
***Lake Thunderbird TMDL Monitoring Plan Implementation:
Sample Year (SY) 2021- February Report***



SY-2021 Monthly Report

Lake Thunderbird TMDL Monitoring Plan Implementation:

February 2022 Monitoring Report

Oklahoma Water Resources Board
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SUMMARY OF FEBRUARY WATER QUALITY SAMPLING

Sampling for February 2022 occurred on the twenty-second and was a base flow collection. Water samples were collected at nine locations and a discharge measurement was collected at one location. Samples were not collected at JB-1 due to construction activity. Mesonet data shows no precipitation on the twenty-second, 0.05 inches of precipitation in the 72 hours prior to sampling, and 0.02 inches of precipitation in the 72 hours after the sampling event. The total rainfall amount in Norman for the month of February was 1.55 inches. All water level gauges were operational for the month, except for JB-1 due to road construction. The gauge at LT-1 was removed in 2018 as a result of equipment malfunction. The equipment has not been replaced due to intermittent streamflow and dry conditions. Furthermore, this station is being reviewed for a possible location change.

RESULTS

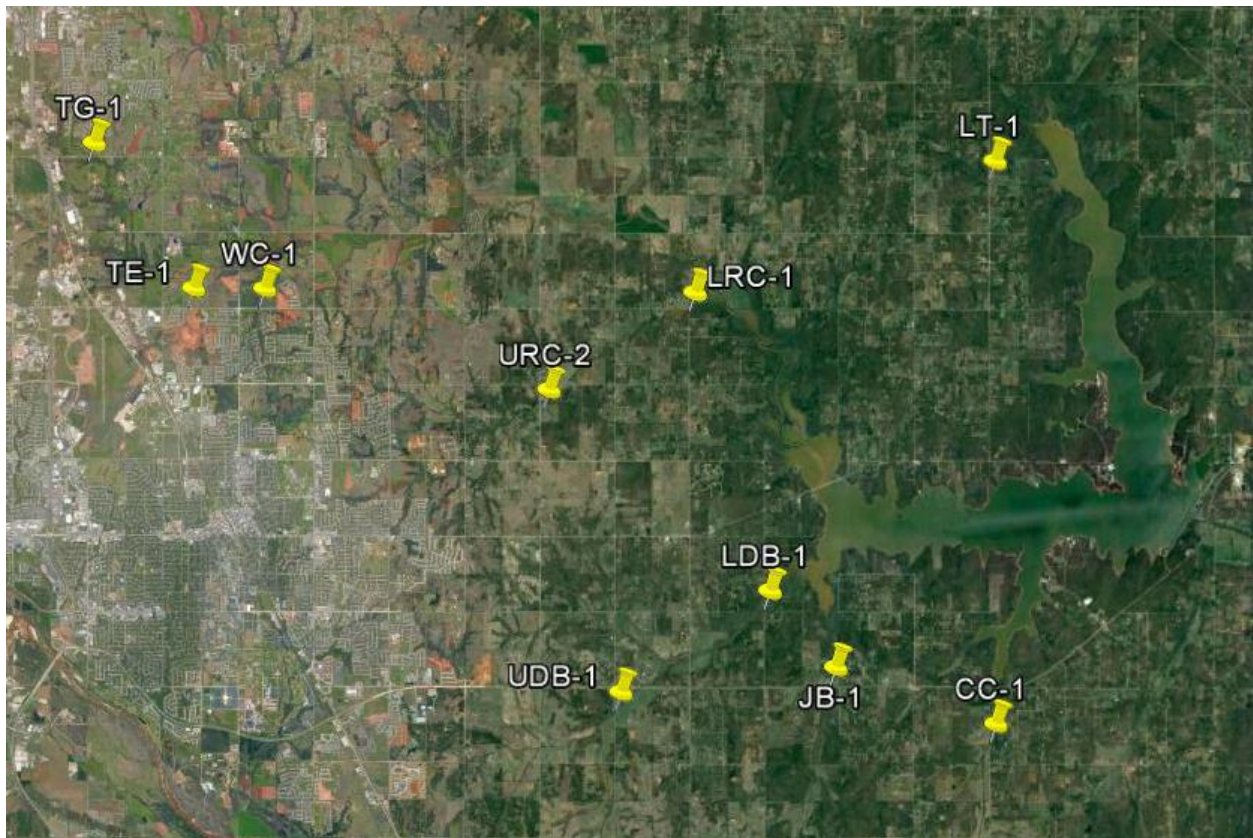


Figure 1 Monitoring Station Map

Monitoring Location ID	Monitoring Location Name	Date	Time	Field Crew	Water Temperature (°C)	Dissolved Oxygen (DO) (mg/l)	pH	Specific Conductance (mS/cm)	Turbidity (NTU)	Notes
CC-1	Clear Creek	2/22/2022	9:30	SD	6.43	10.72	8.07	694	6	Same tapedown as December, low/normal flow conditions, used RP3, RP4 also over water
JB-1	Jim Blue Creek	2/22/2022	9:45	SD	N/A	N/A	N/A	N/A	N/A	Active construction on upstream building bridge deck/piers, water very turbid and pooled on downstream, did not sample
LDB-1	Lower Dave Blue Creek	2/22/2022	10:00	SD	8.25	10.09	7.93	603	39	Very minimal flow, very turbid
