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

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

# Lake Thunderbird TMDL Monitoring Plan Implementation: January 2024 Monitoring Report

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Oklahoma Water Resources Board  
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## SUMMARY OF JANUARY SAMPLING

Sampling for January 2024 occurred during base flow conditions on the twenty-third. Water samples were collected at nine locations and discharge was measured at two locations. Mesonet shows 0.20 inches of precipitation on the twenty-third, 0.21 inches of precipitation in the 72 hours prior to sampling, and 0.75 inches of precipitation in the 72 hours after sampling occurred. The total rainfall amount in Norman for the month of January was 2.28 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 JB-1 which is having communication issues.

## RESULTS

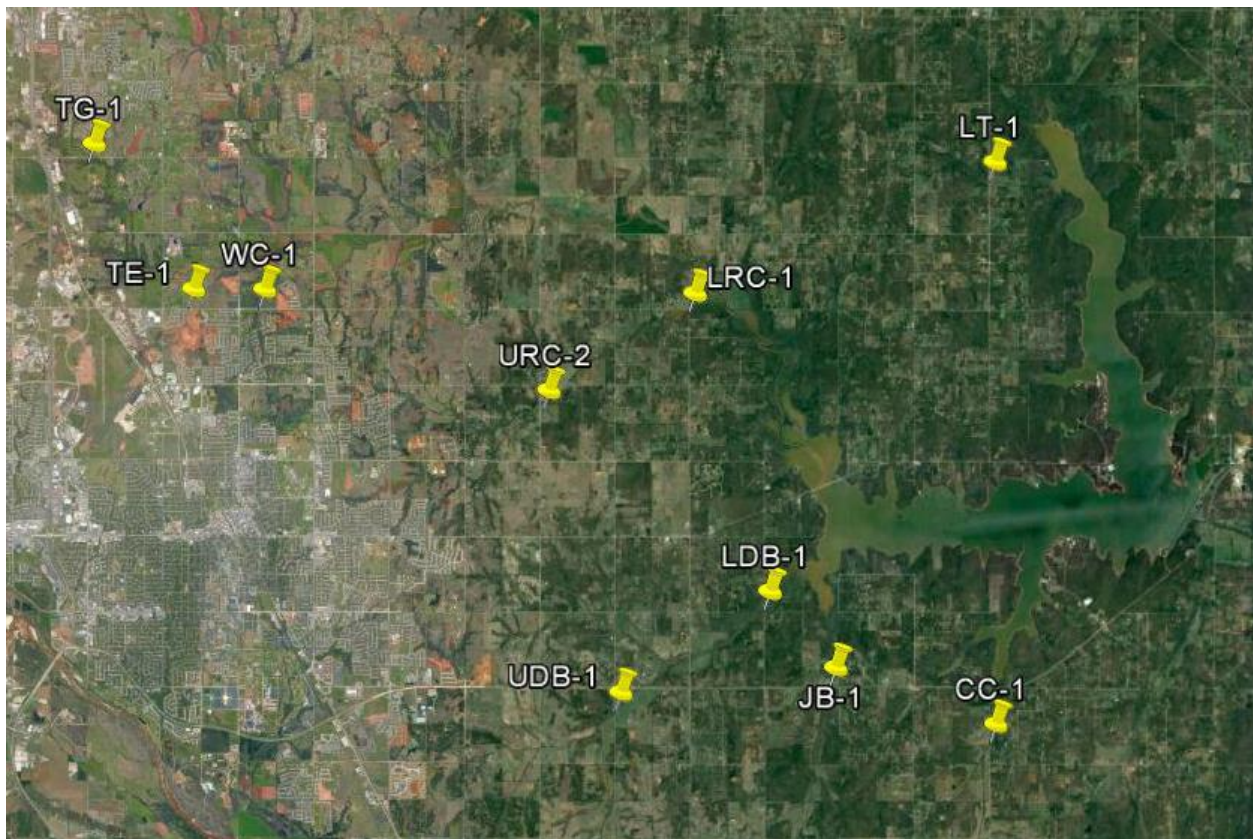


Figure 1 Monitoring Station Map

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	1/23/2024	10:35	LES	2.1	11.54	7.61	633	8	Frozen upstream of bridge, flowing well downstream
JB-1	Jim Blue Creek	1/23/2024	10:05	LES	1.6	7.48	7.20	862	1	Frozen; only sampled upstream due to frozen conditions
LDB-1	Lower Dave Blue Creek	1/23/2024	11:35	LES	2.0	13.44	7.60	961	7	Sheet ice on surface upstream and downstream, but bridge vicinity ice free
LRC-1	Lower Rock Creek	1/23/2024	13:12	LES	0.3	13.23	7.83	635	9	Subsurface ice layer thick enough to stand on; sampled in hole in ice; orifice possibly frozen
TE-1	Little River Tributary	1/23/2024	15:05	LES	1.7	13.66	7.61	719	26	Two beaver dams in succession upstream of sample point; lots of beaver activity around stream
