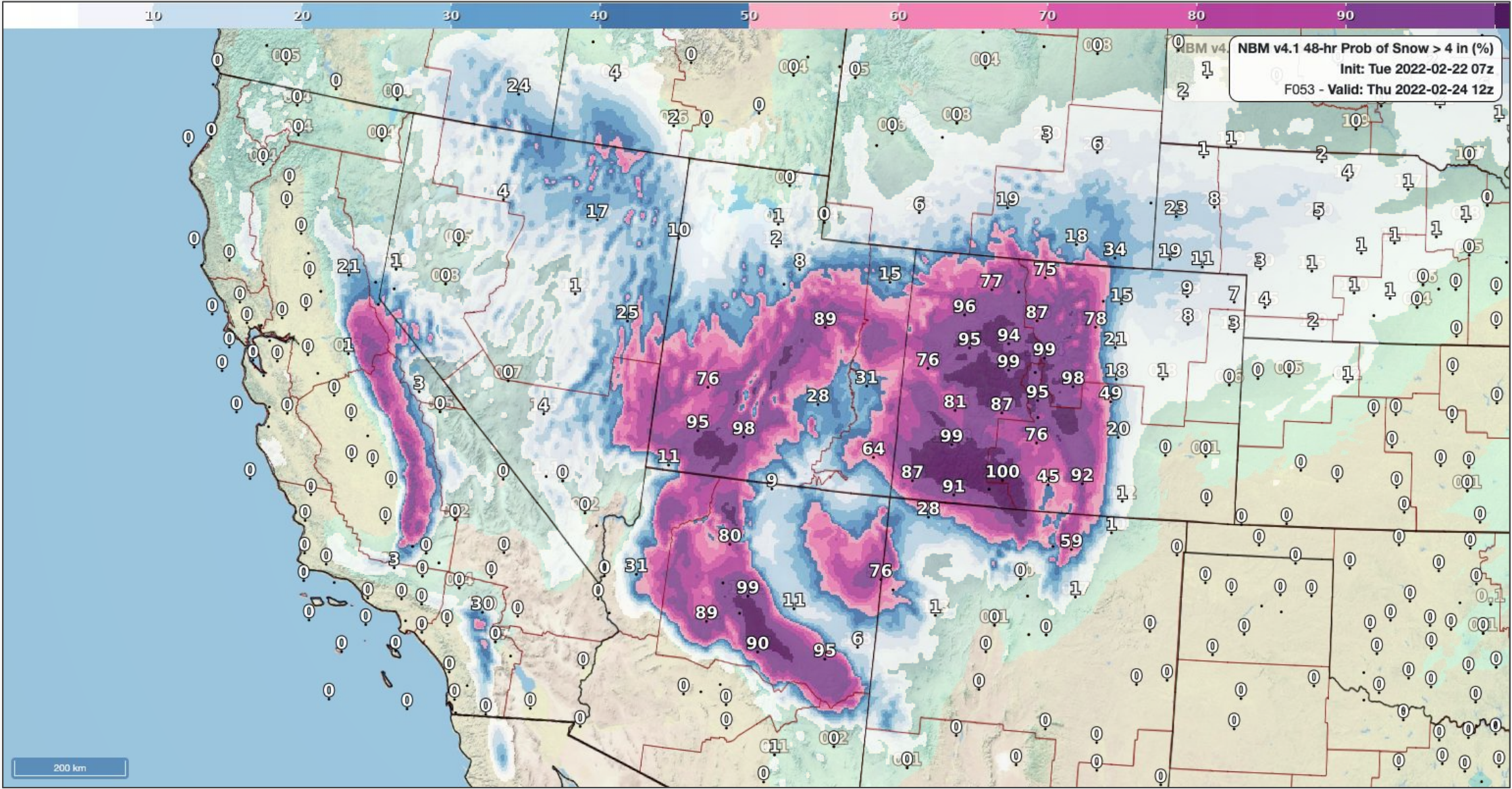
NBM 12-h Probability of Precipitation

National Blend of Models



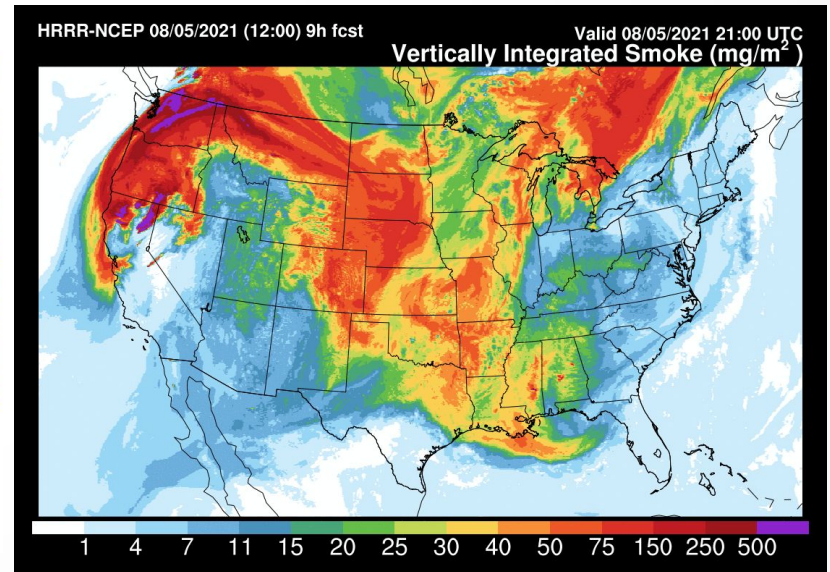
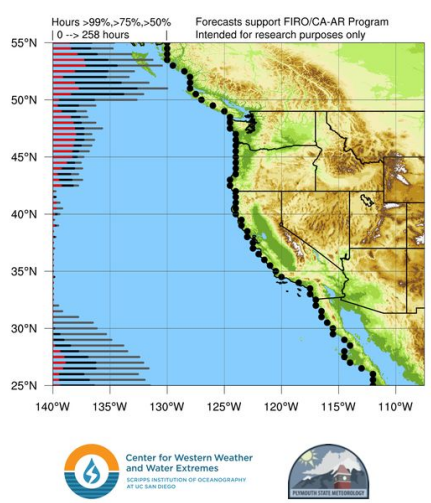
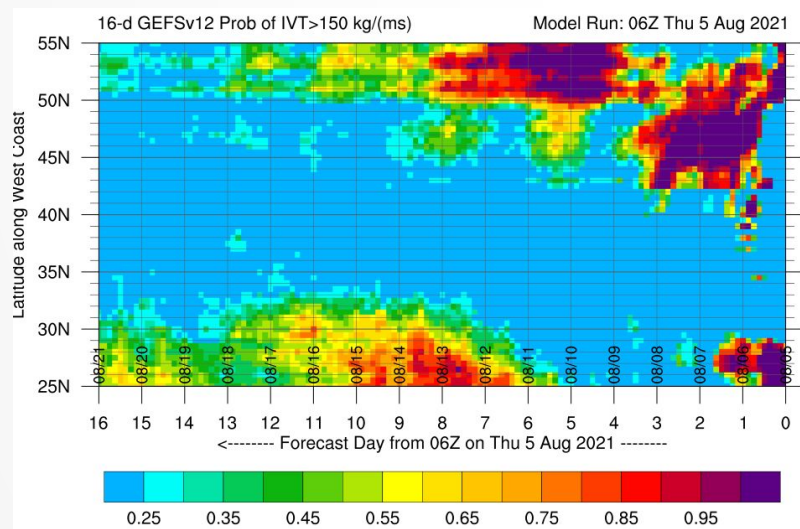
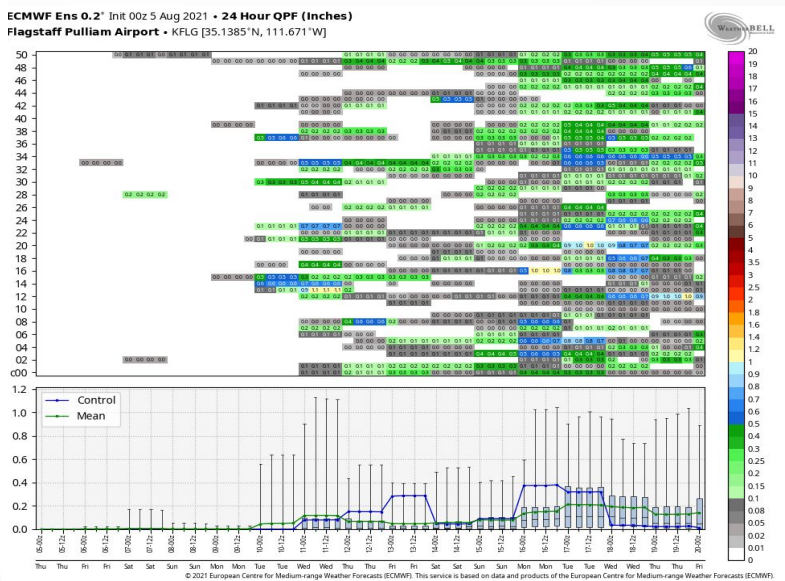
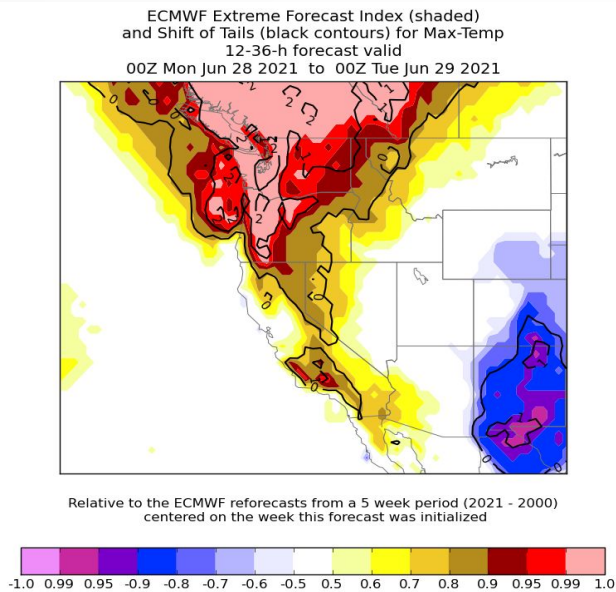
NBM 48-h Snow Accumulation Forecast (50th Percentile)

National Blend of Models



NBM 48-h Snow Accumulation Forecast (Prob > 4")

Additional Forecast Tools



Decision Support Services (DSS)


“It should be understood that forecasts possess no intrinsic value. They acquire value through their ability to influence the decisions made by users of the forecasts.”

