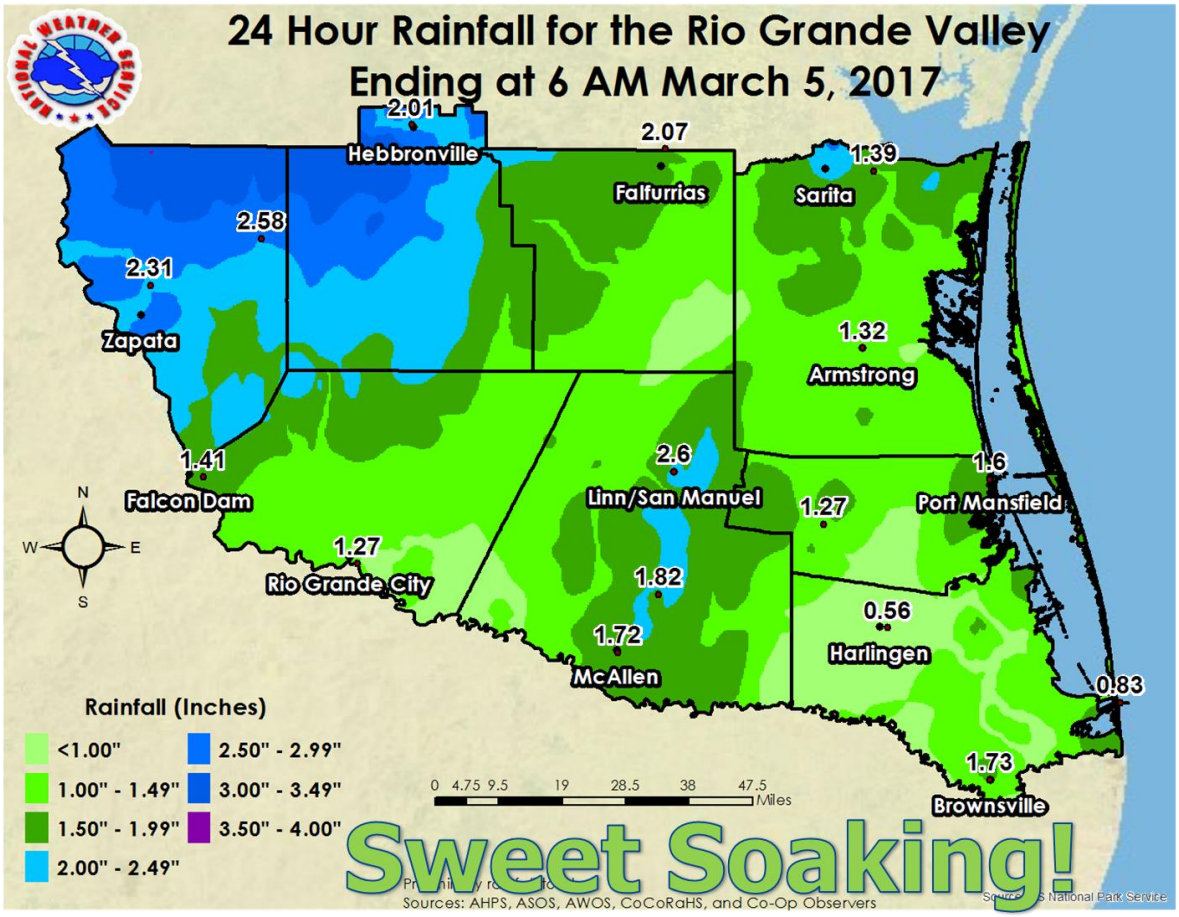


It Only Took One…

Upper Level Disturbance Dumps a March's Worth of Rain on the Valley

March 4th Event Smaller in Scope but Similar in Impact to March 8-10, 2016

Following a record warm (hot) February with rainfall totals that were generally 25 to 90 percent of average (Average February rainfall is about 1.5", averaged across Deep South Texas), March kicked off with a singular event that dropped between 1 and 3 times the ***monthly*** average for all but just a few pockets of the region in an 18 hour period mostly on March 4th, 2017. The culprit was a steadily moving upper level disturbance which combined with the leftover front that had quashed the record to near record heat that ended February and brought seasonable daytime temperatures (highs in the mid to upper 70s) on March 2 and 3.