TG-1	Little River	1/23/2024	15:35	LES	0.4	13.86	7.80	879	26	Not as much ice as other sites despite low in-stream temp; plenty of trash in river
UDB-1	Upper Dave Blue Creek	1/23/2024	9:21	LES	0.1	13.97	7.90	776	19	Creek flowing well; 1/2 inch thick ice sheet under water surface; collected close to bridge; changed DCP
URC-2	Upper Rock Creek	1/23/2024	12:30	LES	0.4	12.50	7.69	533	27	Subsurface ice layer thick enough to stand on; sampled water above ice layer
WC-1	Woodcrest Creek	1/23/2024	14:01	LES	0.9	13.36	7.67	612	30	Creek flowing well, scant ice; changed DCP

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	0.13	0.40	0.042	<5.0
JB-1	Jim Blue Creek (us)	<0.05	0.24	0.021	<5.0
LDB-1	Lower Dave Blue Creek	0.18	0.28	0.036	<5.0
LRC-1	Lower Rock Creek	0.11	0.22	0.044	6.0
TE-1	Little River Tributary	0.53	1.04	0.142	7.0
TG-1	Little River	0.37	0.98	0.107	20.0
UDB-1	Upper Dave Blue Creek	0.19	0.43	0.040	9.0
URC-2	Upper Rock Creek	0.30	1.21	0.088	26.0
WC-1	Woodcrest Creek	0.37	0.91	0.196	13.0

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	0.13	0.39	0.040	<5.0
Duplicate RPD	0%	2.53%	4.88%	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.

<b>Monitoring Location ID</b>	<b>Monitoring Location Name</b>	<b>Discharge (cfs)</b>	<b>Stream Stage (ft)</b>
CC-1	Clear Creek	0.23	20.16
JB-1	Jim Blue Creek	<0.10	7.32
LDB-1	Lower Dave Blue Creek	1.82	16.16
LRC-1	Lower Rock Creek	0.20	3.77
TE-1	Little River Tributary	0.03	10.95
TG-1	Little River	0.68	8.96
UDB-1	Upper Dave Blue Creek	2.46	17.41
URC-2	Upper Rock Creek	0.31	12.27
WC-1	Woodcrest Creek	0.76	8.05

Table 4 Station Discharge Summary

All rated stream discharges are provisional and subject to change.

