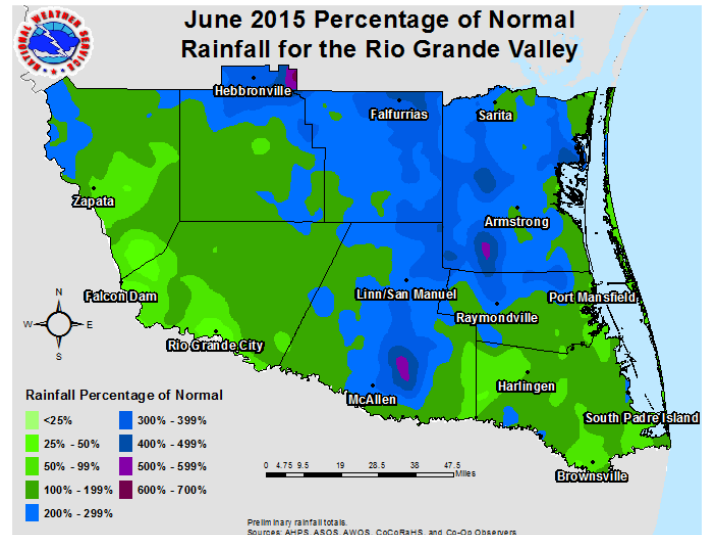
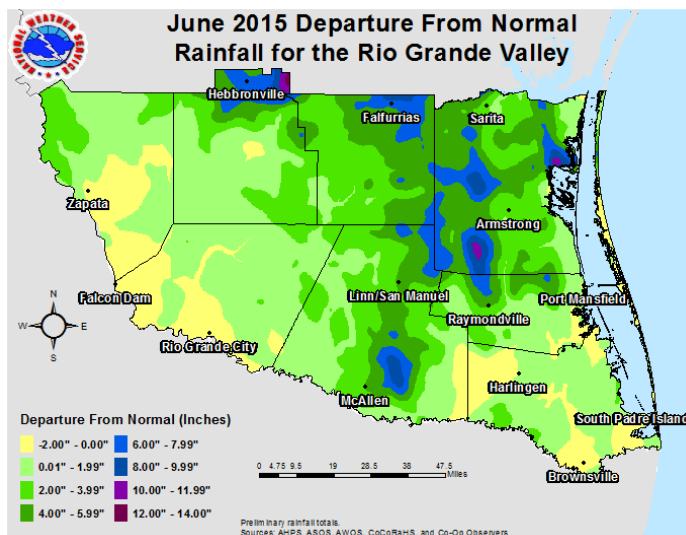
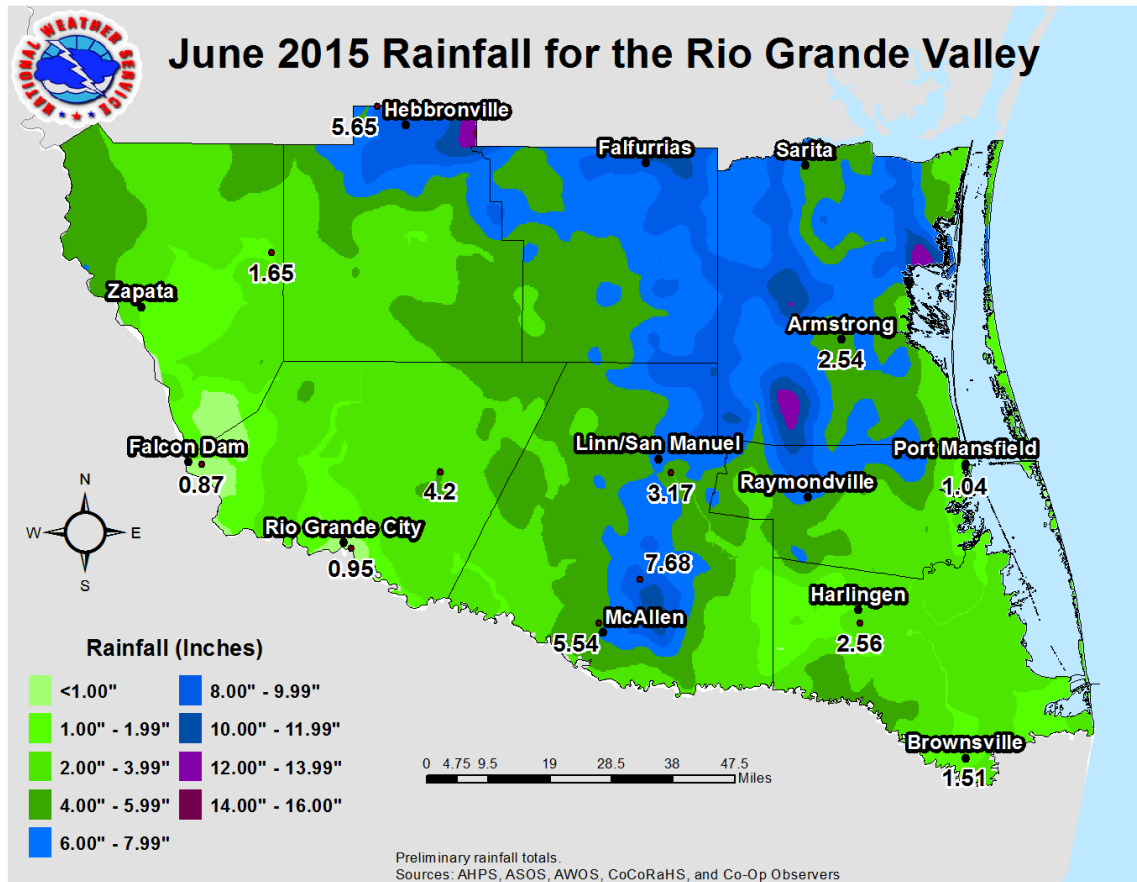