LRC-1	Lower Rock Creek	2/22/2022	11:15	SD	8.06	9.86	7.94	666	12	Beaver signs still visible on banks, dam more prominent on downstream
LT-1	Lake Laterals	2/22/2022	10:35	SD	6.84	7.30	7.67	528	3	Sampled on upstream
TE-1	Little River Tributary	2/22/2022	13:25	SD	8.26	12.21	7.91	536	110	Similar tapedown to January visit, very turbid water for low conditions, very minimal visual flow
TG-1	Little River Tributary	2/22/2022	14:05	SD	8.42	12.79	8.12	921	14	Similar tapedown to last month, verified tapedown
UDB-1	Upper Dave Blue Creek	2/22/2022	8:45	SD	8.31	7.96	7.88	835	9	Almost same stage as last month collection, foam farther downstream
URC-2	Upper Rock Creek	2/22/2022	12:15	SD	6.61	16.02	7.56	667	22	Low flow, orifice close to being out of water
WC-1	Woodcrest Creek	2/22/2022	12:55	SD	7.93	9.49	7.73	810	15	Beaver sign, low water level, foam on downstream

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	0.16	0.028	5.0
JB-1	Jim Blue Creek	N/A	N/A	N/A	N/A
LDB-1	Lower Dave Blue Creek	0.16	0.50	0.058	31.0
LRC-1	Lower Rock Creek	<0.05	0.22	0.044	<5.0
LT-1	Lake Laterals	<0.05	0.28	0.018	9.0
TE-1	Little River Tributary	0.55	0.39	0.136	60.0
TG-1	Little River Tributary	0.19	0.43	0.055	17.0
UDB-1	Upper Dave Blue Creek	<0.05	0.23	0.040	13.0
URC-2	Upper Rock Creek	0.08	0.45	0.062	17.0
WC-1	Woodcrest Creek	<0.05	0.59	0.108	15.0

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	0.15	0.028	6.0
Duplicate RPD	0%	6.45%	0%	18.18%*

Table 3 QA/QC Data Where the Asterisk Denotes RPD 2

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	0.34	20.49
JB-1	Jim Blue Creek	N/A	N/A
LDB-1	Lower Dave Blue Creek	1.13	15.60
LRC-1	Lower Rock Creek	0.62	4.28
LT-1	Lake Laterals	0.40	4.44
TE-1	Little River Tributary	0.01	10.90
TG-1	Little River Tributary	0.55	8.94
UDB-1	Upper Dave Blue Creek	0.30	17.21
URC-2	Upper Rock Creek	0.01	10.68
WC-1	Woodcrest Creek	0.01	7.30

Table 4 Station Discharge Summary

All rated stream discharges are provisional and subject to change.

