

## September Soakings Continue Widespread Urban Flooding Affects RGV September 13<sup>th</sup>

### Mid-Month Torrents Push September Totals Above Long Term Averages

A pair of weak tropical waves combined with a dissipating cold front across the rio grande valley dumped widespread heavy rainfall from early Friday September 12 through early Sunday September 14th. Rainfall totals generally ranged from 3 to 5 inches region wide, with some spots near Mission receiving 7 inches! Urban, nuisance flooding occurred in every city and town across the Valley with a single band of rain between 130 and 430 PM on the 13<sup>th</sup>; locally heavy downpours produced life and property flash flooding (generally defined as 3 or more feet of standing water and/or water entering property) in Mission, McAllen, San Juan, Pharr, and Alamo.

The rainfall, combined with earlier rains from [September 2-4](#), brought monthly totals to 5 to 9 inches across the Rio Grande Valley. Total monthly averages typically range from 4 to 6 inches; September 2014 is now considered above normal even if it fails to rain again between the 14<sup>th</sup> and 30<sup>th</sup>.

Selected preliminary totals from Friday September 12 to 9 AM Sunday September 14 are as follows:

LOCATION	RAINFALL	SOURCE
SHARYLAND	7.00	TRAINED SPOTTER
MISSION 1.9 ENE	6.64	COCORAHS
MISSION 3.1 NE	5.81	COCORAHS
MISSION 4.3 WSW	5.70	COCORAHS
MCALEN 2.4 NE	4.93	COCORAHS