**Above (Top):** Atmospheric steering pattern for the first half of June, 2015. For Texas, the position of the ridge of high pressure suppressed moisture and brought a prolonged period of rain-free weather with typical early summer temperatures. **Bottom:** The “La Canícula” ridge over northern Mexico during the first half of June shifted to the U.S. Four Corners region, while a second subtropical ridge formed in the eastern Gulf. Between the two ridges, a channel of tropical moisture developed and persisted along a trough (dashed gray line); heavy rain fell from northern Mexico through Texas. The heavy rain extended to the mid-Atlantic and New York/New England region.

# June 2015: A Tale of Two Weather Regimes

## First Half Dry Reverts to Locally Soaking Rains, Flash Flooding in RGV



**Above:** A dry start to June 2015 was overwhelmed by impressive heavy rain events, particularly during the week of June 15 through 19, across the Rio Grande Valley and Deep South Texas. The heavy rains favored a stripe from central Hidalgo County through the King Ranch (near Falfurrias/Armstrong/Sarita in Brooks and Kenedy County); torrents in northern Jim Hogg (Hebbroville and surrounding areas) were associated with the last remnant of Tropical Storm Bill (June 17<sup>th</sup> evening).

## **Quick Summary**

After a [record wet spring across the Rio Grande Valley](#) and most of Texas, June 1<sup>st</sup> appeared to be the sharp break many were looking for – azure blue skies, clean air, slightly below normal temperatures, and generally light winds – conditions which lasted for nearly two weeks (with one exception on June 8<sup>th</sup> mainly in Hidalgo County). The pattern was dominated by a preview of the “La Canícula” high pressure ridge which suppressed most precipitation and tamed coastal waters for several excellent fishing mornings.

Unfortunately, for sun-lovers, it wouldn't last.

