

Panhandle Groundwater Conservation District

SEEDING REPORT - August 10, 2025

SYNOPTIC/MESOSCALE CONDITIONS:

The front ended up staying north of the district yesterday, allowing temperatures to soar into the 100s for the fourth day in a row. We will finally get some relief from the heat today as the trough progresses more to the east, bringing the cold front through. The frontal boundary looks to set up somewhere in the central part of the district, likely along or just south of I40. This is where the best chance of rainfall will occur. Current thinking is that afternoon convection will form near the boundary and propagate east/northeast along it. More widespread activity is then expected to arrive overnight as an additional wave moves through from the northeast. The exact position of the front will dictate where daytime activity will be focused. Models sometimes have a difficult time with the strength and speed of fronts this time of year as we saw yesterday. However, models have been relatively consistent with today's placement. Currently, the front is bisecting the district, so models have a fairly good handle on it. Therefore, the best chance of rainfall during the afternoon will be over the southern half of the district. Better dynamics will also give way to a risk of strong to severe storms. The SPC has the entire district in a marginal risk. In addition to the severe risk, there will be a small flood risk with the highest chance over the northern half of the project area for the overnight convection that is expected to move in. One thing that will need to be watched is the current cloud cover in place. This may inhibit the extent of activity for this afternoon. Models are not handling this very well, which could easily decrease our chances.

LIFTING MECHANISM:

Cold Front

THERMODYNAMIC INDICES (12Z NAM valid at 21Z KAMA)

Freezing Level (m,MSL)	5029	LCL (m,MSL)	3292
-5°C Height (m,MSL)	5486	CCL (m,MSL)	3871
-10°C Height (m,MSL)	6187	ML CAPE (J/kg)	2028
Cloud Base (m,MSL)	3846	SB CAPE (J/kg)	2625
Warm Cloud Depth (m)	1183	CINH (J/kg)	-32
Cloud Base Temp (°C)	5	LI (°C)	-7
Precipitable Water (in)	1.22	Shear 0-6 km	19

Seeding Operations:

Activity developed south of the district during the evening and slowly propagated and developed farther north into the area around 0130Z. Therefore, N5359P was put on standby at 0108Z and was launched at 0128Z. The aircraft then became airborne from TDW at 0135Z to southern Armstrong County. Once at the target, seeding commenced with a total of 12 AgI bips and 1 hygro being used over the period from 0156Z-0206Z. Due to sunset, they RTB at 0207Z and landed at 0238Z.

WATCHES/WARNINGS:

None

SEEDED CELL IDS:

670/847	670/910	670/941	670/982	670/1036
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FLIGHT INFORMATION:

TIME (Z)	Plane	Flare Location	County
0135	N5359P	IN AIR	
0156	N5359P	138° @ 31 nm	Armstrong
0158	N5359P	132° @ 31 nm	Armstrong
0159	N5359P	135° @ 31 nm	Armstrong
0201	N5359P	133° @ 33 nm	Armstrong
0205	N5359P	134° @ 33 nm	Armstrong
0206	N5359P	135° @ 33 nm	Armstrong
0207	N5359P	RTB	

Panhandle Groundwater Conservation District

SEEDING REPORT - August 11, 2025

SYNOPTIC/MESOSCALE CONDITIONS:

The 12Z SPC surface analysis shows the cold front along the southern portion of the district. This is what is responsible for some morning showers across the southeast. As we head into the afternoon, disturbances will ride this boundary into the area, bringing another good shot at rainfall. Convection is expected to develop after 23Z over the central parts of the project area and then quickly forming into a line before progressing east across the district. There could be a couple waves of activity throughout the evening and into the overnight. With Pwat values on the order of 1.3-1.5 inches, localized flooding may become a concern, especially where any training of storms occur. However, the relatively quick movement of activity should prevent widespread effects. There will also be a risk of strong to severe storms as MLCAPE will be near 2,000 J/kg. Like yesterday, the current cloud cover may mitigate the extent of daytime convection. Models do indicate some CIN within the soundings, but enough forcing should overcome this by the evening hours.

