SOUTH TEXAS WEATHER MODIFICATION ASSOCIATION – Pleasanton, TEXAS

SEEDING REPORT – May 09, 2019

SYNOPTIC/MESOSCALE CONDITIONS:

Upper air analysis shows a longwave trough across much of the country with shortwave embedded disturbances. At the surface, a low/trough axis across the eastern mountains of Mexico and a low across north-central Texas with an associated cold front. The flow at upper levels is west southwesterly with it light and variable at the surface. The current dew point temperature is in the low to mid 70's and environmental temperature the same with broken clouds to overcast skies in our area. For today, an upper level disturbance to the north over Minnesota will send a cold front down south-central Texas as early as 21 UTC the Bandera County then pushing southward 02UTC across the McMullen and Bee Counties. There is a flash flood watch in effect for central and eastern counties of the target zone from early this afternoon through early Saturday evening issued by the National Weather Service due to the amount of rainfall that is expected to drench our area as a couple of upper level distance is forecast to past over Texas coupled with this cold front. As the cold front approaches showers and thunderstorms are progged to move off from the northeastern Mexico mountains beginning this afternoon. Already this is a thunderstorm that has developed over the aforementioned area that may move into the Uvalde County this morning. The storms will be transported mainly eastward along with the front. The cold front moves south southeastward this afternoon into this evening with the heaviest set of rainfall mainly south of San Antonio area. Expect showers and thunderstorms to continue overnight into Friday behind and along the front as its stalls near the coast. Some of the storms could have damaging gusty winds with a low chance for hail. Hi-res models do suggest the storms may grow into a Mesoscale Convective System (MSC) from supercell developments as they work their way across south Texas. Much of the rainfall will be towards the coast with isolated inland areas encountering spotty downpours from strong thunderstorms. The forecast calls for the precipitable water to range between 1.5 to 2.0in plus by this afternoon through the evening hours. There is going to be sufficient instability with CAPE values between 3500 and 4500 J/kg with and eroded cap for a good chance for strong thunderstorms. Expect anywhere between .25 to 5.0in with addition rainfall under strong storms. The Storm Prediction Center (SPC) has us under a marginal chance for severe thunderstorms with the main threat from strong winds and possibly hail. The big focus will be heavy rainfall that could lead to flooding events. Strong downpours from thunderstorms within an hour could lead to 2 to 3in in excess inhibiting proper runoffs that further leads to water being back up on roadways. A series of small-scale disturbances embedded in the southwesterly flow aloft will bring additional rainfall to our area Friday through Saturday. An additional 1 to 2in with higher amounts under strong thunderstorms are expected by late Saturday afternoon. Active weather is expected to diminish by Saturday evening as a flat ridge builds in giving us a break from the storms. The highs today should be in the low to mid 80's with it in the 60's and 70's Friday through Sunday whereas the lows are forecast to be below the normal for this time of the year courtesy of this of thick cloud cover and the cold front.

LIFTING MECHANISM:

Upper Level Dynamics, Cool Air Aloft, Cold Front

THERMODYNAMIC INDICES (12Z KCRP)

Freezing Level (m)	4562.11	CAPE (J/Kg)	3450.4
Precipitable Water (inches)	1.57	CINH (J/Kg)	83.07
LCL	547.1	LI(°C)	-7.85
CCL	651.96	PB	-7.85
CRP ICA	-26.9	Cloud Base Temp (°C)	20.7
Cloud Base (meters)	1665.32		
Warm Cloud Depth (meters)	2896.79		

DISCUSSION:

A couple prefrontal storms develop from across northeastern Mexico mountains early this afternoon. With good enough instability and upper level troughing, cells were able to survive a long way. However, with the cells that not getting enough forcing did not live for too long. 57AA was launched a little earlier than normal to the Frio County where there were a couple of weak to moderate cells. By the time the aircraft approached those cells they did not have enough inflow energy to sustain additional seeding from the first initial dosage. After that, 57AA flew to Uvalde where cells blossomed but due to the lack of good inflow the aircraft was unable to release the full dosages of seeding materials. The cells across the Uvalde/Medina and Bandera Counties were due to the approaching cold front but still lacked in strong inflow. There were a few cells that were good for seeding but due to warmings issued by the National Weather Service the aircraft was not allowed to seed them. After 57AA was done with a cell over the Medina County it was called back to the airport to refill and rest before being launched across the Uvalde/Bandera County. As the front got closer and almost over the western counties of the target zone, shower with embedded thunderstorms developed. The embedded thunderstorms had high and had shallow bases where 57AA was only able to seed one cell which was the final cell and again with not the full amount of seeding materials. The aircraft returned to the airport as the thunderstorms wane across the western half of the target area. The storms that developed across the eastern half had severe thunderstorm warnings including hail and isolated tornado warnings, thus; due to the safety of the Meteorologist and pilot, seeding end a little early.

WATCHES/WARNINGS:

Severe Thunderstorms, Hail, Tornado

SEEDED CELL ID'S:

85	272	451	102	-					

FLIGHT INFORMATION:

TIME (Z)	Plane	Flare Location	County
17:45	57AA	In Air	
18:54	57AA	272° @ 31 nm	Frio
20:01	57AA	278° @ 61 nm	Uvalde
20:23	57AA	294° @ 50 nm	Medina
20:26	57AA	293° @ 55 nm	Medina
20:28	57AA	295° @ 52 nm	Medina
20:36	57AA	304° @ 51 nm	Medina
21:06	57AA	311° @ 55 nm	Bandera
21:17	57AA	300° @ 38 nm	Medina
21:40	57AA	Recon	
22:50	57AA	In Air	
23:24	57AA	317° @ 62 nm	Bandera
23:25	57AA	318° @ 61 nm	Bandera
23:57	57AA	318° @ 63 nm	Bandera
23:57	57AA	Landed	

Seeding operations were conducted in Bandera (8+0H), Frio (2+0H), Medina (10+0H) and Uvalde (2+0H) Counties. 22 flares plus 0 hygroscopic

flares were burned within 5 clouds. This is the 3rd day for seeding in May and the 3rd day for seeding during the season.