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**Lake Thunderbird TMDL Monitoring  
Plan Implementation: Sample Year  
(SY) 2023- October Report**

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**OKLAHOMA**  
**Water Resources Board**

# Lake Thunderbird TMDL Monitoring Plan Implementation: October 2023 Monitoring Report

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Oklahoma Water Resources Board  
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## SUMMARY OF OCTOBER SAMPLING

Sampling for October 2023 occurred during base flow conditions on the ninth. Water samples were collected at nine locations and discharge was not measured due to low water levels. Mesonet shows no precipitation on the ninth, in the 72 hours prior to sampling, or in the 72 hours after sampling occurred. The total rainfall amount in Norman for the month of October was 5.47 inches. Samples were not collected at LT-1 since this station will be relocated. All water level gauges were operational for the month, except for CC-1 and JB-1, which are having communication issues.

## RESULTS

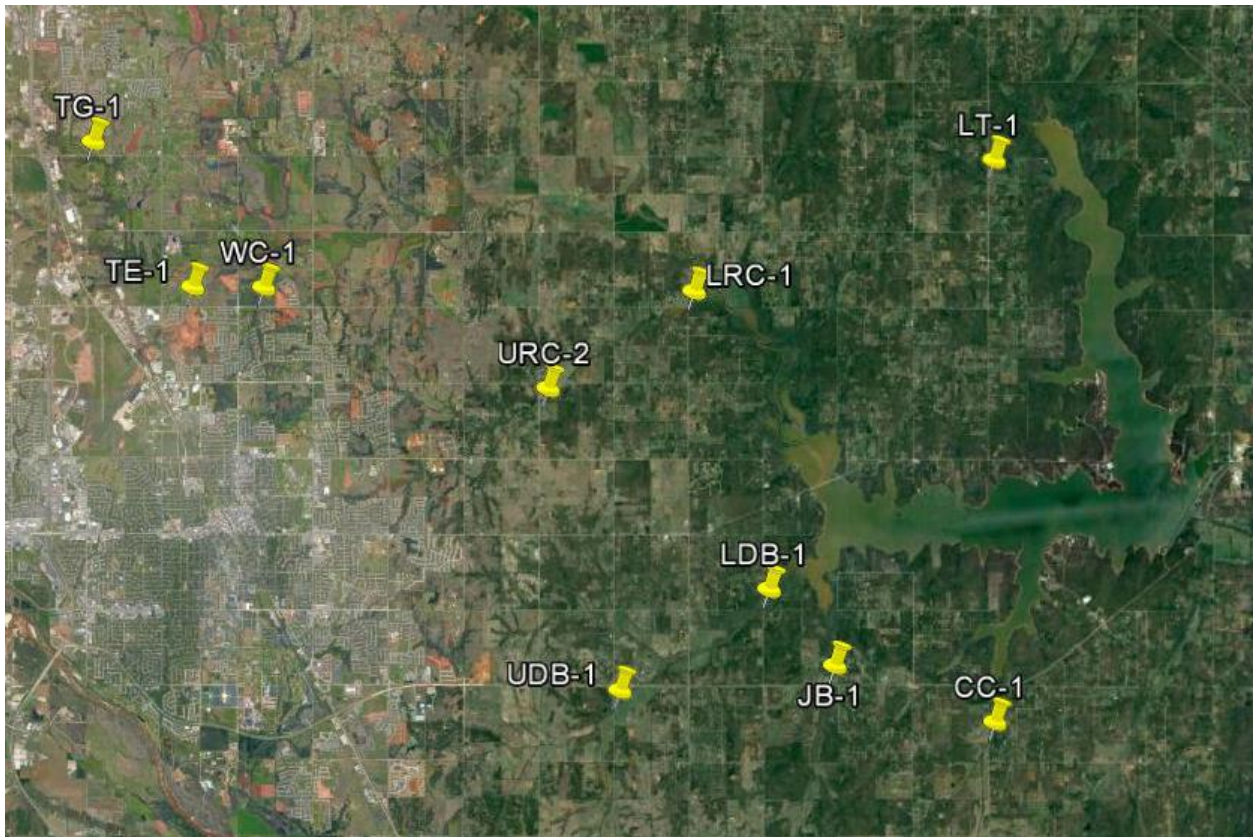


Figure 1 Monitoring Station Map

Monitoring Location ID	Monitoring Location Name	Date	Time	Field Crew	Water Temperature (°C)	Dissolved Oxygen (DO) (mg/L)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Notes
CC-1	Clear Creek	10/9/2023	14:59	ANN	19.7	8.45	7.99	663	6	Battery wire disconnected, so DCP not working
JB-1	Jim Blue Creek	10/9/2023	15:32	ANN	19.6	4.71	7.63	387	134	Collected upstream of bridge; very low flow, barely connected through rocks on upstream side; channel subsurface downstream of bridge
LDB-1	Lower Dave Blue Creek	10/9/2023	15:56	ANN	19.1	3.66	7.59	256	71	Murky water
LRC-1	Lower Rock Creek	10/9/2023	13:46	ANN	18.6	7.39	7.53	428	42	Low flow and stagnant; orifice buried in mud and completely out of water
TE-1	Little River Tributary	10/9/2023	10:08	ANN	16.6	5.36	6.93	433	47	Orifice out of water; channel barely connected under bridge
TG-1	Little River	10/9/2023	9:13	ANN	15.7	7.17	6.88	522	9	Low flow conditions, bars on upstream side of channel; orifice out of water
