

Prepared by:
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Undergraduate research students (UNC Asheville):
N/A [no students were enrolled or employed in the summer session 2019]

Volunteer assistants (other):
Don Elliott (Waynesville Watershed Field Manager), Jonathan Miller

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Plans for the autumn months of 2019

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Status

Table 1: Gauge visits during the summer 2019 campaign. Comments: DD=gauge data download, MN=general gauge maintenance (cleaning, re-level), CA= rain gauge calibration, CV= vegetation clearing, and BR = data logger battery replacement.

Date	Gauges Visited	Technicians	Comments
7/3/2019	4; 107; 109	Doug, Jonathan	DD, MN, CV
7/6/2019	104; 110; 106	Doug	DD, MN, CV
7/10/2019	105, 111, 112, 311	Doug	DD, MN, CV
7/12/2019	101, 102, 103, 100T, 108	Doug	DD, MN, CV
7/15/2019	305, 309, 310, 10	Doug	DD, MN, CV
7/19/2019	303s, 306, 308	Doug	DD, MN, CV
7/24/2019	301, 302, 300	Doug	DD, MN, CV
7/29/2019	3; 11; 304, 307	Doug	DD, MN, CV
8/2/2019	2; 5; 8;	Doug	DD, MN, CV

Gauge visitation in support of the Duke Great Smoky Mountain Rain Gauge Network (GSMRGN) during the summer 2019 campaign occurred over nine days spanning a period of five weeks in July - August 2019. The primary purpose of the visits in the summer 2019 was [1] to perform downloads of gauge tip observations since the previous gauge visits in the spring 2019, [2] to complete rain gauge and data logger maintenance tasks, and [3] to clear vegetation and tree limbs. The field manager (Doug Miller) and two volunteers (listed on the front page) made the visits and performed the required work. It is important to note that the volunteers were NOT directly involved in any critical gauge visit tasks, but were volunteering primarily to assist with personal safety should someone get injured during a particular series of gauge visits.

The general tasks completed at **every** gauge visit consist of (1) gauge data download from the data loggers [DD in Table 1], (2) general gauge maintenance and ML1 logger condition monitoring [MN in Table 1], and (3) clear vegetation within a five foot radius of the rain gauge [CV in Table 1]. The primary specialized task was the necessary data logger lithium battery replacement at six rain gauge locations (as indicated using a multimeter to test logger battery voltage after the spring 2019 visits), at gauges #311, #310, #010, #301, #302, and #008. We have had significant problems with ML1-420 loggers draining the lithium batteries down in a very short period of time. Task (1) merely required a serial port link between the field study laptop and the gauge data logger and consisted of pulling the data (often in files having raw [*].txt] and CSV formats) onto a desktop folder on the laptop, checking for completeness of the data, and comparing the data logger time and date to the actual GPS time and date (making a screen capture of the time comparison). The standard that has been chosen for this study is to maintain the clocks on Eastern Daylight Time, since most of the “warm” precipitation will be occurring during the season when EDT is in effect. Most ML1-FL data logger times have been adjusted (using “TA” command) during previous gauge visits to coincide with the EDT given by the GPS locator. Unfortunately, the recent problems with the data logger at g #310 (near the fire tower on Mt. Sterling) continued during the summer visit, with a full recovery of observations made during the 2018/2019 (10 November 2018 – 9 May 2019) winter unsuccessful using the “dur/+” command used to dump the entire contents of the data logger. It is possible the logger will need replacing during the autumn 2019 visit. The data logger at g #110 (Hawkins) still ran fast compared to the GPS time. Hence, the “TA” was reset (using the “TA=<cr>” command) and will need to be re-set during the autumn 2019 visit. The “TA” command at g #307

(Balsam Mtn Trail) was reset to '+1 sec every 56-h' by the WinComLog software, which will put the logger time way behind the GPS time by the time of the next visit in autumn 2019. The "TA=<cr>" command was used in the logger at g #112 since it was reset to '-1 sec every 5-h' by the WinComLog software, which (again) would have put the logger time way behind the GPS time by the time of the next visit in the autumn 2019. Task (2) required the cleaning of debris from the funnel filter, cleaning the tipping buckets of debris (if necessary), cleaning the gauge drain ports and siphon, re-leveling the gauge if it has come unlevelled, and fixing or replacing the gauge mesh if it had been damaged. New stainless steel nuts replaced the older, rusting nuts at gauges #111, #103, and #101, where the original threads of the connector bolt openings in the rain gauge base had become stripped. Task (3) consisted of cutting briars, other vegetation, and tree limbs during the summer season within a five foot radius of the gauge using clippers, weeding by hand, a hand-saw, or extension saw. Locations g311 and g308 will need a rope saw and slingshot to clean limbs from almost overhead during the autumn 2019 visit and location g008 will need the extension saw to clear limbs that are not quite (but almost) encroaching on the overhead field of view. The rain gauge calibration test using the 100mm nozzle at g301 (Mt. Guyot) was completed during the summer 2019 visit.

