

Prepared by:
Douglas K. Miller

Undergraduate research students (UNC Asheville):
Katy Hudson, Carly Narotsky

Volunteer assistants (other):
Don Elliott (Waynesville Watershed Field Manager), Mitch {NCSU intern}, Jonathan Miller, Maisy, Annie

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Plans for the autumn months of 2018

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Status

Table 1: Gauge visits during the summer 2018 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
7/2/2018	3; 11; 107; 109	Doug	DD, MN, CV
7/4/2018	4;	Doug, Maisy, Annie	DD, MN, CV
7/6/2018	10; 104; 106; 110	Doug	DD, MN, CV
7/9/2018	304, 307, 305, 309, 310	Doug	DD, MN, CV
7/13/2018	105, 111, 112, 311	Doug, Jonathan	DD, MN, CV
7/16/2018	303s, 306, 308	Doug, Carly	DD, MN, CV
7/20/2018	101, 102, 103, 100T, 108	Doug, Katy	DD, MN, CV
7/23/2018	301, 302, 300	Doug	DD, MN, CV
7/27/2018	2; 5; 8;	Doug, Don, Mitch	DD, MN, CV

Gauge visitation in support of the Duke Great Smoky Mountain Rain Gauge Network (GSMRGN) during the summer 2018 occurred over nine days spanning a period of four weeks in July 2018. The primary purpose of the visits in the summer 2018 was [1] to perform downloads of gauge tip observations since the previous gauge visits in the spring 2018, [2] to complete rain gauge and data logger maintenance tasks, and [3] to clear vegetation and tree limbs. Five technicians and volunteers and two dogs (listed on the front page) made the visits and performed the required work. It is important to note that the volunteers and dogs 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]. Specialized tasks were the (rare) required battery replacement (as indicated using a multimeter to test logger battery voltage) and the replacement of the gauge funnel at g110. 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. The ML1 logger at g110 continued to show significant time drift and a poor response using the TA command and will require replacement during the autumn 2018 visit if improvement isn’t noted. One attempt at a fix will be to remove the logger lithium battery and capacitor to ‘zero out’ the TA setting so it can be re-defined to a more reasonable setting other than ‘+1 sec every 1-h’. The lithium battery voltage of the ML1 logger at g304 (which had been replaced during the autumn 2017 visit) was found to have dropped to **0.04V** during the summer 2018 visit. Comparing the g304 rain record to that of nearby g307, the low-voltage logger was able to detect all precipitation events through 23 June 2018. Another data logger will have to be installed at g304 if the logger battery voltage shows a significant drop between summer and autumn 2018. The lithium battery voltage of the ML1 logger at g311 (which had been replaced during the autumn 2017 visit) was found to

have dropped to **0.05V** during the summer 2018 visit. Comparing the g311 rain record to that of nearby g303s, the low-voltage logger was able to detect all precipitation events through 2 June 2018. Another data logger will have to be installed at g311 if the logger battery voltage shows a significant drop between summer and autumn 2018. 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. Related to another defect at g110, the funnel threads appear to be compromised such that the rubber siphon attachment cannot easily (hand) screw into the funnel. The g110 funnel was replaced during the summer 2018 visit and will have a repair attempt at a local auto body shop (who fixed the g308 funnel cover after a tree had fallen on it). Liquid wrench was needed at g101 and g108 during the summer 2018 visit as the nut in one of the bolt ports had become rusty and is in need of replacement. It effectively loosened the nut and bolt at g101, but failed to help loosen the nut and bolt at g108. The latter may have to be cut off with a lock cutter and replaced. Task (3) consisted of cutting briars and other emerging vegetation during the spring season within a five foot radius of the gauge using clippers or weeding by hand. No overgrowth by vegetation was found at any rain gauge during the summer 2018 visit campaign. Erosion at g301 is becoming more severe and has started impacting the level of the gauge post. New small metal fences posts will be installed during the autumn 2018 visit to stabilize the gauge post and cement base to keep it level during the winter months (and beyond, hopefully!!) Two locations (g311 and g008) will need tree limbs cleared using an extension saw during the autumn 2018 visit. The lithium battery voltage of the ML1-420 and ML1-FL loggers was generally good (greater than 3.55 Volts) at all but two (g304, g311) of the gauge locations upon arrival during the summer months. However, lithium batteries at several other locations (g010, g103, g302, g301, g300, g008) were replaced as a precaution until batteries at ALL locations are replaced during the autumn 2018 gauge visit campaign.