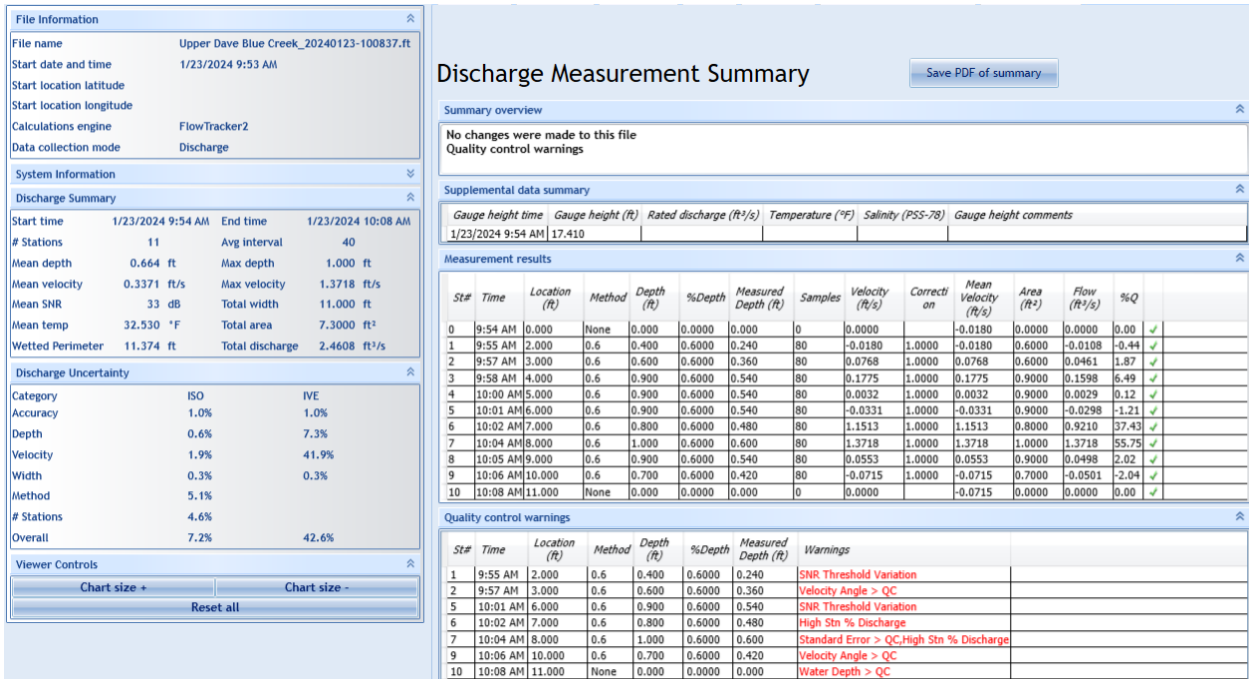


Figure 2 Discharge Measurement Summary UDB-1

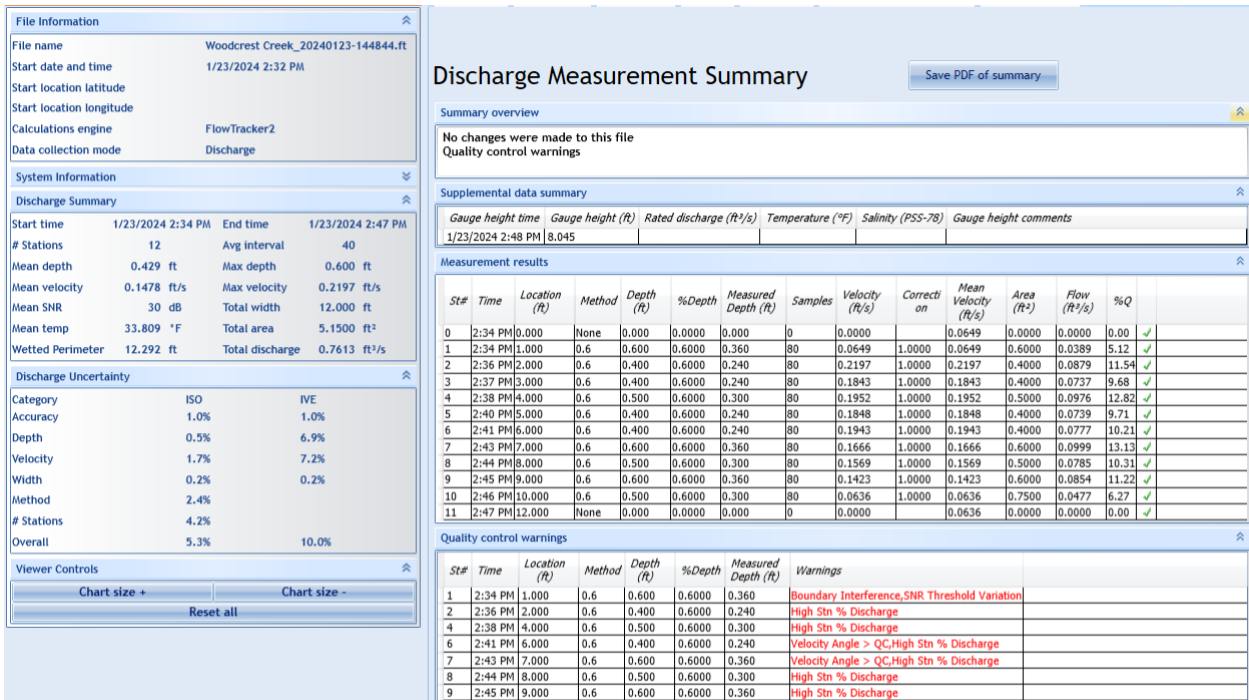


Figure 3 Discharge Measurement Summary WC-1



Period Selected: 2024-01-01 00:00 - 2024-01-31 23:59

