
***Lake Thunderbird TMDL Monitoring Plan Implementation:
Sample Year (SY) 2020- March Report***



SY2020 Monthly Report

Lake Thunderbird TMDL Monitoring Plan Implementation:

March 2020 Monitoring Report

Oklahoma Water Resources Board
Water Quality Programs Division
Monitoring and Assessment Section
3800 N. Classen, Oklahoma City, Oklahoma 73118
405-530-8800

Contact

Sarah Dexter, Project Leader, sarah.dexter@owrb.ok.gov
Jason Murphy, Project Supervisor, jason.murphy@owrb.ok.gov
Lance Phillips, Streams Program Manager, lance.phillips@owrb.ok.gov
Bill Cauthron, Monitoring Coordinator, bill.cauthron@owrb.ok.gov

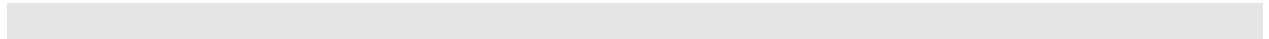


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SUMMARY OF MARCH WATER QUALITY SAMPLING

Sampling for March 2020 occurred over two days and was considered a high flow collection. Water samples were collected from all seven stormwater outfalls, in addition to URC-2 via autosampler, on the fourteenth. Four monitoring stations, TE-1, LRC-1, LDB-1, and JB-1 were collected via autosampler on the seventeenth. Mesonet data shows 0.40 inches of precipitation in the 72 hours prior to sampling, and 0.46 inches of precipitation occurring on the fourteenth. There was 0.13 inches of precipitation in between the two sampling events, 1.31 inches of precipitation on the seventeenth, and 0.65 inches of precipitation in the 72 hours after the sampling event. The total rainfall amount in Norman for the month of March was 4.58 inches. All water level gauges were operational for the month, except for LT-1 due to equipment malfunction.

