

## MONTH IN REVIEW FOR NORTHERN ARIZONA FOR JULY 2013

### ...TEMPERATURE AND PRECIPITATION OVERVIEW...

July is climatologically one of the wettest months in northern Arizona, and this July was no exception. A weak monsoon pattern set up early in the month, characterized by high pressure over the Great Basin. This marked the onset of the monsoon across the region with scattered thunderstorm activity becoming a daily occurrence. Around July 7, the high pressure center moved east of Arizona allowing deeper moisture to move into the region, bringing an active thunderstorm period through the rest of July. Flagstaff in particular was hit with several strong thunderstorms, even during the early portions of the month, resulting in the 2<sup>nd</sup> wettest July of all time. McNary had the wettest July since records began in 1933. Temperatures were generally slightly above normal.

### JULY DATA AND DEPARTURES FROM NORMAL FOR SELECTED CITIES:

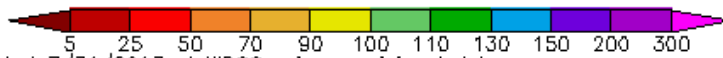
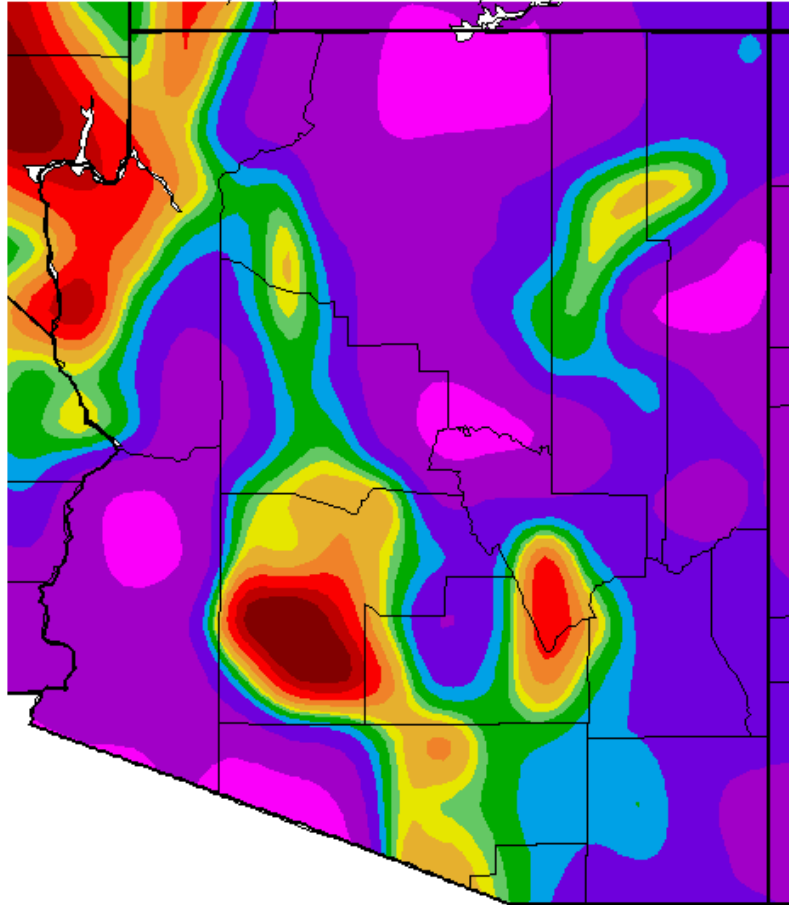
	Max	Dep	Min	Dep	Precip	Dep	%
	Temp	Norm	Temp	Norm	TOTAL	Norm	Norm
Flagstaff	79.8	-1.4	53.9	3.0	7.57	4.96	290
Winslow	94.5	0.0	65.3	3.4	1.33	0.29	128
Prescott AP	89.2	-0.1	64.4	2.6	3.31	1.20	157
Prescott WTP	88.1	-0.8	62.4	2.3	3.44	0.73	127
St Johns AP	89.5	-2.3	62.7	2.1	2.15	0.18	109
Grand Canyon AP	84.8	0.6	52.3	5.5	2.80	1.02	157
Bellefont	80.1	-1.5	50.3	4.3	7.26	4.90	308
Show Low AP	84.5	-1.7	60.0	1.4	3.17	0.79	133
Cottonwood	97.4	-2.7	68.3	1.3	2.50	0.81	148
Seligman	91.4	-1.2	61.0	4.7	1.69	-0.14	92
Page Airport	97.7	2.0	73.7	2.4	1.31	0.65	201
Window Rock AP	85.0	-1.4	55.4	3.2	2.41	0.36	118

**This July was amongst one of the wettest on record for several locations across northern Arizona. Below is a list of how this July ranks for monthly rainfall.**

	<b>July 2013 Precip (in)</b>	<b>Rank (wettest)</b>
McNary 2N	8.75	1 <sup>st</sup>
Flagstaff Airport	7.57	2 <sup>nd</sup>
Bellefont	7.26	1 <sup>st</sup>
Williams	5.11	12 <sup>th</sup>
Prescott WTP	3.44	33 <sup>rd</sup>
Prescott AP	3.31	12 <sup>th</sup>
Show Low	3.17	8 <sup>th</sup>
Page AP	1.31	2 <sup>nd</sup>

Here is a graphical depiction of the percentage departure from normal July Precipitation across the state. Well above average across much of the region.