The primary challenges encountered during some of the gauge visits in the summer 2019 centered around the 'quirky' nature of the data loggers, particularly of the ML1-420 loggers. No data was lost between the spring and summer 2019 gauge visits at any of the rain gauge locations, however, continuous coverage will continue to be a challenge between the autumn and spring visits at a handful of gauges having the ML1-420 loggers. It is likely these will have to be gradually replaced over the next two years of the study. It should be noted that a new Davis Pro weather station has been installed near the Mount Sterling fire tower, next to g310. The owner of the weather station (and data) at Duke Power has yet to respond to repeated inquiries about the sharing of weather data helpful in discerning the source of bucket tips (falling rain or melting ice/snow).

Details of every gauge visit along with raw precipitation text and CSV format files are found via Google Drive https://drive.google.com/open?id=1xQ2i6l9kxL5D5Um-BYnVoQ_4sWfxUOa which contains sub-folders for each gauge that consist of the individual data files (often having at least two different formats), pictures taken at the gauge site during the visit, screenshots of the GPS (laptop) and ML1 logger time comparison, and a MS Word document that mirrors the notes made in the field journal during each visit.

Noteworthy precipitation events of March – June 2019 as observed at KAVL are highlighted in yellow in **Appendix A**. The months of April and June 2019 registered above-normal monthly precipitation amounts, helping to push Calendar Year 2019 accumulated precipitation amounts to above normal levels, continuing the trend from 2018. Through the end of June 2019, the total observed accumulated precipitation amounts at KAVL were comparable to what had been observed at the end of June 2018 (a year of record rainfall).

Table 2: Planned gauge visits during the autumn 2019 campaign. DD=gauge data download, MN=general gauge maintenance (cleaning, re-level), CA= rain gauge calibration, CV= vegetation clearing, and BR = data logger battery replacement.

Date	Gauges Visited	Technicians	Comments
?? Oct 2019	3; 11; 10, 4	Doug + 1 technician	DD, MN, CV, BR
?? Oct 2019	107, 109, 104, 108	Doug + 1 technician	DD, MN, CV, BR
?? Oct 2019	110, 105, 111, 112	Doug + 1 technician	DD, MN, CV, BR
?? Oct 2019	304, 307	Doug + 2 technicians	DD, MN, CV, BR
?? Oct 2019	101, 102, 103, 100T	Doug + 1 technician	DD, MN, CV, BR
?? Nov 2019	303s, 306, 308	Doug + 2 technicians	DD, MN, CV, BR
?? Nov 2019	305, 309, 310	Doug + 2 technicians	DD, MN, CV, BR
?? Nov 2019	311;	Doug + 1 technician	DD, MN, CV, BR
?? Nov 2019	2; 5; 8; 106	Doug + 1 technician	DD, MN, CV, BR
?? Nov 2019	301, 302, 300	Doug + 2 technicians	DD, MN, CV, BR

Gauge visitation in support of the Duke GSMRGN during the autumn 2019 will occur over at least ten days spanning October and November 2019. The primary purpose of the visits will be to download precipitation observations that were made since the previous gauge visits in July - August 2019 [DD in Table 2], perform maintenance and check if the ML1 logger times have drifted between visits and make the corresponding needed adjustments [MN in Table 2], clear vegetation (and tree branches) from overhanging gauges [CV in Table 2], and replace ALL logger lithium batteries in anticipation of the cold wintry weather that provides challenging conditions to the smooth operation of lithium batteries. Gauge parts and loggers may have to be replaced during some of the visits if less-than-acceptable conditions show no signs of improvement, as noted in the previous section description.

Details of every gauge visit along with each gauge precipitation record will be posted online and shall contain sub-folders for each gauge that consist of the individual data files (often having at least two different formats), pictures taken at the gauge site during the visit, screenshots of the GPS (laptop) and ML1 logger time comparison, and a MS Word document that mirrors the notes made in the field journal during the visit.

The technician roster during the 2018-2019 academic year consisted of Meredith Avison, Marlee Burgess, Lyn Comer, Alex Flynt, Andrew Hill, Alice Monroe, Tyler Moore, Carly Narotsky, Zachary Tuggle. New undergraduate research students at UNC Asheville will be recruited as field technicians for the Duke GSMRGN project in the autumn 2019 as Alex, Tyler, Carly, and Zachary have graduated from UNC Asheville.