UDB-1	Upper Dave Blue Creek	10/9/2023	16:23	ANN	17.0	2.88	7.18	411	59	Flow nearly disconnected downstream of bridge; DCP not working at arrival
URC-2	Upper Rock Creek	10/9/2023	13:10	ANN	18.0	4.44	7.15	413	57	Connected under bridge but stagnant and turbid; orifice out of water
WC-1	Woodcrest Creek	10/9/2023	10:43	ANN	16.9	4.81	6.85	922	16	Low flow conditions, orifice partially out of water

Table 1 Field Data Form

Monitoring Location ID	Monitoring Location Name	Nitrate and Nitrite (mg/L)	Kjeldahl Nitrogen (mg/L)	Phosphorus (mg/L)	Total Suspended Solids (mg/L)
CC-1	Clear Creek	<0.05	0.26	0.036	<5.0
JB-1	Jim Blue Creek	<0.05	0.99	0.145	68.0
LDB-1	Lower Dave Blue Creek	0.08	1.10	0.167	33.0
LRC-1	Lower Rock Creek	0.11	0.61	0.099	24.0
TE-1	Little River Tributary	0.14	0.59	0.095	20.0
TG-1	Little River	0.16	0.57	0.081	7.0
UDB-1	Upper Dave Blue Creek	<0.05	0.61	0.089	32.0
URC-2	Upper Rock Creek	<0.05	0.75	0.106	13.0
WC-1	Woodcrest Creek	<0.05	0.38	0.095	11.0

Table 2 Laboratory Analysis Summary

Monitoring Location Name	Nitrate and Nitrite (mg/L)	Kjeldahl Nitrogen (mg/L)	Phosphorus (mg/L)	Total Suspended Solids (mg/L)
Field Blank	<0.05	<0.10	<0.010	<5.0
Duplicate	<0.05	0.27	0.036	<5.0
Duplicate RPD	0%	3.77%	0%	0%

Table 3 QA/QC Data

Quality assurance/quality control (QA/QC) of the data includes a field blank and duplicate sample from each collection event and is qualified by the OWRB. Relative Percent Difference (RPD) of the duplicate sample can be categorized into four levels, where Level 1 likely has no QA issues and Level 4 has major QA issues and should be used with caution.

Monitoring Location ID	Monitoring Location Name	Discharge (cfs)	Stream Stage (ft)
CC-1	Clear Creek	0.21	20.08
JB-1	Jim Blue Creek	0.00	7.10
LDB-1	Lower Dave Blue Creek	1.63	16.01
LRC-1	Lower Rock Creek	0.01	3.48
TE-1	Little River Tributary	0.01	10.66
TG-1	Little River	0.60	8.80
UDB-1	Upper Dave Blue Creek	0.01	16.88
URC-2	Upper Rock Creek	0.01	9.68
WC-1	Woodcrest Creek	0.01	7.14

Table 4 Station Discharge Summary

All rated stream discharges are provisional and subject to change.