RESULTS

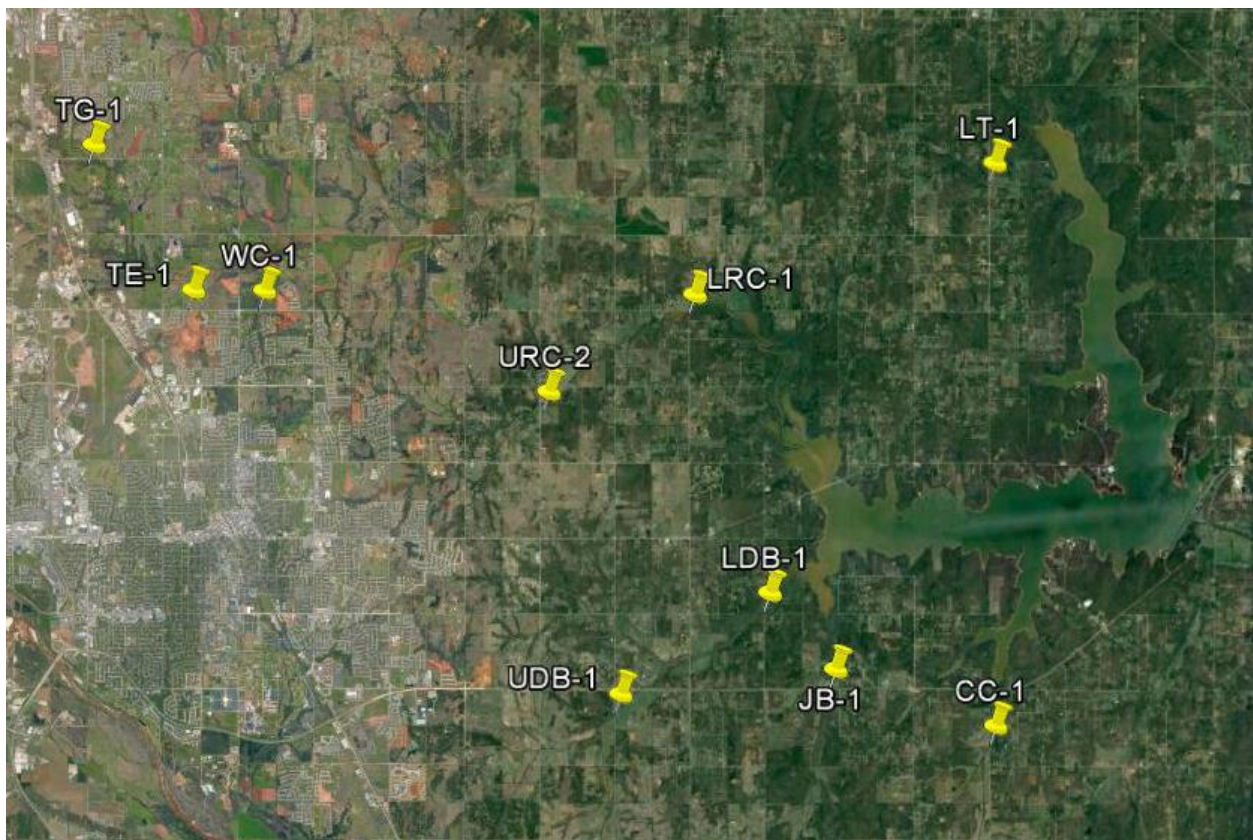


Figure 1 Monitoring Station Map

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
JB-1	Jim Blue Creek	03-17-2020	20:00	SD	*	*	7.68	163	1000	Collected at 16.61, peak at 23:00 @ 16.91
LDB-1	Lower Dave Blue Creek	03-17-2020	22:15	SD	*	*	7.82	406	1000	Collected at 18.46, peak at 23:15 (local time) @ 18.88
LRC-1	Lower Rock Creek	03-17-2020	23:15	SD	*	*	7.61	211	1000	Collected at peak (24.20)
TE-1	Little River Tributary	03-17-2020	20:15	SD	*	*	7.73	251	702	Collected at 14.31, peak at 21:15 @14.76
URC-2	Upper Rock Creek	03-14-2020	12:25	SD	10.3	10.29	7.97	424	241	Sampled from curent conditions. Collected at peak (13.10)
SW-01	Stormwater Outfall 01	03-14-2020	10:15	SD	*	*	7.72	845	138	Current channel higher than w hen bottles filled
SW-02	Stormwater Outfall 02	03-14-2020	10:55	SD	12.7	9.76	7.66	234	24	Sampled from current conditions
SW-03	Stormwater Outfall 03	03-14-2020	11:10	SD	*	*	7.92	563	67	Sonde reading from half sample w ater, half current conditions
SW-04	Stormwater Outfall 04	03-14-2020	10:35	SD	8.8	11.07	7.63	256	434	Sampled from current conditions
SW-05	Stormwater Outfall 05	03-14-2020	11:25	SD	9.9	9.40	7.56	489	80	Sampled from current conditions
SW-06	Stormwater Outfall 06	03-14-2020	11:35	SD	12.1	8.63	8.01	631	11	Collected from pool upstream
SW-07	Stormwater Outfall 07	03-14-2020	12:00	SD	*	*	8.05	216	97	

Table 1 Field Data Form Where an Asterisk Denotes a Sample from an Autosampler

Monitoring Location ID	Monitoring Location Name	Nitrate and Nitrite (mg/l)	Kjeldahl Nitrogen (mg/l)	Phosphorus (mg/l)	Total Suspended Solids (mg/l)
JB-1	Jim Blue Creek	0.19	8.02	1.755	1200
LDB-1	Lower Dave Blue Creek	0.13	4.31	1.070	1220
LRC-1	Lower Rock Creek	0.17	6.92	2.180	3680
TE-1	Little River Tributary	0.45	1.34	0.407	504
URC-2	Upper Rock Creek	0.34	1.31	0.186	240
SW-01	Stormwater Outfall 01	0.20	1.13	0.203	715
SW-02	Stormwater Outfall 02	0.47	1.78	0.146	36.0
SW-03	Stormwater Outfall 03	0.23	1.39	0.259	214
SW-04	Stormwater Outfall 04	0.73	1.33	0.223	104
SW-05	Stormwater Outfall 05	1.16	1.15	0.191	56.0
SW-06	Stormwater Outfall 06	<0.05	0.38	0.017	20.0
SW-07	Stormwater Outfall 07	0.75	1.24	0.217	170

Table 2 Laboratory Analysis Summary

Monitoring Location ID	Monitoring Location Name	Discharge (cfs)	Stream Stage (ft)
JB-1	Jim Blue Creek	11.60	16.61
LDB-1	Lower Dave Blue Creek	196.80	18.46
LRC-1	Lower Rock Creek	150.00	24.20
TE-1	Little River Tributary	126.80	14.31
URC-2	Upper Rock Creek	6.05	13.10