Challenges encountered during some of the gauge visits in the summer 2018 were; (i) ant nests in g010, g112, and g103 due to the unusually wet weather experienced in May and July 2018 and (ii) the continued severe time drift at g110 which was seemingly unresponsive to the 'TA' command. Otherwise, the gauge network was functioning as smoothly as is possible. It should be noted that a new Davis Pro weather station has been installed near the Mount Sterling fire tower (which is now locked, but we have a functioning key!), next to g310. The owner of the weather station (and data) at Duke Power continues to be pursued so the observations can be used to help diagnose the phase of falling precipitation during the cool season.

Details of every gauge visit along with precipitation raw and CSV files (and some internal temperature and battery voltage files) can be found via Google Drive https://drive.google.com/open?id=1hhMpWFqd78f_96v1X-QeQg47WUgUsSqO 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 2018 as observed at KAVL are highlighted in yellow in **Appendix A**. Of particular interest for investigation is the record rainfall in the second half of May 2018.

Table 2: Planned gauge visits during the autumn 2018 campaign. DD=gauge data download, MN=general gauge maintenance (e.g., cleaning, re-level), CA= rain gauge calibration, CV= vegetation clearing, and BR = data logger battery replacement.

Date	Gauges Visited	Technicians	Comments
9/??/2018	3; 11; 107; 109	Doug + 1 field technician	DD, MN, CV, BR
10/??/2018	2; 5; 8; 106; 10	Doug + 1 field technician	DD, MN, CV, BR
10/??/2018	4; 104, 110, 105	Doug + 1 field technician	DD, MN, CV, BR
10/??/2018	108;	Doug + 1 field technician	DD, MN, CV, BR
10/??/2018	111, 112, 311	Doug + 1 field technician	DD, MN, CV, BR
10/??/2018	101, 102, 103, 100T	Doug + 1 field technician	DD, MN, CV, BR
11/??/2018	303s, 306, 308	Doug + 2 field technicians	DD, MN, CV, BR
11/??/2018	304, 307, 305, 309, 310	Doug + 2 field technicians	DD, MN, CV, BR
11/??/2018	301, 302, 300	Doug + 2 field technicians	DD, MN, CV, BR

Gauge visitation in support of the Duke GSMRGN during the autumn 2018 will occur over at least nine days spanning late September through mid-November 2018. The primary purpose of the visits will be to download precipitation observations that were made since the previous gauge visits in July 2018 [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 logger lithium and, for ML1-420 loggers, coin batteries that work to keep accurate time. 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 current technician roster during the 2018-2019 academic year consists of 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 fall 2019.

Table 3: The Duke Great Smoky Mountain Rain Gauge Network is currently (valid as of 28 July 2018) 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 012030
 CF6AVL