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UTC Offset: -06:00

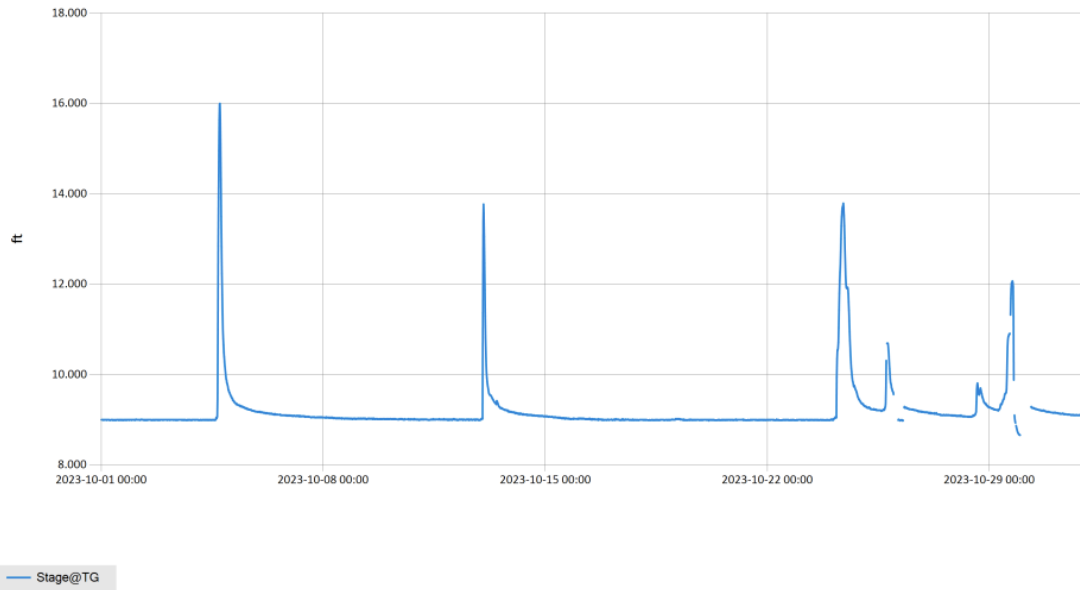


Figure 2 Monthly Hydrograph TG-1

Period Selected: 2023-10-01 00:00 - 2023-10-31 23:59

UTC Offset: -06:00

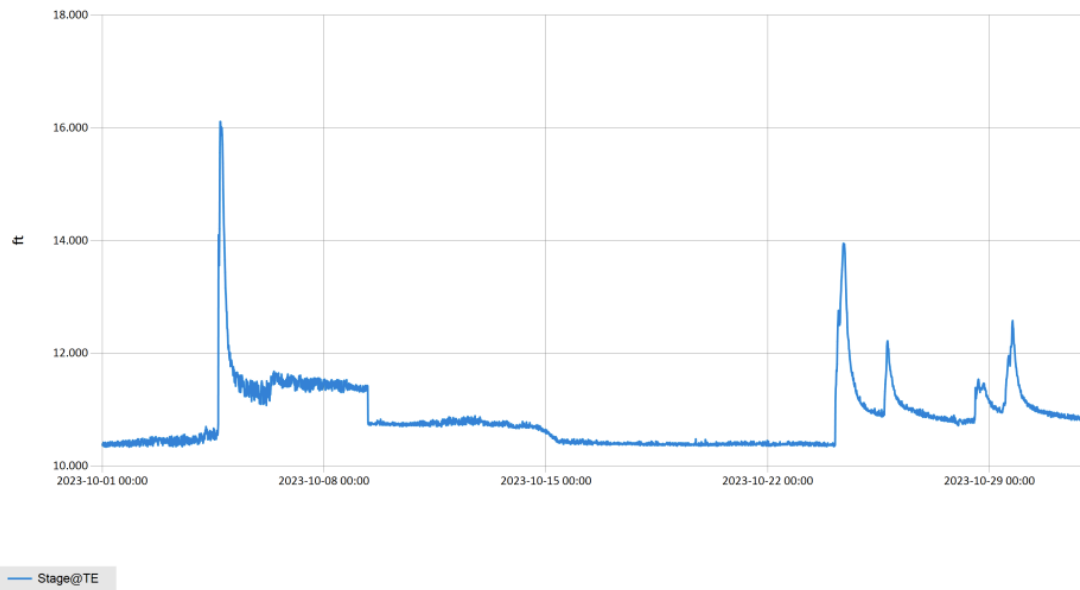
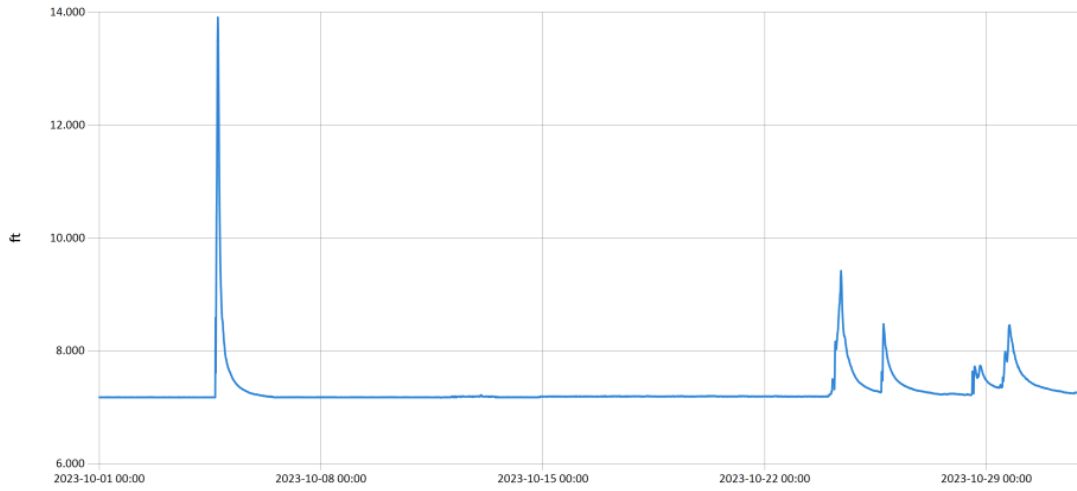