UTC Offset: -06:00

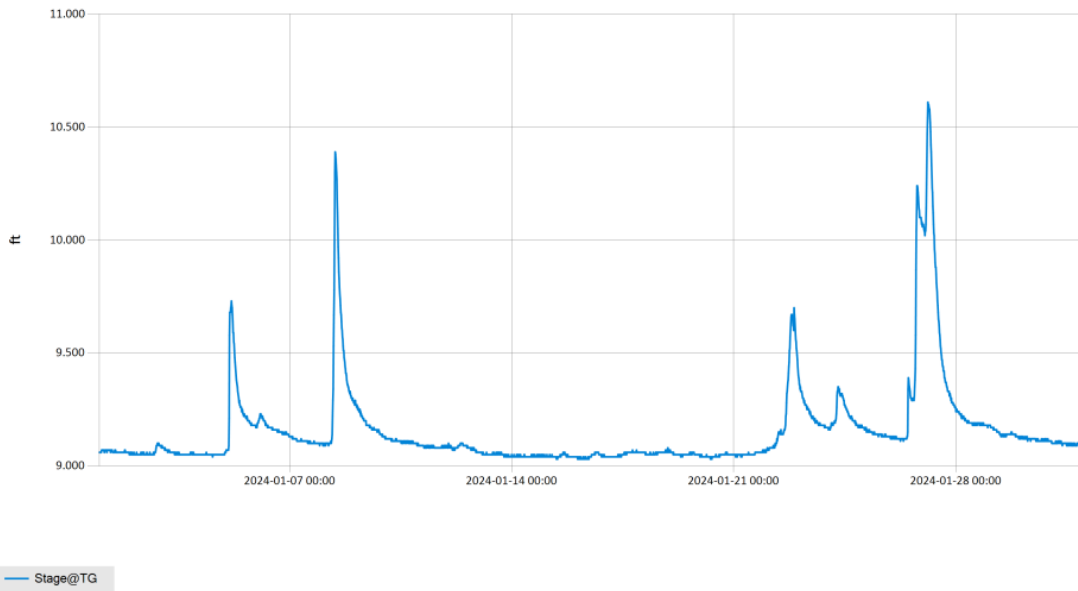


Figure 4 Monthly Hydrograph TG-1

Period Selected: 2024-01-01 00:00 - 2024-01-31 23:59

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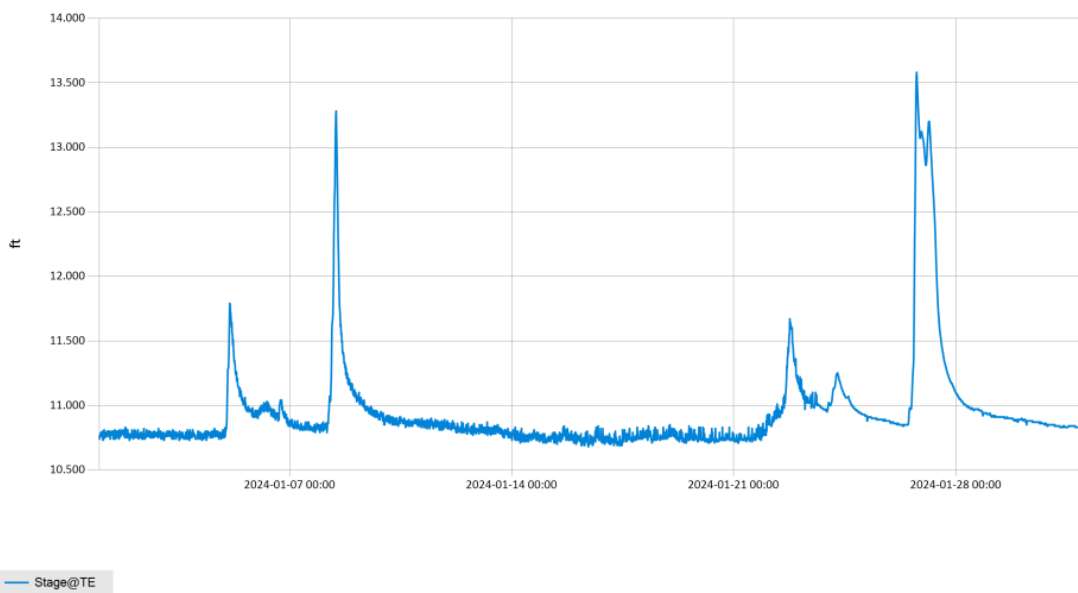