Table 3: The Duke Great Smoky Mountain Rain Gauge Network is currently (valid as of 20 May 2019) composed of 32 tipping bucket rain gauges.

Gauge #	Location	Latitude	Longitude	Altitude
RG002	Lickstone Bald	35°25.5' N	82°58.2' W	5680 ft.
RG003	High Top	35°23.0' N	82°54.9' W	5280 ft.
RG004	Lickstone Ridge S	35°22.0' N	82°59.4' W	6305 ft.
RG005	Deep Gap	35°24.5' N	82°57.8' W	4986 ft.
RG008	Double Summer Gap	35°22.9' N	82°58.4' W	5700 ft.
RG010	Beaty Summer Gap	35°27.3' N	82°56.8' W	4849 ft.
RG011	near Deep Gap	35°23.7' N	82°54.9' W	4081 ft.
RG100T	Purchase Knob	35°35.1' N	83°04.3' W	4905 ft.
RG101	The Swag	35°34.5' N	83°05.2' W	4986 ft.
RG102	Hemphill Bald	35°33.8' N	83°06.2' W	5365 ft.
RG103	JR Property	35°33.2' N	83°07.0' W	5539 ft.
RG104	Cat. Ski Area	35°33.2' N	83°05.2' W	5208 ft.
RG105	KH Property	35°38.0' N	83°02.4' W	4412 ft
RG106	Pinnacle Ridge	35°25.9' N	83°01.7' W	3969 ft
RG107	Lookout Point	35°34.0' N	82°54.4' W	4459 ft
RG108	Utah Mountain	35°33.2' N	82°59.3' W	4188 ft
RG109	Eaglesnest Ridge	35°29.7' N	83°02.4' W	4922 ft
RG110	JH Property	35°32.8' N	83°08.8' W	5128 ft
RG111	Hurricane Ridge	35°43.7' N	82°56.8' W	4573 ft
RG112	Ore Knob	35°45.0' N	82°57.8' W	3884 ft
RG300	Camel Hump Knob	35°43.5' N	83°13.0'W	5110 ft
RG301	Mt Guyot	35°42.3'N	83°15.3'W	6570 ft
RG302	Snake Den Ridge	35°43.2'N	83°14.8'W	6104 ft
RG303s	Mt Cammerer	35°45.7'N	83°09.7'W	4887 ft
RG304	Big Cataloochee	35°40.2'N	83°10.9'W	5971 ft

RG305	Mt Sterling 1	35°41.4'N	83°07.9'W	5349 ft
RG306	Sunup Knob	35°44.7'N	83°10.2'W	5039 ft
RG307	Balsam Mountain	35°39.0'N	83°11.9'W	5327 ft
RG308	Cosby Knob	35°43.8' N	83°10.9'W	4826 ft
RG309	Mt Sterling 2	35°40.9'N	83°09.0'W	5262 ft
RG310	Mt Sterling 3	35°42.1'N	83°07.3'W	5761 ft
RG311	Big Creek	35°45.9'N	83°08.4'W	3398 ft

Appendix A

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

WFO Monthly/Daily Climate Data

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 CXUS52 KGSP 081253
 CF6AVL
 PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: ASHEVILLE NC
 MONTH: MARCH
 YEAR: 2019
 LATITUDE: 35 25 N
 LONGITUDE: 82 33 W

