



Water Availability Task Force Meeting September 21, 2006



El Nino's Back!

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Colorado Division of Wildlife
September 21, 2006

HDR

John F. Henz, CCM

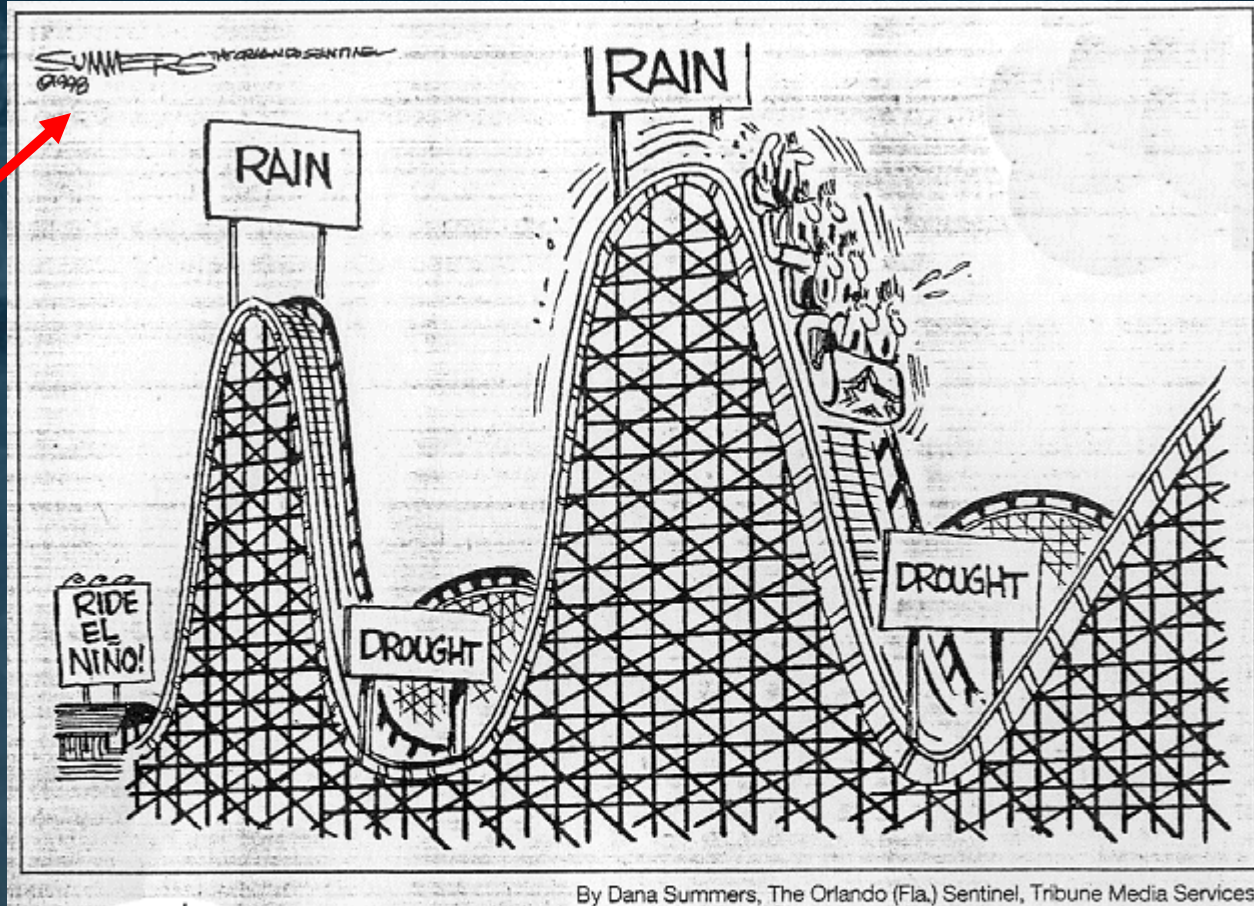
"the old forecaster"

**Significantly
assisted by:
Bill Badini**

- Senior Project Manager and
National Hydro-Meteorology Group leader
HDR Engineering, Inc. – Denver CO
- Certified Consulting Meteorologist (1980-20??)
- Check it out: www.hdrweather.com
- Email: john.henz@hdrinc.com

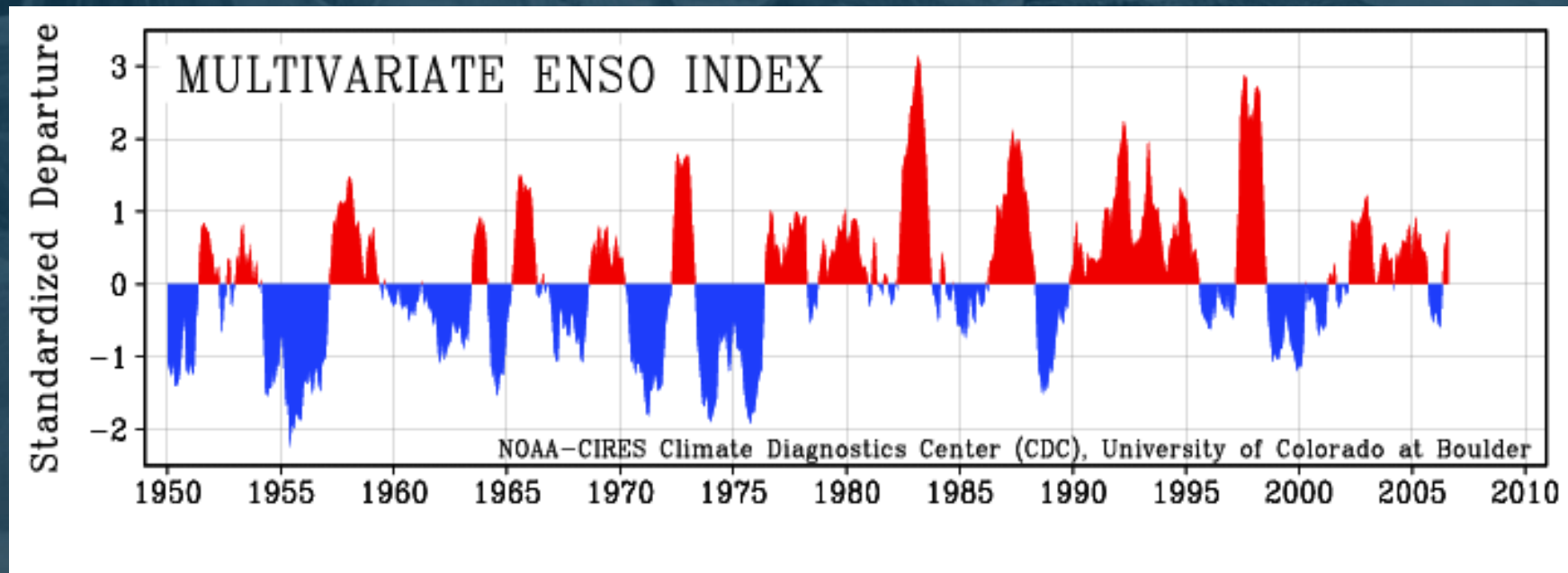
Today's laugh

1998



- *Seem familiar?*

And so it goes The never-ending cycle.
So what's on the WY0607 horizon?



Can we look ahead to
the 06/07WY snowpack?