Allan Murphy, 1993

Decision Support - Quiet Season



Decision Support - Briefings / Graphics



DEBRIS FLOW WARNING SIGNS

- RUSHING WATER AND MUD
- UNUSUAL SOUNDS INCLUDING CRACKING, BREAKING ROARING, OR A FREIGHT TRAIN

Never Underestimate a Debris Flow




Photo: USGS

National Weather Service Tucson

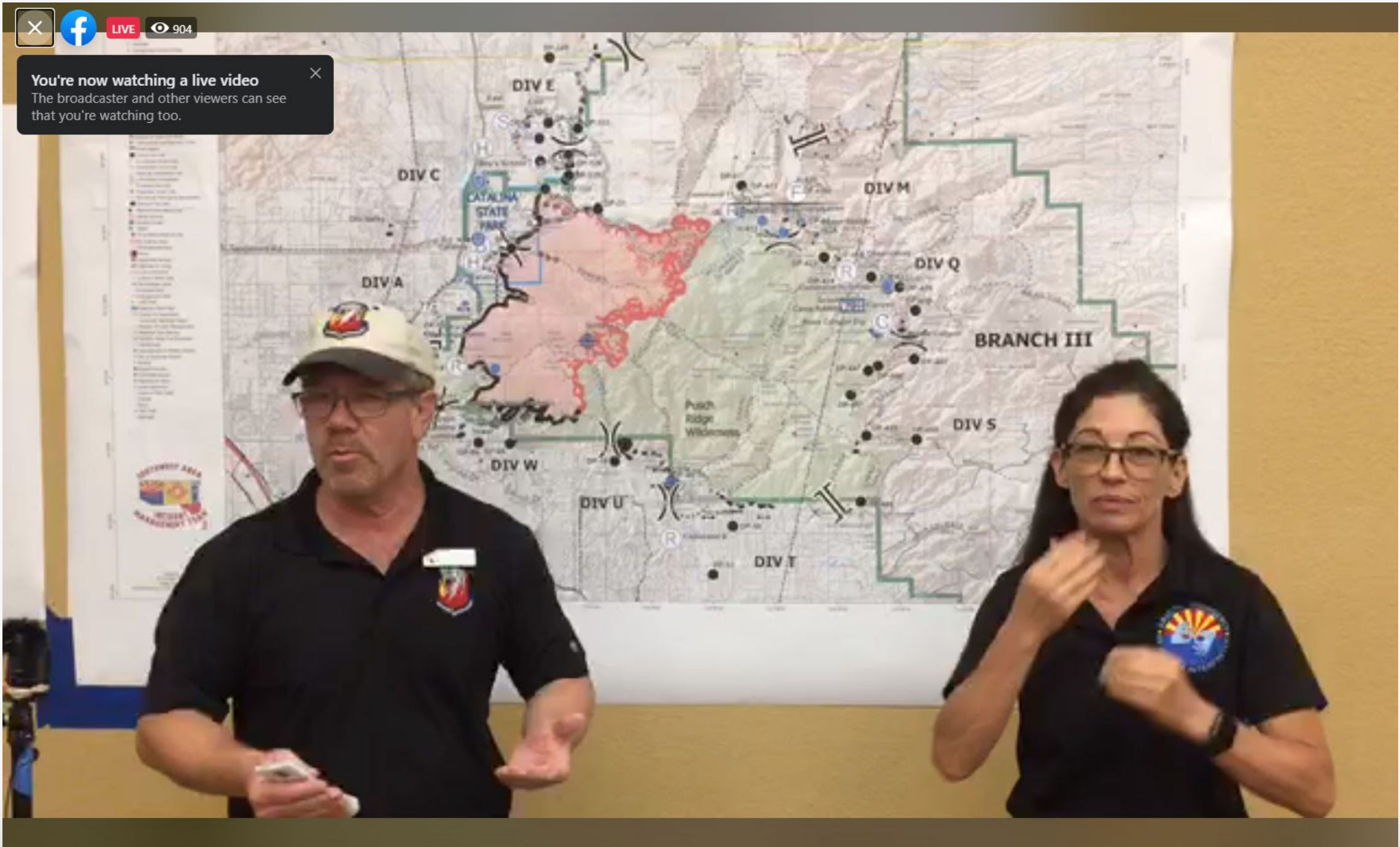


Bighorn Fire Burn Scar Flash Flood Briefing

Wednesday, July 22, 2020 - 5:13 AM

Date	Wed 7/22	Thu 7/23	Fri 7/24	Sat 7/25	Sun 7/26
Flash Flood Threat	Moderate	High	High	Moderate	Moderate
Flash Flood Threat Matrix based on rain amounts of 0.50 inches in less than 1 hour on or near the burn scar					
Flash flooding thresholds for individual canyons will vary, and will change over time					
Today: Scattered showers and thunderstorms will result in a low-to-moderate threat for locally heavy rainfall over the Bighon burn scar. Therefore, the Moderate or Orange category was selected for flash flooding potential.					
Thursday through Sunday: A strong southerly flow will import deeper moisture into the area. This will result in a ramp up of thunderstorm activity over the next several days, with the strongest thunderstorm days likely Thursday and/or Friday. The storms on Thursday and Friday will be capable of producing locally heavy rainfall which will bring an increased risk of flash flooding/mud flows on the Bighorn burn scar. Therefore, the High or Red category was selected for flash flood potential, slightly decreasing in risk Saturday and Sunday where a Moderate or Orange category was selected.					