Table 3 Station Discharge Summary

Period Selected: 2020-03-01 00:00 - 2020-03-31 23:59

UTC Off. et: -06:00

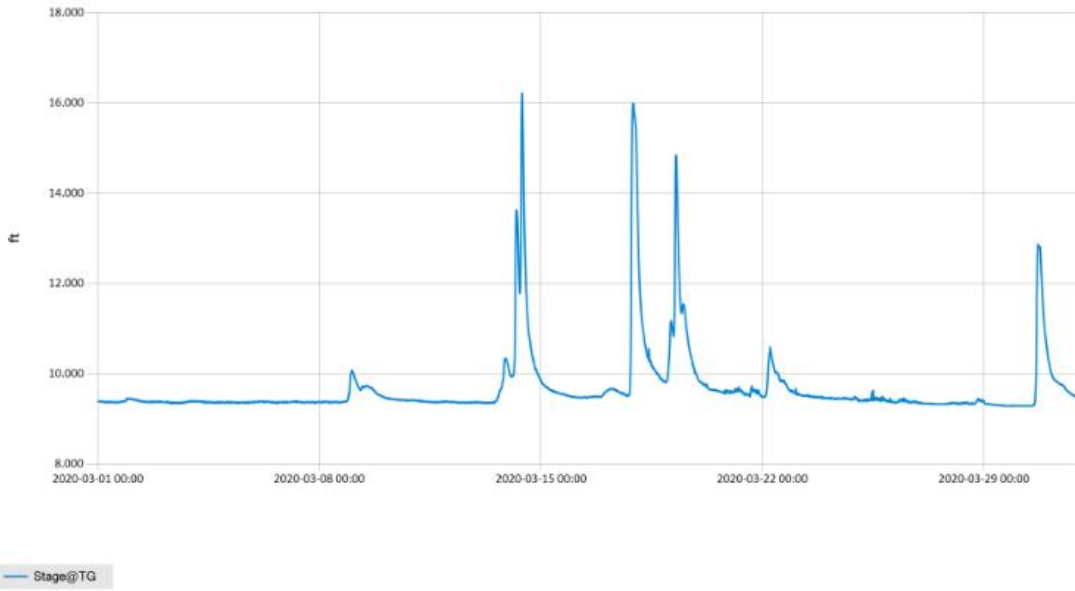


Figure 2 Monthly Hydrograph TG-1

Period Selected: 2020-03-01 00:00 - 2020-03-31 23:59

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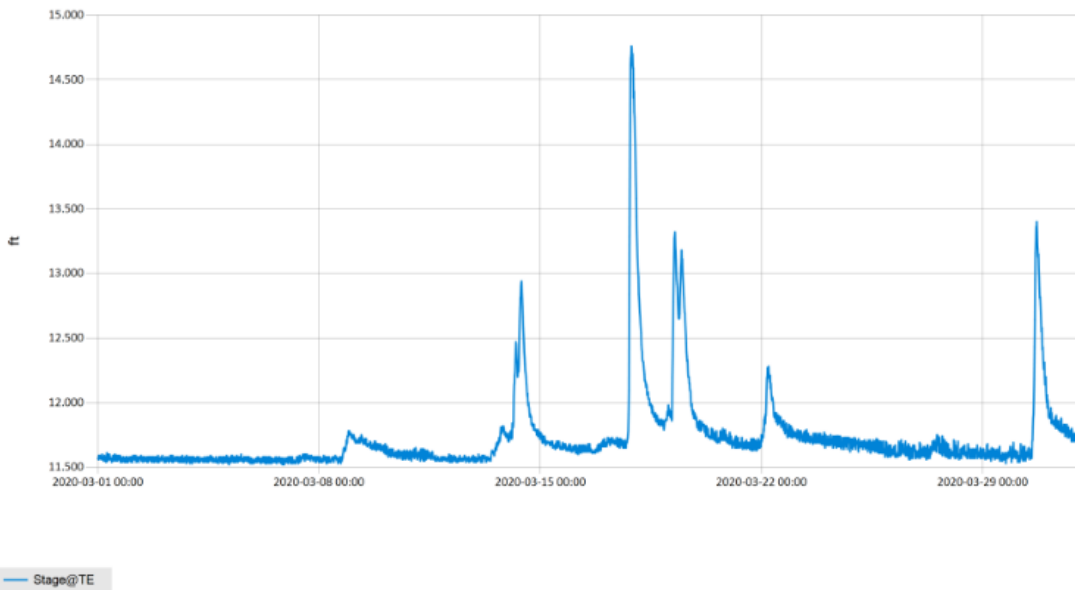