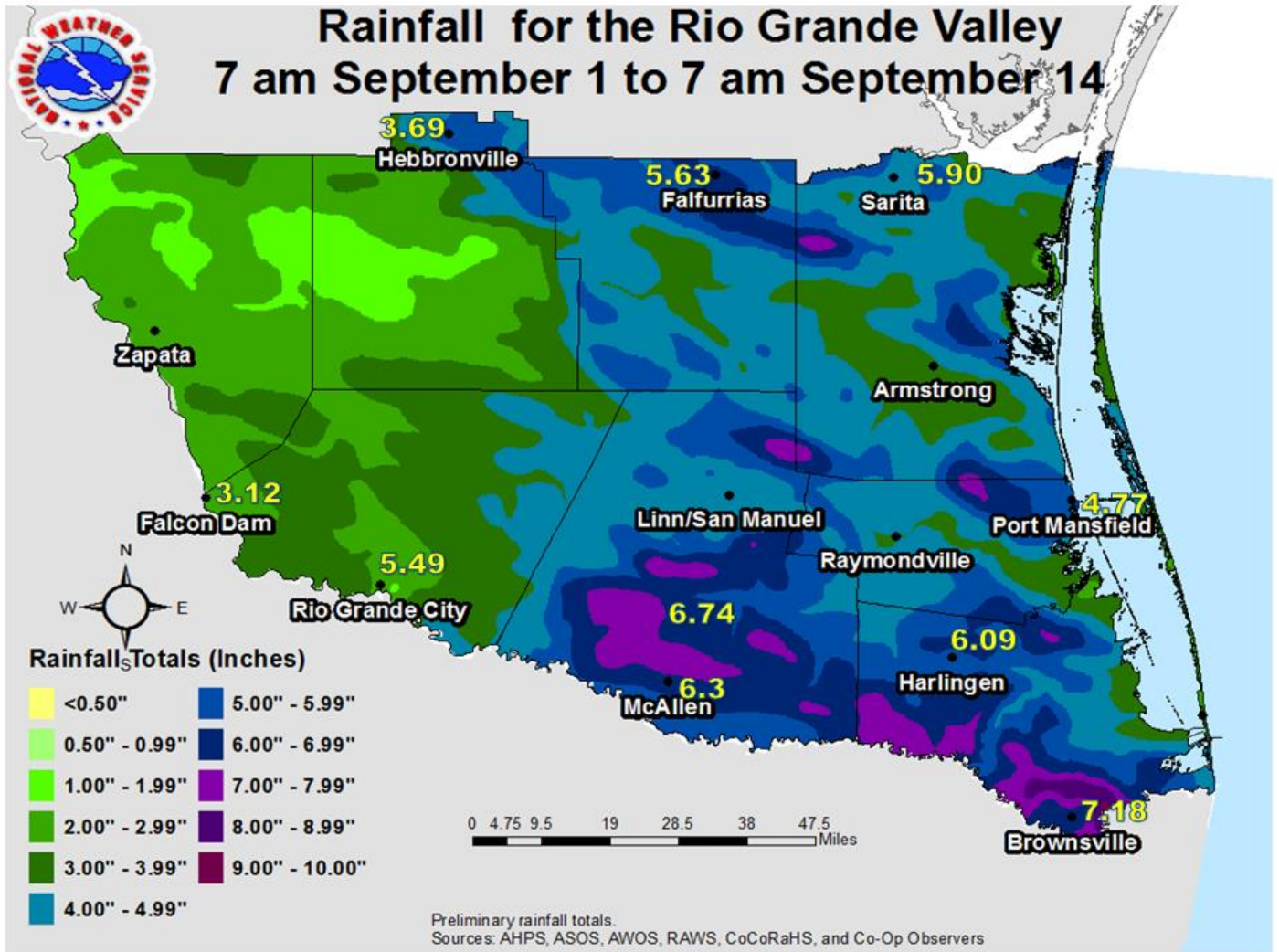
MCALLEN/MILLER ARPT	4.51	ASOS
FALFURRIAS/WEST	4.48	COOP OBSERVER
BROWNSVILLE 4.1 ENE	4.40	COCORAHS
MCALLEN/WATER PLANT	4.36	COOP OBSERVER
EDINBURG	4.14	COOP OBSERVER
BROWNSVILLE 4.1 E	4.12	COCORAHS
BROWNSVILLE/SPI ARPT	4.10	ASOS
HARLINGEN/VALLEY ARPT	3.89	ASOS
PORT MANSFIELD	3.76	COOP OBSERVER
SAN BENITO 0.6 SSE	3.67	COCORAHS
HARLINGEN 2.6 ESE	3.52	COCORAHS
MCCOOK	3.48	COOP OBSERVER
HARLINGEN 4.2 W	3.31	COCORAHS
RIO GRANDE CITY	3.30	COOP OBSERVER
HARLINGEN	3.28	COOP OBSERVER
LA JOYA 11.1 N	3.27	COCORAHS
LINN 8.4 WNW	3.10	COCORAHS
LOS FRESNOS 0.3 NE	3.06	COCORAHS
HARLINGEN 0.4 N	3.05	COCORAHS
RANCHO VIEJO 0.7 E	2.87	COCORAHS
SARITA 7 E	2.65	COOP OBSERVER
FALCON DAM	2.02	COOP OBSERVER
LAGUNA VISTA 0.3 N	1.85	COCORAHS
SOUTH PADRE ISLAND	1.66	COOP OBSERVER

BRIEF STATISTICS FOR THE MONTH SO FAR...

LOCATION	RAINFALL	SEPTEMBER TOTAL	AVG.	DEPARTURE
EDINBURG	6.74	3.87		+2.87
MCALLEN/WATER PLANT	6.30	3.57		+2.73
FALFURRIAS	5.63	4.07		+1.56
MCALLEN/MILLER ARPT	5.89	4.47		+1.42
BROWNSVILLE/SPI ARPT	7.18	5.92		+1.26
RIO GRANDE CITY*	5.49	4.46		+1.03
HARLINGEN/COOP	6.09	5.26		+0.83
SARITA 7 E	5.90	5.59		+0.31
HARLINGEN/VALLEY	5.12	5.22		-0.10
PORT MANSFIELD	4.77	5.33		-0.56
FALCON DAM	3.12	4.04		-0.92

\*SOME DATA MAY BE MISSING FROM EARLIER IN MONTH.

SEPTEMBER TOTAL AVERAGE BASED ON 1981 TO 2010 30 YEAR CYCLE.