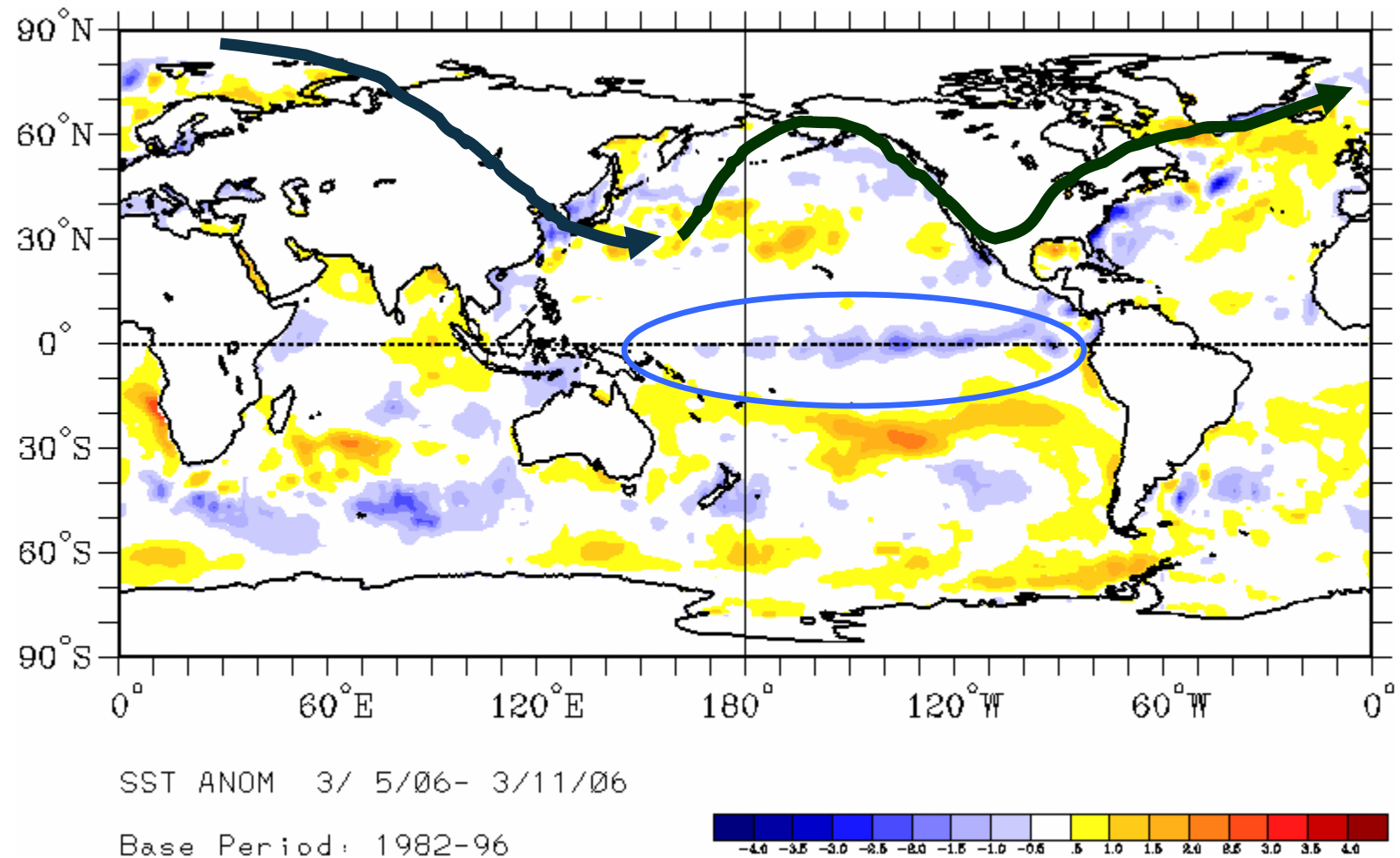


Only very carefully.

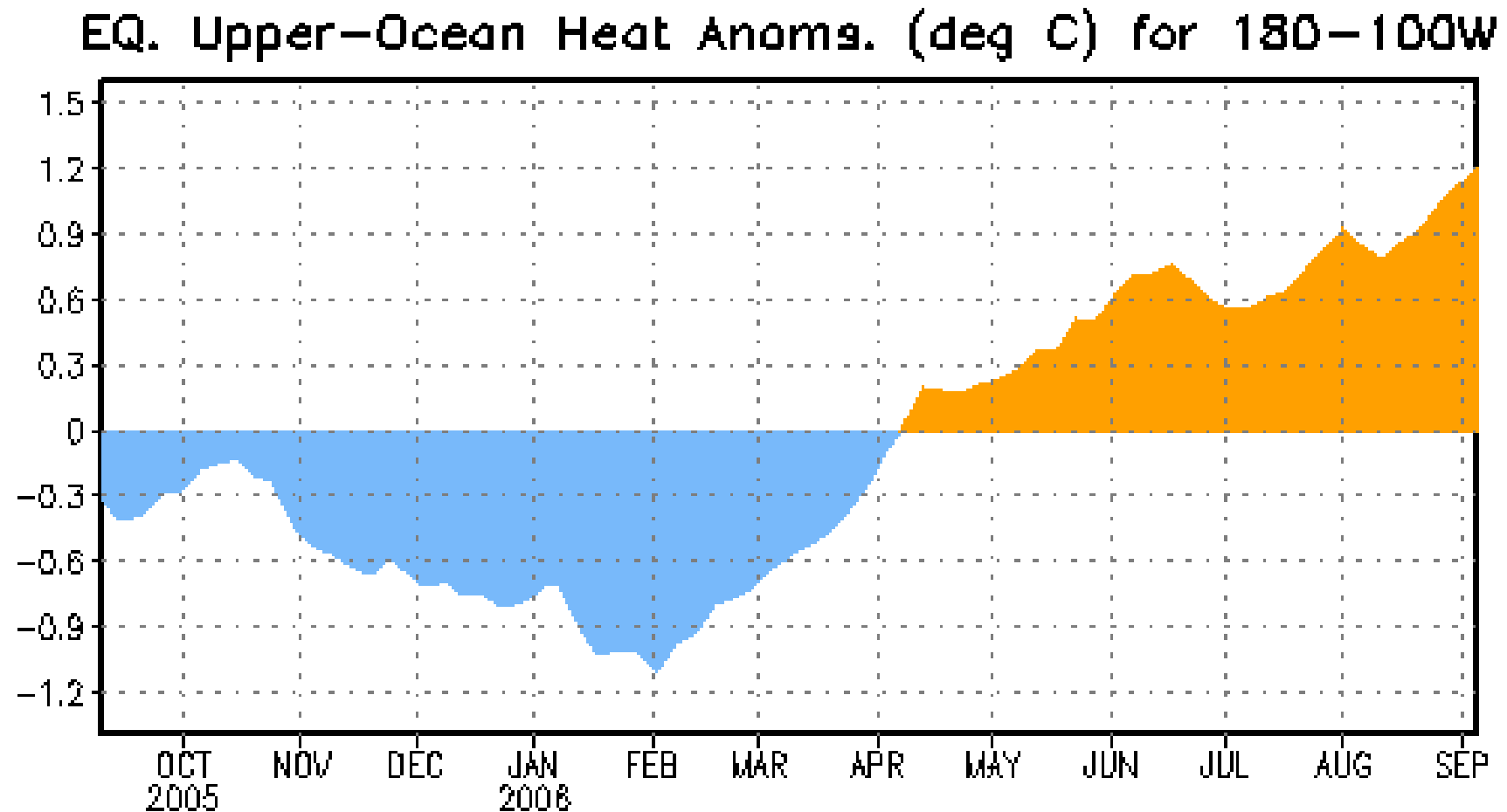


La Nina Became..... El Nino

La Nina, though weak, persisted (Mar 11)