During the week of June 15-21, the “Canícula” ridge shifted northwest into the southwest U.S., while a subtropical ridge strengthened across the eastern Gulf of Mexico and Florida. Between the ridges, a weak but persistent trough of upper level low pressure set up camp and opened the door to deep tropical moisture which brought more clouds than sunshine, periods of “bad” air courtesy of southerly flow high in the atmosphere across central/southern Mexico into Central America, and plenty of rain. The moisture culminated in an elongated axis of tropical showers and thunderstorms on the 14<sup>th</sup> and 15<sup>th</sup> which eventually birthed [Tropical Storm Bill](#) late on the 15<sup>th</sup> through early on the 17<sup>th</sup>. While Bill largely left the Valley alone, his remaining moisture seeded the background trough and kicked off a period of torrential rainfall that began near Hebbronville during the evening of the 17<sup>th</sup>, would merge into a cluster of thunderstorms across the populated mid Valley after midnight on the 18<sup>th</sup> and later that day across the King Ranch, and finally aid a thin band of torrential rains that tipped the flood “bucket” completely over near Edinburg during the afternoon of the 19<sup>th</sup>. Click [here](#) for the summary.

Scattered sea-breeze aided showers and storms continued through the 24<sup>th</sup>, along with a band of deep moisture along and east of the foothills of the Sierra Madre which pushed daily totals higher along the Rio Grande in Starr and Zapata County. After a brief break in coverage from the 25<sup>th</sup> through the 27<sup>th</sup>, coverage increased mainly across the Lower and Mid Valley (Cameron/Willacy/Hidalgo) to close the month, courtesy of several weak but efficient energy impulses sliding northwest along the edge of an upper level disturbance temporarily parked in southern Tamaulipas, Mexico.

## **Rain Variations**

While some areas were pounded with more than 10 inches of rain, or five to six times the monthly average, others fell short of monthly averages, which generally range from 2 to 3 inches across Deep South Texas. Rain winners included McAllen/Miller Airport (#7, 5.39 inches; #1 is 10.65 inches in 2010 [data since 1961]); McAllen/Cooperative (Water Plant - #9 5.53 inches; #1 is 9.59 inches in 1993 [data since 1941]), and McCook (#13, 4.77 inches; #1 is 11.32 in 1993 [data since 1942]). All three sites were in Hidalgo County; other official sites in Hidalgo, Brooks, Kenedy, and Jim Hogg may well have landed in the top twenty for June but data were limited or missing.

## **Four Months of Wet**

Green began spring in the Valley in March, and by the end of June, the additional rainfall broke some records, rivaled others, and left more green but unfortunately several areas of murky brown (water), particularly in central and northern Hidalgo County but likely in some ranchland areas as well, particularly in Kenedy, Brooks, and northern Jim Hogg County. The mid month rains along the Rio San Juan south of Rio Grande City continued to keep reservoirs at Marte Gomez (just south of the border in Tamaulipas) and El Cuchillo (well south of the border in southeast Nuevo Leon) above capacity. Releases, mainly from Marte Gomez, kept a “roller coaster” of rising and falling water levels in the Rio Grande downstream, with some days reaching above the usual banks but still well below the levee, and others well above normal flow but below the usual banks.

A number of locations, including those from the [Community Collaborative Rain, Hail, and Snow Network](#) (CoCoRaHS), achieved above their annual average rainfall in the March to June period, with September, by far the wettest month of the calendar year on average, to come as well as the start of an expected El Niño late fall and early winter (November/December) which are likely to be wet. Average annual rainfall (1981-2010 sample) ranges from 17 to 27 inches from the Rio Grande Plains to the Lower Valley.

## March through June 2015 Rainfall and Ranks Across the Rio Grande Valley

Location	2015 Rainfall	Rank	Previous/Standing (year)	Records Since
<b>Rio Grande City</b>	<b>21.39</b>	<b>1</b>	<b>19.64 (1997)</b>	<b>1893</b>
<b>Edinburg/Coop*</b>	<b>16.72</b>	<b>1</b>	<b>15.72 (2010)</b>	<b>2000*</b>
McAllen/Coop	18.24	2	20.91 (1966)	1942
Brownsville	16.95	3	20.68 (1887)	1878
McAllen/Miller	16.61	3	21.34 (1966)	1961
La Joya/Mission	17.63	6	21.77 (1966)	1911
Port Mansfield	12.04	12	21.68 (1993)	1958
Harlingen/Coop	13.64	14	23.88 (1991)	1912
Falcon Dam	8.29	16	15.78 (1981)	1963