Figure 3 Monthly Hydrograph TE-1

Period Selected: 2023-10-01 00:00 - 2023-10-31 23:59

UTC Offset: -06:00

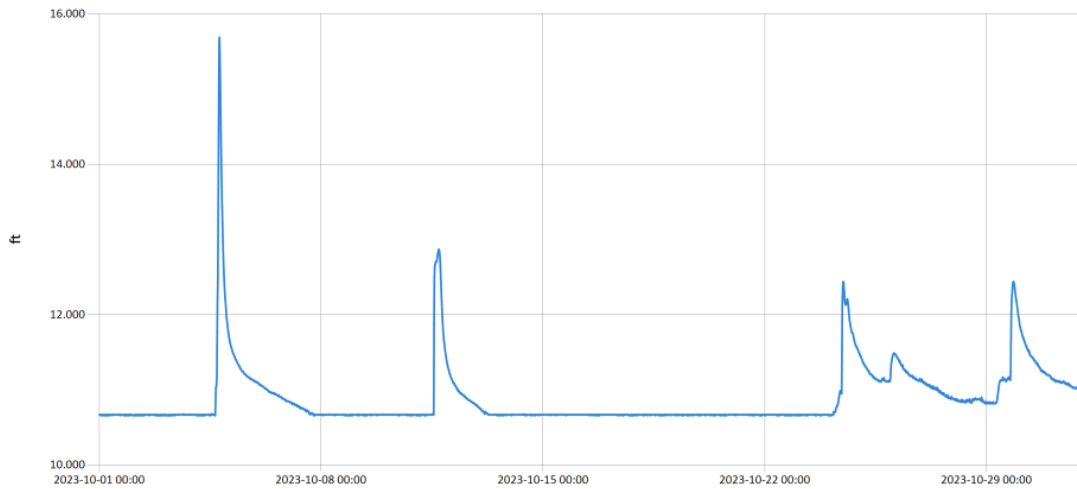


— Stage@WC

Figure 4 Monthly Hydrograph WC-1

Period Selected: 2023-10-01 00:00 - 2023-10-31 23:59

UTC Offset: -06:00



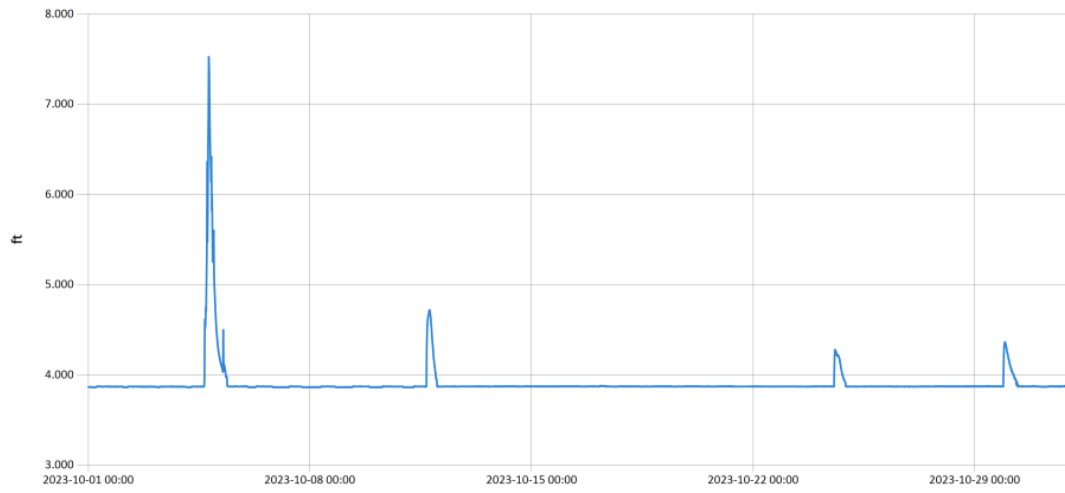
— Stage@URC

Figure 5 Monthly Hydrograph URC-2



Period Selected: 2023-10-01 00:00 - 2023-10-31 23:59

UTC Offset: -06:00

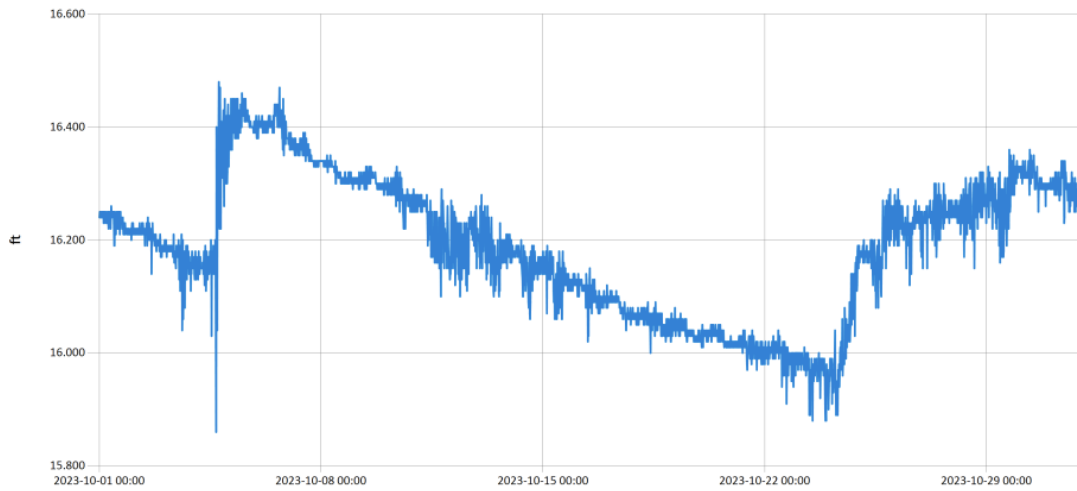


— Stage@LRC

Figure 6 monthly Hydrograph LRC-1

Period Selected: 2023-10-01 00:00 - 2023-10-31 23:59

UTC Offset: -06:00



— Stage@LDB

Figure 7 Monthly Hydrograph LDB-1

Period Selected: 2023-10-01 00:00 - 2023-10-31 23:59

UTC Offset: -06:00

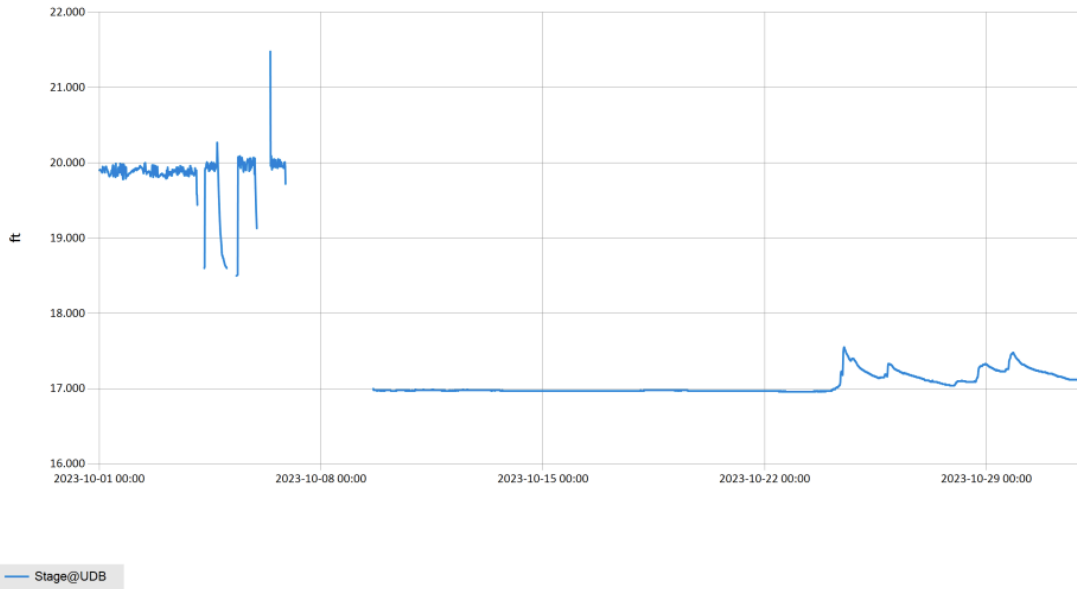


Figure 8 Monthly hydrograph UDB-1

MESONET CLIMATOLOGICAL DATA SUMMARY				October 2023				Time Zone: Midnight-Midnight CST													
(NRMN) Norman				Nearest City: 2.1 NW Norman				County: Cleveland													
Latitude: 35-14-09				Longitude: 97-27-53				Elevation: 1171 feet													
DAY	TEMPERATURE ( °F )				DEG DAYS		HUMIDITY (%)			RAIN (in)		PRESSURE (in)		WIND SPEED (mph)		SOLAR (MJ/m <sup>2</sup> )	4" SOIL TEMPERATURES				