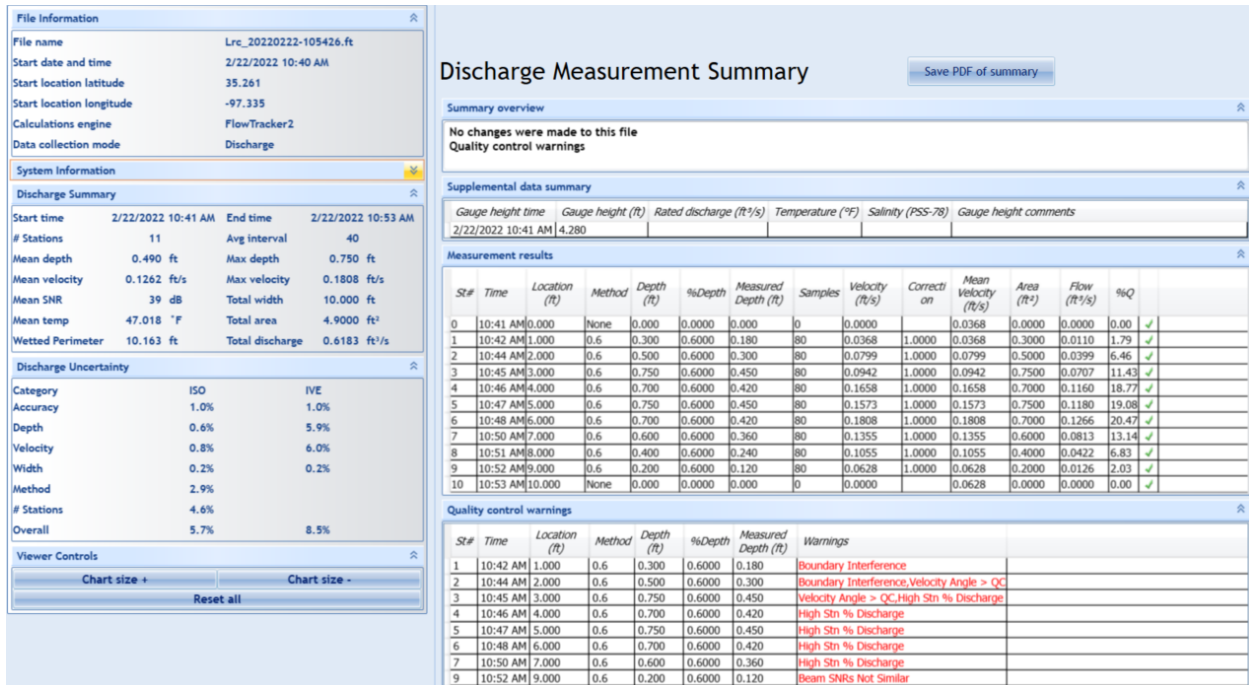
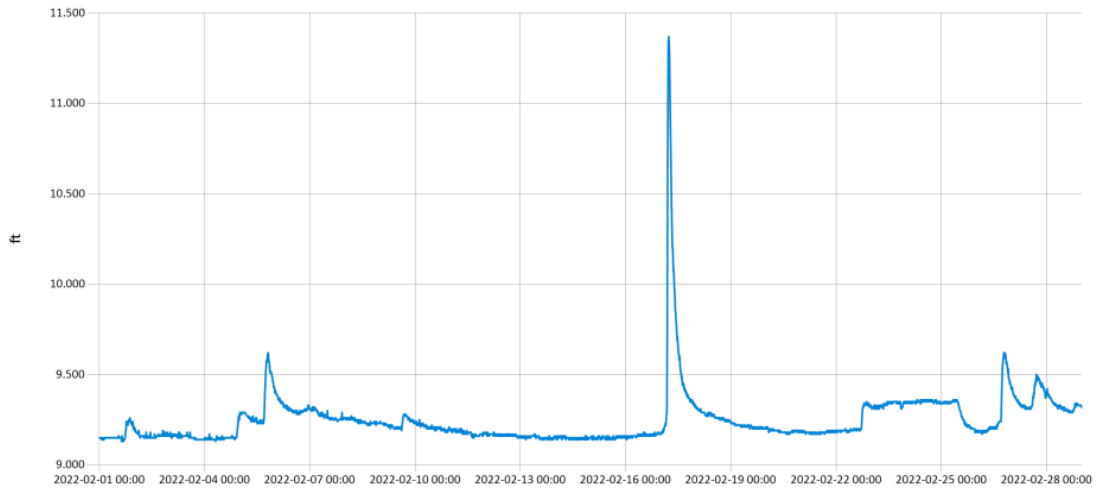