LIFTING MECHANISM:

Cold Front

THERMODYNAMIC INDICES (12Z NAM valid at 21Z KAMA)

Freezing Level (m,MSL)	4724	LCL (m,MSL)	3139
-5°C Height (m,MSL)	5395	CCL (m,MSL)	3170
-10°C Height (m,MSL)	5913	ML CAPE (J/kg)	1972
Cloud Base (m,MSL)	2652	SB CAPE (J/kg)	2503
Warm Cloud Depth (m)	2072	CINH (J/kg)	0
Cloud Base Temp (°C)	11	LI (°C)	-8
Precipitable Water (in)	1.40	Shear 0-6 km	21

Seeding Operations:

First Flight- Convection quickly developed across Carson and Potter Counties after 2130Z. Therefore, N5359P was put on standby at 2149Z and was launched at 2208Z. At 2223Z, the aircraft became airborne from TDW en route to Panhandle. The intended target then became severe warned at 2227Z. Once at the target, seeding started at 2240Z with two AgI bips. Four more AgI bips and one hygro were used within the next seven minutes before the plane was directed towards Miami. At this time, all storms in Carson County were severe warned, along with activity in Potter County. Shortly after, activity in Carson became warned. When the pilot encountered the cell near Miami, four AgI bips and one hygro were lit between 2311Z-2314Z. This cell also became warned, so the aircraft was directed towards central Roberts County. Unfortunately, activity here was non-seedable. It was then decided to RTB to PPA due to all activity being warned and TDW inundated with weather. They landed at 0046Z.

Second Flight- The aircraft was airborne from PPA for the second flight at 0117Z to northern Roberts County. At 0128Z, seeding started in this area. Eight more AgI bips and one hygro were used in the time period of 0128Z-0148Z. After seeding was finished, they RTB'd due to sunset and landed at TDW at 0221Z.

WATCHES/WARNINGS:

Severe Thunderstorm Warning- Potter, Carson, Gray, Roberts, Wheeler, Armstrong, Donley

Flash Flood Warning- Carson

SEEDED CELL IDS:

2288/2378	2288/2451	2380/2472	2380/2530	2380/2587	2904/3059	2904/3081	3271
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FLIGHT INFORMATION:

TIME (Z)	Plane	Flare Location	County
2223	N5359P	IN AIR	
2240	N5359P	70° @ 25 nm	Carson
2244	N5359P	70° @ 22 nm	Carson
2247	N5359P	70° @ 22 nm	Carson
2311	N5359P	60° @ 54 nm	Gray
2314	N5359P	60° @ 56 nm	Gray
0024	N5359P	RTB	
0117	N5359P	IN AIR	
0128	N5359P	45° @ 65 nm	Roberts
0130	N5359P	45° @ 65 nm	Roberts
0133	N5359P	45° @ 66 nm	Roberts
0147	N5359P	42° @ 62 nm	Roberts
0147	N5359P	40° @ 63 nm	Roberts
0149	N5359P	RTB	

Panhandle Groundwater Conservation District

SEEDING REPORT - August 12, 2025

SYNOPTIC/MESOSCALE CONDITIONS:

The upper-level system moves east today with its axis over central Oklahoma. This will bring in northerly flow aloft and drier conditions. However, our far eastern counties may still see an isolated shower or two as limited forcing remains, but this chance is pretty small. Instability and moisture will be on the decrease with dew points in the 50s and MLCAPE around 500 J/kg. There will also be an increase in convective inhibition. Therefore, chances do not look impressive. For most of us, dry conditions will prevail with highs comfortably in the 80s.

LIFTING MECHANISM:

Shortwave

THERMODYNAMIC INDICES (12Z NAM valid at 21Z KAMA)

Freezing Level (m,MSL)	5000	LCL (m,MSL)	2926
-5°C Height (m,MSL)	5791	CCL (m,MSL)	2835
-10°C Height (m,MSL)	6706	ML CAPE (J/kg)	1288
Cloud Base (m,MSL)	2865	SB CAPE (J/kg)	1927
Warm Cloud Depth (m)	2135	CINH (J/kg)	0
Cloud Base Temp (°C)	9	LI (°C)	-4
Precipitable Water (in)	1.07	Shear 0-6 km	6

Seeding Operations:

A developing cell near Alanreed promoted N5359P to be put on standby at 2047Z. The aircraft was launched when the pilot was ready at 2144Z and became airborne from TDW at 2158Z. On approach to the intended target, good inflow (500 fpm) was found, so two AgI bips and one hygro were used between 2224Z-2228Z. The cell then showed signs of weakening, at which time (2237Z) the aircraft was instructed to RTB (2237Z), landing at 2307Z.