TEMPERATURE IN F:					:PCPN:			SNOW:		WIND			:SUNSHINE:			SKY		:PK WND	
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18	
				DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR	
				AVG	MAX	MIN	AVG	12Z		AVG	MX	2MIN							
1	57	47	52	9	13	0	0.45	0.0	0	3.6	16	330	M	M	8	12	19	330	
2	64	43	54	10	11	0	0.00	0.0	0	10.8	21	340	M	M	7	1	27	340	
3	53	40	47	3	18	0	0.42	0.0	0	6.7	25	340	M	M	10	1	33	340	
4	40	28	34	-10	31	0	0.00	0.0	0	16.5	30	340	M	M	7		35	340	
5	40	25	33	-11	32	0	0.00	0.0	0	14.4	24	340	M	M	4		32	330	
6	40	20	30	-15	35	0	0.00	0.0	0	12.1	23	330	M	M	0		30	340	
7	53	27	40	-5	25	0	0.00	0.0	0	8.9	17	340	M	M	5		22	330	
8	46	38	42	-3	23	0	0.39	T	0	5.8	21	160	M	M	10	148	26	160	
9	48	40	44	-1	21	0	0.15	0.0	0	6.5	16	170	M	M	10	12	19	160	
10	74	42	58	12	7	0	0.20	0.0	0	5.8	18	310	M	M	3	12	26	300	
11	58	45	52	6	13	0	T	0.0	0	8.8	21	340	M	M	3		30	350	
12	63	37	50	4	15	0	0.00	0.0	0	5.5	20	330	M	M	0		25	340	
13	62	36	49	3	16	0	0.00	0.0	0	6.3	16	180	M	M	1		23	140	
14	60	49	55	9	10	0	0.14	0.0	0	6.9	17	180	M	M	10	18	22	170	
15	71	43	57	10	8	0	0.44	0.0	0	10.4	23	360	M	M	5	13	37	10	
16	50	34	42	-5	23	0	0.00	0.0	0	15.3	30	330	M	M	0		40	340	
17	57	32	45	-2	20	0	0.00	0.0	0	7.0	18	340	M	M	0		21	340	
18	51	30	41	-7	24	0	0.00	0.0	0	9.7	26	330	M	M	0		34	340	
19	52	28	40	-8	25	0	0.00	0.0	0	2.9	10	170	M	M	0		13	170	
20	59	27	43	-5	22	0	0.00	0.0	0	2.1	12	180	M	M	0		16	170	
21	54	36	45	-3	20	0	0.13	0.0	0	M	24	350	M	M	M	1	32	340	
22	61	37	49	0	16	0	0.00	0.0	0	16.1	32	330	M	M	2		41	340	
23	62	36	49	0	16	0	0.00	0.0	0	9.5	23	340	M	M	0		31	330	
24	69	32	51	2	14	0	0.00	0.0	0	6.4	20	210	M	M	0		27	210	
25	64	43	54	5	11	0	0.14	0.0	0	4.1	20	340	M	M	4	1	27	340	
26	56	41	49	-1	16	0	0.00	0.0	0	7.9	17	330	M	M	9		22	340	
27	57	30	44	-6	21	0	0.00	0.0	0	3.2	12	170	M	M	1	12	16	170	
28	66	30	48	-2	17	0	0.00	0.0	0	3.8	14	160	M	M	0		18	150	
29	72	37	55	5	10	0	0.00	0.0	0	3.4	16	190	M	M	0		22	200	
30	73	49	61	10	4	0	0.00	0.0	0	7.8	24	190	M	M	2		32	180	
31	63	37	50	-1	15	0	0.17	0.0	0	15.9	30	340	M	M	5	1	41	340	
SM	1795	1119			552	0	2.63	T		244.1			M		106				
AV	57.9	36.1								8.1	FASTST		M	M	4		MAX (MPH)		
										MISC	---->	# 32 330					# 41	340	

NOTES:
 # LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: ASHEVILLE NC
MONTH: MARCH
YEAR: 2019
LATITUDE: 35 25 N
LONGITUDE: 82 33 W

[TEMPERATURE DATA] [PRECIPITATION DATA] SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 47.0 TOTAL FOR MONTH: 2.63 1 = FOG OR MIST
DPTR FM NORMAL: -0.1 DPTR FM NORMAL: -1.20 2 = FOG REDUCING VISIBILITY
HIGHEST: 74 ON 10 GRTST 24HR 0.45 ON 1- 1 TO 1/4 MILE OR LESS
LOWEST: 20 ON 6 SNOW, ICE PELLETS, HAIL 3 = THUNDER
TOTAL MONTH: T 4 = ICE PELLETS
GRTST 24HR T ON 8- 8 5 = HAIL
GRTST DEPTH: 0 6 = FREEZING RAIN OR DRIZZLE
7 = DUSTSTORM OR SANDSTORM:
VSBY 1/2 MILE OR LESS
8 = SMOKE OR HAZE
9 = BLOWING SNOW
X = TORNADO
[NO. OF DAYS WITH] [WEATHER - DAYS WITH]
MAX 32 OR BELOW: 0 0.01 INCH OR MORE: 10
MAX 90 OR ABOVE: 0 0.10 INCH OR MORE: 10
MIN 32 OR BELOW: 11 0.50 INCH OR MORE: 0
MIN 0 OR BELOW: 0 1.00 INCH OR MORE: 0

[HDD (BASE 65)]
TOTAL THIS MO. 552 CLEAR (SCALE 0-3) 17
DPTR FM NORMAL -3 PTCLDY (SCALE 4-7) 8
TOTAL FM JUL 1 3358 CLOUDY (SCALE 8-10) 5
DPTR FM NORMAL -414