Figure 2 Discharge Measurement Summary LRC-1

Period Selected: 2022-02-01 00:00 - 2022-02-28 23:59

UTC Offs et: -06:00

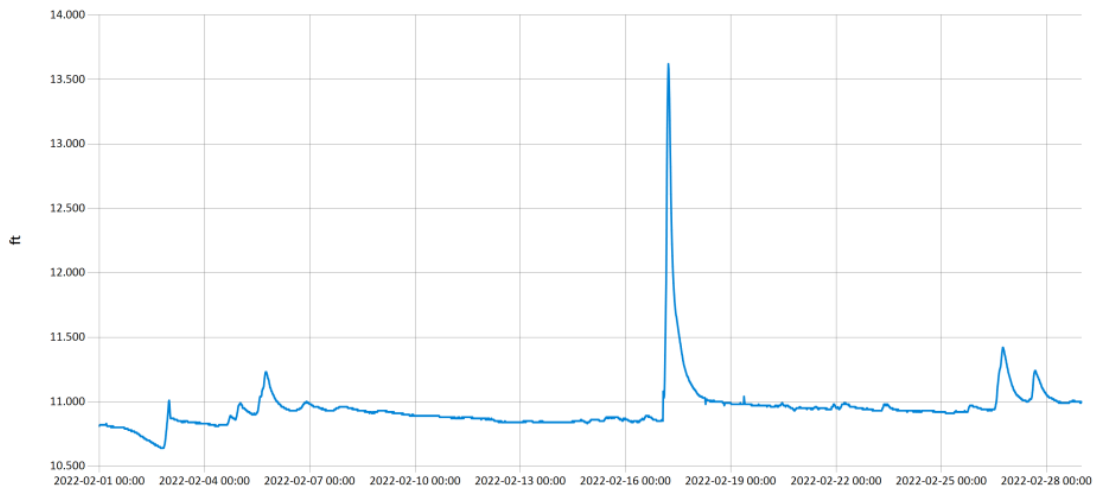


— Stage@TG

Figure 3 Monthly Hydrograph TG-1

Period Selected: 2022-02-01 00:00 - 2022-02-28 23:59

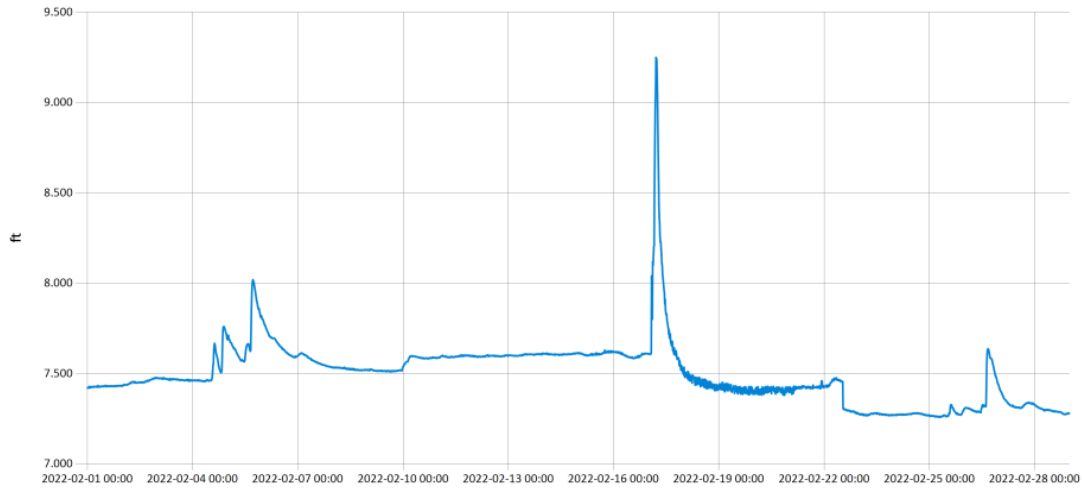
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— Stage@TE