WATCHES/WARNINGS:

None

SEEDED CELL IDS:

42

FLIGHT INFORMATION:

TIME (Z)	Plane	Flare Location	County
2158	N5359P	IN AIR	
2224	N5359P	98° @ 57 nm	Donley
2228	N5359P	100° @ 57 nm	Donley
2237	N5359P	RTB	

Panhandle Groundwater Conservation District

SEEDING REPORT - August 17, 2025

SYNOPTIC/MESOSCALE CONDITIONS:

The upper-level high over the central Plains shrinks farther for today with a high building over the Four Corners. The strengthening of the southwest high will allow for monsoonal moisture to move in from the west as the Panhandle will be on the eastern flank. Looking at the 500 mb flow, winds have a west to northwest component which should allow storms that form in eastern New Mexico to move into the area. Ahead of the New Mexico activity, a few storms may develop within the district as a shortwave moves through with timing after 20Z. Compared to yesterday, there is less of a cap in place which should allow for better convective potential. There is also better instability and moisture. With sufficient instability, a few of the stronger storms could become severe with strong wind gusts. The lack of shear should limit the hail and tornado threat. High Pwat values could also aid in an isolated flood threat.

LIFTING MECHANISM

Shortwave

THERMODYNAMIC INDICES (12Z NAM valid at 21Z KAMA)

Freezing Level (m,MSL)	5029	LCL (m,MSL)	3109
-5°C Height (m,MSL)	5913	CCL (m,MSL)	3078
-10°C Height (m,MSL)	6706	ML CAPE (J/kg)	2593
Cloud Base (m,MSL)	3050	SB CAPE (J/kg)	3109
Warm Cloud Depth (m)	1979	CINH (J/kg)	0
Cloud Base Temp (°C)	11	LI (°C)	-7
Precipitable Water (in)	1.69	Shear 0-6 km	11

Seeding Operations:

First Flight-

Pulse showers started developing across the district after 1830Z. Therefore, N5359P was put on standby at this time and was launched towards Groom at 1903Z to investigate a stronger cell. The aircraft was then airborne from TDW at 1914Z. This was seeding upon arrival with a total of 16 AgI bips and one hygro being used between 1941Z-2041Z. The aircraft was then directed to northern Roberts County at 2046Z where potential targets were observed on radar. This was found to have a few distinct bases with good inflow, so 18 AgI bips and one hygro were lit from 2112Z-2136Z. This activity grew into one cell and continued to grow as it moved to the southeast towards Miami and into northern Wheeler County. At 2143Z, N5359P RTB'd due to low fuel and landed at TDW at 2217Z. Once on the ground, they were instructed to refuel for a potential second flight.

Second Flight-

N5359P became airborne from TDW for the second flight at 2310Z en route to Miami. On approach, it was determined that activity was too far east to work with. Therefore, they switched to recon. At 2335Z, N5359P RTB'd due to no targets and landed at TDW at 2355Z.

WATCHES/WARNINGS:

None

SEEDED CELL IDS:

265	265	265/450	405/596	405/622	405/611	405/666	405/681
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FLIGHT INFORMATION:

TIME (Z)	Plane	Flare Location	County
1914	N5359P	IN AIR	
1941	N5359P	115° @ 36 nm	Armstrong
1947	N5359P	105° @ 39 nm	Armstrong
1957	N5359P	105° @ 40 nm	Donley
2001	N5359P	105° @ 42 nm	Donley
2027	N5359P	113° @ 45 nm	Donley
2031	N5359P	113° @ 45 nm	Donley
2033	N5359P	113° @ 47 nm	Donley
2038	N5359P	112° @ 48 nm	Donley
2041	N5359P	115° @ 49 nm	Donley
2112	N5359P	40° @ 60 nm	Roberts
2114	N5359P	40° @ 57 nm	Roberts
2116	N5359P	40° @ 58 nm	Roberts
2127	N5359P	48° @ 55 nm	Roberts
2129	N5359P	48° @ 55 nm	Roberts
2131	N5359P	50° @ 60 nm	Roberts
2133	N5359P	50° @ 60 nm	Roberts
2134	N5359P	50° @ 61 nm	Roberts
2136	N5359P	52° @ 61 nm	Roberts
2143	N5359P	RTB	
2310	N5359P	IN AIR	
2335	N5359P	RTB	