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

STATION: ASHEVILLE NC
 MONTH: MARCH
 YEAR: 2018
 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	62	49	56	13	9	0	1.05	0.0	0	8.2	31	330	M	M	9	1	44	340			
2	50	39	45	1	20	0	T	0.0	0	27.8	45	330	M	M	0		57	340			
3	50	33	42	-2	23	0	0.00	0.0	0	19.7	36	330	M	M	0		46	340			
4	61	34	48	4	17	0	0.00	0.0	0	11.0	20	350	M	M	0		25	350			
5	58	28	43	-1	22	0	0.00	0.0	0	1.9	10	190	M	M	2		12	190			
6	46	43	45	0	20	0	0.28	0.0	0	3.5	10	170	M	M	10	1	13	160			
7	43	32	38	-7	27	0	0.01	0.1	0	12.8	29	330	M	M	6	12	39	310			
8	43	29	36	-9	29	0	0.00	0.0	0	11.6	22	330	M	M	8		27	320			
9	52	26	39	-6	26	0	0.00	0.0	0	7.9	21	330	M	M	2		26	330			
10	56	30	43	-3	22	0	T	0.0	0	3.1	13	190	M	M	5		18	190			
11	46	40	43	-3	22	0	0.12	0.0	0	5.1	13	160	M	M	9	1	16	160			
12	42	35	39	-7	26	0	0.24	T	0	14.6	37	340	M	M	9	1	47	330			
13	45	30	38	-8	27	0	0.01	0.1	0	13.1	28	340	M	M	4	14	35	340			
14	41	25	33	-13	32	0	0.02	1.0	T	13.1	25	320	M	M	3	1	33	330			
15	65	25	45	-2	20	0	0.00	0.0	0	11.4	29	320	M	M	0		41	320			
16	65	42	54	7	11	0	0.00	0.0	0	9.0	24	340	M	M	0		33	340			
17	76	39	58	11	7	0	0.03	0.0	0	6.1	24	310	M	M	3		31	300			
18	69	50	60	12	5	0	0.00	0.0	0	6.3	15	350	M	M	2		20	350			
19	62	50	56	8	9	0	0.41	0.0	0	6.3	14	160	M	M	8	13	21	160			
20	67	43	55	7	10	0	0.22	0.0	0	6.4	18	180	M	M	7	123	24	180			
21	43	30	37	-11	28	0	T	T	0	17.4	39	330	M	M	10		50	330			
22	49	29	39	-10	26	0	0.00	0.0	0	15.1	39	330	M	M	2		50	320			
23	55	33	44	-5	21	0	0.00	0.0	0	10.6	23	340	M	M	3		29	280			
24	47	36	42	-7	23	0	0.32	0.0	0	7.0	16	150	M	M	10	13	21	150			
25	47	35	41	-8	24	0	0.05	0.0	0	4.2	10	120	M	M	10	1	16	120			
26	50	36	43	-7	22	0	0.00	0.0	0	8.1	15	170	M	M	10		22	140			
27	54	41	48	-2	17	0	0.00	0.0	0	7.3	14	180	M	M	9		18	190			
28	70	40	55	5	10	0	0.00	0.0	0	5.8	21	190	M	M	2		25	190			

29 71 53 62 12 3 0 0.35 0.0 0 11.6 28 190 M M 4 18 38 190
 30 63 43 53 2 12 0 T 0.0 0 10.8 24 350 M M 4 128 32 340
 31 63 34 49 -2 16 0 0.00 0.0 0 7.9 15 190 M M 0 20 340

=====

SM 1711 1132 586 0 3.11 1.2 304.7 M 151

=====

AV 55.2 36.5 9.8 FASTST M M 5 MAX(MPH)

MISC ----> # 45 330 # 57 340

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: 2018
 LATITUDE: 35 25 N
 LONGITUDE: 82 33 W

[TEMPERATURE DATA]

[PRECIPITATION DATA]

SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 45.9
 DPTR FM NORMAL: -1.2
 HIGHEST: 76 ON 17
 LOWEST: 25 ON 15,14

TOTAL FOR MONTH: 3.11
 DPTR FM NORMAL: -0.72
 GRTST 24HR 1.32 ON 28- 1
 SNOW, ICE PELLETS, HAIL
 TOTAL MONTH: 1.2 INCHES
 GRTST 24HR 1.1 ON 13-14
 GRTST DEPTH: T

- 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: 10
 MIN 0 OR BELOW: 0

0.01 INCH OR MORE: 13
 0.10 INCH OR MORE: 8
 0.50 INCH OR MORE: 1
 1.00 INCH OR MORE: 1

[HDD (BASE 65)]

TOTAL THIS MO. 586
 DPTR FM NORMAL 31
 TOTAL FM JUL 1 3436
 DPTR FM NORMAL -336

CLEAR (SCALE 0-3) 13
 PTCLDY (SCALE 4-7) 8
 CLOUDY (SCALE 8-10) 10

[CDD (BASE 65)]

TOTAL THIS MO. 0
 DPTR FM NORMAL -1
 TOTAL FM JAN 1 4
 DPTR FM NORMAL 3

[PRESSURE DATA]

HIGHEST SLP 30.52 ON 26
 LOWEST SLP 29.39 ON 20

[REMARKS]