Decision Support - Incident Meteorologist



Decision Support - Emergency Operations Center

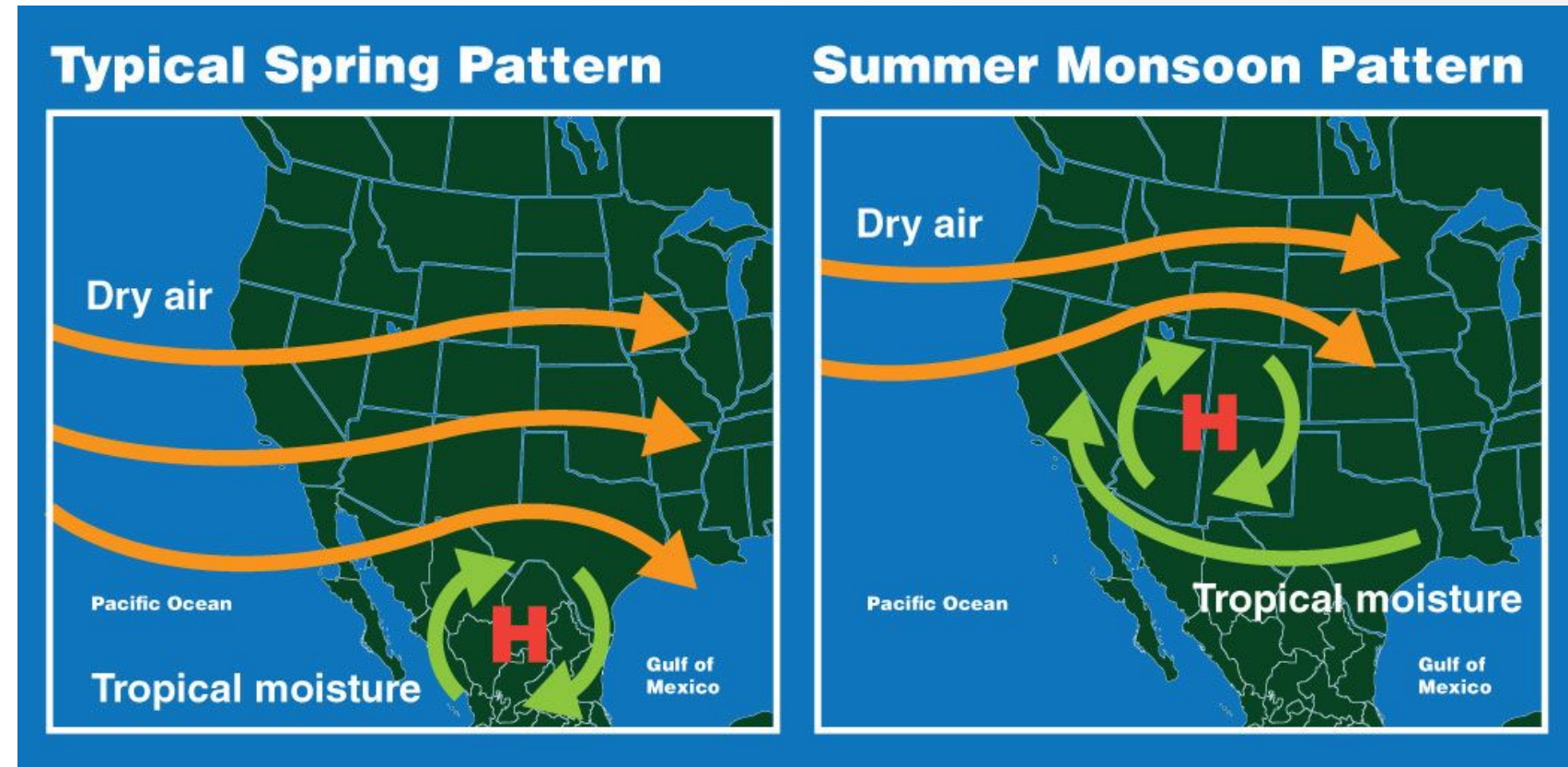


What Questions Do You Have?