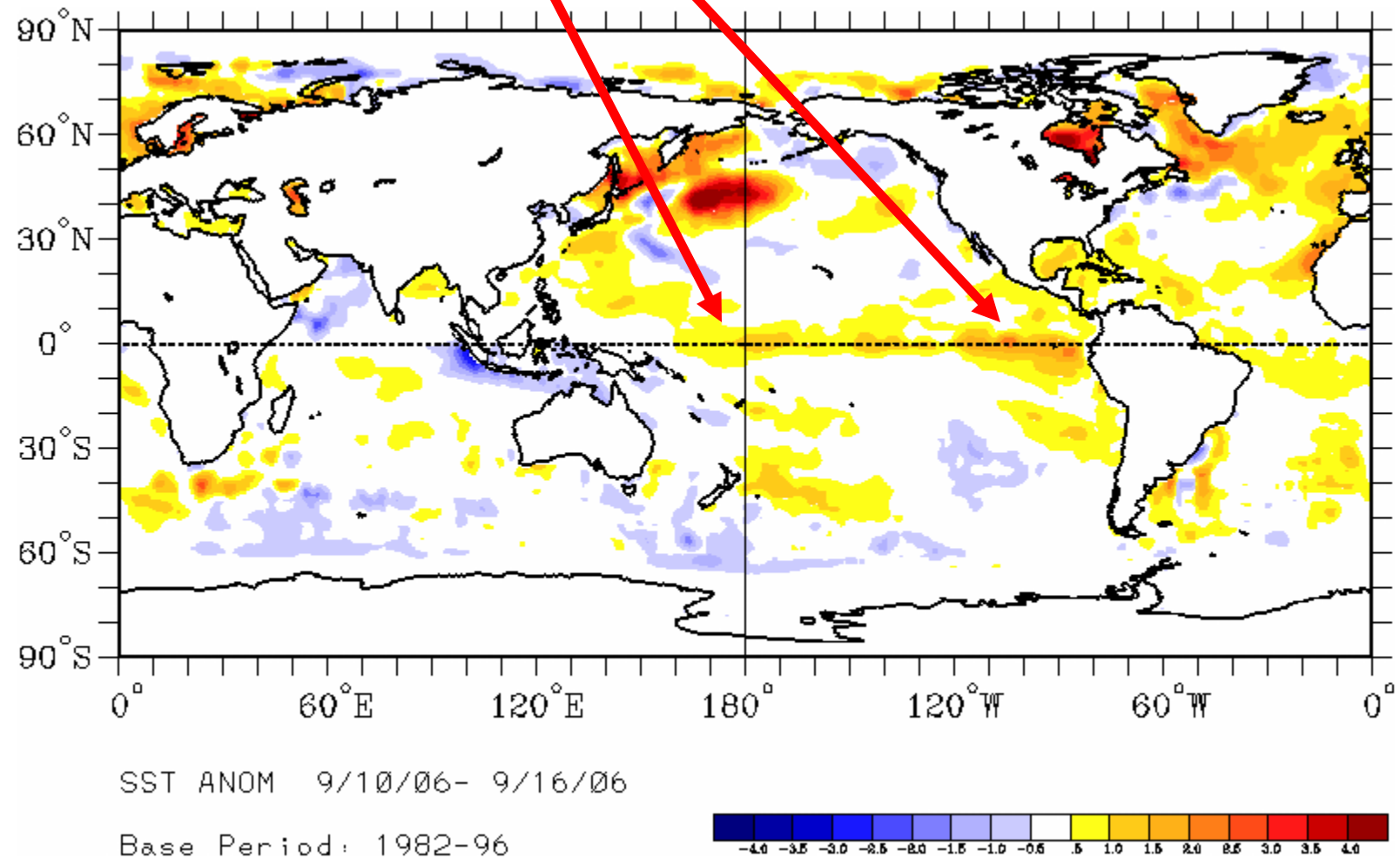


Central & Eastern Pacific Upper-Ocean (0-300 m) Heat Content Anomalies

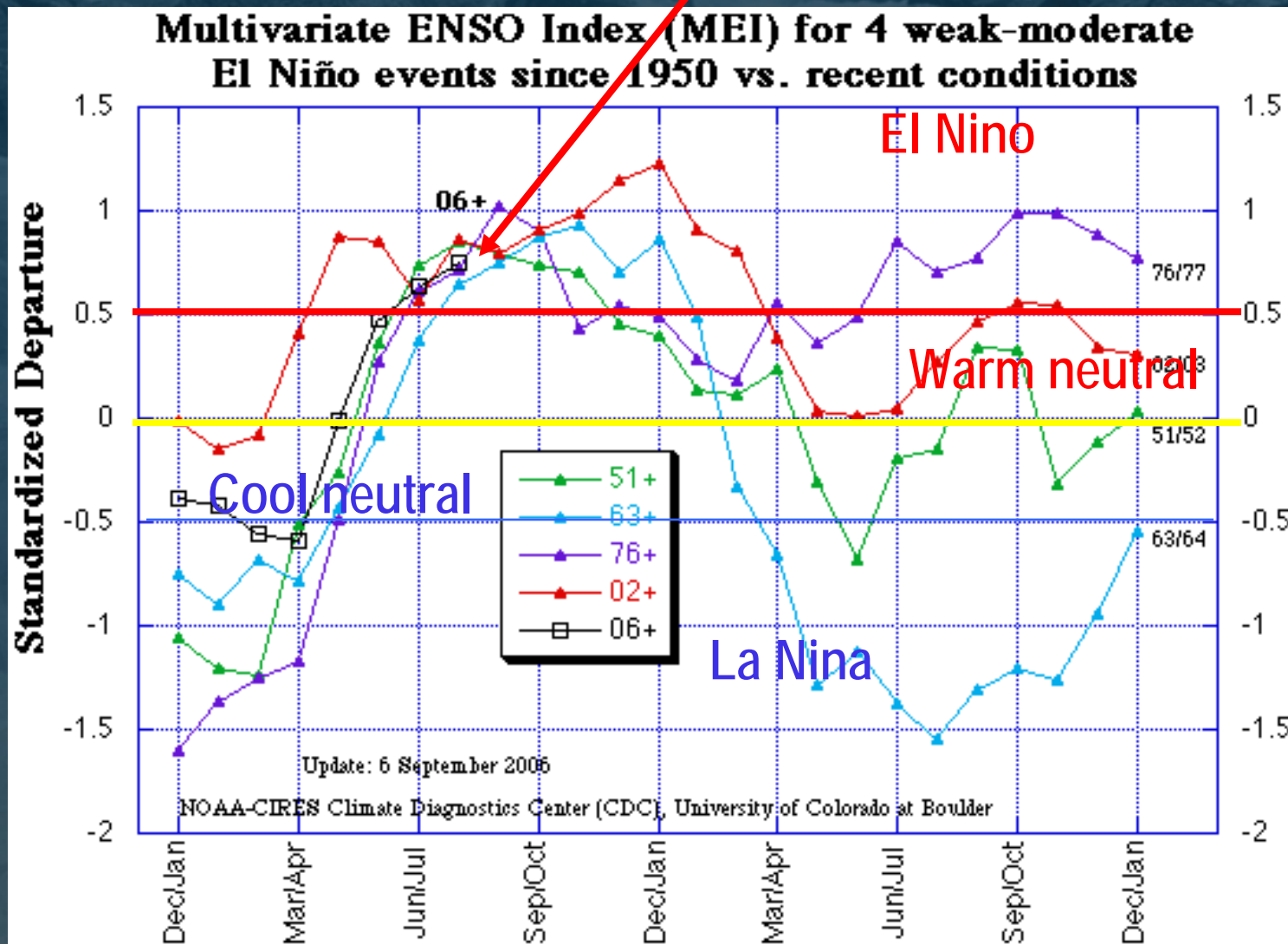


Decreasing upper-ocean heat content was observed during July 2005 through January 2006. Beginning in early February upper ocean heat content increased and, since early April heat content anomalies have been positive.

Now El Nino's developed – Sept 21



Weak-moderate El Nino evolving





Prior forecasts (May 16, 2006 WATF)

- “Monsooner or mon-later”
Looks like monsoon should arrive in
Colorado
July 2-10 with increased t-storm activity.

Prior forecasts (May 16, 2006 WATF)

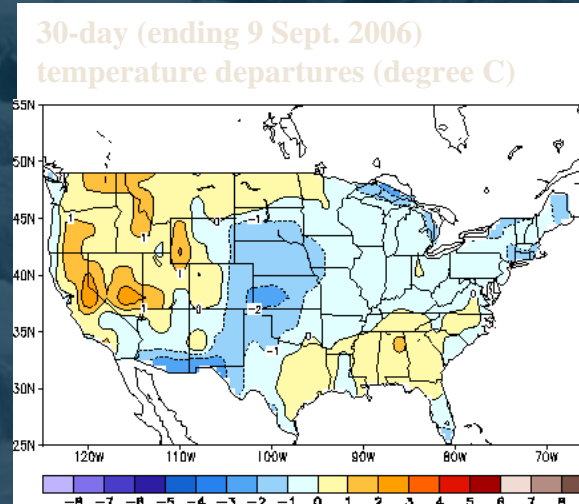
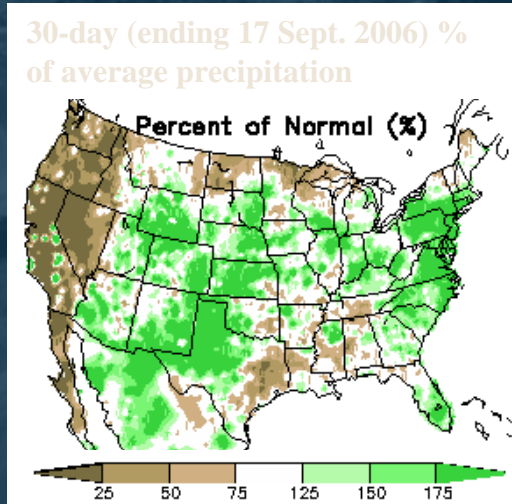
- The hot, dry weather of the “La Nina-induced” summer is evolving into a more seasonal, wet “El Nino-induced” summer.
- Monsoon in Arizona officially started on June 28 in Tucson AZ!
- Four of six AZ monsoons starting before 1 July produce wetter than average precipitation in July-September in Arizona, New Mexico and Colorado.