### 32 Stations with 2542 Reports over 122 Days

Station Number	Station Name	Daily Precip Sum in.	Multi-Day Precip in.	Total Precip in. ▼
<a href="#">TX-CMR-61</a>	Brownsville 6.4 WNW	21.06	0.77	21.83
<a href="#">TX-CMR-93</a>	Harlingen 4.4 W	16.49	3.61	20.10
<a href="#">TX-CMR-50</a>	Brownsville 5.0 NW	18.64		18.64
<a href="#">TX-CMR-98</a>	Brownsville 4.0 E	18.52		18.52
<a href="#">TX-CMR-1</a>	Rancho Viejo 0.7 E	17.86		17.86
<a href="#">TX-CMR-16</a>	Brownsville 3.5 N	10.30	7.10	17.40
<a href="#">TX-CMR-31</a>	Brownsville 7.0 NW	17.40		17.40
<a href="#">TX-CMR-13</a>	Brownsville 2.2 W	16.24	0.69	16.93
<a href="#">TX-CMR-8</a>	Brownsville 6.4 SE	16.69		16.69
<a href="#">TX-CMR-43</a>	Brownsville 4.1 ENE	16.02	0.45	16.47
<a href="#">TX-CMR-90</a>	Brownsville 1.5 WNW	16.42		16.42
<a href="#">TX-CMR-89</a>	Brownsville 1.7 NNE	16.21		16.21
<a href="#">TX-CMR-70</a>	San Benito 0.6 SSE	15.98		15.98
<a href="#">TX-CMR-51</a>	Brownsville 0.1 SSE	15.57	0.00	15.57
<a href="#">TX-CMR-94</a>	Brownsville 12.6 E	15.16		15.16
<a href="#">TX-CMR-92</a>	San Benito 8.7 ENE	1.98	12.52	14.50
<a href="#">TX-CMR-84</a>	Brownsville 2.2 WNW	1.49	13.00	14.49
<a href="#">TX-CMR-85</a>	Harlingen 0.4 N	14.48		14.48
<a href="#">TX-CMR-36</a>	Harlingen 4.7 WSW	14.25		14.25
<a href="#">TX-CMR-87</a>	Harlingen 3.1 SSW	14.21		14.21
<a href="#">TX-CMR-21</a>	Los Fresnos 0.3 NE	14.03		14.03
<a href="#">TX-CMR-12</a>	Harlingen 2.6 ESE	9.76	4.16	13.92
<a href="#">TX-CMR-58</a>	Laguna Vista 0.3 N	13.84		13.84
<a href="#">TX-CMR-35</a>	Rio Hondo 9.4 NE	9.19	4.15	13.34
<a href="#">TX-CMR-97</a>	Rio Hondo 7.9 E	13.15		13.15

### 9 Stations with 472 Reports over 122 Days

Station Number	Station Name	Daily Precip Sum in.	Multi-Day Precip in.	Total Precip in. ▼
<a href="#">TX-HDL-32</a>	Linn 8.4 WNW	19.45	3.68	23.13
<a href="#">TX-HDL-21</a>	McAllen 2.4 NE	20.08		20.08
<a href="#">TX-HDL-34</a>	Mission 3.1 NE	15.47	1.91	17.38
<a href="#">TX-HDL-9</a>	Mission 1.9 ENE	17.35		17.35
<a href="#">TX-HDL-6</a>	Alamo 1.5 NNE	13.13	4.21	17.34
<a href="#">TX-HDL-19</a>	Mission 4.3 WSW	17.10		17.10
<a href="#">TX-HDL-5</a>	La Joya 11.1 N	14.69		14.69

Above: Left – CoCoRaHS observers measured rainfall for Hidalgo County; Right, same for Cameron County, for March through June 2015 inclusive.