CLIMAS
Climate Assessment for the Southwest

CSAP

2008 Monsoon Outlook Post-Validation

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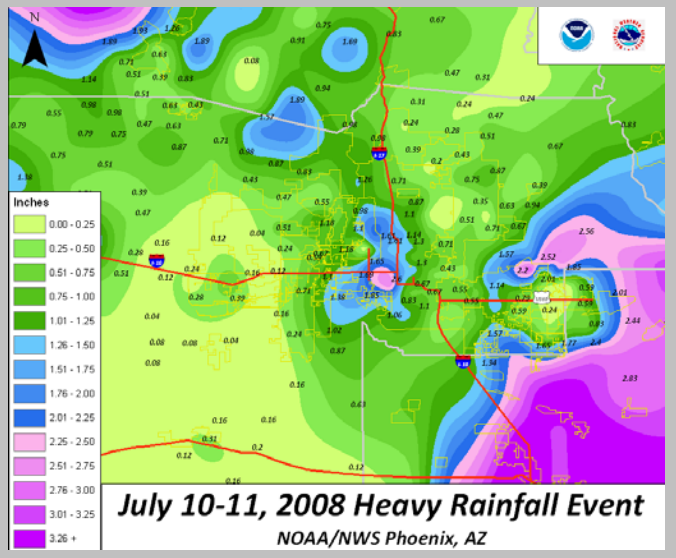
UA Climate Science Applications Program (CSAP) and Climate Assessment for the Southwest (CLIMAS) Web Briefing

July 30, 2008



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Main points from 2008 Outlook on June 4

***Sources*: Climate Prediction Center, K. Wolter (CDC), MRF Reforecast Product (CDC), A. Douglas (SMN), C. Castro (UA)**

Hotter than average conditions for the summer period

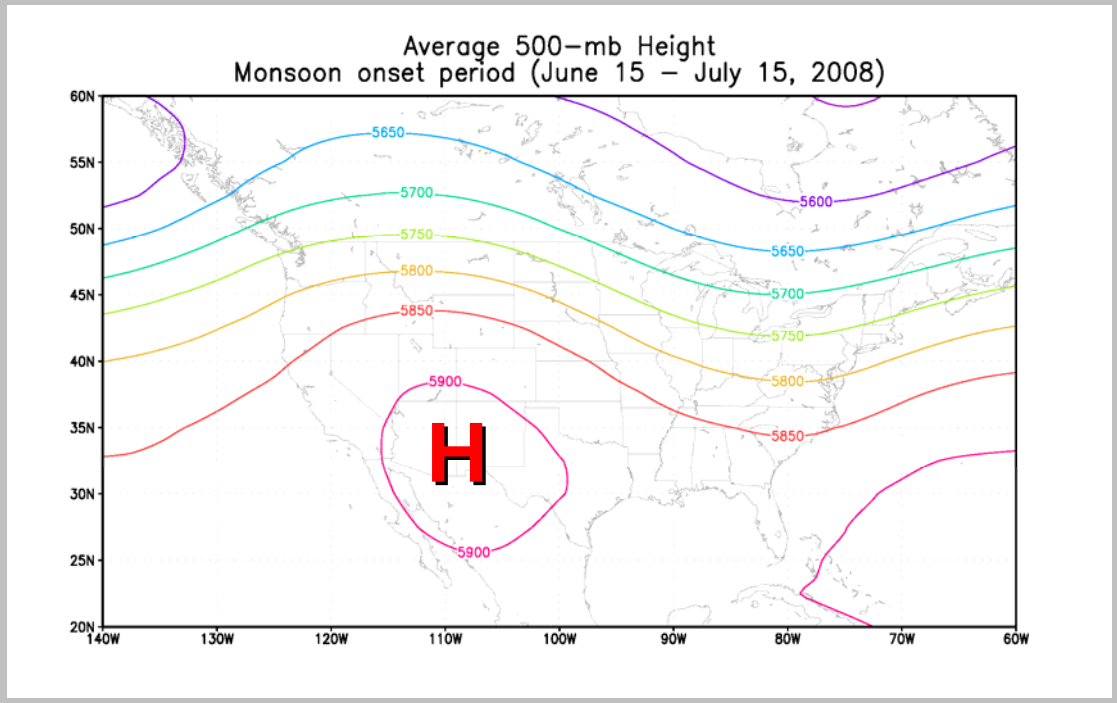
CPC predicted an “equal chances precipitation forecast”

Alternative forecasts (including medium range MRF Reforecast) generally predicted above average rainfall in the Southwest U.S. and northwest Mexico, with best agreement among forecasts for eastern Arizona and western New Mexico.

Our group predicted an earlier monsoon onset and above average monsoon precipitation in June and July based on late spring, early summer Pacific SSTs and historical records. Douglas’ statistical analog SMN forecast for Mexico also predicted above average rainfall in July for northwest Mexico.