Above: Preliminary map of rainfall from September 1 through early September 14. Note: Map did not include late arriving cooperative site data in some locations; hence the difference between colors at Rio Grande city and Falcon Dam.

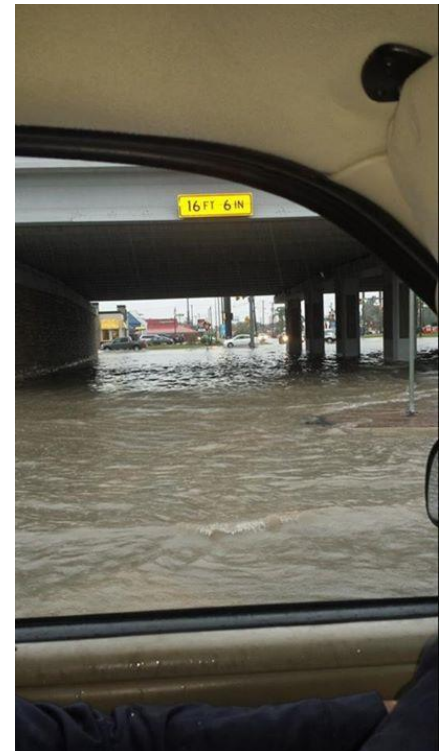


Photo above, right: Flash flooding in Alamo/San Juan. Water was between 3 and 4 feet deep in spots along the frontage road of US 83/IH 2. Courtesy of KGBT Channel 4 Facebook Page.