Figure 4 Monthly Hydrograph TE-1

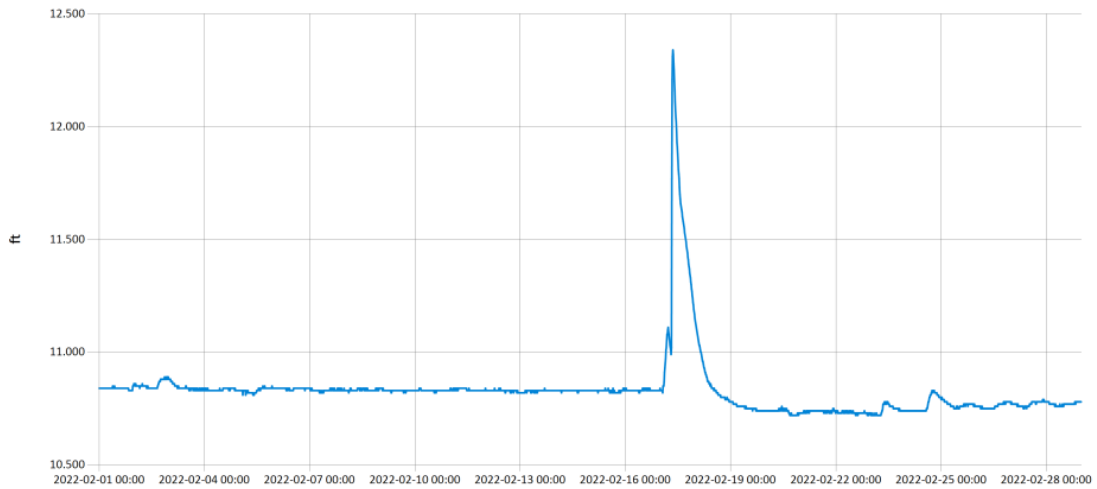
Period Selected: 2022-02-01 00:00 - 2022-02-28 23:59 UTC Offs et: -06:00