Percent of Average Precipitation (%)  
7/1/2013 – 7/30/2013



Generated 7/31/2013 at WRCC using provisional data.  
NOAA Regional Climate Centers

**Here are some additional monthly precipitation totals from our Co-operative weather observers.**

<b>LOCATION</b>	<b>JULY PRECIP</b>
ALPINE R.S.	8.58
BAGDAD	2.14
BELLEMONT WFO	7.26
BETATAKIN	3.53
BLUE RIDGE R.S.	4.08
BRIGHT ANGEL R.S.	5.29
CANYON DE CHELLY	1.22
CASTLE HOT SPRINGS	0.90
CHINO VALLEY	2.58
FLAGSTAFF ARBORETUM	9.39
FLAGSTAFF AIRPORT (ASOS)	7.57
FORT DEFIANCE	0.94
FREDONIA 7SSE	1.35
GISELA	4.28
GRAND CANYON AIRPORT (ASOS)	2.80
GRAND CANYON VISITOR CENTER	4.58
JEROME	5.17
KEAMS CANYON	1.78
LEES FERRY	0.89
MCNARY 2N	8.75
NATURAL BRIDGE	6.79
OAK CREEK	2.07
PAGE (ASOS)	1.31
PAINTED DESERT NP	3.78
PAYSON	6.25
PETRIFIED FOREST	2.49
PHANTOM RANCH	2.06
PINETOP 2E	7.22
PRESCOTT AIRPORT (ASOS)	3.31
PRESCOTT CITY	3.44
SAINT JOHNS	2.40
SAINT JOHNS (ASOS)	2.15
SAINT MICHAELS	3.53
SELIGMAN	1.69
SHOW LOW AIRPORT	3.17
SNOWFLAKE	3.31
SPRINGERVILLE	4.59
SUNRISE MOUNTAIN	7.99

SUNSET CRATER NM	4.62
TUZIGOOT NM	2.84
WALNUT CANYON NM	4.36
WHITERIVER 1SW	4.30
WILLIAMS	5.11
WINDOW ROCK (ASOS)	2.41
WINSLOW AIRPORT (ASOS)	1.33
WUPATKI	2.43

### ...SIGNIFICANT WEATHER...

**July 2:** A line of strong thunderstorms moved through the Flagstaff area, producing 1.76" of rain at Flagstaff airport, a record for the date. Rainfall of 1.14" was recorded in just 9 minutes at the airport. One-inch diameter hail fell in Flagstaff, and 1.5" diameter hail fell in nearby Kachina Village. Urban street flooding affected Flagstaff with 1-2 feet of water reported in roadways.

**July 10<sup>th</sup>:** Strong thunderstorms produced heavy rainfall and some large hail. A downpour over Flagstaff produced 0.96" of rain, a record for the date. Further east, thunderstorms produced hail as large as nickels in the Pinetop-Lakeside area, and as large as quarters, or one-inch diameter, in the Heber-Overgaard area.

**July 12<sup>th</sup>:** Up to 3 inches of rainfall was estimated near Camp Verde and along Route 260 east of Camp Verde. Several roadways were closed due to flooding, and homes in southeastern Camp Verde were reported to be flooded.

**July 16<sup>th</sup>:** A slow moving thunderstorm developed near Mount Elden in east Flagstaff. Radar estimated that up to three inches of rain fell on the mountain, and up to 2 inches in Flagstaff. Widespread flooding was reported from near Flagstaff Mall north along Highway 89 to Silver Saddle Road.

**July 17<sup>th</sup>:** Heavy rainfall affected the Yarnell Hill Fire burn scar, with 1.06" measured in 40 minutes. Flooding on creeks in Yarnell and Glen Ilah made roadways impassable, but there was little or no flooding of homes due to sandbagging which was done in anticipation of enhanced runoff due to the fire burn scar.

**July 20<sup>th</sup>:** Strong thunderstorms affected many locations. In particular, Chino Valley had 2.5 inches of rain, Cleator had 1-inch diameter hail and 1.25 inches of rain, and Sunset Point had a wind gust to 52 mph.

**July 21<sup>st</sup>:** Extensive flooding affected areas downstream and south of the Schultz Burn area near Flagstaff following the heaviest rainfall since the fire in June 2010. Measured rainfall amounts included 2.05" in 30 minutes and 2.44" in 60 minutes. Water flooded over Highway 89 at Silver Saddle Road, and flooded homes in Doney Park. Flooding also occurred from Paintbrush Lane to Campbell Avenue.

**July 23<sup>rd</sup>:** Many locations received heavy rain again today, including the Schultz Burn area near Flagstaff. Minor flooding was reported on Silver Saddle Road, and in the Fernwood Neighborhood south of Campbell Avenue.

**July 25<sup>th</sup>:** Heavy rainfall and hail affected numerous areas. The Yarnell Hill Fire burn area was hit with a thunderstorm, producing flooding and debris that overtopped roadways. The South Rim of the Grand Canyon received 1.61" of rain in less than an hour, resulting in an 8-10 foot rise on Garden Creek and damage in Indian Gardens. The Flagstaff area received up to 2.5" of rain causing urban flooding, and flooding of 15-20 homes in east Flagstaff. A swift water rescue was performed in Prescott where Granite creek flowed 2.5 feet over a roadway. One inch diameter hail was reported in east Flagstaff, and 0.7 inch diameter hail in Prescott.

**July 27<sup>th</sup>:** Heavy rainfall affected many areas. In Ash Fork, over 4 inches of rain fell in 2 hours, resulting in flooding which overtopped roads, flooded parking lots up to a foot deep, and closed Interstate-40.

**July 28<sup>th</sup>:** Heavy rainfall from thunderstorms produced major flooding in Antelope Canyon which overtopped Highway 98 near Page, a 3 to 5 foot rise on Garden Creek at Indian Gardens in the Grand Canyon, and a series of flood waves in Supai Village, producing damage and washed out trails. Drinking water in the community was disrupted as flood waters damaged a well pump and backup generator.