## Round II: September 15<sup>th</sup>, Cameron County

### North Brownsville, Downtown Flood After Repeated Late Afternoon Deluges

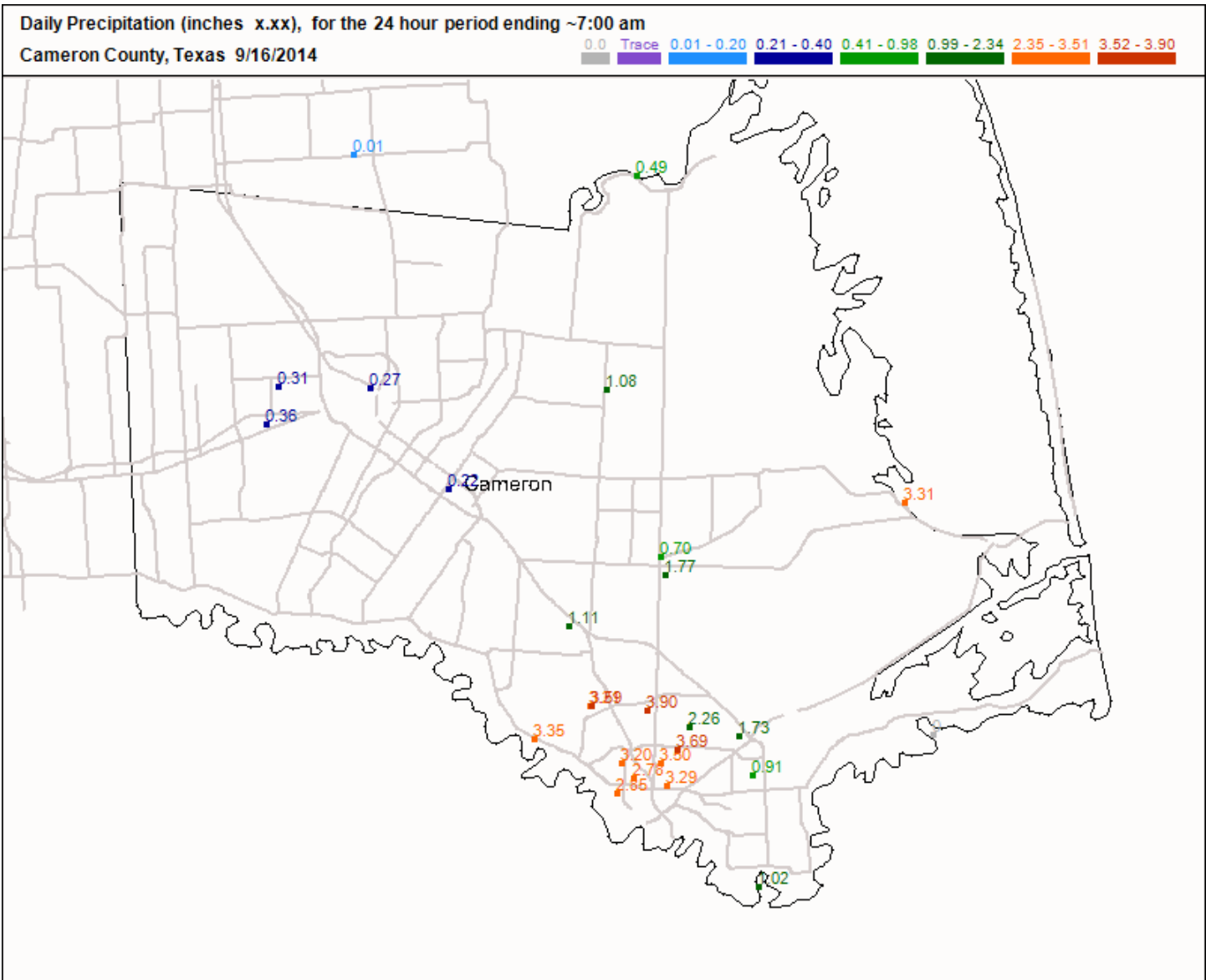


Morrison Road just west of Paredes Line Road in North Brownsville became impassible after sunset on September 15<sup>th</sup>, after nearly 3.5" of rain fell during the day and early evening. The rain fell on top of four to five inches that fell between the 12<sup>th</sup> and 14<sup>th</sup> which had saturated nearby fields and lawns.

As a weak easterly (tropical) wave approached the Lower Texas coast early on Monday, September 15<sup>th</sup>, bands of torrential rain began moving onshore from unincorporated South Padre Island through Laguna Vista on into Brownsville during the early morning commute. These rains began to aggravate already saturated soils in south central Cameron County during the morning. Additional bands with heavier rainfall organized in the Gulf just offshore during the afternoon; these bands would drop an estimated 2 to 3 inches from late afternoon until sunset, on top of the  $\frac{1}{2}$  to  $\frac{3}{4}$  inch that fell in the morning.

The torrents immediately ran off and would produce widespread urban flooding from North Brownsville through downtown by sunset. The flooding included several roads with at least two feet of water across in poor drainage locations and where drainage ditches and canals filled above capacity. Some resacas (Oxbow lakes left behind when the Rio Grande retreated to its current location) filled to bank full; running trails and playgrounds located alongside some of them were covered in water during the peak of the flooding. The high waters forced road closures into the night, and several vehicles became stranded.