— Stage@WC

Figure 5 Monthly Hydrograph WC-1

Period Selected: 2022-02-01 00:00 - 2022-02-28 23:59 UTC Offs et: -06:00

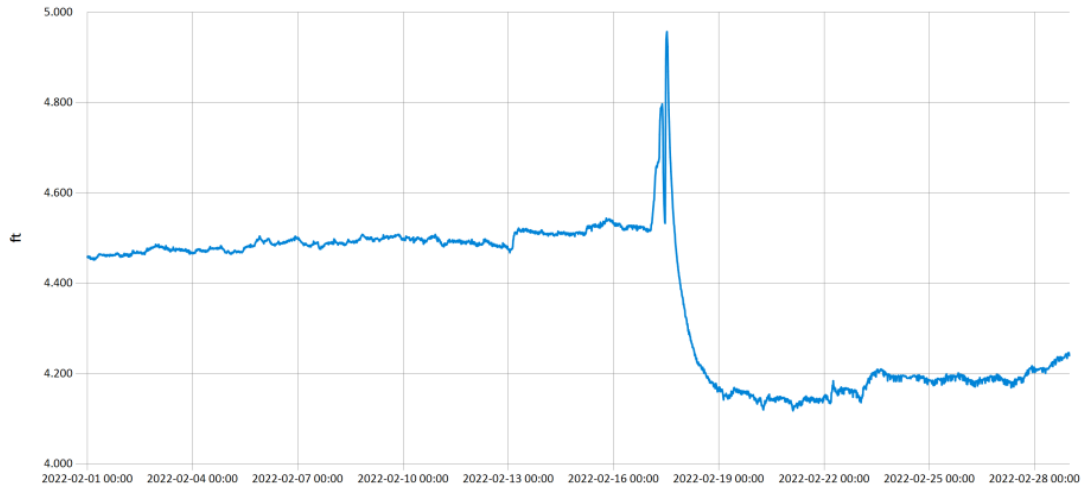


— Stage@URC

Figure 6 Monthly Hydrograph URC-2

Period Selected: 2022-02-01 00:00 - 2022-02-28 23:59

UTC Offs et: -06:00

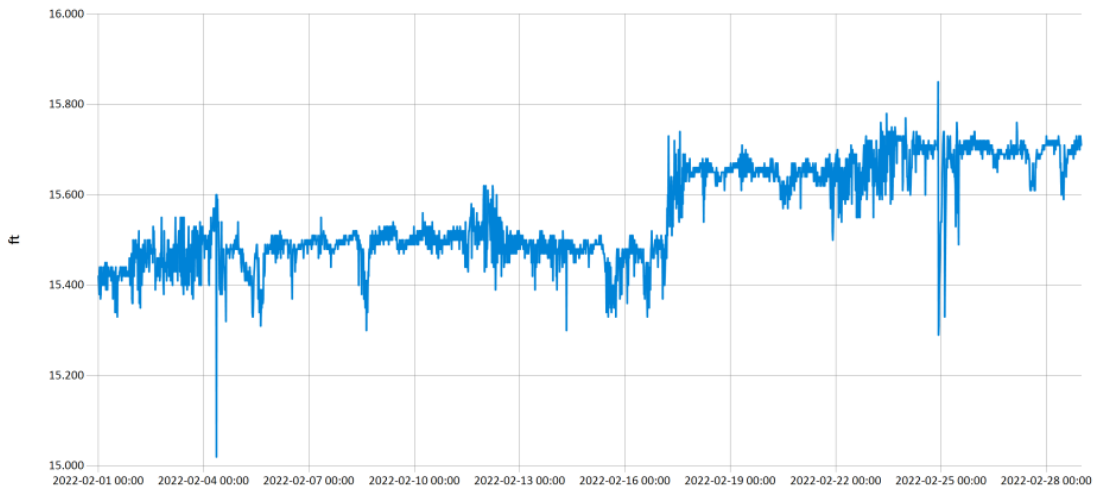


— Stage@LRC

Figure 7 Monthly Hydrograph LRC-1

Period Selected: 2022-02-01 00:00 - 2022-02-28 23:59

UTC Offs et: -06:00

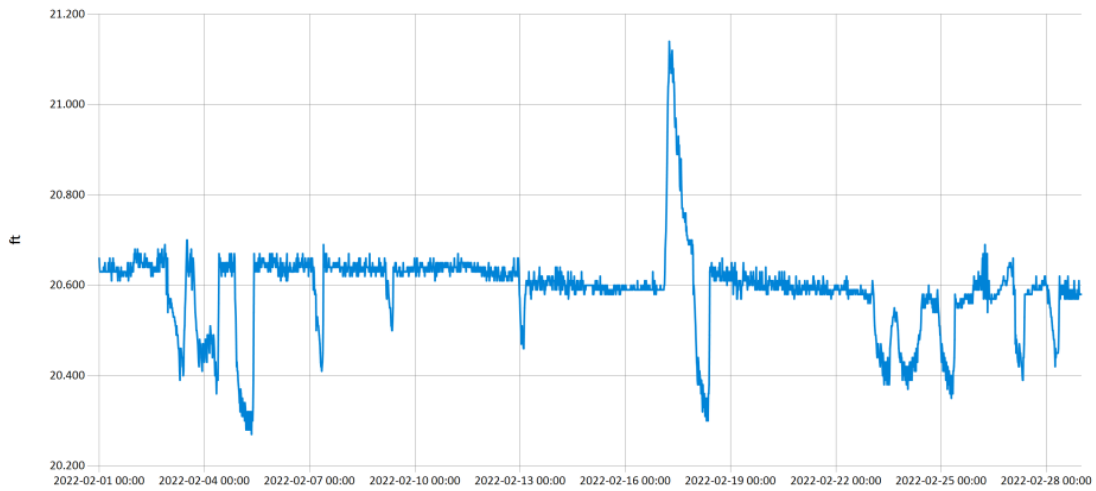


— Stage@LDB

Figure 8 Monthly Hydrograph LDB-1

Period Selected: 2022-02-01 00:00 - 2022-02-28 23:59

UTC Offs et: -06:00

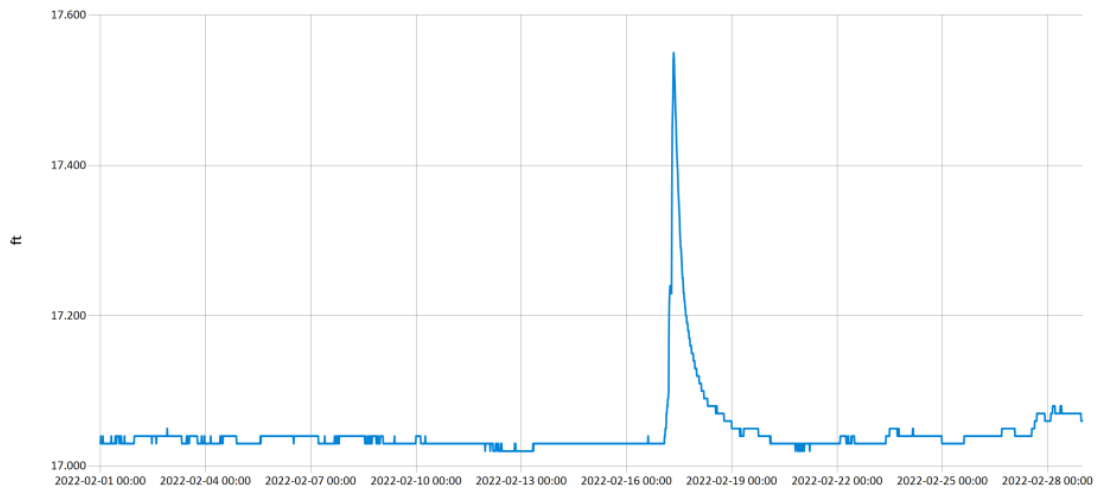


— Stage@CC

Figure 9 Monthly Hydrograph CC-1

Period Selected: 2022-02-01 00:00 - 2022-02-28 23:59

UTC Offs et: -06:00



— Stage@UDB

Figure 10 Monthly Hydrograph UDB-1

MESONET CLIMATOLOGICAL DATA SUMMARY				February 2022				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 ²)	4" SOIL TEMPERATURES			
	MAX	MIN	AVG	DEWPT	HDD	CDD	MAX	MIN	AVG	(in)	STN	MSL	DIR	AVG	MAX	SOD	BARE		MAX	MIN		
1	62	42	55.0	47.9	13	0	91	61	78	0.00	28.58	29.82	SSE	11.2	26.6	7.17	46.3	49.8	53	48		
2	42	17	26.2	23.4	36	0	95	84	89	0.00	28.81	30.06	N *	NA	30.0*	2.09	43.5	44.2	50	41		
3	17	14	15.3	10.5	50	0	86	77	81	0.00	29.02	30.28	N	18.2	31.6	5.45	40.3	39.6	41	39		
4	31	12	21.2	10.7	44	0	88	37	65	0.08	29.27	30.54	N	8.3	23.2	16.08	40.0	38.1	39	37		