Figure 5 Monthly Hydrograph TE-1

Period Selected: 2024-01-01 00:00 - 2024-01-31 23:59 UTC Offset: -06:00

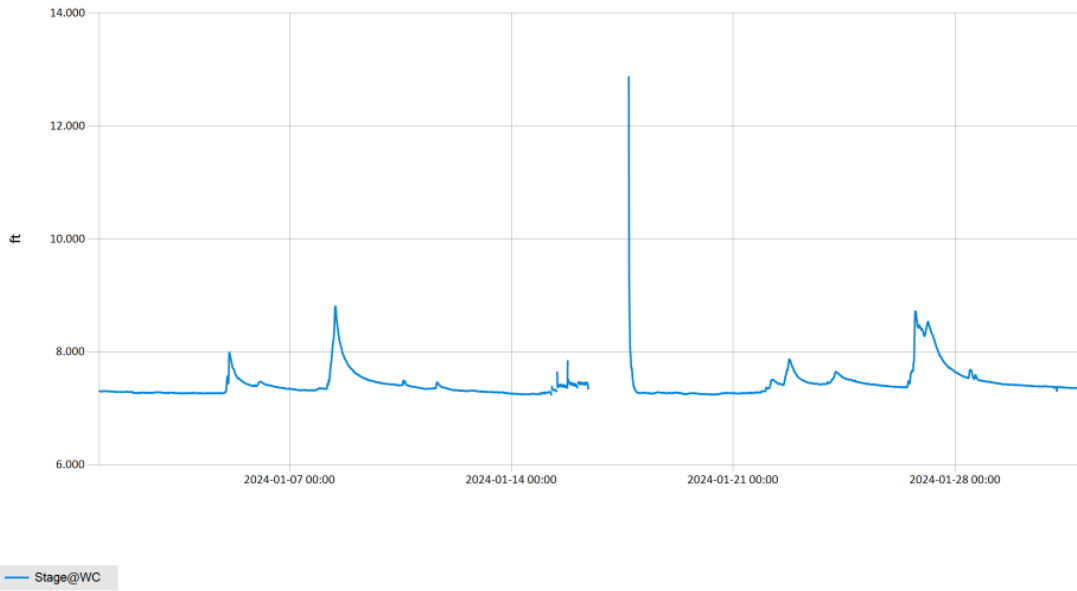


Figure 6 Monthly Hydrograph WC-1

Period Selected: 2024-01-01 00:00 - 2024-01-31 23:59 UTC Offset: -06:00

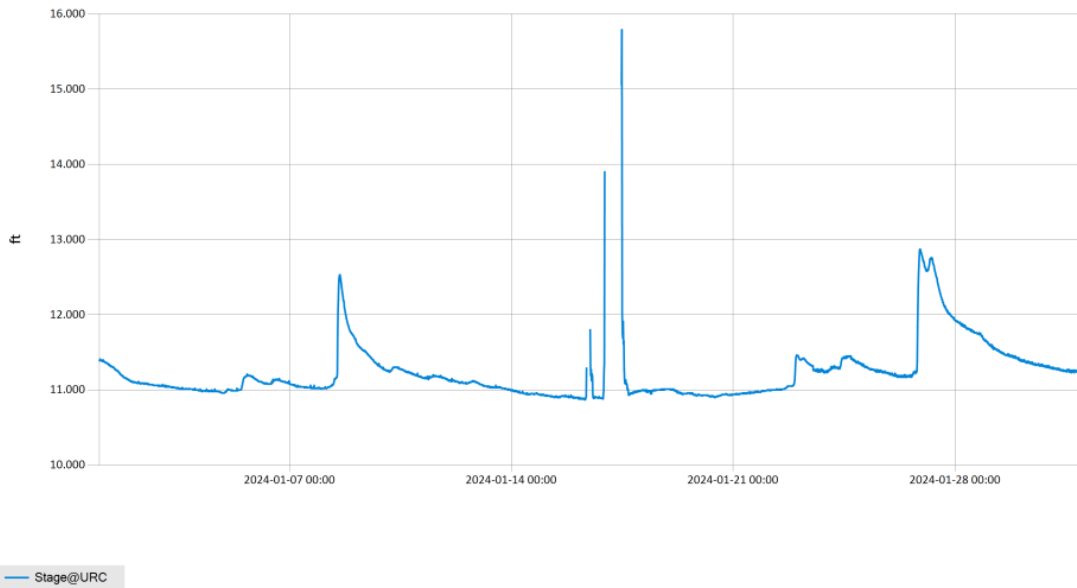
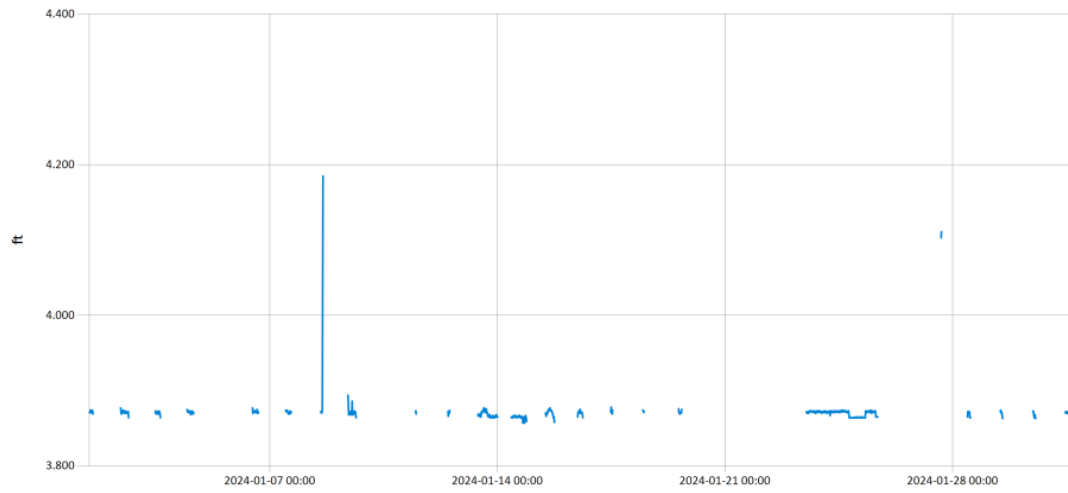