Prior forecasts (July, 2006 WATF) What does it all mean?

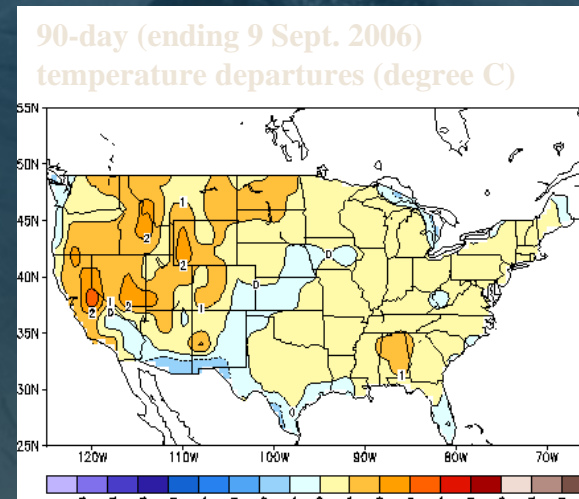
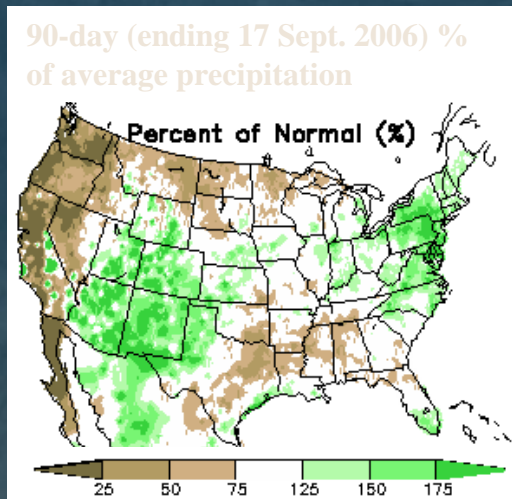
Impact Task Forces	West of Divide	East of Divide
Water Supply	More rain ahead next 5 weeks	Reduced demand as rains increase
Municipal Water	Looks good	Anticipate average summer
Wildfire	Worst may be past	Dry conditions will keep danger high until monsoon sets in west
Agriculture	Summer looks average to dry in NW, moist in central and SW	After hot dry June wet July and August will help
Tourism	Looks like a "Chamber of Commerce" summer	Storminess in July could impact
Energy	Above average demands due to temps	Average due to short "heat waves"