#FINAL-03-18#

WFO Monthly/Daily Climate Data

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CXUS52 KGSP 010910

CF6AVL

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

STATION: ASHEVILLE NC
 MONTH: APRIL
 YEAR: 2018
 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	
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR	
									12Z	AVG	MX	2MIN							
1	75	36	56	5	9	0	0.00	0.0	0	3.5	14	250	M	M	2		18	250	
2	78	47	63	11	2	0	0.00	0.0	0	3.7	16	300	M	M	2		23	320	
3	76	42	59	7	6	0	0.00	0.0	0	8.4	25	180	M	M	1		34	180	
4	66	39	53	1	12	0	0.12	0.0	0	16.4	33	340	M	M	2	13	42	340	
5	62	33	48	-4	17	0	0.00	0.0	0	9.6	25	340	M	M	0		31	340	
6	66	34	50	-3	15	0	0.12	0.0	0	5.4	22	210	M	M	4	1	28	210	
7	56	35	46	-7	19	0	0.15	0.0	0	11.6	26	340	M	M	10	1	33	340	
8	51	31	41	-12	24	0	0.00	0.0	0	10.0	22	340	M	M	3		29	340	
9	51	41	46	-8	19	0	0.01	0.0	0	4.6	9	340	M	M	10	1	13	340	
10	60	42	51	-3	14	0	0.00	0.0	0	10.5	20	330	M	M	5		27	330	
11	64	39	52	-2	13	0	0.00	0.0	0	8.6	22	340	M	M	1		27	340	
12	74	36	55	1	10	0	0.00	0.0	0	5.9	22	200	M	M	0	8	31	200	
13	76	50	63	8	2	0	0.00	0.0	0	8.8	23	170	M	M	0		30	180	
14	77	53	65	10	0	0	0.00	0.0	0	10.9	24	190	M	M	5		29	200	
15	68	44	56	1	9	0	2.37	0.0	0	11.8	24	350	M	M	10	13	33	340	
16	48	32	40	-15	25	0		T	T	0	16.7	29	340	M	M	8		37	350
17	72	31	52	-4	13	0	0.00	0.0	0	12.2	29	340	M	M	0		36	320	
18	86	52	69	13	0	4	0.00	0.0	0	8.1	24	200	M	M	0		32	190	
19	68	40	54	-2	11	0	0.00	0.0	0	18.0	32	340	M	M	0		41	340	
20	68	38	53	-3	12	0	0.00	0.0	0	11.0	24	330	M	M	0		32	340	
21	67	34	51	-6	14	0	0.00	0.0	0	3.4	14	160	M	M	0		18	170	
22	61	42	52	-5	13	0		T	0.0	0	4.8	13	160	M	M	8		19	140
23	57	49	53	-4	12	0	0.85	0.0	0	9.2	17	100	M	M	10	18	30	120	
24	64	52	58	0	7	0	0.63	0.0	0	4.6	12	360	M	M	9	1	19	110	
25	65	52	59	1	6	0		T	0.0	0	10.4	21	340	M	M	8	1	27	340
26	61	51	56	-2	9	0	0.39	0.0	0	3.6	9	160	M	M	9	1	12	170	
27	69	48	59	1	6	0	0.00	0.0	0	7.8	21	340	M	M	5	1	26	330	
28	76	40	58	-1	7	0	0.00	0.0	0	8.0	23	330	M	M	0	1	29	330	
29	62	43	53	-6	12	0	0.00	0.0	0	13.8	28	330	M	M	0		35	330	
30	75	33	54	-5	11	0	0.00	0.0	0	2.8	13	330	M	M	0		17	340	
SM	1999	1239			329	4	4.64	T		264.1			M		112				
AV	66.6	41.3								8.8	FASTST		M	M	4		MAX (MPH)		
								MISC	---->	#	33	340					#	42	340

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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: 2018
LATITUDE: 35 25 N
LONGITUDE: 82 33 W

[TEMPERATURE DATA]

[PRECIPITATION DATA]

SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 54.0
DPTR FM NORMAL: -1.2
HIGHEST: 86 ON 18
LOWEST: 31 ON 17, 8

TOTAL FOR MONTH: 4.64
DPTR FM NORMAL: 1.31
GRTST 24HR 2.37 ON 15-15
SNOW, ICE PELLETS, HAIL
TOTAL MONTH: T
GRTST 24HR T ON 16-16
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: 3
MIN 0 OR BELOW: 0

0.01 INCH OR MORE: 8
0.10 INCH OR MORE: 7
0.50 INCH OR MORE: 3
1.00 INCH OR MORE: 1

[HDD (BASE 65)]