Figure 7 Monthly Hydrograph URC-2

Period Selected: 2024-01-01 00:00 - 2024-01-31 23:59

UTC Offset: -06:00

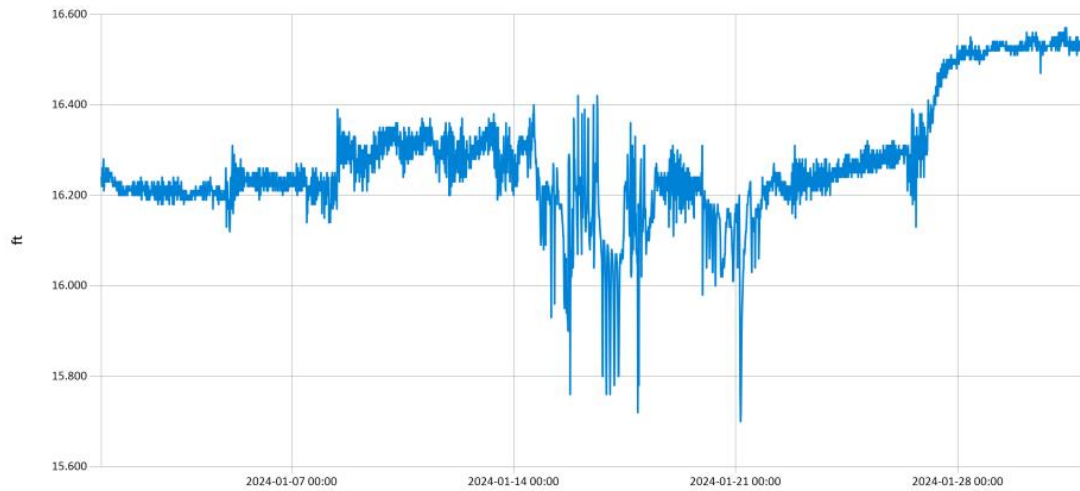


— Stage@LRC

Figure 8 Monthly Hydrograph LRC-1

Period Selected: 2024-01-01 00:00 - 2024-01-31 23:59

UTC Offset: -06:00

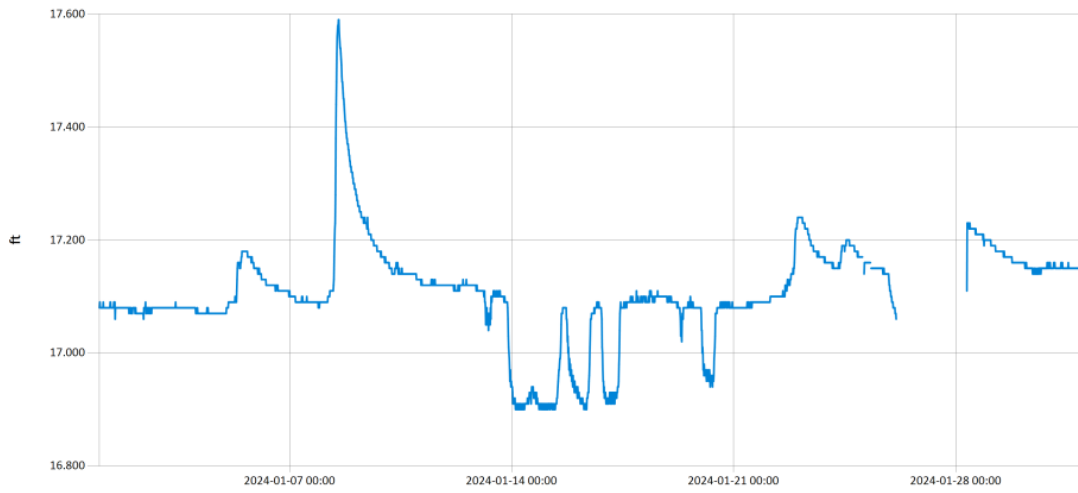


— Stage@LDB

Figure 9 Monthly Hydrograph LDB-1

Period Selected: 2024-01-01 00:00 - 2024-01-31 23:59

UTC Offset: -06:00

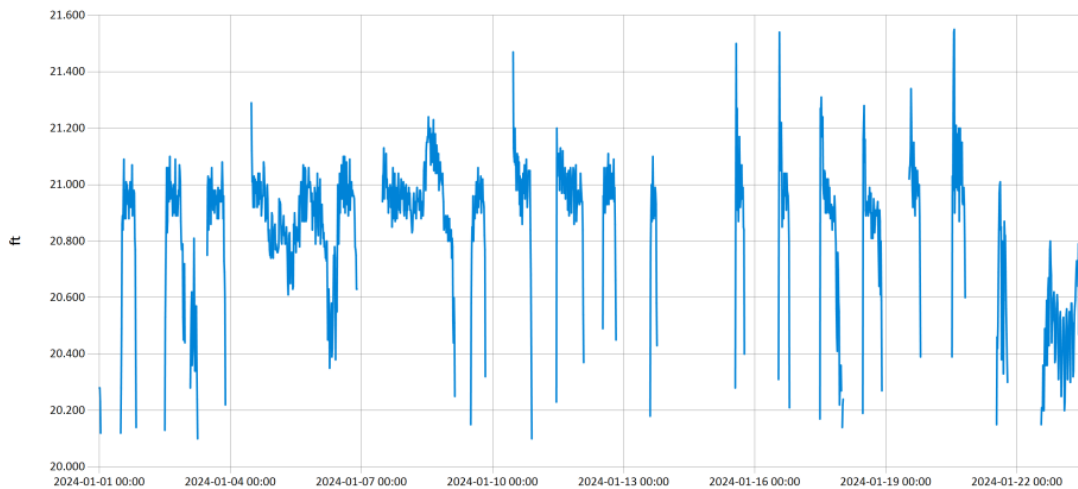


— Stage@UDB

Figure 10 Monthly Hydrograph UDB-1

Period Selected: 2024-01-01 00:00 - 2024-01-31 23:59

UTC Offset: -06:00



— Stage@CC

Figure 11 Monthly Hydrograph CC-1

MESONET CLIMATOLOGICAL DATA SUMMARY				January 2024				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	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	(MJ/m <sup>2</sup> )	SOD	BARE	MAX	MIN	
1	41	26	31.9	24.4	32	0	87	50	74	0.00	29.10	30.35	NNE	5.7	19.5	9.10	43.7	39.5	44	37	
2	49	26	37.3	29.0	28	0	89	52	73	0.00	28.97	30.22	S	4.4	16.4	7.28	43.0	39.4	43	37	
3	51	27	38.9	30.8	26	0	96	45	74	0.00	28.90	30.15	NW	3.5	10.5	11.33	43.9	41.3	47	37	
4	54	23	40.1	31.6	26	0	94	48	73	0.11	28.86	30.12	ESE	6.9	21.6	10.14	43.2	40.8	45	37	
5	41*	37*	39.4*	37.9*	26*	0*	98*	90*	95*	0.28*	28.63*	29.87*	SE *	8.5*	26.0*	NA	44.4*	42.1*	43*	41*	
6	47	32	38.3	32.9	25	0	96	62	81	0.01	28.66	29.90	NW	8.5	18.5	6.32	44.4	41.8	45	40	