[CDD (BASE 65)]
TOTAL THIS MO. 0
DPTR FM NORMAL -1 [PRESSURE DATA]
TOTAL FM JAN 1 2 HIGHEST SLP 30.44 ON 19
DPTR FM NORMAL 1 LOWEST SLP 29.59 ON 3

[REMARKS]
#FINAL-03-19#

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CXUS52 KGSP 010817
CF6AVL
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: ASHEVILLE NC
MONTH: APRIL
YEAR: 2019
LATITUDE: 35 25 N
LONGITUDE: 82 33 W

Table with columns: TEMPERATURE IN F, :PCPN:, SNOW:, WIND, :SUNSHINE:, SKY, :PK WND. Rows 1-4 showing daily data for April 2019.

5	60	50	55	3	10	0	0.38	0.0	0	4.4	20	170	M	M	10	1	24	190
6	73	53	63	10	2	0	0.00	0.0	0	3.4	13	170	M	M	7		17	150
7	71	55	63	10	2	0	0.01	0.0	0	5.9	15	180	M	M	5		19	170
8	72	55	64	11	1	0	0.87	0.0	0	4.5	18	200	M	M	6	13	28	200
9	72	53	63	9	2	0	0.06	0.0	0	4.5	15	330	M	M	6	123	21	330
10	79	50	65	11	0	0	0.00	0.0	0	7.1	20	330	M	M	0		25	330
11	74	50	62	8	3	0	0.00	0.0	0	8.2	21	170	M	M	6		29	170
12	75	61	68	14	0	3	0.06	0.0	0	9.4	20	190	M	M	5	1	31	140
13	77	57	67	12	0	2	0.01	0.0	0	5.2	15	150	M	M	6	3	23	140
14	70	57	64	9	1	0	2.21	0.0	0	13.7	31	180	M	M	8	13	47	190
15	58	42	50	-5	15	0	T	0.0	0	16.6	30	320	M	M	1		39	340
16	75	37	56	1	9	0	0.00	0.0	0	5.8	16	190	M	M	0		21	190
17	81	42	62	6	3	0	0.00	0.0	0	5.8	20	190	M	M	0		24	200
18	75	59	67	11	0	2	T	0.0	0	10.9	23	160	M	M	4		31	140
19	66	50	58	2	7	0	5.29	0.0	0	9.7	22	180	M	M	9	138	33	150
20	53	40	47	-9	18	0	0.02	0.0	0	10.3	21	200	M	M	7		26	200
21	60	41	51	-6	14	0	0.00	0.0	0	9.0	21	350	M	M	5		26	360
22	77	40	59	2	6	0	0.00	0.0	0	6.9	22	340	M	M	0		29	320
23	84	45	65	8	0	0	0.00	0.0	0	3.5	17	350	M	M	0		22	340
24	84	56	70	12	0	5	0.00	0.0	0	5.4	15	340	M	M	0		18	330
25	74	53	64	6	1	0	0.02	0.0	0	5.8	20	210	M	M	2		26	220
26	69	55	62	4	3	0	0.04	0.0	0	14.7	35	330	M	M	5	1	46	300
27	75	46	61	3	4	0	0.00	0.0	0	8.0	20	190	M	M	1		27	200
28	80	50	65	6	0	0	0.00	0.0	0	5.5	22	290	M	M	1		27	290
29	77	50	64	5	1	0	0.00	0.0	0	5.5	20	170	M	M	2		24	180
30	84	52	68	9	0	3	0.00	0.0	0	4.7	16	170	M	M	1	1	23	130

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SM 2143 1436 169 15 8.97 0.0 217.8 M 102

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AV 71.4 47.9 7.3 FASTST M M 3 MAX(MPH)

MISC ----> # 35 330 # 47 190

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NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: ASHEVILLE NC
 MONTH: APRIL
 YEAR: 2019
 LATITUDE: 35 25 N
 LONGITUDE: 82 33 W

[TEMPERATURE DATA]

AVERAGE MONTHLY: 59.7
 DPTR FM NORMAL: 4.5
 HIGHEST: 84 ON 30,24
 LOWEST: 30 ON 1

[PRECIPITATION DATA]

TOTAL FOR MONTH: 8.97
 DPTR FM NORMAL: 5.64
 GRSTST 24HR 5.29 ON 19-19
 SNOW, ICE PELLETS, HAIL
 TOTAL MONTH: 0.0 INCH
 GRSTST 24HR 0.0
 GRSTST DEPTH: 0