TOTAL THIS MO. 329
DPTR FM NORMAL 29
TOTAL FM JUL 1 3765
DPTR FM NORMAL -307

CLEAR (SCALE 0-3) 16
PTCLDY (SCALE 4-7) 6
CLOUDY (SCALE 8-10) 8

[CDD (BASE 65)]

TOTAL THIS MO. 4
DPTR FM NORMAL -3
TOTAL FM JAN 1 8
DPTR FM NORMAL 0

[PRESSURE DATA]

HIGHEST SLP 30.41 ON 21
LOWEST SLP 29.53 ON 15

[REMARKS]

#FINAL-04-18#

WFO Monthly/Daily Climate Data

000
CXUS52 KGSP 011143
CF6AVL

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

STATION: ASHEVILLE NC
 MONTH: MAY
 YEAR: 2018
 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		
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR		
1	80	39	60	1	5	0	0.00	0.0	0	4.8	15	190	M	M	0		18	180		
2	81	46	64	4	1	0	0.00	0.0	0	4.3	16	200	M	M	0		20	170		
3	83	51	67	7	0	2	0.00	0.0	0	4.8	16	180	M	M	0		23	170		
4	85	54	70	10	0	5	0.00	0.0	0	4.1	14	350	M	M	1		19	10		
5	77	60	69	9	0	4	0.00	0.0	0	5.3	17	170	M	M	3	3	24	140		
6	71	54	63	2	2	0	0.04	0.0	0	9.0	32	330	M	M	4	138	41	340		
7	75	50	63	2	2	0	0.00	0.0	0	4.8	16	340	M	M	4	3	19	340		
8	75	49	62	1	3	0	0.37	0.0	0	3.0	17	340	M	M	5	128	20	340		
9	77	53	65	4	0	0	0.00	0.0	0	4.0	12	180	M	M	4	128	15	160		
10	85	56	71	9	0	6	T	0.0	0	4.3	28	350	M	M	3	3	39	350		
11	82	54	68	6	0	3	1.05	0.0	0	4.4	25	140	M	M	2	13	37	140		
12	86	57	72	10	0	7	0.00	0.0	0	4.4	14	340	M	M	3	12	22	340		
13	87	58	73	11	0	8	0.00	0.0	0	4.4	16	340	M	M	0		21	20		
14	87	58	73	10	0	8	0.00	0.0	0	4.5	14	330	M	M	0		18	160		
15	78	64	71	8	0	6	1.17	0.0	0	4.3	14	150	M	M	5	1	21	150		
16	74	63	69	6	0	4	2.79	0.0	0	2.2	8	280	M	M	8	1	10	330		
17	78	64	71	8	0	6	1.07	0.0	0	2.2	15	180	M	M	8	13	19	150		
18	76	63	70	6	0	5	2.92	0.0	0	5.0	14	170	M	M	8	13	19	120		
19	78	64	71	7	0	6	0.26	0.0	0	6.3	15	200	M	M	7	13	20	180		
20	82	64	73	9	0	8	T	0.0	0	3.5	15	310	M	M	4	13	19	310		
21	81	63	72	8	0	7	0.02	0.0	0	3.7	15	210	M	M	6	1	21	220		
22	80	62	71	6	0	6	T	0.0	0	5.9	15	200	M	M	5	8	20	210		
23	85	62	74	9	0	9	0.00	0.0	0	6.1	17	340	M	M	1	18	21	310		
24	77	62	70	5	0	5	0.00	0.0	0	4.6	13	150	M	M	5	1	17	150		
25	76	67	72	7	0	7	0.14	0.0	0	5.1	16	170	M	M	10	1	21	170		
26	80	66	73	7	0	8	0.89	0.0	0	4.4	15	340	M	M	7	13	18	340		
27	80	64	72	6	0	7	T	0.0	0	4.0	14	170	M	M	6	18	18	170		
28	71	67	69	3	0	4	0.77	0.0	0	2.1	7	120	M	M	9	1	12	110		
29	75	68	72	6	0	7	1.77	0.0	0	5.9	12	150	M	M	10	13	19	140		
30	78	68	73	6	0	8	1.16	0.0	0	6.8	14	170	M	M	10	13	20	170		
31	83	64	74	7	0	9	0.26	0.0	0	3.3	29	330	M	M	5	138	39	340		
SM	2463	1834			13	155	14.68	0.0	141.5				M		143					
AV	79.5	59.2							4.6	FASTST	M	M	5		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: MAY
YEAR: 2018
LATITUDE: 35 25 N
LONGITUDE: 82 33 W