US Temperature and Precipitation Patterns during the last 30 and 90 days

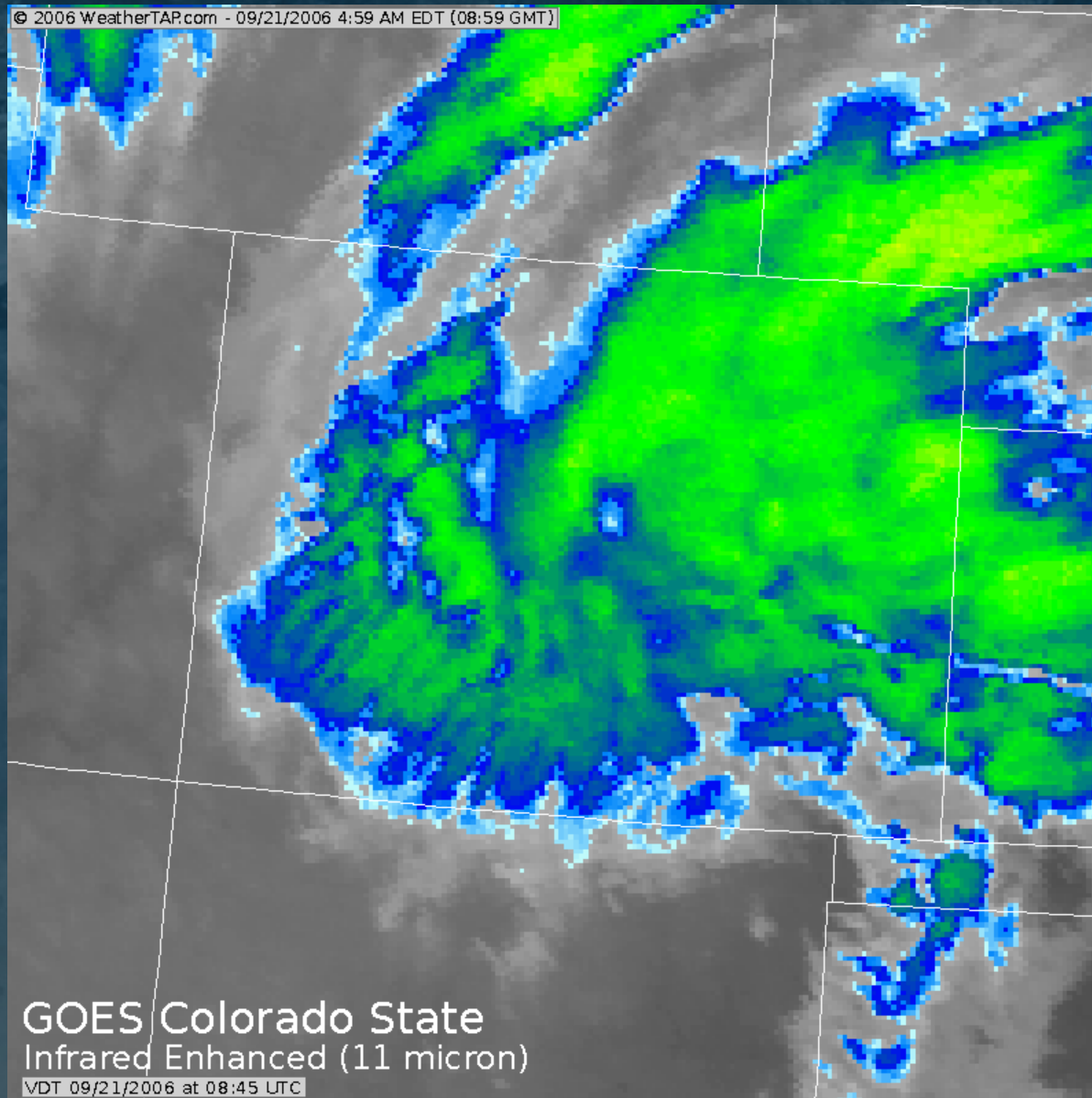
30
days



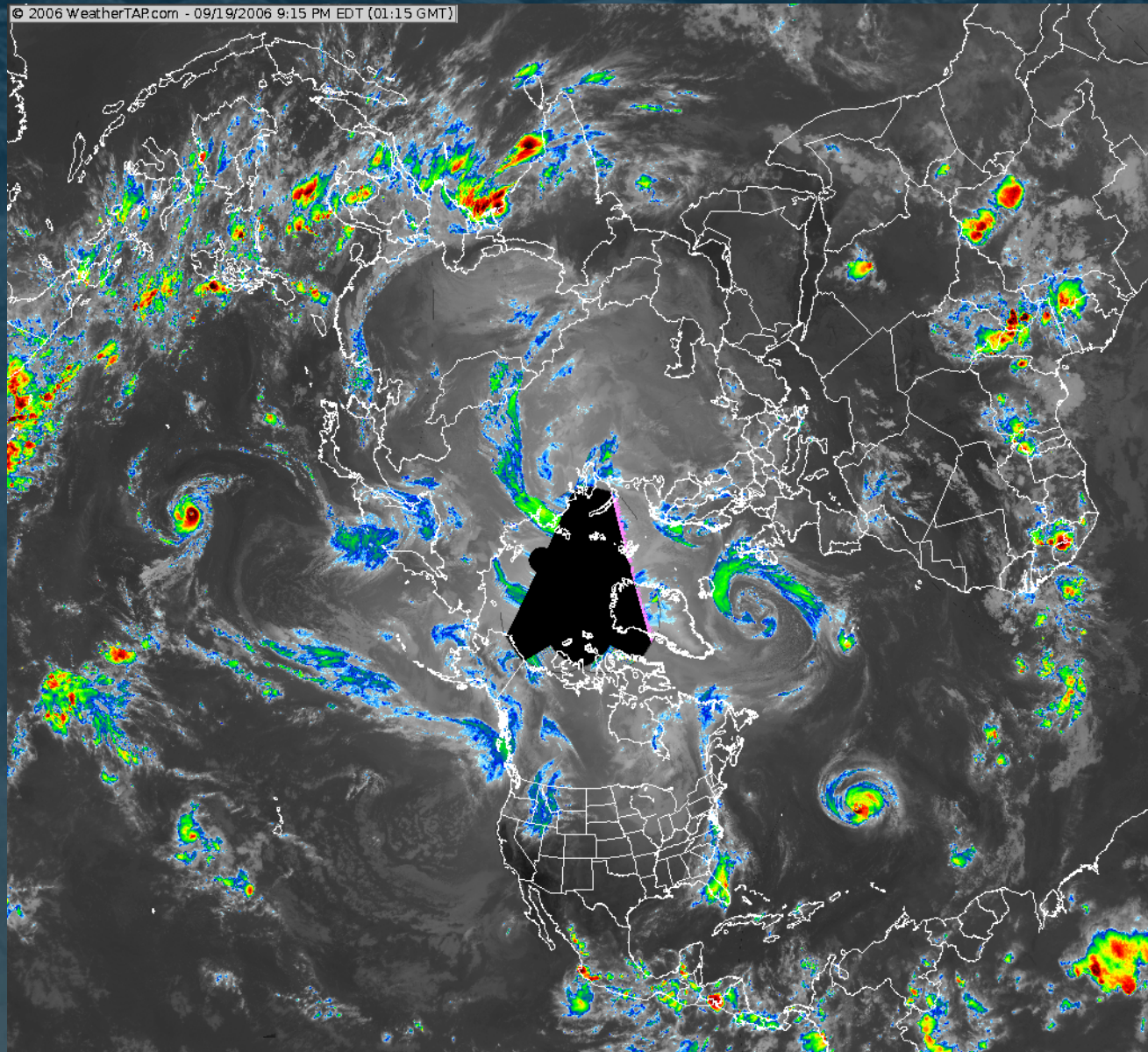
90
days



Does a wet fall mean a wet winter – where?



Winter NH storm track is evolving



Can we look ahead to
the 06/07WY snowpack?

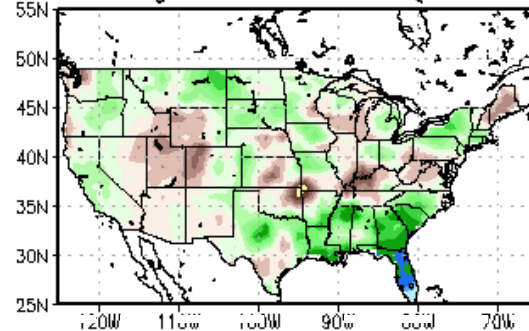


Only very carefully.

US AMJ Precip. Departures (mm) for El Niño

El Niño AMJ

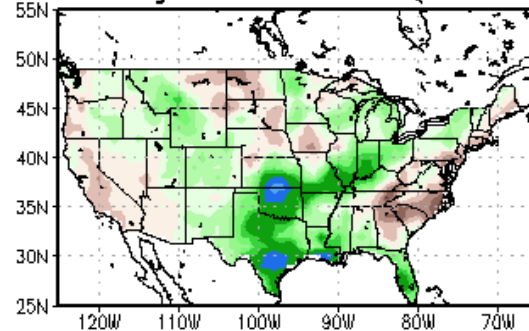
ONI Range +0.5 to +0.6 (8 events)



Weak

Drier

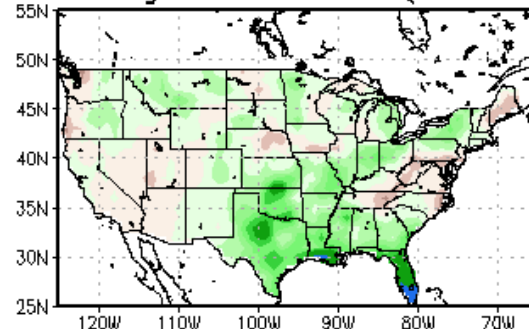
ONI Range +0.7 to +1.1 (7 events)



Moderate/
Strong

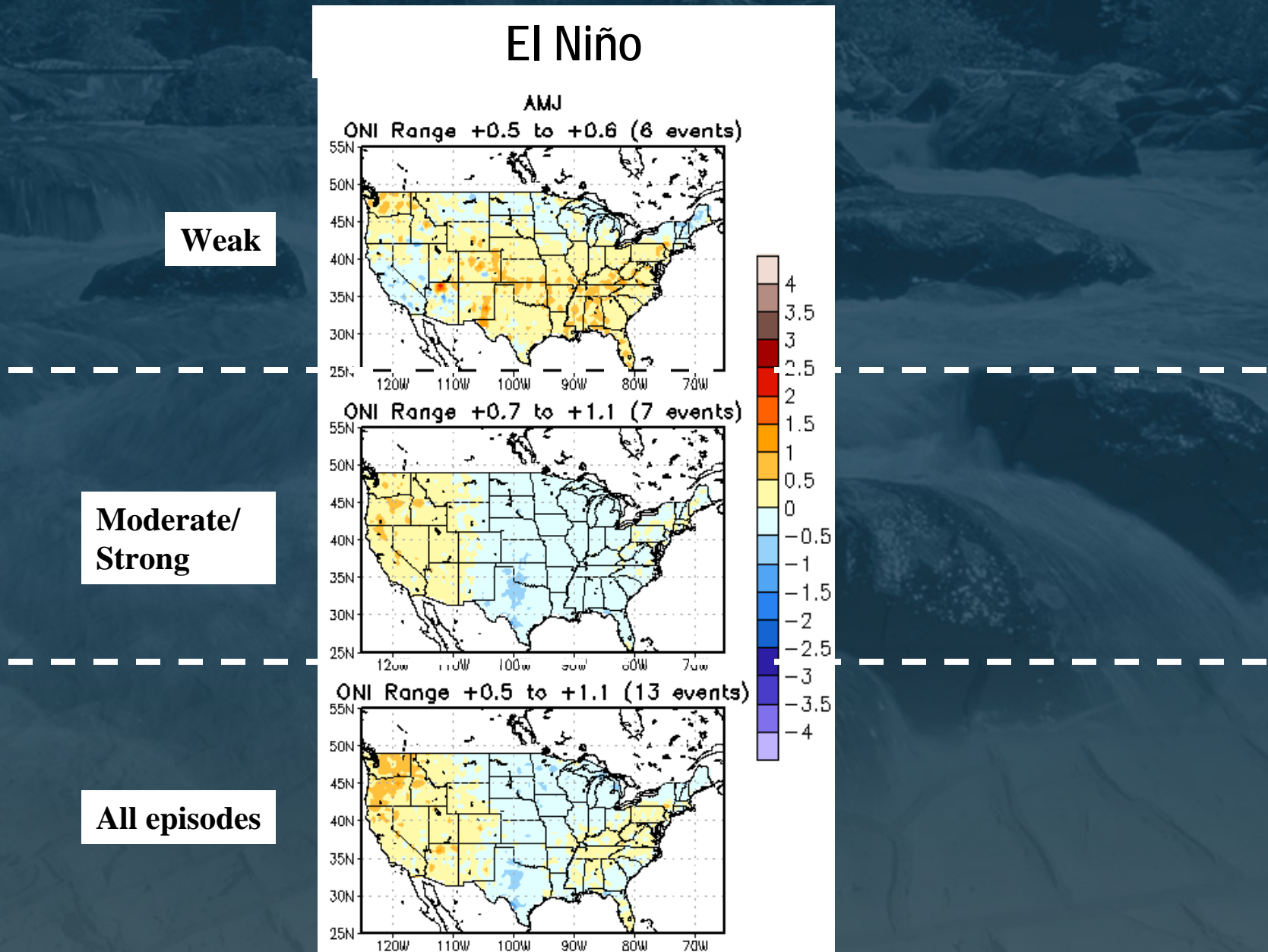
Wetter

ONI Range +0.5 to +1.1 (13 events)