Panhandle Groundwater Conservation District

SEEDING REPORT - August 18, 2025

SYNOPTIC/MESOSCALE CONDITIONS:

The upper-level high continues its eastward expansion, allowing a shortwave to round the ridge into the region this afternoon. With northwesterly mid-level flow, monsoonal moisture will continue to flow into the region. Therefore, the ingredients are in place for another round of showers and thunderstorms to develop this afternoon within the district. Like yesterday, convection is expected to develop after 19Z and then weaken towards sunset. Moderate amounts of CAPE will be available, so an isolated strong to severe storm is possible, but the lack of wind shear should limit activity from becoming too severe. Activity may also start out as pulse before becoming a bit more organized as insolation increases. High Pwat values could also lead to isolated pockets of flooding as storm motion will be slow.

LIFTING MECHANISM

Shortwave

THERMODYNAMIC INDICES (12Z NAM valid at 21Z KAMA)

Freezing Level (m,MSL)	4968	LCL (m,MSL)	3200
-5°C Height (m,MSL)	5700	CCL (m,MSL)	3170
-10°C Height (m,MSL)	6706	ML CAPE (J/kg)	1645
Cloud Base (m,MSL)	2770	SB CAPE (J/kg)	227
Warm Cloud Depth (m)	2198	CINH (J/kg)	0
Cloud Base Temp (°C)	12	LI (°C)	-6
Precipitable Water (in)	1.61	Shear 0-6 km	13

Seeding Operations:

First Flight-

Activity started to quickly develop around 19Z. Therefore, N5359P was put on standby at 1915Z and was launched at 1930Z towards Pampa. The aircraft then became airborne from TDW by 1945Z. Initially, bases were reported to be broken, so the pilot was redirected to Wheeler County. Over northeast Wheeler County, better conditions were found where a total of 14 AgI bips and two hygros were used within two bases between 2028Z-2044Z. They were then directed to cell south of Miami where two AgI bips were lit at 2047Z. Conditions started to become embedded around this time, so the plane was instructed to perform N-S tracks along a linear cluster of cells extending from Lefors to the northeast of Clarendon. However, this lined proved to be lacking inflow and also was becoming increasingly embedded. After releasing two more AgI bips at 2135Z near Lefors, the aircraft RTB'd (2209Z) due to non-seedable conditions. Once on the ground, the pilot refueled for a potential second flight. They landed at TDW at 2234.

Second Flight-

N5359P was refueled by 2253Z and became airborne for the second flight at 2308Z where they were directed to western Armstrong County. Unfortunately, bases were reported to be scattered 13-14 kft. They were then directed to Groom, but the same conditions were found. Therefore, they RTB'd at 2332Z and landed at TDW at 00Z

WATCHES/WARNINGS:

Severe Thunderstorm Warning- Wheeler
Flash Flood Warning- Wheeler

SEEDED CELL IDS:

513/657	513/722	513/746	513/747	513/814	513/834	513/903	513/975	513/1002
513/1079								

FLIGHT INFORMATION:

TIME (Z)	Plane	Flare Location	County
1945	N5359P	IN AIR	
2028	N5359P	68° @ 78 nm	Wheeler
2030	N5359P	68° @ 79 nm	Wheeler
2033	N5359P	68° @ 80 nm	Wheeler
2035	N5359P	69° @ 80 nm	Wheeler
2037	N5359P	68° @ 80 nm	Wheeler
2042	N5359P	66° @ 75 nm	Wheeler
2044	N5359P	66° @ 75 nm	Wheeler
2047	N5359P	63° @ 53 nm	Gray
2135	N5359P	69° @ 47 nm	Gray
2209	N5359P	RTB	
2308	N5359P	IN AIR	
2332	N5359P	RTB	

Panhandle Groundwater Conservation District

SEEDING REPORT - August 19, 2025

SYNOPTIC/MESOSCALE CONDITIONS:

Another round of showers and thunderstorms will be possible this afternoon as the Panhandle remains on the eastern flank of the upper-level ridge. Within the flow, a shortwave is projected to move in, along with continued monsoonal moisture. Isolated to scattered activity is expected to develop after 19Z. With sufficient instability (MLCAPE near 1,500 J/kg), there will be a low-end chance of severe storms, especially over the eastern parts of the district. This is where the SPC has marginal risk in place. However, weak shear should preclude any chance of storms becoming too severe. Plentiful moisture (Pwat greater than 1.50 inches and dew points in the lower 60s) will also lead to a threat of localized flooding. Furthermore, the storm motion will be on the order of 5 kts, potentially adding to the flood potential.