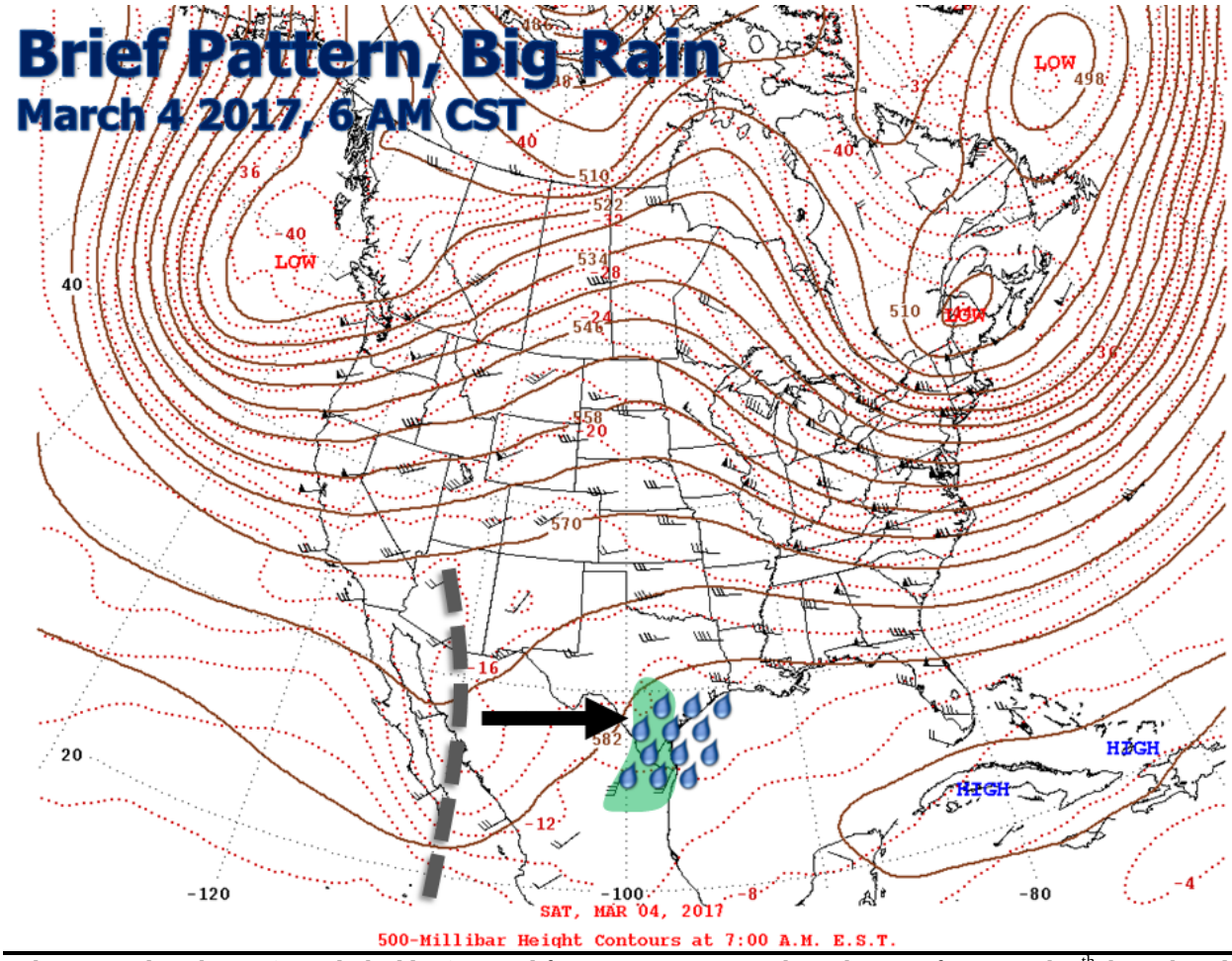
Both systems lifted subtropical air from the southern Gulf and eastern Pacific into bands of showers and embedded thunderstorms, which began before daybreak on the 4th and organized soon after into a solid band across the Rio Grande Plains and South Texas Brush Country during the morning hours, when more than 2 inches fell from Zapata through northern Jim Hogg County. By mid-afternoon, that band petered out but a second band formed from southern Nuevo Leon through northern Tamaulipas, ultimately soaking the McAllen/Edinburg/Pharr/Mission metro area with 1.5 to nearly 2" of rain during the heart of afternoon activities. A wind shift line (from strong east to light west) formed along the leading edge of the rain, but temporarily slowed while approaching the coast. Brownsville and South Padre Island were last to see the rain, which organized into one final band and dropped between 1.5 and 2" between 630 and 10 PM. The rain exited the coast by midnight, leaving behind happily soaked plants and trees and setting the stage for a warm breezy Sunday (March 5th) with the air cleaned out by the prior day's rain.

The rain was more helpful than a hindrance. While it slowed traffic and ruined Saturday (March 4) afternoon and evening outdoor plans, flooding was more of a nuisance than a threat, and there were no wind or hailstorms, which was the case during a much stronger disturbance a year prior (March 8-10, 2016). Lightning lit up the sky near the coast during the evening, but strikes were few and far between.

Table of Rainfall Totals, Difference from, and Percentage of March Monthly Averages. Sorted by Difference (Green=Above; Orange=Below).

Location	March 4 Rainfall	March Average (based on 1981-2010)	Difference	Percent of Monthly
Hebbronville*	3.22	1.19	+2.03	270
Zapata*	2.32	0.80	+1.52	290
Falfurrias*	2.15	1.14	+1.01	188
Falcon Dam	1.65	0.67	+.98	246
Edinburg	1.82	1.10	+.72	165
McAllen/Miller	1.75	1.03	+.72	170
La Joya	1.55	0.86	+.69	180
Brownsville	1.73	1.23	+.50	141
Rio Grande City	1.27	0.89	+.36	143
Port Mansfield	1.60	1.34	+.26	119
Armstrong	1.32	1.13	+.19	117
Santa Rosa	0.88	0.98	-.10	90
Sarita	1.39	1.58	-.19	88
Harlingen/Coop	0.59	1.55	-.96	38

*Observed locations used as proxies for cooperative sites for which 30-year averages were computed.



Above: Quick moving disturbance (gray dashed line) moved from Sonora, Mexico through Texas from March 4th through early March 5th, lifting moisture into rain bands.