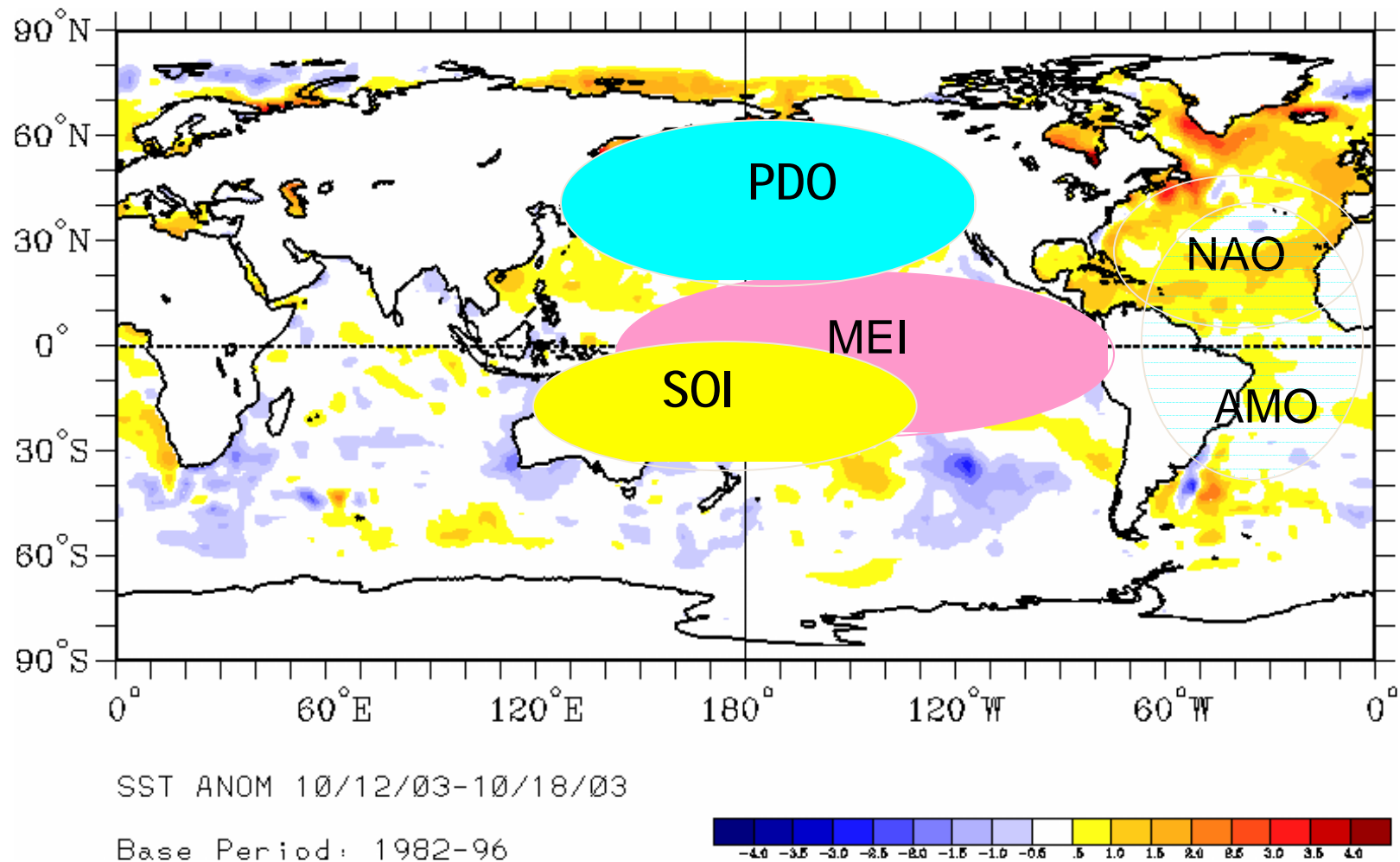


All episodes

US AMJ Temp. Departures (°C) for El Eino

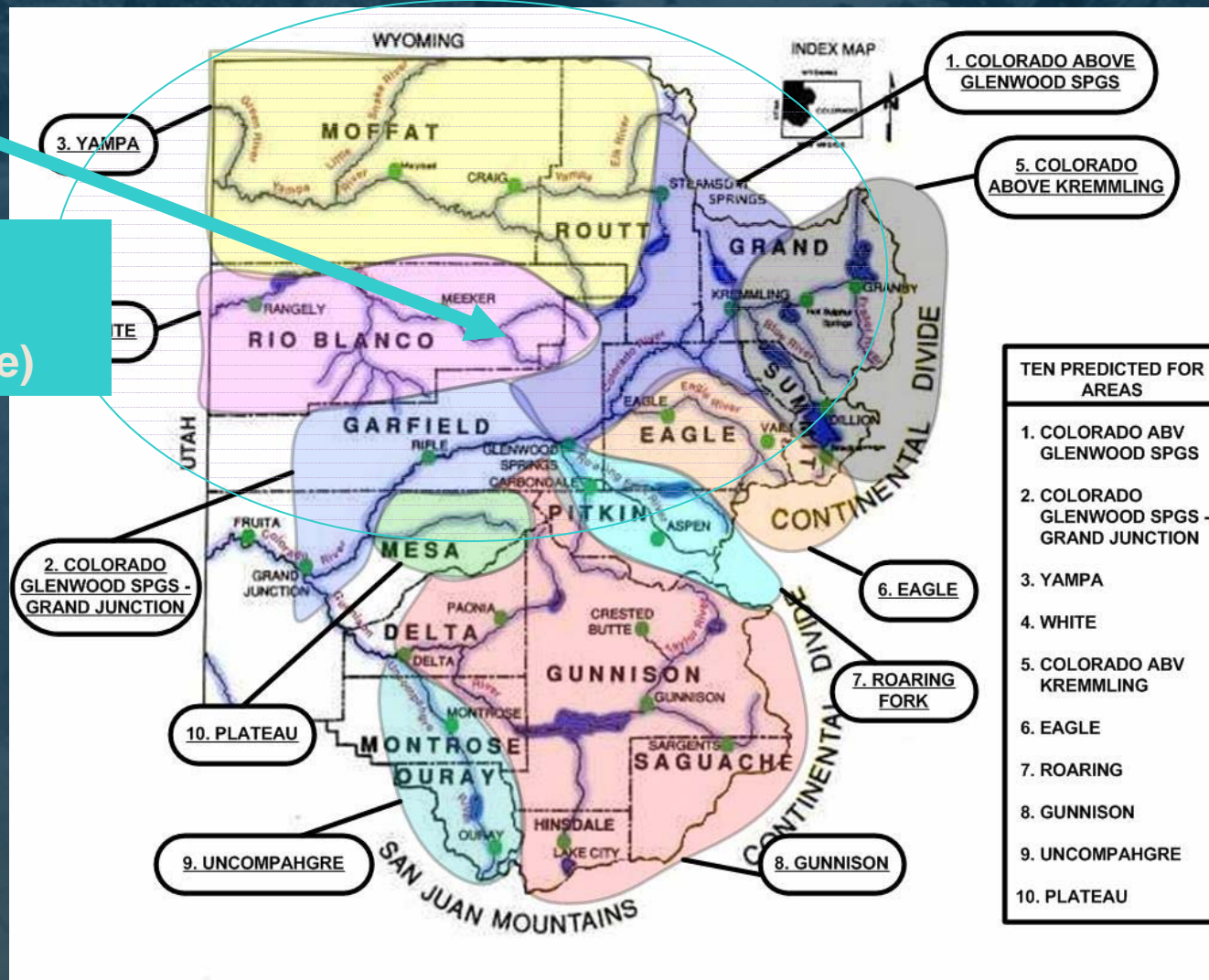


Where the CRWCD Hydro-Climate Indices Operate

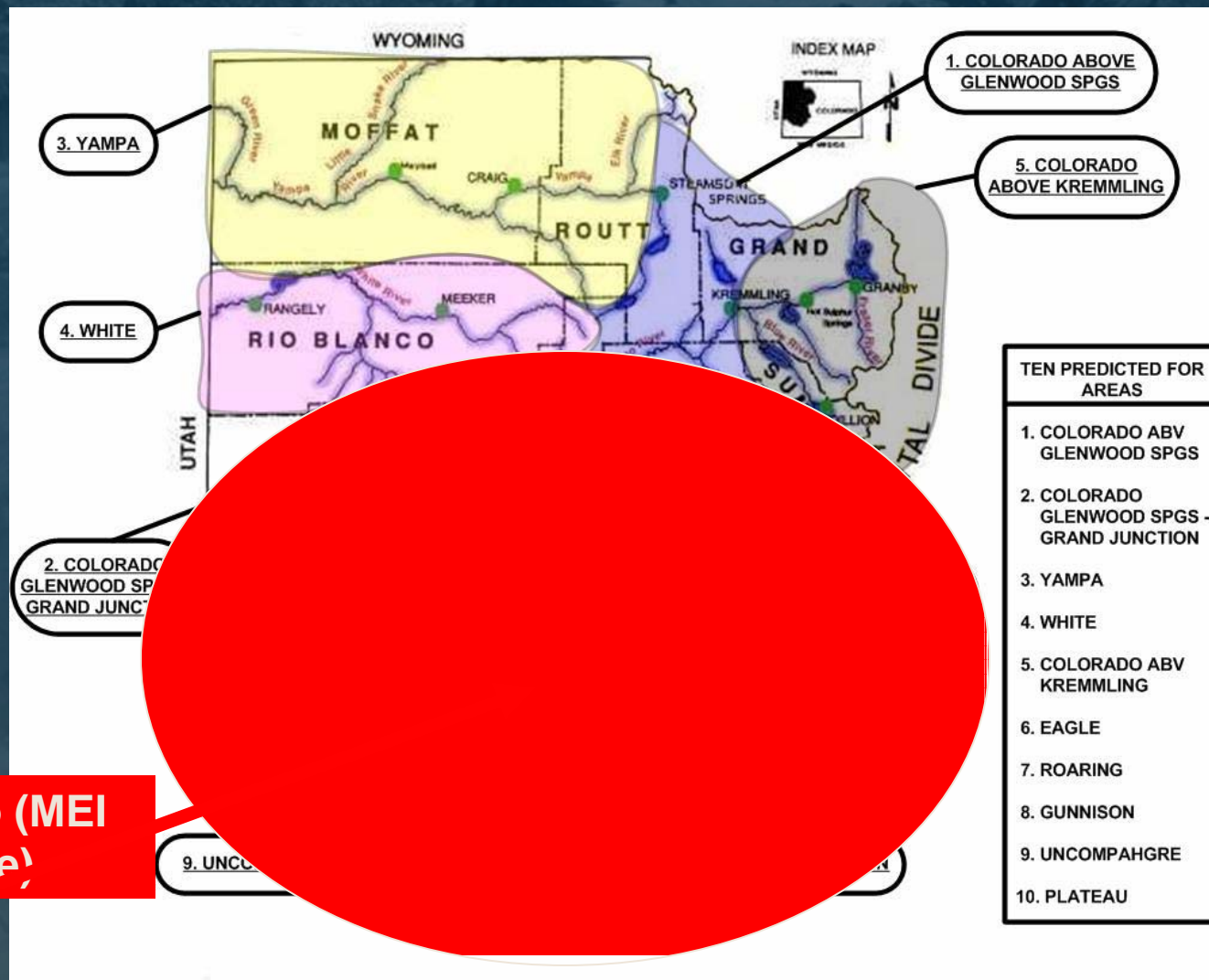