7	55	22	41.1	28.4	27	0	95	37	64	0.00	28.72	29.97	SSE	9.0	29.4	10.47	43.0	39.9	44	37	
8	52	34	44.1	35.9	22	0	96	41	75	0.51	28.31	29.54	SE	12.4	40.1	4.10	44.5	42.9	46	41	
9	40	24	30.9	22.1	33	0	89	44	71	0.00	28.50	29.74	NW	18.3	44.5	8.54	41.8	40.2	43	38	
10	58	26	38.6	22.1	23	0	80	27	54	0.00	28.43	29.66	SSE	7.7	22.8	12.12	40.9	39.4	45	36	
11	66	24	46.4	27.1	20	0	85	22	51	0.01	28.35	29.58	SE	9.8	40.2	11.92	41.7	40.6	46	36	
12	39	17	26.3	12.5	37	0	82	34	57	0.00	28.58	29.82	NW	16.1	41.4	12.11	40.0	37.3	43	36	
13	25	5	16.2	6.2	50	0	82	51	65	0.00	28.84	30.09	N	13.9	32.7	10.68	37.6	34.6	36	33	
14	8	2	4.3	-6.8	60	0	75	45	60	0.00	29.08	30.34	NNE	12.2	29.3	4.39	35.0	30.1	33	27	
15	18	1	8.4	-4.2	56	0	73	41	56	0.00	29.10	30.36	NNE	13.9	29.9	12.20	33.9	27.3	30	25	
16	24	5	13.3	-6.6	51	0	68	22	42	0.00	29.15	30.41	NNW	8.7	26.1	12.59	33.1	26.9	31	24	
17	44	14	29.2	5.9	36	0	55	24	38	0.00	28.76	30.01	S	13.5	39.4	12.42	33.1	27.9	31	25	
18	49	22	35.8	16.3	30	0	71	28	47	0.00	28.69	29.94	N	8.5	40.5	12.31	33.7	30.6	32	29	
19	25	11	18.0	2.3	47	0	69	34	51	0.00	29.28	30.55	N	14.6	41.1	11.50	33.9	30.3	32	28	
20	30	9	19.2	3.5	45	0	66	33	51	0.00	29.28	30.54	NNE	7.5	14.9	11.51	33.6	28.5	31	25	
21	31	20	27.4	14.1	40	0	94	44	58	0.00	29.03	30.29	SSE*	11.0*	24.4*	2.73	33.8	30.0	31	29	
22	34	28	31.1	30.1	34	0	98	92	96	0.21	28.82	30.07	NA	NA	NA	1.62	34.3	31.4	32	31	