LIFTING MECHANISM

Shortwave

THERMODYNAMIC INDICES (12Z NAM valid at 21Z KAMA)

Freezing Level (m,MSL)	4877	LCL (m,MSL)	3070
-5°C Height (m,MSL)	5913	CCL (m,MSL)	3048
-10°C Height (m,MSL)	6706	ML CAPE (J/kg)	1456
Cloud Base (m,MSL)	2804	SB CAPE (J/kg)	2032
Warm Cloud Depth (m)	2069	CINH (J/kg)	0
Cloud Base Temp (°C)	10	LI (°C)	-6
Precipitable Water (in)	1.55	Shear 0-6 km	13

Seeding Operations:

Weak, pulse activity started developing around 1930, so N5359P was put on standby at 1949Z and launched when the plane was ready at 2008Z. They were then airborne from TDW by 2019Z to Miami. This cell weakened after takeoff, so the plane was redirected towards Clarendon. Two AgI bips were used in this cell at 2047Z. Unfortunately, this shower weakened. The aircraft switched to recon and reported all activity very pulse. Therefore, they RTB'd at 2128Z and landed at TDW at 2145Z.

WATCHES/WARNINGS:

None

SEEDED CELL IDS:

44

FLIGHT INFORMATION:

TIME (Z)	Plane	Flare Location	County
2019	N5359P	IN AIR	
2047	N5359P	100° @ 45 nm	Donley
2128	N5359P	RTB	

Panhandle Groundwater Conservation District

SEEDING REPORT - August 24, 2025

SYNOPTIC/MESOSCALE CONDITIONS:

A cold front will start to descend into the region from the north this afternoon. Ahead of this, a high pressure system over the south will transport moisture into the Panhandle. As the front progresses through, chances of showers and storms will increase. As of now, majority of rainfall will occur after sunset. However, a few showers may develop ahead of the front this afternoon, mainly after 21Z. As far as severe weather is concerned, a marginal risk for severe will exist for today with large hail and gusty winds the main threats. The most likely area for severe storms will be over the northeastern half of the district.

LIFTING MECHANISM

Cold Front/OFB

THERMODYNAMIC INDICES (12Z NAM valid at 21Z KAMA)

Freezing Level (m,MSL)	4816	LCL (m,MSL)	3414
-5°C Height (m,MSL)	5700	CCL (m,MSL)	3292
-10°C Height (m,MSL)	6706	ML CAPE (J/kg)	664
Cloud Base (m,MSL)	2791	SB CAPE (J/kg)	1183
Warm Cloud Depth (m)	2025	CINH (J/kg)	0
Cloud Base Temp (°C)	11	LI (°C)	-4
Precipitable Water (in)	1.40	Shear 0-6 km	22

Seeding Operations:

A cell developed near Pampa around 2130Z, so N5359P was put on standby at 2142Z. At 2208Z, the plane was ready and was launched to Pampa. They then became airborne from TDW at 2218Z. Once at the target, a good, workable base was found where a total of eight AgI bips and one hygro were lit between 2241Z-2248Z. The inflow then became more sporadic at which time the pilot was directed to a developing cell north of Miami at 2258Z. No seedable conditions were found here, so the pilot was directed back to the south where two AgI bips were lit at 2320Z. An additional four AgI bips were used here. At 2355Z, a flood watch was issued, concluding operations. Therefore, N5359P RTB at this time and landed at TDW at 0028Z.

WATCHES/WARNINGS:

Severe Thunderstorm Warning- Wheeler
Flood Watch- Gray, Roberts, Wheeler

SEEDED CELL IDS:

61	61/132
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FLIGHT INFORMATION:

TIME (Z)	Plane	Flare Location	County
2218	N5359P	IN AIR	
2241	N5359P	57° @ 43 nm	Gray
2243	N5359P	55° @ 43 nm	Gray
2246	N5359P	55° @ 43 nm	Gray
2349	N5359P	58° @ 44 nm	Gray
2320	N5359P	58° @ 44 nm	Gray
2330	N5359P	60° @ 44 nm	Gray
2332	N5359P	60° @ 44 nm	Gray
2355	N5359P	RTB	