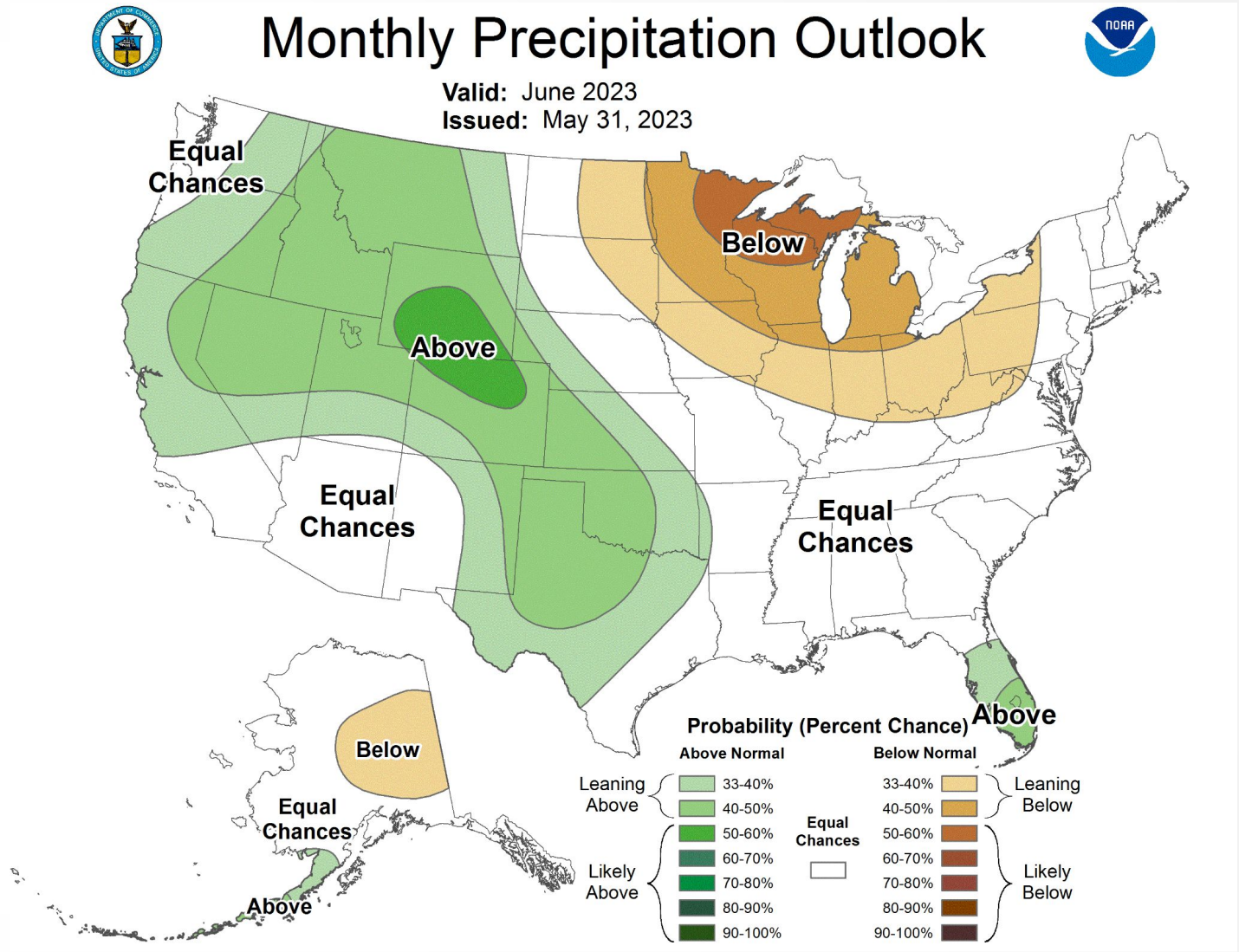
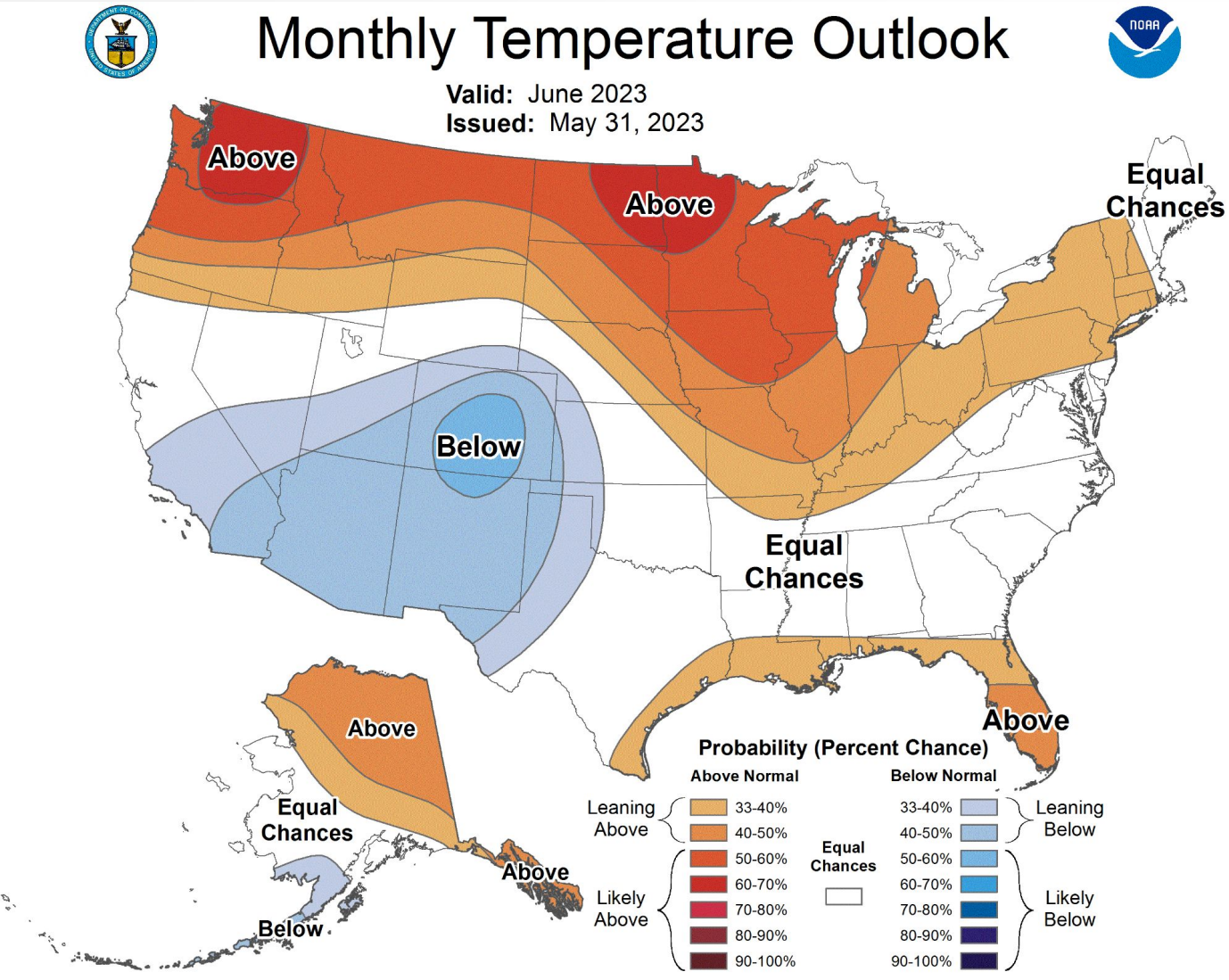
Monsoon Outlook...and Beyond

What is the Monsoon?