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX		SOD	BARE	MAX	MIN	
1	89	66	77.7	57.6	0	13	80	29	52	0.00	28.87	30.12	SE	6.6	18.0	17.76	75.7	80.9	87	75	
2	89	65	77.8	57.0	0	12	78	31	51	0.00	28.82	30.07	SE	7.5	20.0	16.85	75.0	80.0	86	75	
3	88	70	77.8	57.6	0	14	62	37	50	0.00	28.70	29.95	SSE	9.3	24.9	10.83	74.4	78.9	82	76	
4	82	64	72.5	64.9	0	8	98	49	78	2.58	28.67	29.91	S	6.8	55.8	7.89	73.3	77.1	82	74	
5	80	62	69.3	60.1	0	6	98	37	76	0.00	28.82	30.07	N	5.5	21.8	15.42	72.7	73.5	77	70	
6	77	53	62.7	42.7	0	0	88	29	50	0.00	28.99	30.24	NNE	9.6	27.2	15.96	70.5	67.5	72	63	
7	66	43	54.8	35.4	10	0	85	25	51	0.00	29.07	30.33	N	4.1	14.5	19.36	67.8	63.1	69	57	
8	79	45	62.4	42.2	3	0	85	29	51	0.00	28.81	30.06	S	6.6	21.2	18.79	66.1	62.5	68	57	
9	83	51	67.5	51.2	0	2	86	38	58	0.00	28.62	29.87	E	4.4	12.4	18.46	67.4	66.8	76	59	
10	86	56	71.2	55.3	0	6	84	33	60	0.00	28.54	29.79	SSE	7.0	20.4	18.06	68.7	70.3	78	63	
11	79	62	69.7	61.3	0	6	92	59	75	0.00	28.40	29.64	S	11.5	31.6	14.08	69.6	71.9	77	67	
12	74	64	67.5	60.6	0	4	89	67	79	0.00	28.35	29.58	SSE	13.1	29.3	12.04	69.6	71.4	76	69	