SYMBOLS USED IN COLUMN 16

1 = FOG OR MIST
 2 = FOG REDUCING VISIBILITY
 TO 1/4 MILE OR LESS
 3 = THUNDER
 4 = ICE PELLETS
 5 = HAIL
 6 = FREEZING RAIN OR DRIZZLE
 7 = DUSTSTORM OR SANDSTORM:
 VSBY 1/2 MILE OR LESS
 8 = SMOKE OR HAZE
 9 = BLOWING SNOW
 X = TORNADO

[NO. OF DAYS WITH]

MAX 32 OR BELOW: 0
 MAX 90 OR ABOVE: 0
 MIN 32 OR BELOW: 2
 MIN 0 OR BELOW: 0

[WEATHER - DAYS WITH]

0.01 INCH OR MORE: 11
 0.10 INCH OR MORE: 4
 0.50 INCH OR MORE: 3
 1.00 INCH OR MORE: 2

[HDD (BASE 65)]

TOTAL THIS MO. 169 CLEAR (SCALE 0-3) 15
 DPTR FM NORMAL -131 PTCLDY (SCALE 4-7) 12

TOTAL FM JUL 1 3527 CLOUDY (SCALE 8-10) 3
 DPTR FM NORMAL -545

[CDD (BASE 65)]
 TOTAL THIS MO. 15
 DPTR FM NORMAL 8 [PRESSURE DATA]
 TOTAL FM JAN 1 17 HIGHEST SLP 30.37 ON 4
 DPTR FM NORMAL 9 LOWEST SLP 29.35 ON 19

[REMARKS]
 #FINAL-04-19#

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 CXUS52 KGSP 012158
 CF6AVL

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: ASHEVILLE NC
 MONTH: MAY
 YEAR: 2019
 LATITUDE: 35 25 N
 LONGITUDE: 82 33 W

TEMPERATURE IN F:		:PCPN:		SNOW:		WIND		:SUNSHINE:		SKY		:PK WND							
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18	
								12Z		AVG MX		2MIN							
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR	
1	80	59	70	11	0	5	0.00	0.0	0	7.0	16	180	M	M	0		22	200	
2	82	58	70	10	0	5	0.00	0.0	0	4.9	17	180	M	M	2		24	170	
3	79	54	67	7	0	2	0.01	0.0	0	4.5	16	170	M	M	3		23	150	
4	78	59	69	9	0	4	0.34	0.0	0	2.3	17	310	M	M	6	13	23	320	
5	73	59	66	6	0	1	0.72	0.0	0	9.1	22	340	M	M	6	1	29	350	
6	76	55	66	5	0	1	0.00	0.0	0	5.3	14	340	M	M	5		18	330	
7	75	53	64	3	1	0	0.31	0.0	0	3.8	12	170	M	M	3		17	150	
8	80	58	69	8	0	4	0.00	0.0	0	5.4	15	200	M	M	4	12	19	190	
9	76	62	69	8	0	4	T	0.0	0	8.2	15	180	M	M	5		22	160	
10	78	62	70	8	0	5	0.54	0.0	0	5.6	17	170	M	M	9	1	22	160	
11	70	61	66	4	0	1	1.26	0.0	0	2.9	12	180	M	M	9	13	16	200	
12	74	61	68	6	0	3	0.03	0.0	0	8.0	18	360	M	M	6	1	23	350	
13	68	52	60	-2	5	0	T	0.0	0	12.4	25	340	M	M	3		32	340	
14	65	48	57	-6	8	0	0.00	0.0	0	12.7	26	340	M	M	2		34	340	
15	67	44	56	-7	9	0	0.00	0.0	0	5.7	14	190	M	M	5		18	200	
16	79	46	63	0	2	0	0.00	0.0	0	1.9	9	330	M	M	2	12	13	320	
17	85	55	70	7	0	5	0.14	0.0	0	4.9	17	330	M	M	1	1	22	340	
18	85	56	71	7	0	6	0.00	0.0	0	3.4	15	170	M	M	1		20	170	
19	84	60	72	8	0	7	0.00	0.0	0	6.4	18	180	M	M	2	1	26	180	
20	84	60	72	8	0	7	0.00	0.0	0	5.0	18	340	M	M	2	1	23	340	
21	84	54	69	5	0	4	0.00	0.0	0	3.8	12	170	M	M	0		17	150	
22	78	58	68	3	0	3	0.00	0.0	0	5.3	15	150	M	M	3		21	170	
23	87	67	77	12	0	12	T	0.0	0	6.0	16	340	M	M	4	1	20	330	
24	88	61	75	10	0	10	0.00	0.0	0	5.6	17	340	M	M	0	1	23	350	
25	89	62	76	11	0	11	0.00	0.0	0	2.7	14	340	M	M	1		18	340	
26	90	60	75	9	0	10	0.00	0.0	0	4.5	14	310	M	M	0	1	19	330	
27	88	65	77	11	0	12	0.00	0.0	0	6.2	17	350	M	M	0		22	330	
28	91	59	75	9	0	10	0.00	0.0	0	3.4	16	320	M	M	0		20	330	
29	91	61	76	10	0	11	0.00	0.0	0	4.5	16	310	M	M	1		22	300	
30	91	61	76	9	0	11	0.00	0.0	0	5.4	22	210	M	M	1	8	28	220	
31	84	58	71	4	0	6	0.00	0.0	0	8.0	30	340	M	M	3		39	340	
SM	2499	1788				25	160	3.35	0.0	174.8			M			89			
AV	80.6	57.7								5.6	FASTST		M	M	3		MAX (MPH)		
											MISC ---->	#	30	340			#	39	340

