

SOUTH TEXAS WEATHER MODIFICATION ASSOCIATION - Pleasanton, TEXAS

SEEDING REPORT - May 18, 2019

SYNOPTIC/MESOSCALE CONDITIONS:

Upper air analysis shows a trough of low pressure across much of the western parts of the country with ridge of high pressure over much of the southeastern part of the country. At the surface, a strong low pressure centered across northeastern Colorado extending all the way through the Southern Rockies and west Texas with broad ridge centered across the western Atlantic Ocean. The flow at upper levels is west northwesterly with it southwesterly at the surface. The current dew point temperature is in the upper 60's to low 70's and environmental temperature in the low to mid 70's with broken clouds to overcast skies in our area. For today, mainly quiet weather is expected today with possibly a few isolated sprinkles this morning. There maybe a few breaks in clouds by mid-morning to early afternoon then becoming mostly cloudy throughout the rest of the day based on the NAM but the HRRR suggests cloudy this morning with clearing this afternoon. In any event, expect partly sunny skies to mostly cloudy skies through the today with no thunderstorm developments as warm air aloft is forecast to be over our area. A cap will be in place throughout the day. The upper level ridge will begin to break down later in the day as the upper level trough of low pressure is getting ready to move over the Central Plains. The center of the low will be well north of south Texas, which is good for our area when it comes to the severity of storms associated with this system. The first batch of storms will develop around 21 UTC over the Rio Grande area before pushing eastward. These storms are not expected to live long enough to make it all the way through the central and eastern counties of the target area. However, a few thunderstorms could make it to the Uvalde, Bandera and Medina Counties before mid-night. A cold front interacting with a dryline overnight Friday through Saturday along with the upper trough will develop strong to severe thunderstorms to areas north of the Bandera and Bexar Counties. The ARW and hi-res NAM both suggest the much of the active weather will be to the north and east of south Texas with areas under the upper level dynamics near the proximity of the surface low. We should be under the periphery of the trough, thus; I'm not expecting much the way of storms. With that being said, there will be good instability with CAPE values ranging between 3000 and 4000 J/kg, mid-level lapse rate around 8 °C/km and a bulk shear around 40kts to isolated strong to severe storms across the northern counties of the target area. This forecast is subjected to chance over the next 24hrs. Storms could produce large hail, damaging gusty winds, weak isolated tornadoes and flash floods from heavy downpours. As aforementioned much of the activities should state away from the target area. Much of the active weather across the south will be over the northern counties of the target zone. Showers and thunderstorms decrease in the afternoon across the western and possible central zone with the eastern counties possibly being brushed by a few showers by then. Can't rule out and isolated thunderstorm or two across the eastern counties. Overnight Saturday through the Monday, I expect conditions to settle with a weak ridge building in behind this system as it exits Texas Saturday evening. Another trough is progged to traverse the Central Plains as early as overnight Monday with much of its energy to the north of our area. The highs are expected to be in the mid to upper 80's to low 90's with the lows in the upper 60's to mid 70's through the end of the period.

LIFTING MECHANISM:

Upper Level Dynamics, Dryline, Cold Front

THERMODYNAMIC INDICES (12Z KCRP)

Freezing Level (m)	4761.90	CAPE (J/Kg)	2384.1
Precipitable Water (inches)	1.66	CINH (J/Kg)	69.05
LCL	634.32	LI (°C)	-6.27
CCL	784.72	PB	-6.27
CRP ICA	-24.18	Cloud Base Temp (°C)	26.5
Cloud Base (meters)	1051.56		
Warm Cloud Depth (meters)	3710.34		

DISCUSSION:

An upper level shortwave trough moved across northern and central Texas earlier in the day sending a cold front and a dryline across south-central Texas. Much of the storms took place before 18 UTC mainly across the Bandera and Bexar Counties as a front interacting with a dryline pushed eastward. However, there were a few isolated thunderstorms across the Val Verde and Del Rio Counties that were strong enough to move across parts of the Edward Aquifer Authority (EAA) Counties during the afternoon hours. As storms began to approach the Uvalde and Bandera Counties, 57AA was launched first across the Bandera County. A cell had already reached along the western edge of the county favorable for seeding. The aircraft was able to seed that cell a few times. The full dosages of seeding material were not released due to the fact that the cell was weakening with not enough good inflow. While 57AA was on the way to that cell it encountered very low base clouds where it had to take other routes in order to get to that cell over the Bandera County. 57AA was then sent across to the Uvalde/Medina/Bandera County to seed a more potent cell. This cell had split for the parent cell over the county to the west of Bandera before moving in over the target area. This cell was very strong with excellent inflow rate. However, due to low ceiling, I was unable to locate the aircraft, thus; I'm unable to state exactly over which county the aircraft was seeding. One thing was for certain is that it was in the vicinity of the EAA County. 57AA released almost the full amount of seeding materials into that cell before retuning to base. It did not release the last set of silver as there was a severe thunderstorm warning on that cell. Also, 57AA had mechanical issue and luckily returned to the airport in time before any casualty. The cells began to die down by late afternoon as conditions settled.

WATCHES/WARNINGS:

Severe Thunderstorm

SEEDED CELL ID'S:

364									
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FLIGHT INFORMATION:

TIME (Z)	Plane	Flare Location	County
20:12	57AA	In Air	
20:48	57AA	304° @ 81 nm	Bandera
20:57	57AA	29.78 N 99.62 W	Bandera
21:20	57AA	29.56 N 99.69 W	-
21:22	57AA	29.56 N 99.67 W	-
21:24	57AA	29.57 N 99.67 W	-
21:28	57AA	29.56 N 99.67 W	-
22:05	57AA	Landed	

Seeding operations were conducted in Bandera (4+0H) and Uvalde/Medina/Bandera (16+0H) County. 20 flares plus 0 hygroscopic flares were burned within 1 cloud. This is the 6th day for seeding in May and the 6th day for seeding during the season.