5	44	14	30.1	16.9	36	0	93	33	62	0.12	29.10	30.36	S	7.4	22.2	16.20	39.1	36.8	37	36		
6	49	27	36.4	24.3	27	0	86	47	62	0.02	28.94	30.19	S	6.7	18.0	14.47	39.0	36.2	38	36		
7	57	25	40.9	25.0	24	0	87	29	57	0.01	29.09	30.35	SSW	7.1	19.9	15.90	39.4	38.6	45	35		
8	65	34	47.6	25.4	15	0	63	21	45	0.00	28.85	30.11	SSW	8.9	28.9	16.31	41.4	40.8	47	36		
9	68	29	48.5	21.0	17	0	78	14	40	0.00	28.82	30.07	WNW	5.6	18.8	16.20	41.4	41.8	49	37		
10	63*	37*	50.3*	28.6*	15*	0*	66*	28*	44*	0.00*	28.80*	30.05*	NNW*	5.8*	20.0*	NA	43.1*	44.2*	51*	40*		
11	65	41	51.9	29.2	12	0	57	24	43	0.00	28.68	29.92	NNE	11.7	30.9	15.51	44.1	45.3	52	40		
12	46	26	33.9	10.6	29	0	52	24	38	0.00	29.17	30.43	N	13.3	39.2	15.86	43.0	44.1	48	40		
13	57	29	41.2	16.8	22	0	58	22	39	0.00	29.08	30.34	NNW	7.0	17.8	16.88	41.6	42.3	50	37		
14	71	36	53.0	20.8	12	0	54	14	32	0.00	28.92	30.17	S	7.7	18.9	17.02	43.1	45.6	54	38		
15	69	44	56.7	34.8	8	0	59	27	45	0.00	28.74	29.98	S	15.3	37.7	16.02	45.7	49.3	55	44		
16	74	57	62.8	51.2	0	0	89	42	67	0.00	28.53	29.77	S	14.4	32.9	8.49	49.1	53.1	57	50		
17	62	21	30.7	24.5	23	0	98	59	78	0.91	28.85	30.10	N	18.4	43.6	5.36	45.5	44.9	55	39		
18	50	17	33.3	16.4	32	0	93	24	56	0.00	29.06	30.32	SSW	5.1	17.2	18.03	41.2	39.6	45	36		
19	64	27	46.4	26.0	20	0	81	24	48	0.00	29.05	30.30	S	5.9	18.8	17.99	42.8	42.8	51	37		
20	69	43	54.8	27.7	9	0	68	21	37	0.00	28.73	29.97	S	13.8	31.6	16.80	45.1	44.8	50	40		