Figure 3 Monthly Hydrograph TE-1

Period Selected: 2020-03-01 00:00 - 2020-03-31 23:59

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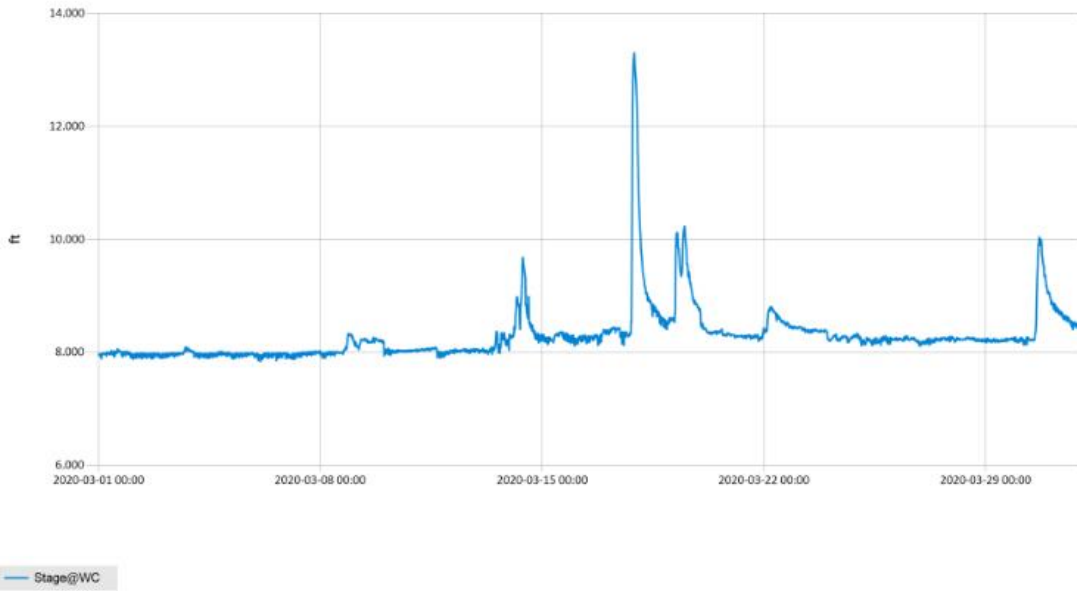