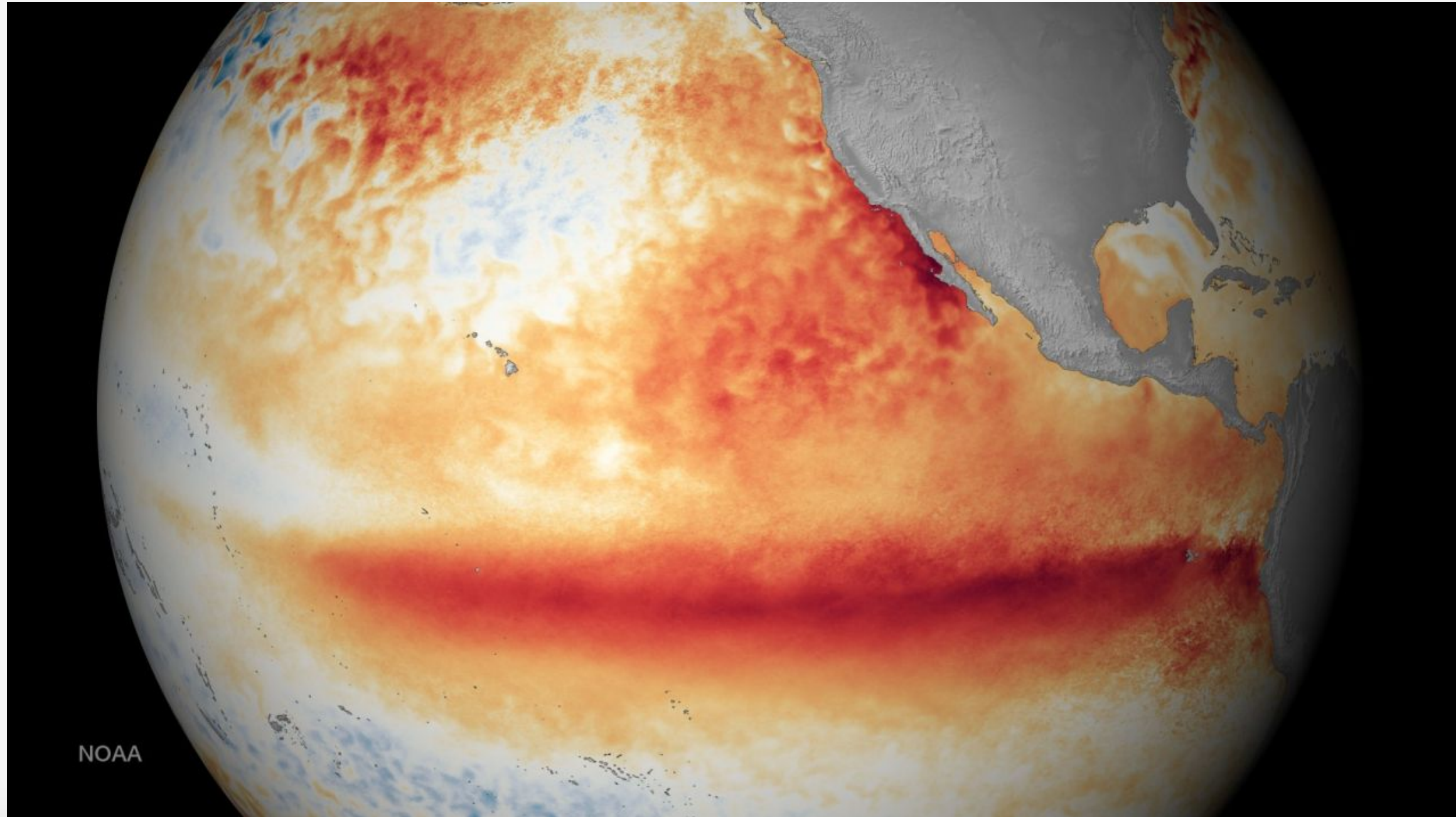
- Seasonal shift in wind pattern
- Moisture comes from the Gulf of Mexico



June Outlook



El Niño



What is El Niño?

- Warm ocean waters along the equatorial Pacific Ocean
- Weakened trade winds
- Has large ramifications on global weather patterns, especially during the winter months