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: ASHEVILLE NC
MONTH: MAY
YEAR: 2019
LATITUDE: 35 25 N
LONGITUDE: 82 33 W

[TEMPERATURE DATA] [PRECIPITATION DATA] SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 69.2 TOTAL FOR MONTH: 3.35 1 = FOG OR MIST
DPTR FM NORMAL: 6.0 DPTR FM NORMAL: -0.31 2 = FOG REDUCING VISIBILITY
HIGHEST: 91 ON 30,29 GRTST 24HR 1.64 ON 10-11 TO 1/4 MILE OR LESS
LOWEST: 44 ON 15 3 = THUNDER
SNOW, ICE PELLETS, HAIL 4 = ICE PELLETS
TOTAL MONTH: 0.0 INCH 5 = HAIL
GRTST 24HR 0.0 6 = FREEZING RAIN OR DRIZZLE
GRTST DEPTH: 0 7 = DUSTSTORM OR SANDSTORM:
VSBY 1/2 MILE OR LESS
8 = SMOKE OR HAZE
9 = BLOWING SNOW
X = TORNADO

[NO. OF DAYS WITH] [WEATHER - DAYS WITH]
MAX 32 OR BELOW: 0 0.01 INCH OR MORE: 8
MAX 90 OR ABOVE: 4 0.10 INCH OR MORE: 6
MIN 32 OR BELOW: 0 0.50 INCH OR MORE: 3
MIN 0 OR BELOW: 0 1.00 INCH OR MORE: 1

[HDD (BASE 65)]
TOTAL THIS MO. 25 CLEAR (SCALE 0-3) 19
DPTR FM NORMAL -84 PTCLDY (SCALE 4-7) 10
TOTAL FM JUL 1 3552 CLOUDY (SCALE 8-10) 2
DPTR FM NORMAL -629

[CDD (BASE 65)]
TOTAL THIS MO. 160
DPTR FM NORMAL 110 [PRESSURE DATA]
TOTAL FM JAN 1 177 HIGHEST SLP 30.27 ON 1
DPTR FM NORMAL 119 LOWEST SLP 29.66 ON 12

[REMARKS]
#FINAL-05-19#

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CXUS52 KGSP 011650
CF6AVL

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: ASHEVILLE NC
MONTH: JUNE
YEAR: 2019
LATITUDE: 35 25 N
LONGITUDE: 82 33 W

Table with columns: TEMPERATURE IN F, :PCPN:, SNOW:, WIND, :SUNSHINE:, SKY, :PK WND. Rows include hourly data (1-18) and summary statistics (DY MAX MIN AVG DEP HDD CDD WTR SNW DPTH SPD SPD DIR MIN PSBL S-S WX SPD DR).