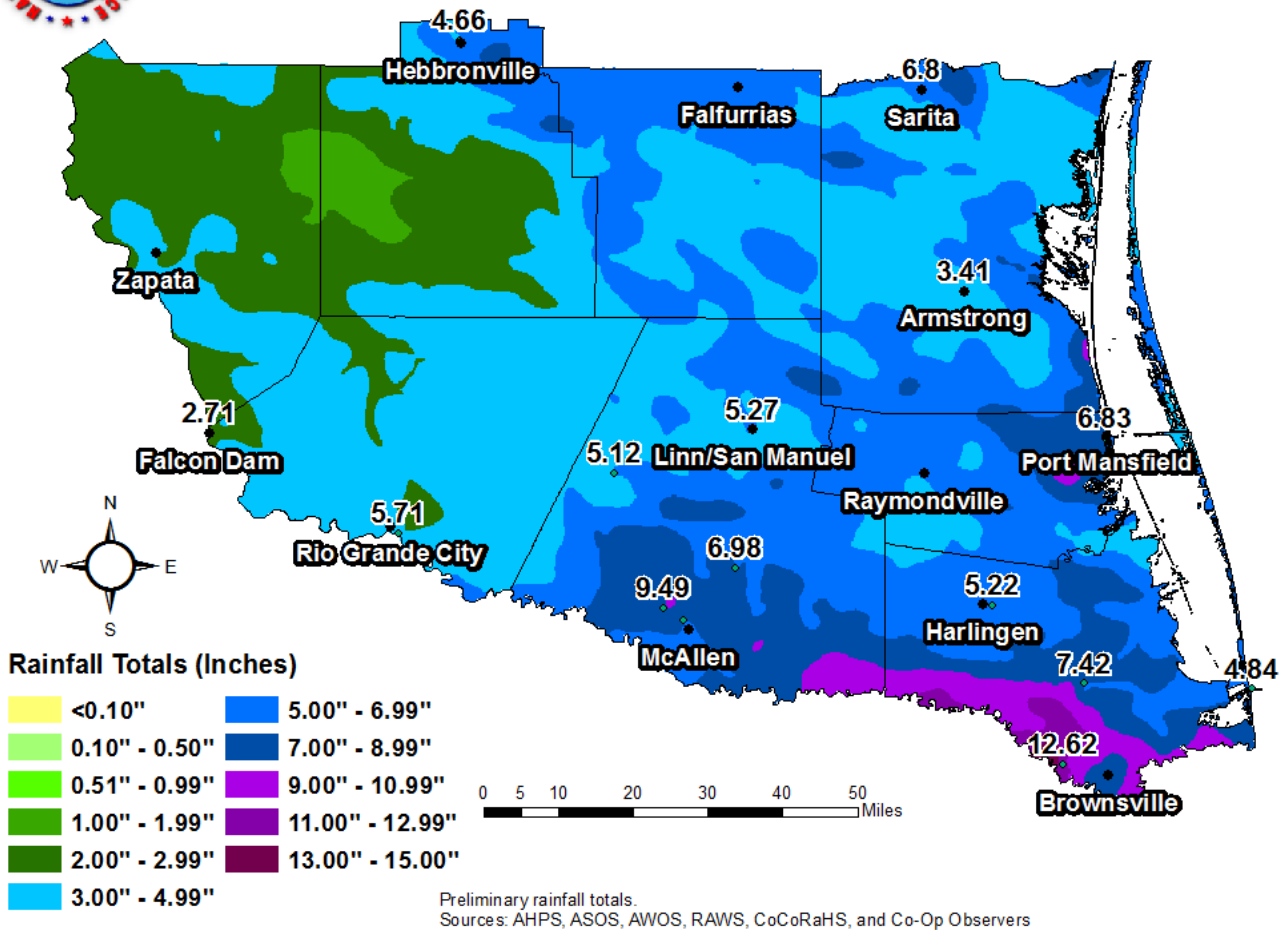
Conditions would ease early on the 16<sup>th</sup> when sunshine reappeared. The super-saturated soil would get a chance to recover through September 19<sup>th</sup> (Friday) during a lull in the wet September. By September 22, nearly all of Greater Brownsville had received between 10 and nearly 14 inches of rain, a total not seen over such a widespread area since September 2010.



Rainfall from the Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS) for Cameron County, Texas, between 7 AM Sept. 15 and 7 AM Sept. 16, 2014. Urban and potential Flash Flooding occurred in areas where more than 2.5 inches fwwl (orange and red colors) between sunset and midnight on the 15<sup>th</sup>.



# Rainfall for the Rio Grande Valley 7 AM September 1 to 7 AM September 19, 2014



Rainfall (preliminary) for September, 2014, through the 18<sup>th</sup> across the Rio Grande Valley. Additional local rainfall pushed monthly totals further (tables, below) for the Rio Grande Valley and beyond.