We additionally predicted more intense storms triggered by large-scale weather disturbances

Monsoon Ridge position during onset period (late June, early July)



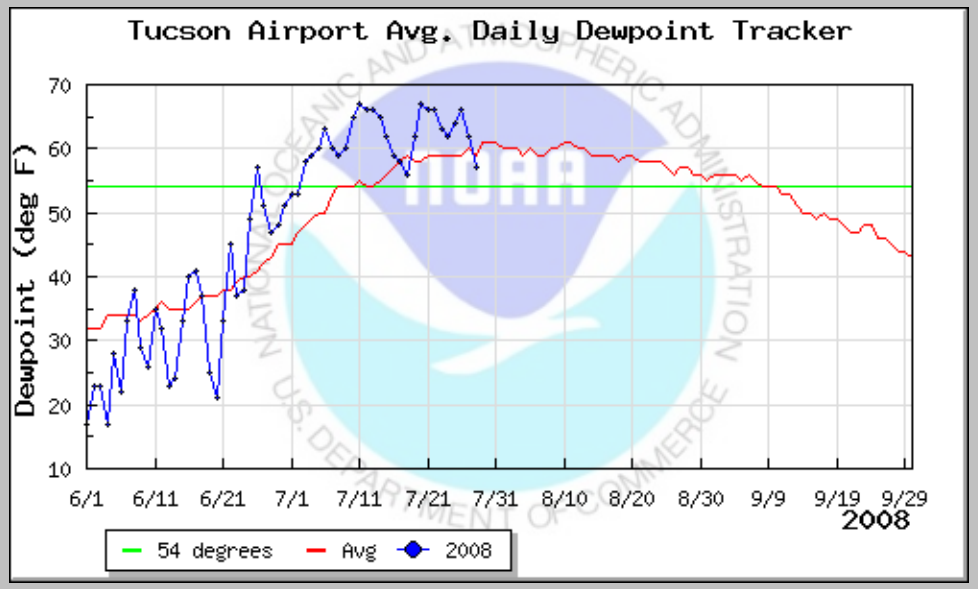
(NCEP-NCAR Reanalysis)

A stronger than average and more northward displaced monsoon ridge did develop during the onset period.

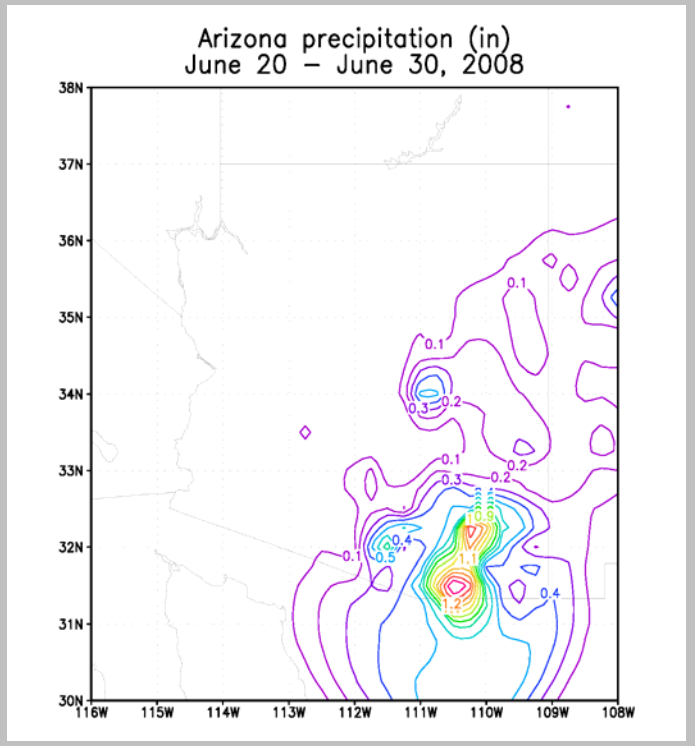
Lead to warmer than normal temperatures during the month of June throughout Arizona.

6th warmest June in Tucson.

Monsoon onset was early in late June, in spite of the old Tucson dewpoint definition



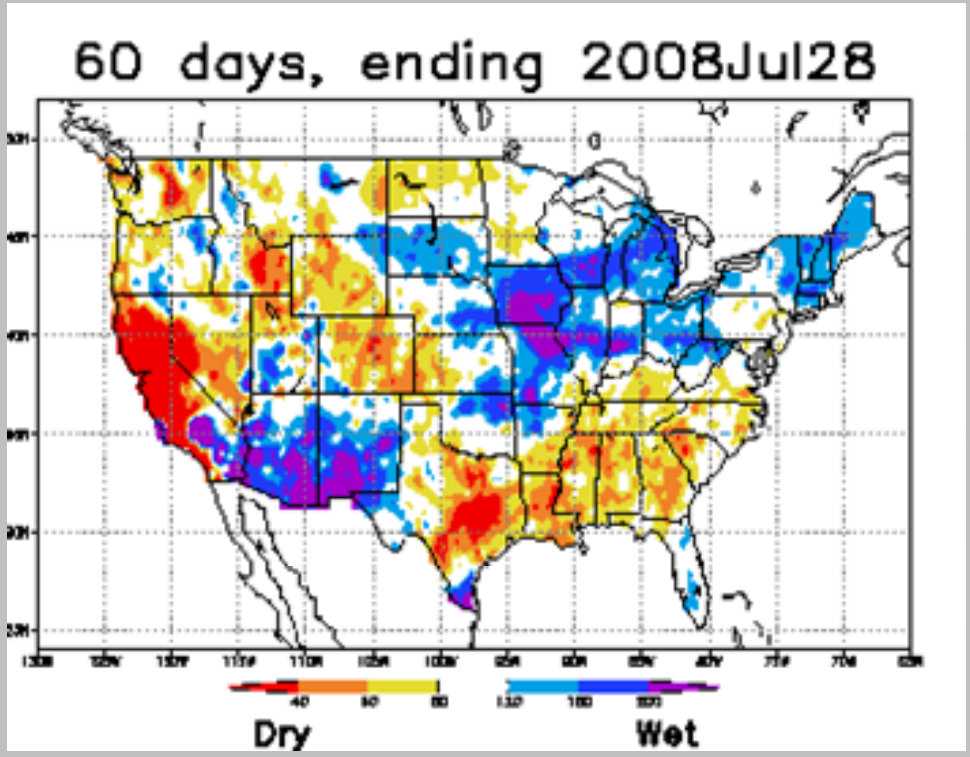
(NWS Tucson)