1	82	56	69	2	0	4	0.00	0.0	0	7.3	20	340	M	M	2	26	350	
2	85	56	71	4	0	6	T	0.0	0	4.1	23	350	M	M	1	3	31	340
3	81	58	70	2	0	5	0.00	0.0	0	8.6	22	340	M	M	1		28	320
4	79	57	68	0	0	3	0.00	0.0	0	5.0	15	160	M	M	2		21	150
5	79	63	71	3	0	6	0.19	0.0	0	3.3	18	340	M	M	4	1	21	340
6	79	65	72	4	0	7	0.02	0.0	0	4.3	13	210	M	M	7	1	17	210
7	77	67	72	3	0	7	1.02	0.0	0	3.0	9	140	M	M	9	138	12	140
8	76	65	71	2	0	6	0.71	0.0	0	3.8	21	180	M	M	9	13	26	190
9	76	67	72	3	0	7	2.10	0.0	0	4.2	13	160	M	M	10	13	16	160
10	77	67	72	3	0	7	0.78	0.0	0	5.4	20	320	M	M	7	138	24	320
11	79	59	69	-1	0	4	0.00	0.0	0	8.5	23	340	M	M	2		29	320
12	72	56	64	-6	1	0	0.00	0.0	0	4.7	14	160	M	M	5		21	140
13	76	57	67	-3	0	2	0.00	0.0	0	6.8	20	340	M	M	4		26	310
14	79	50	65	-5	0	0	0.00	0.0	0	6.9	21	330	M	M	0		26	350
15	79	50	65	-5	0	0	0.00	0.0	0	6.3	17	190	M	M	2		21	200
16	86	61	74	3	0	9	0.00	0.0	0	5.3	17	190	M	M	1		24	190
17	85	65	75	4	0	10	0.45	0.0	0	4.2	24	340	M	M	3	13	30	340
18	81	66	74	3	0	9	0.32	0.0	0	3.9	15	170	M	M	8	13	19	180
19	82	68	75	4	0	10	0.04	0.0	0	5.2	20	350	M	M	7	3	29	330
20	83	64	74	2	0	9	0.02	0.0	0	6.1	20	310	M	M	3		27	330
21	82	63	73	1	0	8	0.00	0.0	0	8.2	22	330	M	M	1		28	330
22	84	64	74	2	0	9	0.59	0.0	0	6.1	29	340	M	M	1	13	36	340
23	83	65	74	2	0	9	0.00	0.0	0	4.5	14	200	M	M	4	3	18	160
24	87	66	77	5	0	12	0.66	0.0	0	6.9	30	300	M	M	5	123	45	300
25	81	61	71	-1	0	6	0.00	0.0	0	5.2	16	340	M	M	0		21	340
26	84	61	73	1	0	8	0.00	0.0	0	5.3	17	350	M	M	0		22	320
27	87	62	75	2	0	10	0.00	0.0	0	2.8	10	120	M	M	1		14	170
28	85	67	76	3	0	11	0.00	0.0	0	4.0	14	170	M	M	1		18	160
29	87	63	75	2	0	10	0.00	0.0	0	3.7	12	160	M	M	0		17	150
30	88	63	76	3	0	11	0.00	0.0	0	8.2	20	330	M	M	1		26	320

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=====
SM 2441 1852          1 205  6.90      0.0 161.8          M      101
=====
AV 81.4 61.7          5.4 FASTST  M      M      3      MAX(MPH)
                        MISC ----> # 30 300          # 45 300
=====

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NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: ASHEVILLE NC
MONTH: JUNE
YEAR: 2019
LATITUDE: 35 25 N
LONGITUDE: 82 33 W

[TEMPERATURE DATA]

[PRECIPITATION DATA]

SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 71.6
DPTR FM NORMAL: 1.1
HIGHEST: 88 ON 30
LOWEST: 50 ON 15,14

TOTAL FOR MONTH: 6.90
DPTR FM NORMAL: 2.25
GRTST 24HR 2.52 ON 9-10
SNOW, ICE PELLETS, HAIL
TOTAL MONTH: 0.0 INCH
GRTST 24HR 0.0
GRTST DEPTH: 0

1 = FOG OR MIST
2 = FOG REDUCING VISIBILITY
TO 1/4 MILE OR LESS
3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = FREEZING RAIN OR DRIZZLE
7 = DUSTSTORM OR SANDSTORM:
VSBY 1/2 MILE OR LESS
8 = SMOKE OR HAZE
9 = BLOWING SNOW
X = TORNADO

[NO. OF DAYS WITH]

[WEATHER - DAYS WITH]

MAX 32 OR BELOW: 0
MAX 90 OR ABOVE: 0
MIN 32 OR BELOW: 0
MIN 0 OR BELOW: 0

0.01 INCH OR MORE: 12
0.10 INCH OR MORE: 9
0.50 INCH OR MORE: 6
1.00 INCH OR MORE: 2

[HDD (BASE 65)]
TOTAL THIS MO. 1 CLEAR (SCALE 0-3) 17
DPTR FM NORMAL -13 PTCLDY (SCALE 4-7) 10
TOTAL FM JUL 1 3553 CLOUDY (SCALE 8-10) 3
DPTR FM NORMAL -642

[CDD (BASE 65)]
TOTAL THIS MO. 205
DPTR FM NORMAL 28 [PRESSURE DATA]
TOTAL FM JAN 1 382 HIGHEST SLP 30.25 ON 27
DPTR FM NORMAL 147 LOWEST SLP 29.73 ON 20

[REMARKS]
#FINAL-06-19#