23	41	33	36.8	36.4	28	0	99	98	99	0.20	28.79	30.04	N *	NA	11.9*	2.25	36.2	31.7	32	32	
24	46	38	40.9	40.3	23	0	99	92	97	0.07	28.80	30.05	NNW	5.3	12.6	3.64	38.9	32.6	36	32	
25	47	38	42.4	41.1	23	0	99	86	95	0.01	28.80	30.04	WNW	3.8	12.0	3.50	40.8	38.7	42	36	
26	44	41	43.1	42.2	22	0	98	95	97	0.67	28.86	30.11	NE	6.8	27.6	1.05	42.0	41.4	42	41	
27	41	28	34.4	32.9	30	0	98	86	94	0.19	29.01	30.26	NNW	10.5	22.7	2.65	41.2	40.3	42	39	
28	61	27	43.5	33.3	21	0	98	35	72	0.01	29.07	30.33	S	3.6	12.3	13.77	40.0	40.7	47	36	
29	70	31	50.0	36.4	14	0	95	29	65	0.00	28.97	30.23	SSW	3.2	10.6	13.71	41.6	44.3	51	38	
30	68	38	51.9	39.5	12	0	91	39	65	0.00	28.93	30.18	NNW	4.7	13.9	13.85	43.1	45.8	52	40	
31	72	35	53.8	39.4	11	0	97	32	63	0.00	28.92	30.17	S	4.6	15.6	13.61	44.1	46.0	52	40	
44* 24* 34.0* 23.8*				<- Monthly Averages ->				28.84* 30.09*		NNW* 8.9* 44.5*			8.78*		39.5* 36.9* 40* 34*						
Temperature - Highest: 72* Lowest: 1*							Degree Days - Total HDD: 958* Total CDD: 0*					Number of Days With: Tmax ≥ 90: 0*      Rainfall ≥ 0.01 inch: 12* Tmax ≤ 32: 7*      Rainfall ≥ 0.10 inch: 7* Tmin ≤ 32: 23*      Avg Wind Speed ≥ 10 mph: 10* Tmin ≤ 0: 0*      Max Wind Speed ≥ 30 mph: 8*									
Rainfall: Monthly Total: 2.28* in. Greatest 24 Hr: 0.67* in.							Humidity - Highest: 99* Lowest: 22*														

Figure 12 January Mesonet Data