Figure 4 Monthly Hydrograph WC-1

Period Selected: 2020-03-01 00:00 - 2020-03-31 23:59

UTC Off. et: -06:00

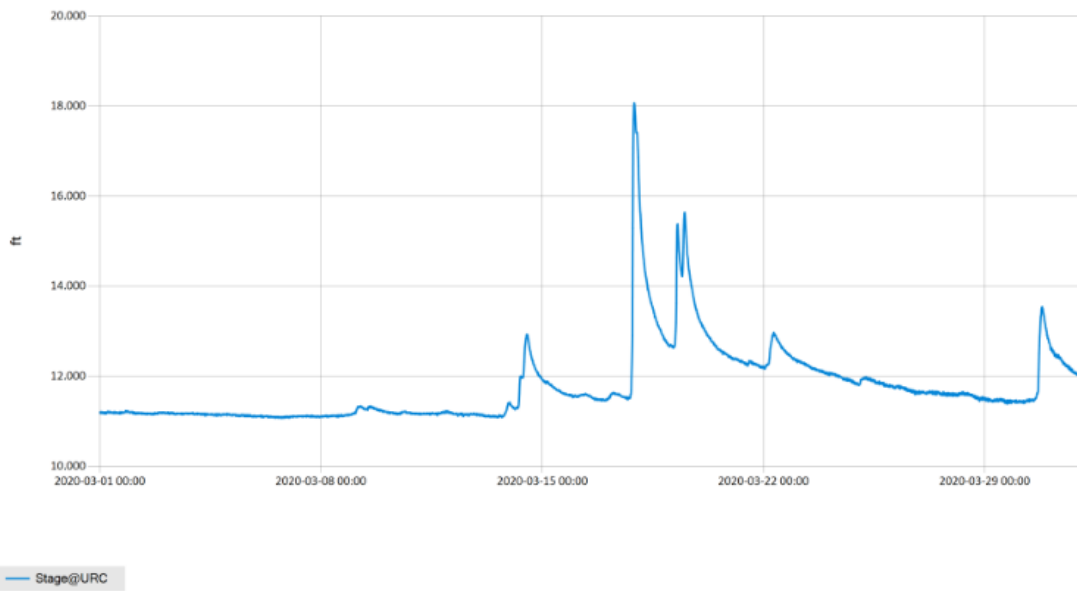


Figure 5 Monthly Hydrograph URC-2

Period Selected: 2020-03-01 00:00 - 2020-03-31 23:59

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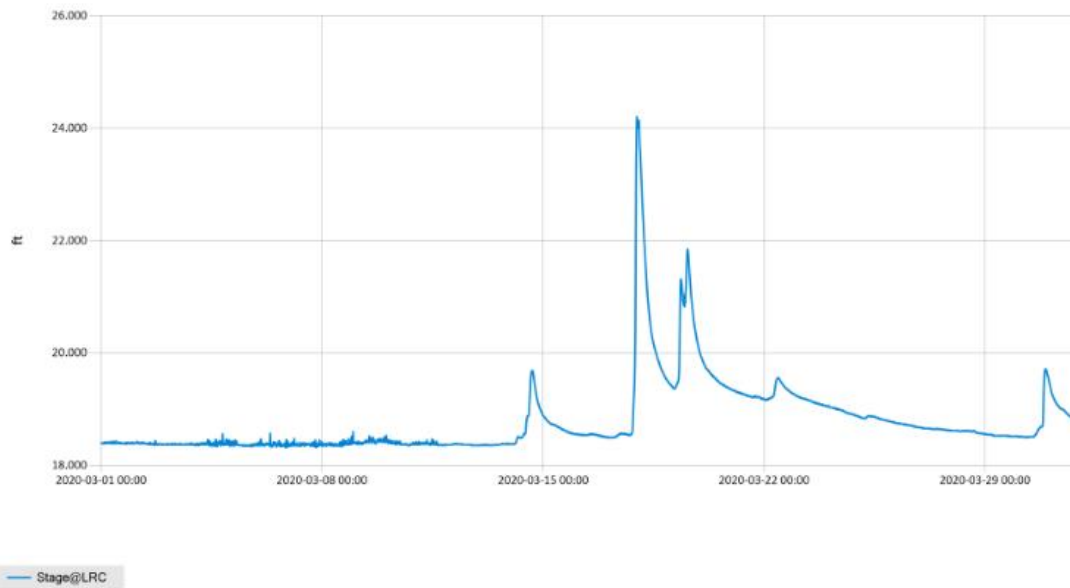