Different climate regimes are associated with above normal snow pack in the CRWCD basins

La Nina
(MEI
Negative)

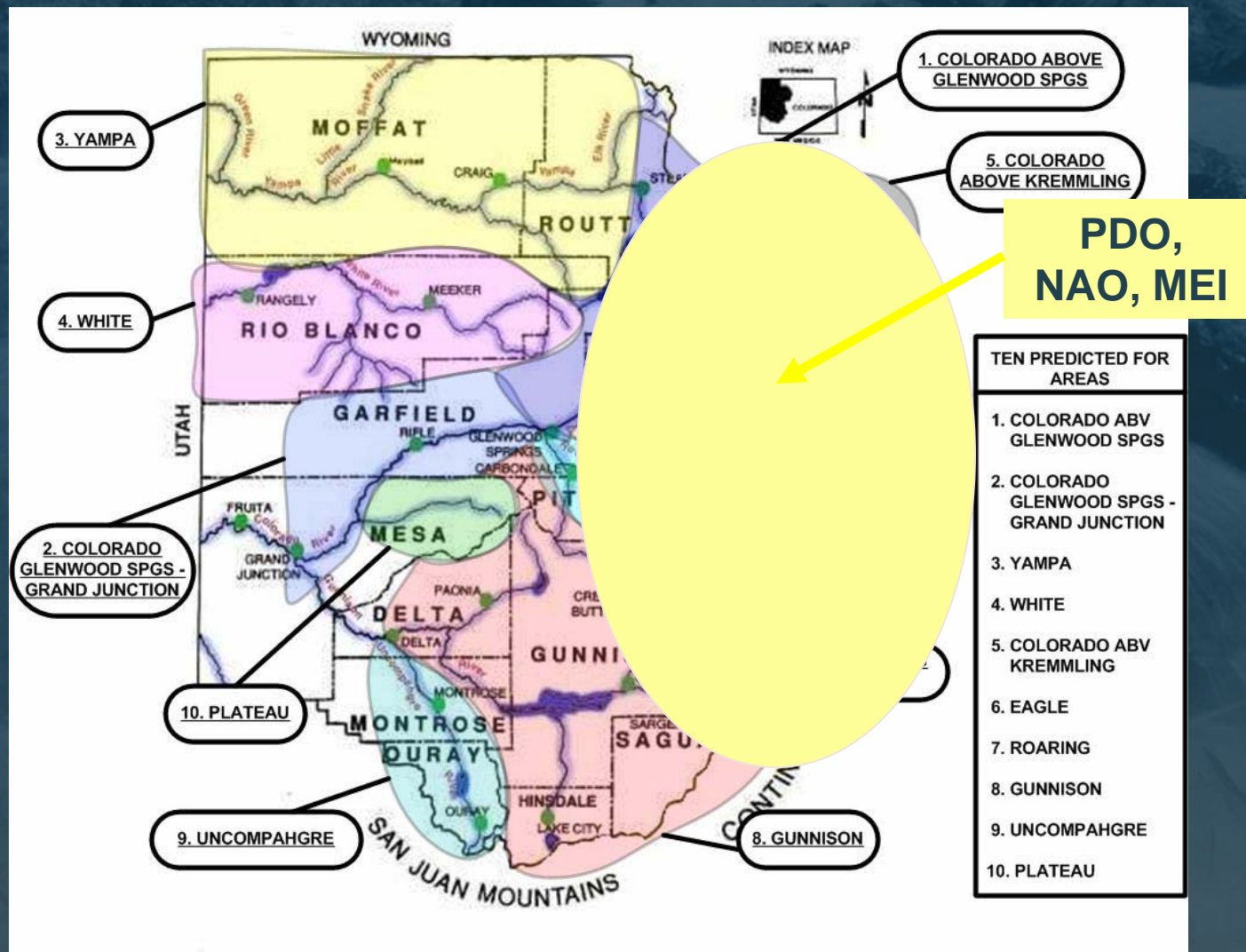


Different climate regimes are associated with above normal snow pack in the CRWCD basins



El Nino (MEI Positive)