13	70	51	62.8	45.0	5	0	93	34	55	0.04	28.65	29.89	NW	14.5	34.3	17.97	68.7	69.4	74	65	
14	63	47	53.8	39.0	10	0	68	45	58	0.00	28.93	30.19	NNW	12.6	28.9	15.31	65.4	63.9	68	60	
15	61	41	52.1	40.5	14	0	88	47	66	0.00	29.04	30.29	N	11.1	30.9	10.39	64.0	62.1	66	59	
16	62	38	48.7	36.4	15	0	93	36	65	0.00	29.04	30.29	NNW	5.7	20.1	17.87	61.8	60.1	67	54	
17	73*	36*	56.0*	38.9*	11*	0*	95*	31*	58*	0.00*	28.82*	30.07*	S *	5.8*	18.4*	NA	60.9*	61.1*	69*	53*	
18	81	50	64.0	43.4	0	1	79	28	49	0.00	28.67	29.92	S	6.3	18.3	16.74	62.8	64.8	72	58	
19	82	47	62.4	42.9	1	0	89	22	54	0.00	28.74	29.99	NW	4.8	19.9	16.86	62.6	65.2	72	58	
20	88	53	69.8	44.2	0	6	64	17	42	0.00	28.68	29.92	S	3.6	10.8	17.15	63.4	67.4	76	60	
21	90	55	73.5	47.2	0	7	66	21	41	0.00	28.63	29.87	SSW	6.3	25.0	13.14	64.6	69.0	75	63	
22	84	55	69.9	55.1	0	5	85	37	62	0.00	28.66	29.90	SSE	6.6	21.4	12.45	65.6	69.7	75	64	
23	79	65	70.9	65.2	0	7	92	68	83	0.00	28.67	29.91	SSE	10.0	26.8	8.39	67.3	70.4	74	67	
24	71	62	68.2	66.3	0	1	97	82	94	1.66	28.65	29.89	SSE	11.6	27.3	2.08	67.7	69.0	71	68	
25	74	65	68.9	66.3	0	4	97	82	91	0.34	28.69	29.94	S	9.8	27.3	3.62	68.4	69.3	71	68	
26	81	65	71.6	65.1	0	8	98	52	82	0.02	28.64	29.88	S	9.8	26.8	13.00	68.8	69.4	73	67	