Figure 6 Monthly Hydrograph LRC-1

Period Selected: 2020-03-01 00:00 - 2020-03-31 23:59

UTC Offset: -06:00

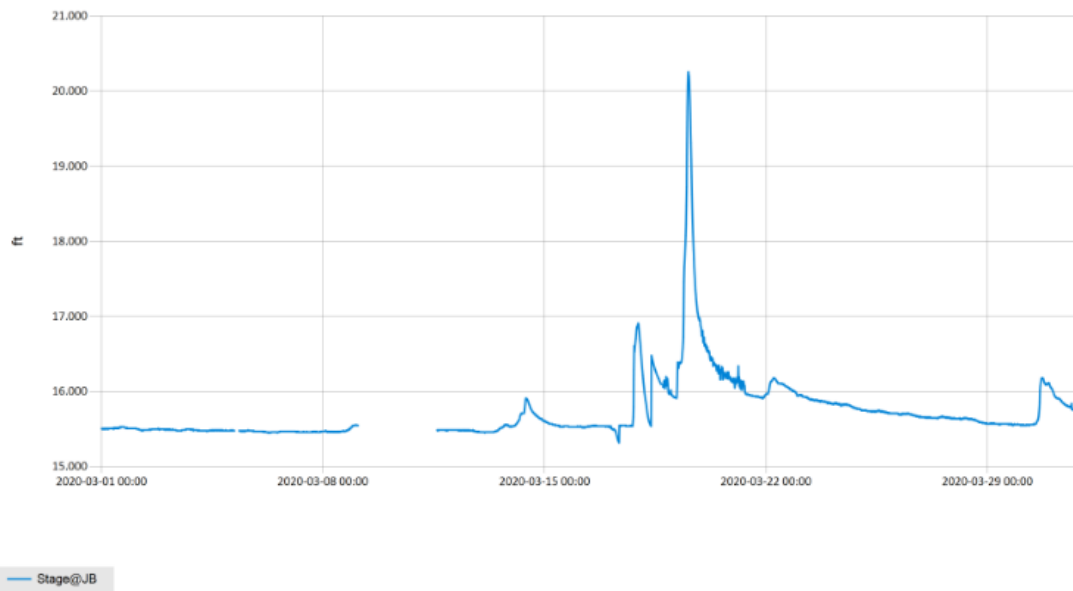


Figure 7 Monthly Hydrograph JB-1

Period Selected: 2020-03-01 00:00 - 2020-03-31 23:59

UTC Off. et. -06:00

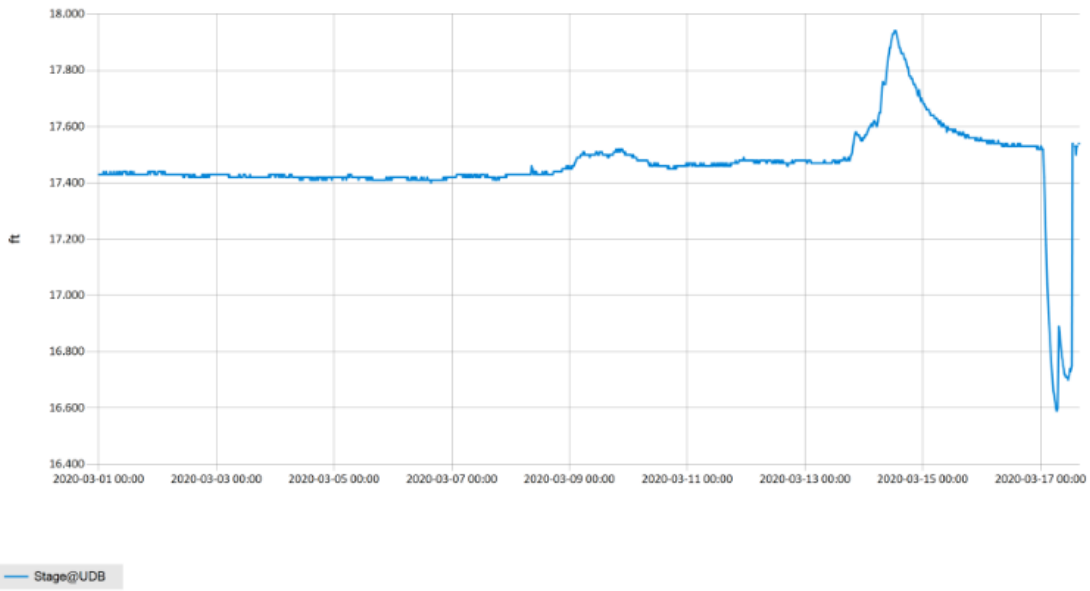


Figure 8 Monthly Hydrograph UDB-1

Period Selected: 2020-03-01 00:00 - 2020-03-31 23:59

UTC Off. et. -06:00

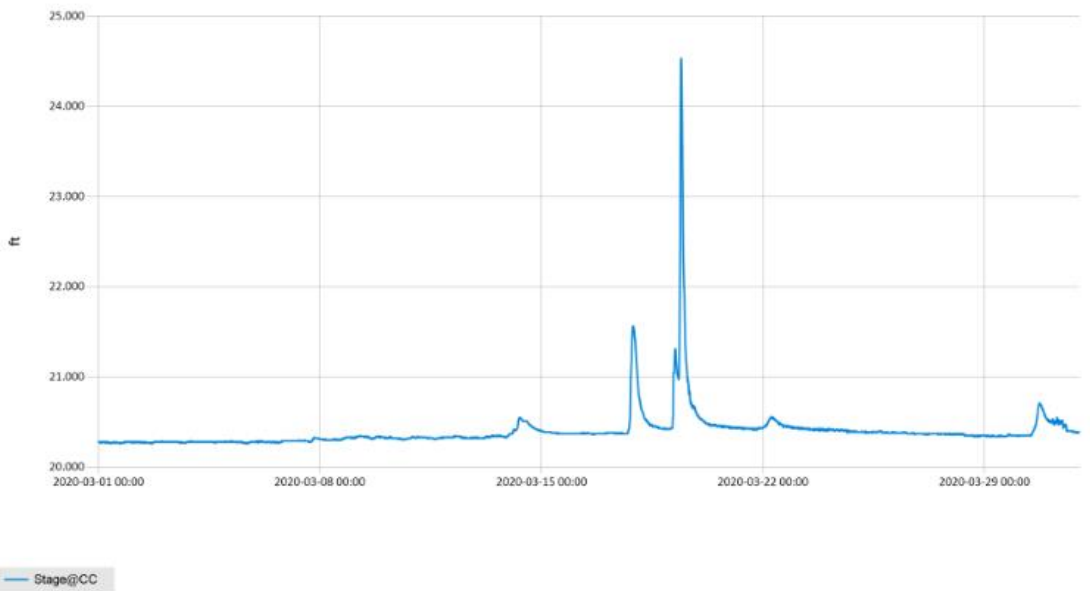


Figure 9 Monthly Hydrograph CC-1

Period Selected: 2020-03-01 00:00 - 2020-03-31 23:59

UTC Off. et. -06:00

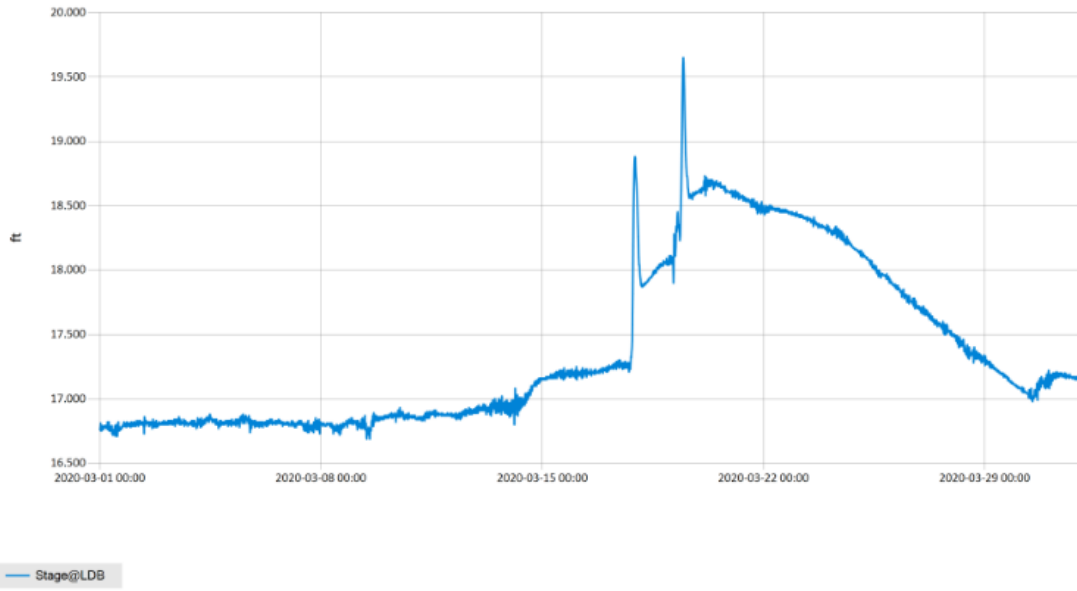


Figure 10 Monthly Hydrograph LDB-1

MESONET CLIMATOLOGICAL DATA SUMMARY				March 2020				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		STN	MSL	DIR	AVG	MAX	SOD		BARE	MAX	MIN	
1	79	45	61.7	40.5	3	0	84	16	51	0.00	28.49	29.73	S	12.2	30.0	19.75	49.5	55.3	63	50	
2	58	42	48.6	38.6	15	0	90	50	69	0.00	28.54	29.78	N	7.0	22.7	16.67	49.0	53.5	59	48	
3	68	41	53.3	36.9	10	0	89	27	58	0.00	28.61	29.86	NE	5.1	17.7	13.60	48.9	52.9	59	48	
4	58	41	50.7	32.1	16	0	73	28	50	0.00	28.78	30.02	NE	6.8	23.3	5.13	49.0	52.0	54	49	
5	68	30	49.0	28.4	16	0	94	19	51	0.00	29.01	30.27	N	8.8	30.5	20.92	47.5	50.7	58	43	
6	65	28	48.4	21.1	18	0	75	16	38	0.00	29.22	30.48	SE	4.7	14.9	21.50	47.0	51.4	60	43	
7	69	38	53.7	24.3	11	0	49	19	33	0.00	29.04	30.30	SSE	11.1	29.4	20.31	47.9	52.8	60	46	