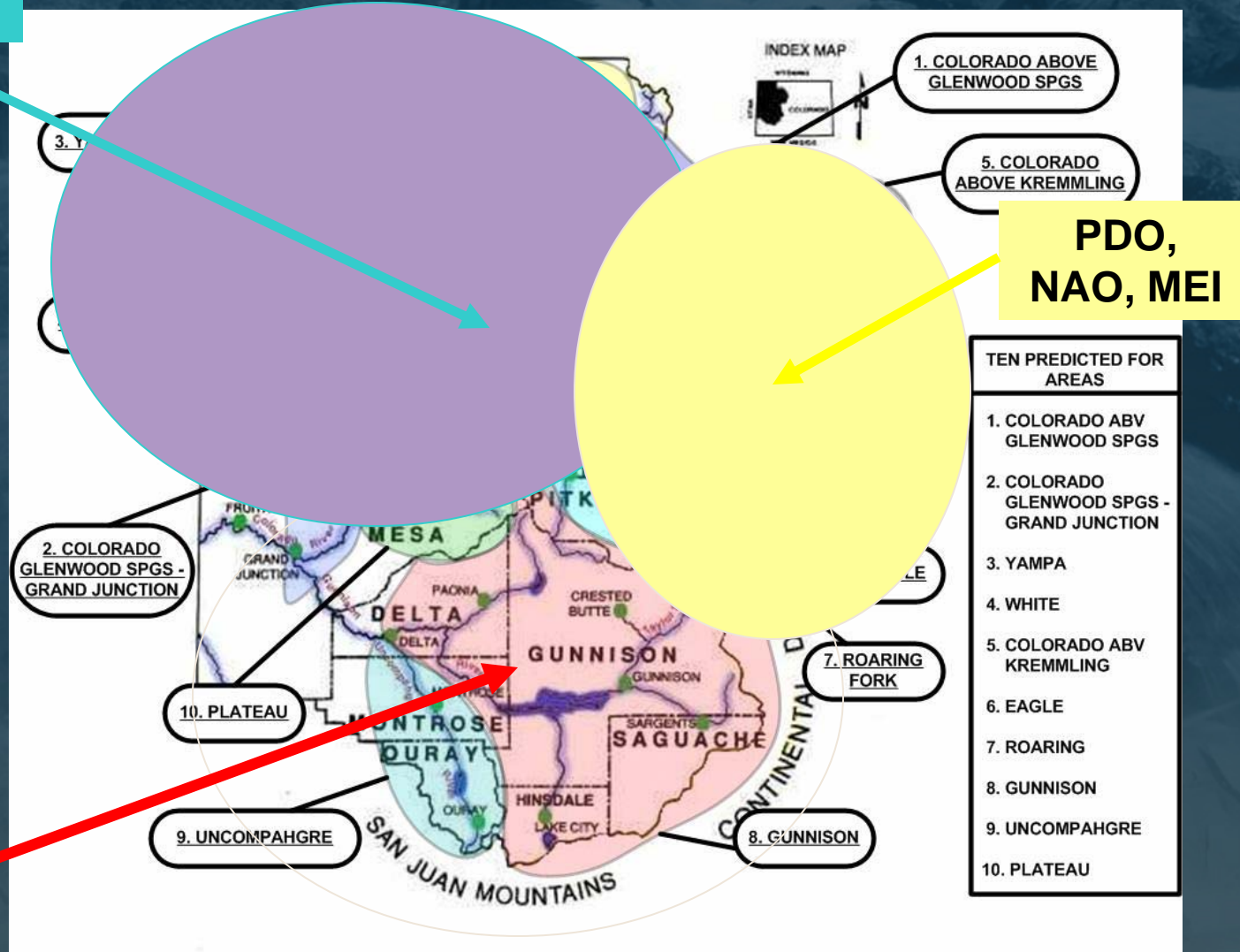
Different climate regimes are associated with above normal snow pack in the CRWCD basins



Significant basin differences exist in determining seasonal snow/precipitation

La Nina

El Nino



How have historic **La Nina's** and **El Nino's** impacted Colorado winter/spring precipitation?


- **La Nina's:** *Below normal snow packs* and meager summer rains. Favor development of multiple dry year sequences or droughts
- **El Nino's:** Average to above average winter snow packs and above average spring general storm rain/snow and average summer monsoon rains
- Neutral periods can be "warm-neutral or cool-neutral" and prolong an **El Nino** or **La Nina** effect.

Initial snowpack outlook for WY0607

Basin	October-March Basin Avg. SWE (% of normal) Could be low
White-Yampa	80%
Upper-Mid Colorado	95%
Lower Colorado	100%
Eagle- Roaring Fork	115%
Gunnison	120%
Uncompahgre	110%

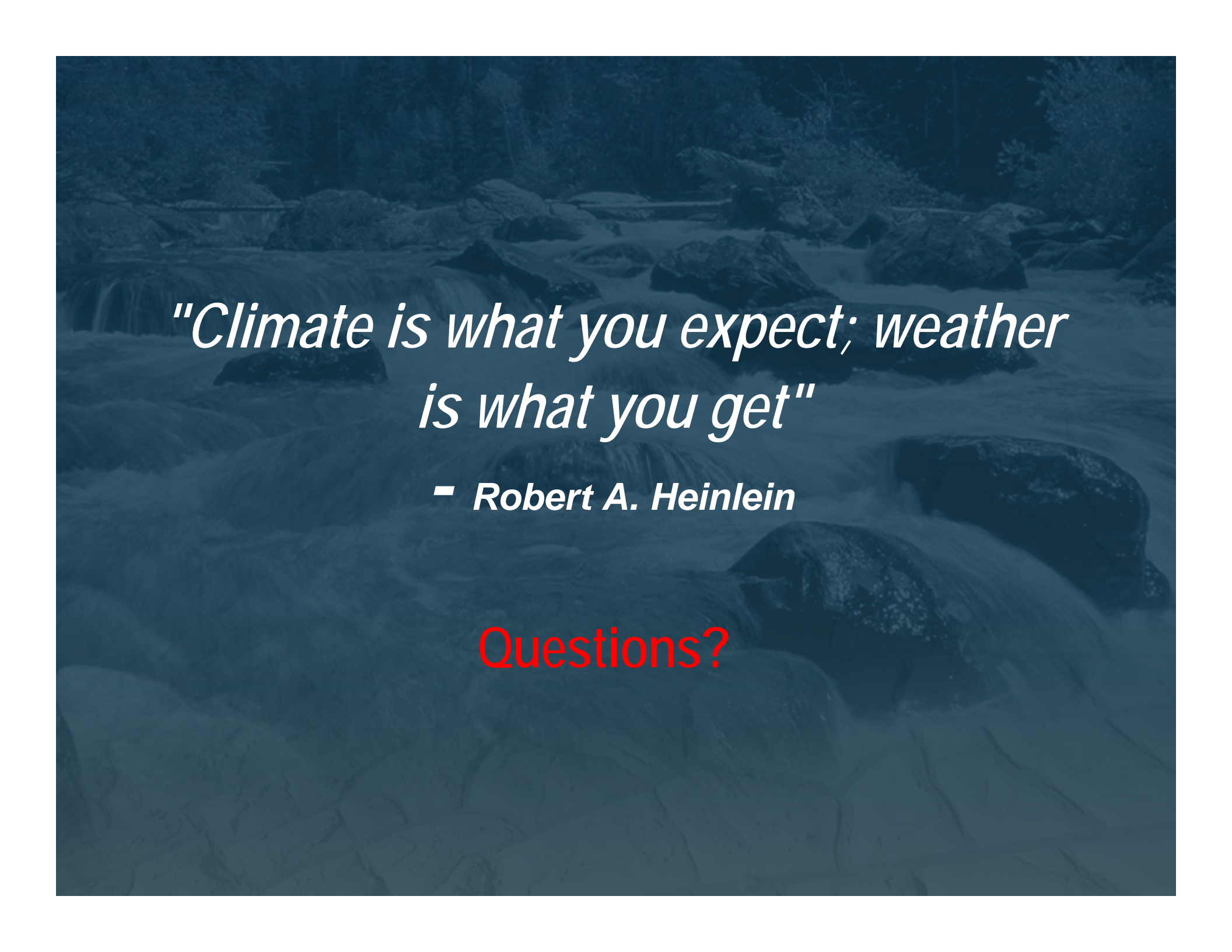
Signals are getting stronger

- El Nino appears likely to become moderate
- Snowpack north of I-70: below average to average
- Snowpack along I-70: average
- Snowpack south of I-70: above average
- Snowpack along CD north of I-70: average to abv based on wet spring (60%)
- Snowpack along CD south of I-70: Below to average



*"The Rockies will go from first in April
to last in September."* *Self-styled baseball realist, May WATF*

The best forecast of last spring!!!



*"Climate is what you expect; weather
is what you get"*

— *Robert A. Heinlein*

Questions?