

September 2011 Operations Report

September 03, 2011 – Seeding operations were conducted over Sutton (10) and Crockett (25) Counties. 35 flares were burned within 5 marginal clouds.

September 14, 2011 - Seeding operations were conducted over Sterling (12) Reagan (10) Irion (4) and Glasscock (20) Counties. 46 flares were burned within 9 marginal clouds.

September 16, 2011 - Seeding operations were conducted over Schleicher (16), Irion (2) and Sutton (2) Counties. 20 flares were burned within 6 marginal clouds.

September 17, 2011 - Seeding operations were conducted over Tom Green (4) County. 4 flares were burned within 1 very marginal cloud.

September 18, 2011 - Seeding operations were conducted over Irion (6), Schleicher (20), Sutton (46) and Crockett (12) Counties. 84 flares were burned within 19 clouds.

September 21, 2011 - Seeding operations were conducted over Irion (20), Schleicher (32), Glasscock (10), Sterling (4) Reagan (4) and Crockett (26) Counties. 96 flares were burned within 21 clouds.

September 26, 2011 - Seeding operations were conducted over Irion (22), Schleicher (4) and Reagan (10) Counties. 37 flares were burned within 6 clouds.

September 27, 2011 – Seeding operations were conducted over Schleicher (26), Irion (8), Crockett (10), Sutton (12) and Tom Green (2) Counties. 58 flares were burned within 14 clouds.

September 28, 2011 – Seeding operations were conducted over Irion (4), Crockett (16), Sutton (18), Reagan (22), Glasscock (10) and Schleicher (6) Counties. 76 flares were burned within 12 clouds.

September 29, 2011 - Seeding operations were conducted over Crockett (18), Sutton (5), Reagan (11) and Glasscock (12) Counties. 46 flares were burned within 16 clouds.

The month of September contained 10 days of operations

Date	Flares	Counties seeded
03	35	Sutton, Crockett
14	45+1H	Sterling, Reagan, Irion, Glasscock
16	19+1H	Schleicher, Irion, Sutton
17	4	Tom Green
18	84	Irion, Schleicher, Sutton, Crockett
21	96	Irion, Schleicher, Glasscock, Crockett, Sterling, Reagan
26	36+1H	Irion, Schleicher, Reagan
27	58	Irion, Schleicher, Crockett, Sutton, Tom Green
28	76	Irion, Crockett, Sutton, Reagan, Glasscock, Schleicher
29	46	Crockett, Reagan, Glasscock, Sutton
Total Flares: 499+3H		

September held below average rainfall and above average temperatures for San Angelo, Abilene and Midland. San Angelo (Mathis Field) received a 0.43 inches of rain and was 2.03 inches below normal for September. Abilene received 0.24 inches of rain in September and was 2.00 inches below normal. Midland received 1.59 inches of rainfall putting the rainfall total 0.27

inches below normal. All three sites are below normal for annual precipitation. San Angelo has recorded 5.01 inches, Abilene 10.63 inches, and Midland 2.20 inches for year-to-date. Respectively, each site was below normal by 11.61, 8.66, and 9.45 inches for the year.

Dating back to 2003, September of 2011 was the most active month in the West Texas Weather Modification Association. Despite having a long dry period from September 4th through the 13th, 10 days of operations were conducted as many small shortwave troughs pushed cold fronts across West Central Texas.

The month started off with an upper level ridge that allowed dry conditions to persist for the first few days of the month. With a large 850mb thermal ridge, temperatures were in the upper 90's, even reaching triple digits on the 3rd. Due to the extreme heat on the 3rd coupled with a cold frontal passage, some convection was triggered over Crockett and Sutton counties resulting in operations. Once the cold front moved on, a large dome of high pressure built over the target area keeping conditions dry and temperatures only slightly above normal. It wasn't until the 14th of September that the weather pattern became more active. A shortwave trough stayed north of the area allowing for a low pressure center to form over the north Texas panhandle. A frontal boundary formed and pushed to the south into the target area. With abundant moisture and temperatures reaching near the century mark, showers and thunderstorms developed ahead of a cold front and along an outflow boundary from storms over Coke County. Showers and storms continued along the front on the 15th, however storms were not seedable as they were not convective in nature. With that said, showers and storms on the 15th left behind outflow boundaries for storms on the 16th. Cold air aloft triggered very small convective storms on the 16th. Operations were conducted however clouds were very marginal, at best. Similar conditions occurred on the 17th but convection was very isolated as only one storm fired up within the target and lasted only a few minutes. The 18th was much more active as a very textbook severe weather day was set up. The only ingredient missing was abundant moisture. With that said, widespread showers and thunderstorms fired up across the target area as CAPE values approached 2,000 J/kg. Three days later, the system that created the instability on the 18th pushed a cold front through the region on the 21st. Showers and thunderstorms fired up ahead of and along the cold front. As the frontal passage occurred, temperatures fell for a short time. The high temperature on the 22nd in San Angelo, TX was only 79°F. Conditions stayed dry through the 25th as a high pressure pushed into the area for a short time. The month of September ended with active weather. A cut-off low formed just to the northeast of the target area resulting in northwest flow aloft. Cold air advection in the upper levels created instability as showers and thunderstorms fired up on the 26th through the 29th. Operations occurred on all four days as widespread showers and thunderstorms fired up ahead of and along a cold front. The frontal passage occurred early in the morning on the 30th which ended the month of September very dry and seasonable.

Monthly rain gauge measurements from nearest locations inside and out of the target area recorded either by the National Weather Service, Weatherbug Sites, Wunderground or Mesowest sites are provided.

<u>NWS</u>	0.68	Cox Ranch	<u>Wunderground</u>
0.43	Mathis Field	0.71	Ozona (15mi SSW)
0.24	Abilene	0.17	Sterling City
0.85	Junction	0.29	Christoval
1.59	Midland	<u>CocoRaHS</u>	0.05
0.24	Big Spring	0.14	San Angelo (7NW)
<u>Utah Mesonet/HADS</u>	0.14	Knickerbocker	0.14
0.41	Barnhart	0.72	St. Lawrence
0.56	Sonora	0.28	Big Lake
			0.08
			Wall
			0.41
			Sutton Co. Avg.