8	58	45	52.2	44.1	14	0	95	43	75	0.26	28.88	30.14	S	12.9	32.3	5.02	48.6	51.9	54	49	
9	74	41	58.5	50.5	8	0	93	50	76	0.08	28.79	30.04	S	14.1	35.1	17.26	52.4	55.3	61	52	
10	75	38	55.2	43.9	9	0	97	37	70	0.00	28.93	30.19	SSE	6.4	18.9	20.31	51.5	53.5	62	46	
11	77	60	67.6	55.5	0	4	89	45	67	0.00	28.68	29.93	SSE	7.5	23.1	16.07	55.6	60.7	67	56	
12	84	57	68.8	47.3	0	6	82	20	51	0.00	28.56	29.80	N	12.0	30.9	19.72	57.2	63.5	72	57	
13	57	44	47.4	42.4	14	0	98	57	84	0.40	28.85	30.10	ENE	12.6	28.1	2.64	53.9	56.2	63	51	
14	51	42	46.1	44.2	18	0	98	82	93	0.46	28.94	30.19	NNE	9.2	20.8	6.06	51.3	51.5	54	49	
15	46	41	43.4	42.0	22	0	99	86	95	0.01	29.10	30.36	NNE	9.4	21.0	5.65	50.2	50.7	52	49	
16	56	45	51.2	50.5	15	0	100	89	98	0.12	28.90	30.15	ESE	4.5	14.1	4.12	50.8	51.7	54	49	
17	56	49	52.3	51.2	13	0	100	86	96	1.31	28.87	30.12	E	8.8	25.5	3.87	52.2	53.7	55	52	
18	76	55	64.8	61.2	0	0	99	66	89	0.12	28.66	29.90	SSW	9.5	26.0	12.97	55.5	57.7	64	53	
19	78	59	67.2	51.4	0	3	97	23	63	0.53	28.59	29.83	SW	12.6	42.5	17.02	58.9	62.0	66	59	
20	62	36	43.3	32.7	16	0	81	42	67	0.00	29.09	30.35	N	15.5	38.6	12.68	53.0	54.5	60	51	
21	57	30	43.4	30.1	21	0	91	34	62	0.11	29.10	30.36	NE	7.4	24.6	16.43	49.7	50.7	57	45	
22	56	45	51.1	49.6	14	0	98	86	95	0.24	28.84	30.09	SSW	5.6	15.3	4.43	51.4	52.5	54	51	
23	66	52	58.3	55.6	6	0	100	71	91	0.00	28.75	30.00	SSE	8.2	22.6	7.59	53.8	55.7	59	53	