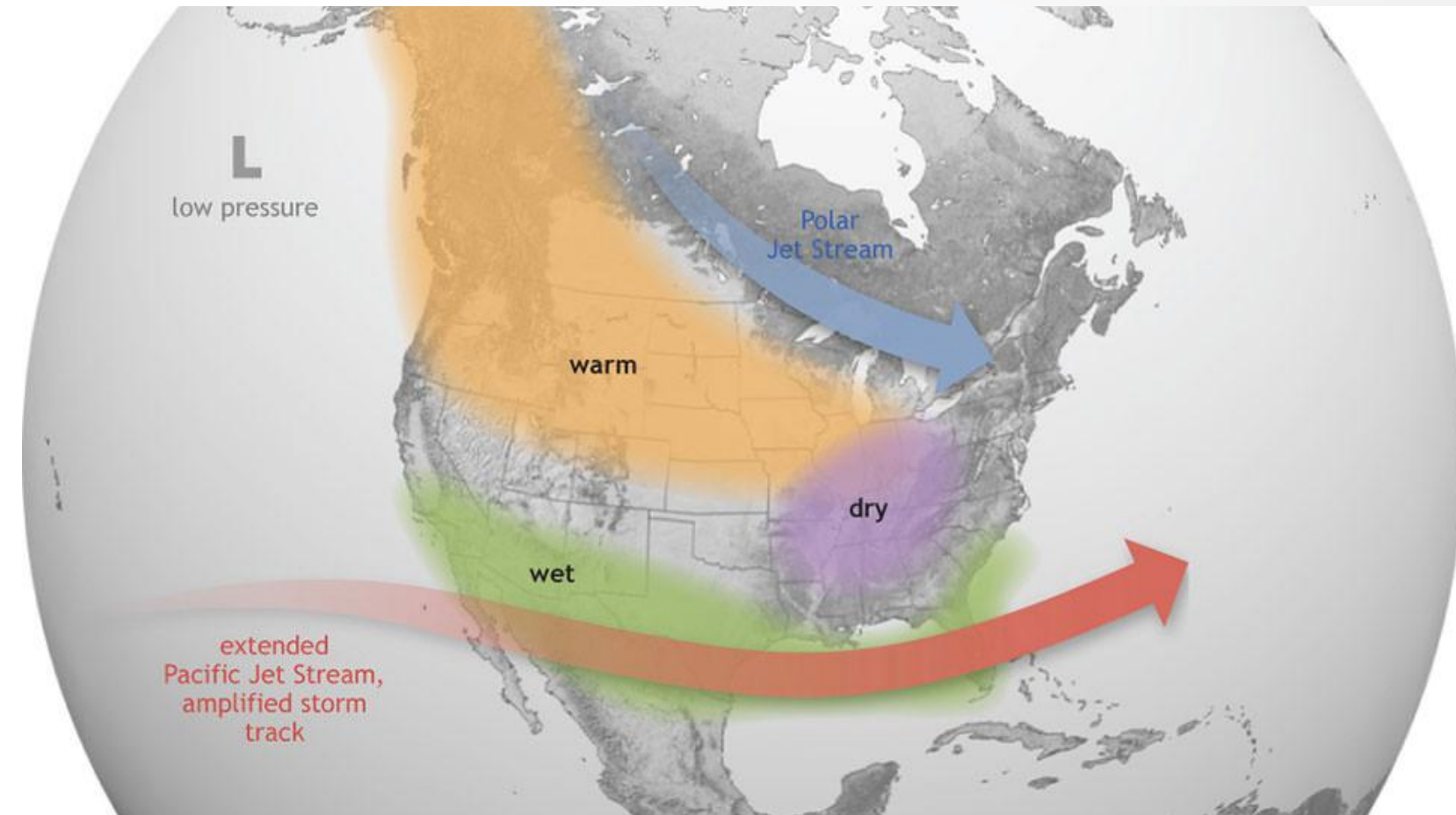
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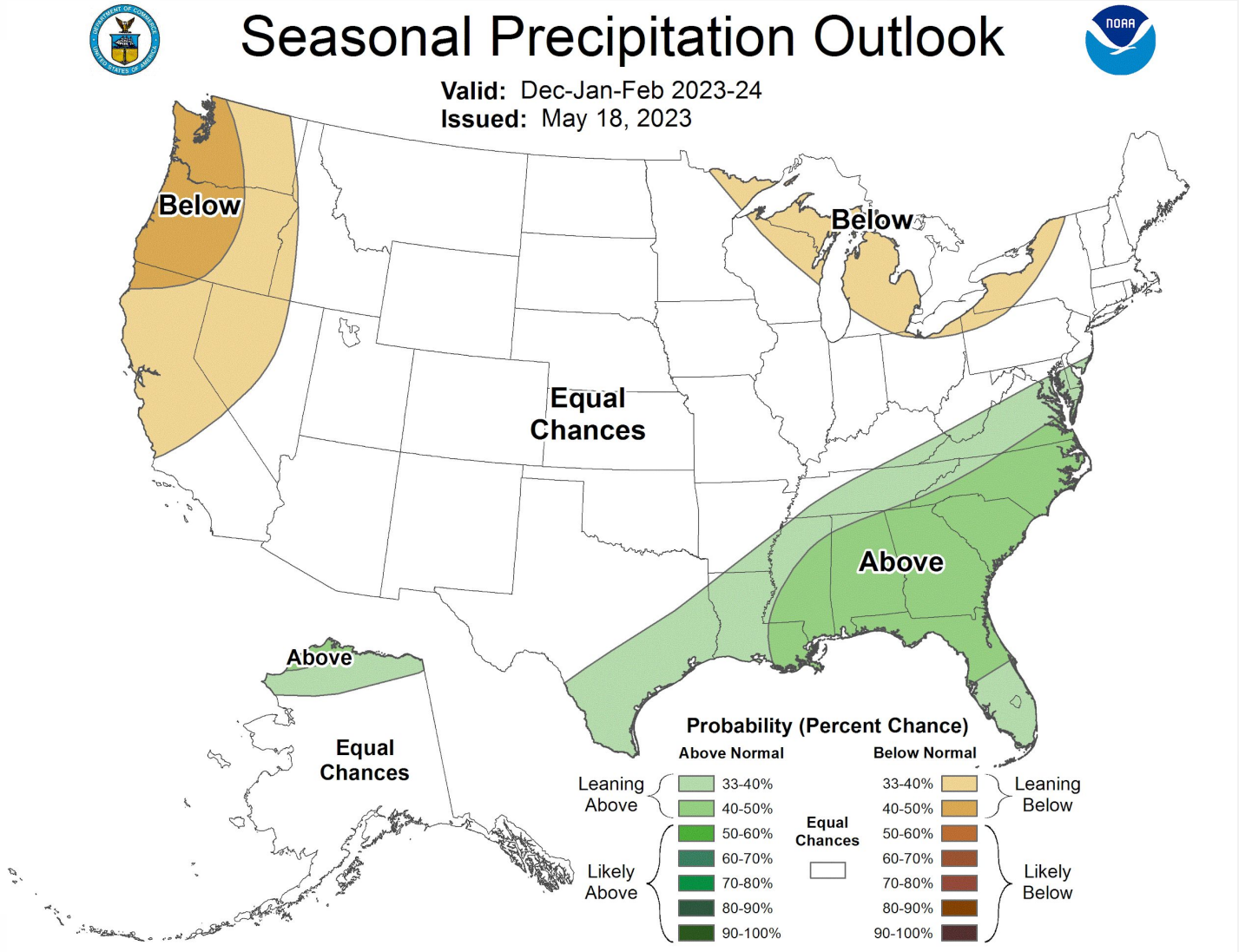
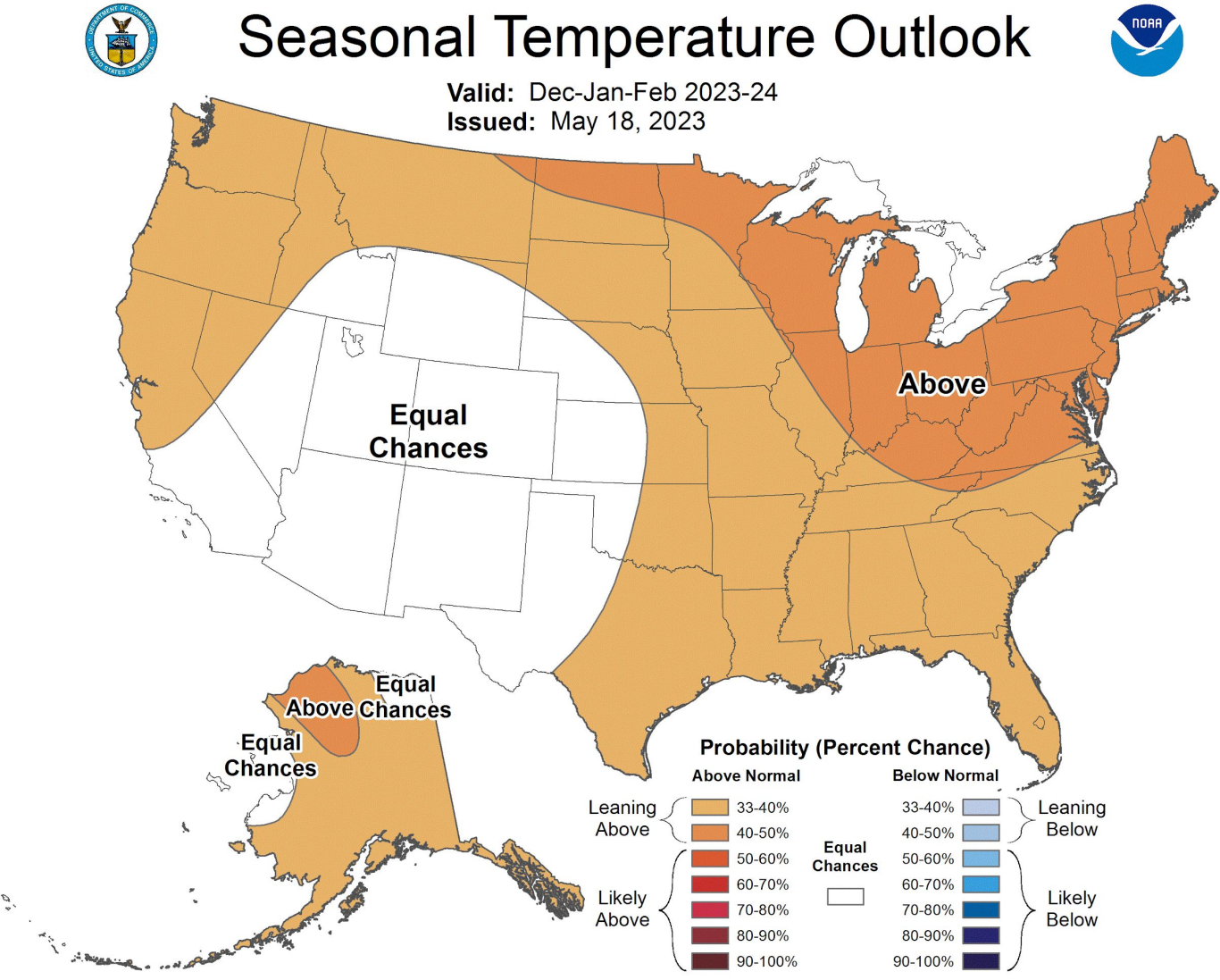


What is El Niño?

- Extended Pacific jet stream during the winter months
- Often wetter than normal conditions across the southern US



Upcoming Winter Outlook



Thank You!



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