(Climate Prediction Center)

Substantial monsoon rain occurred in the southeast portion of the state during late June period. Tucson had thunderstorms which caused minor flooding about June 26-27—a week earlier than the July 3 onset date for 2008.

Monsoon precipitation has been substantially above average during June and July



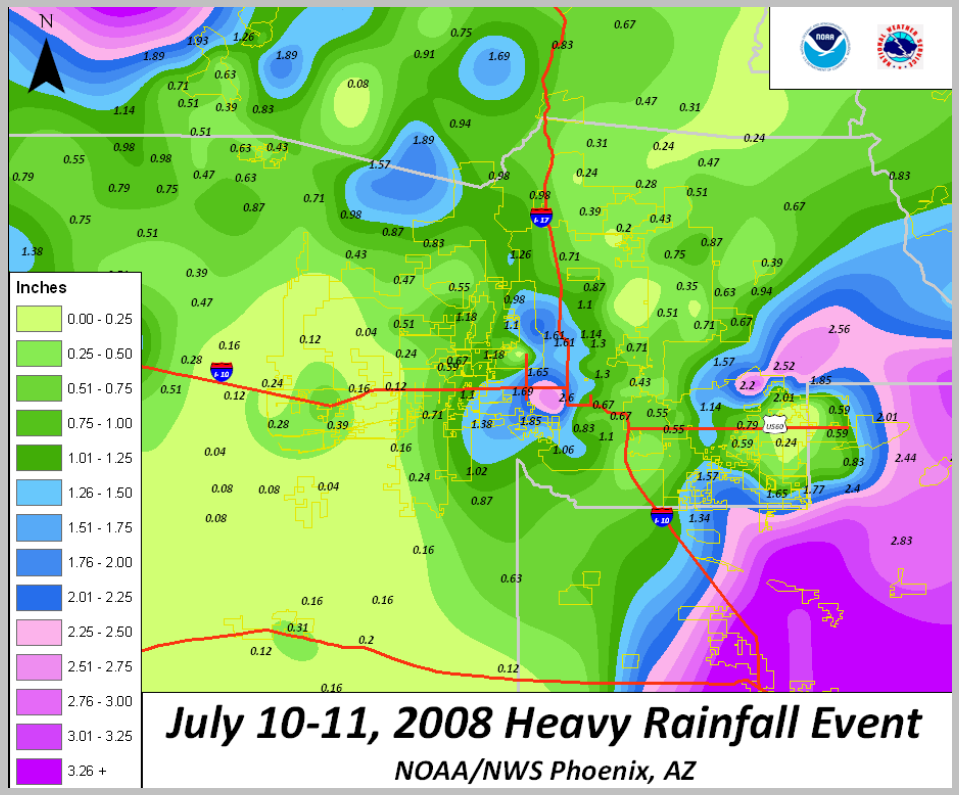
(Climate Diagnostics Center)

Precipitation percent above or below normal for past 60 days

Generally wet in the Southwest and dry in the Great Plains.

Note: Northern Mexico also experienced 2nd wettest July on record, with only 1955 being wetter, according to Art Douglas.

There were widespread severe weather events in Arizona triggered by large-scale disturbances during onset period



(NWS Phoenix)

This event resulted in 100+ severe weather reports in the Phoenix metropolitan area.

Can be mainly attributed to a westward propagating upper-level disturbance and surge of low-level Gulf of California moisture.

Conclusions and ways to improve our monsoon outlook in the future

Our early June outlook validated very well with respect to all points.

We realize this outlook is based on emerging research. It is necessary, therefore, to more effectively coordinate with our NWS partners in the future before presenting an outlook to the media and public next year.

Did we just get lucky this year? A consistent track record of forecasts will be required to demonstrate consistent skill in long-range forecasting and build trust with the public and stakeholders. This will probably take a long time.

We are working proactively with the Climate Prediction Center to improve their summer seasonal forecasts using regional atmospheric modeling as a part of our NSF-supported research.