### 28 Stations with 435 Reports over 21 Days

Station Number	Station Name	Daily Precip Sum in.	Multi-Day Precip in.	Total Precip in. ▼
<a href="#">TX-CMR-13</a>	Brownsville 2.2 W	9.83	3.81	13.64
<a href="#">TX-CMR-1</a>	Rancho Viejo 0.7 E	13.15		13.15
<a href="#">TX-CMR-61</a>	Brownsville 6.4 WNW	12.35		12.35
<a href="#">TX-CMR-15</a>	Brownsville 4.9 NW	12.31		12.31
<a href="#">TX-CMR-91</a>	Brownsville 2.9 NNE	12.14		12.14
<a href="#">TX-CMR-6</a>	Brownsville 1.0 N	11.65		11.65
<a href="#">TX-CMR-90</a>	Brownsville 1.5 WNW	11.64		11.64
<a href="#">TX-CMR-84</a>	Brownsville 2.2 WNW	7.37	4.20	11.57
<a href="#">TX-CMR-16</a>	Brownsville 3.5 N	11.48		11.48
<a href="#">TX-CMR-50</a>	Brownsville 5.0 NW	11.34		11.34
<a href="#">TX-CMR-51</a>	Brownsville 0.1 SSE	11.13		11.13
<a href="#">TX-CMR-89</a>	Brownsville 1.7 NNE	11.08		11.08
<a href="#">TX-CMR-43</a>	Brownsville 4.1 ENE	8.45	2.07	10.52
<a href="#">TX-CMR-21</a>	Los Fresnos 0.3 NE	9.82		9.82
<a href="#">TX-CMR-94</a>	Brownsville 12.6 E	9.75		9.75
<a href="#">TX-CMR-8</a>	Brownsville 6.4 SE	9.61		9.61
<a href="#">TX-CMR-31</a>	Brownsville 7.0 NW	9.38		9.38
<a href="#">TX-CMR-17</a>	Brownsville 4.1 E	8.95		8.95
<a href="#">TX-CMR-56</a>	Los Fresnos 0.8 SSE	4.50	3.29	7.79
<a href="#">TX-CMR-70</a>	San Benito 0.6 SSE	6.92		6.92
<a href="#">TX-CMR-93</a>	Harlingen 4.2 W	6.92		6.92
<a href="#">TX-CMR-87</a>	Harlingen 3.1 SSW	6.60		6.60
<a href="#">TX-CMR-58</a>	Laguna Vista 0.3 N	6.55		6.55
<a href="#">TX-CMR-12</a>	Harlingen 2.6 ESE	5.96	0.45	6.41
<a href="#">TX-CMR-36</a>	Harlingen 4.7 WSW	6.10	0.17	6.27
<a href="#">TX-CMR-85</a>	Harlingen 0.4 N	5.73		5.73
<a href="#">TX-CMR-92</a>	San Benito 8.7 ENE	1.51	3.75	5.26

### 9 Stations with 95 Reports over 21 Days

Station Number	Station Name	Daily Precip Sum in.	Multi-Day Precip in.	Total Precip in. ▼
<a href="#">TX-HDL-9</a>	Mission 1.9 ENE	10.08		10.08
<a href="#">TX-HDL-34</a>	Mission 3.1 NE	7.12	2.69	9.81
<a href="#">TX-HDL-19</a>	Mission 4.3 WSW	8.71		8.71
<a href="#">TX-HDL-21</a>	McAllen 2.4 NE	8.34		8.34
<a href="#">TX-HDL-5</a>	La Joya 11.1 N	6.61		6.61
<a href="#">TX-HDL-6</a>	Alamo 1.5 NNE	1.74	4.57	6.31
<a href="#">TX-HDL-32</a>	Linn 8.4 WNW	5.74		5.74
<a href="#">TX-HDL-14</a>	La Joya 0.6 W	5.56		5.56
<a href="#">TX-HDL-36</a>	McAllen 1.4 NNE	3.00		3.00

AboveLeft: Cameron County rainfall totals, from 7 AM September 1 through 7 AM September 22, CoCoRaHS. Right – Hidalgo County rainfall totals, from 7 AM September 1 through 7 AM September 22, CoCoRaHS. For the primary Rio Grande Valley sites, rainfall for September 1 (midnight) through September 22 (7 AM) were as follows:

- Brownsville/South Padre Island International: 9.34 inches (**3.42** above *entire month average* of 5.92 inches)
- Harlingen/Valley International: 5.96 inches (**0.74** above *entire month average* of 5.22 inches)
- McAllen/Miller International: 8.77 inches (**4.30** inches above *entire month average* of 4.47 inches)