21	71	50	61.3	49.6	4	0	94	44	67	0.05	28.50	29.74	S	13.4	47.6	11.30	48.3	49.9	55	46		
22	62	18	27.8	14.6	25	0	84	40	58	0.00	28.87	30.12	NNW	18.2	36.5	17.76	45.9	45.9	54	40		
23	20	12	14.7	7.5	49	0	88	55	73	0.00	29.13	30.39	NNE	15.1	31.7	4.80	39.1	35.8	40	34		
24	23	14	18.8	15.8	47	0	93	81	88	0.00	29.00	30.26	NNE	8.5	19.4	5.36	36.8	33.2	34	33		
25	31	14	23.1	11.2	43	0	82	42	62	0.02	29.24	30.50	NNE	8.2	20.7	15.63	35.6	32.0	33	31		
26	38	22	29.6	19.5	35	0	79	53	66	0.16	29.15	30.41	NNE	5.1	14.3	12.08	36.0	32.4	33	32		
27	55	22	38.0	17.0	27	0	82	17	48	0.16	29.12	30.39	NW	4.8	13.0	19.69	36.8	36.7	44	33		
28	67	27	48.1	22.0	18	0	71	19	39	0.02	28.98	30.24	SSW	6.3	16.0	17.11	38.7	40.7	48	35		
	53*	27*	39.2*	23.2*	<- Monthly Averages ->				28.93*	30.19*	S	10.0*	47.6*	13.39*	41.8*	41.7*	47*	38*				
Temperature - Highest: 74*				Degree Days - Total HDD: 691*				Number of Days With:				Tmax ≥ 90: 0*				Rainfall ≥ 0.01 inch: 10*						
Lowest: 12*				Total CDD: 0*				Tmax ≤ 32: 5*				Rainfall ≥ 0.10 inch: 4*										
Rainfall: Monthly Total: 1.55* in.				Humidity - Highest: 98*				Tmin ≤ 32: 19*				Avg Wind Speed ≥ 10 mph: 11*										
Greatest 24 Hr: 0.91* in.				Lowest: 14*				Tmin ≤ 0: 0*				Max Wind Speed ≥ 30 mph: 11*										

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* Denotes incomplete record

Figure 11 February Mesonet Data