24	70	50	61.8	55.1	5	0	99	58	80	0.00	28.61	29.85	N	7.7	24.3	22.83	57.4	61.3	67	57	
25	85	48	67.6	48.5	0	2	97	20	57	0.00	28.57	29.81	SSE	9.9	27.0	23.48	57.1	60.7	67	55	
26	93	63	77.2	59.1	0	13	84	28	57	0.00	28.44	29.68	SSW	11.4	27.3	23.16	60.5	63.4	69	58	
27	79	67	71.4	65.5	0	8	93	65	82	0.00	28.42	29.66	S	8.7	21.9	12.95	63.6	66.4	70	63	
28	71	51	64.8	40.6	4	0	90	19	46	0.01	28.54	29.78	WSW	15.1	35.8	23.01	62.0	62.6	65	57	
29	70	38	56.7	34.6	11	0	93	19	49	0.00	28.88	30.13	SSE	4.4	15.9	22.09	58.0	57.3	64	50	
30	62	50	53.4	46.5	9	0	97	45	79	0.89	28.81	30.06	ESE	7.6	25.7	2.87	56.6	55.6	58	55	
31	66	49	55.9	46.0	7	0	98	43	72	0.04	28.80	30.05	NNE	6.6	17.2	22.79	56.8	58.6	66	53	
	67	46	56.3	44.2	<- Monthly Averages ->							28.78	30.03	SSE	9.1	42.5	14.29	53.4	56.0	61	52
Temperature - Highest: 93				Degree Days - Total HDD: 296				Number of Days With:													
Lowest: 28				Total CDD: 35				Tmax ≥ 90: 1				Rainfall ≥ 0.01 inch: 14									
Rainfall: Monthly Total: 4.58 in.				Humidity - Highest: 100				Tmax ≤ 32: 0				Rainfall ≥ 0.10 inch: 10									
Greatest 24 Hr: 1.31 in.				Lowest: 16				Tmin ≤ 32: 3				Avg Wind Speed ≥ 10 mph: 10									
								Tmin ≤ 0: 0				Max Wind Speed ≥ 30 mph: 8									

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Monthly data generated at 2020-05-01 18:48:37 UTC

* Denotes incomplete record

Figure 11 March Mesonet Data