27	74	47	58.2	50.8	4	0	92	59	77	0.02	28.86	30.11	NNW	11.7	28.4	10.35	68.2	66.3	71	59	
28	49	38	45.3	41.0	21	0	96	68	86	0.34	28.89	30.14	NNE	10.7	25.4	2.93	63.8	56.9	59	53	
29	39	34	36.4	33.4	29	0	95	69	89	0.47	28.99	30.25	N	16.6	32.4	1.62	58.8	49.7	53	48	
30	46	28	36.4	23.6	28	0	95	39	62	0.00	29.15	30.41	N	10.6	27.9	15.71	55.7	48.5	55	44	
31	49	26	35.8	22.7	27	0	96	27	63	0.00	29.17	30.43	N	8.6	26.8	15.71	53.3	45.2	51	41	
74* 52* 62.4* 48.8*				<- Monthly Averages ->				28.78* 30.03*		S *		8.7* 55.8*		13.23*		66.5*		66.5*		72* 62*	
Temperature - Highest: 90*							Degree Days - Total HDD: 179*							Number of Days With:							
Lowest: 26*							Total CDD: 110*							Tmax ≥ 90: 1* Rainfall ≥ 0.01 inch: 8*							
Rainfall: Monthly Total: 5.47* in.							Humidity - Highest: 98*							Tmax ≤ 32: 0* Rainfall ≥ 0.10 inch: 5*							
Greatest 24 Hr: 2.58* in.							Lowest: 17*							Tmin ≤ 32: 2* Avg Wind Speed ≥ 10 mph: 11*							
														Tmin ≤ 0: 0* Max Wind Speed ≥ 30 mph: 5*							

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\* Denotes incomplete record

Figure 9 October Mesonet Data