[TEMPERATURE DATA]

[PRECIPITATION DATA]

SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 69.3
DPTR FM NORMAL: 6.2
HIGHEST: 87 ON 14,13
LOWEST: 39 ON 1
TOTAL FOR MONTH: 14.68
DPTR FM NORMAL: 11.02
GRTST 24HR 3.93 ON 15-16
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: 15
0.10 INCH OR MORE: 13
0.50 INCH OR MORE: 9
1.00 INCH OR MORE: 7

[HDD (BASE 65)]

TOTAL THIS MO. 13
DPTR FM NORMAL -96
TOTAL FM JUL 1 3778
DPTR FM NORMAL -403
CLEAR (SCALE 0-3) 10
PTCLDY (SCALE 4-7) 16
CLOUDY (SCALE 8-10) 5

[CDD (BASE 65)]

TOTAL THIS MO. 155
DPTR FM NORMAL 105
TOTAL FM JAN 1 163
DPTR FM NORMAL 105
[PRESSURE DATA]
HIGHEST SLP 30.31 ON 2
LOWEST SLP 29.84 ON 17

[REMARKS]

#FINAL-05-18#

WFO Monthly/Daily Climate Data

000
CXUS52 KGSP 011307
CF6AVL
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: ASHEVILLE NC
MONTH: JUNE
YEAR: 2018

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	
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR	
1	86	61	74	7	0	9	0.00	0.0	0	6.6	16	330	M	M	3	12	20	350	
2	84	66	75	8	0	10	0.00	0.0	0	9.1	21	340	M	M	2		26	340	
3	88	66	77	9	0	12	0.18	0.0	0	7.7	18	220	M	M	1	13	27	240	
4	80	61	71	3	0	6	0.00	0.0	0	10.2	20	350	M	M	0		26	350	
5	80	58	69	1	0	4	0.00	0.0	0	5.0	14	350	M	M	0		19	340	
6	84	54	69	1	0	4	0.00	0.0	0	6.7	17	330	M	M	0		23	320	
7	85	58	72	3	0	7	0.00	0.0	0	2.5	12	160	M	M	0		15	160	
8	85	61	73	4	0	8	0.00	0.0	0	3.1	12	160	M	M	1	1	15	130	
9	86	62	74	5	0	9	0.00	0.0	0	2.8	16	210	M	M	2	123	21	200	
10	86	62	74	5	0	9	0.28	0.0	0	4.0	15	350	M	M	4	138	19	340	
11	79	65	72	2	0	7	T	0.0	0	5.7	12	360	M	M	3		14	50	
12	76	64	70	0	0	5	T	0.0	0	5.3	15	160	M	M	9	1	19	160	
13	82	63	73	3	0	8	0.65	0.0	0	3.0	14	340	M	M	6	138	16	340	
14	87	67	77	7	0	12	0.00	0.0	0	8.0	18	330	M	M	3	18	22	330	
15	89	63	76	6	0	11	0.00	0.0	0	4.5	14	340	M	M	0		17	330	
16	88	64	76	5	0	11	0.00	0.0	0	3.3	10	190	M	M	1	3	14	110	
17	88	65	77	6	0	12	0.02	0.0	0	3.7	16	180	M	M	0	3	21	220	
18	91	63	77	6	0	12	0.00	0.0	0	4.0	13	330	M	M	0	13	15	350	
19	89	67	78	7	0	13	T	0.0	0	6.4	18	330	M	M	2	3	23	340	
20	87	69	78	6	0	13	0.06	0.0	0	6.3	16	330	M	M	2	3	21	190	
21	83	69	76	4	0	11	0.03	0.0	0	5.5	17	340	M	M	8		19	340	
22	86	66	76	4	0	11	T	0.0	0	5.4	20	220	M	M	4	1	26	220	
23	88	66	77	5	0	12	T	0.0	0	5.6	17	330	M	M	3		26	300	
24	89	64	77	5	0	12	0.00	0.0	0	5.5	31	330	M	M	1	38	39	330	
25	88	64	76	4	0	11	0.44	0.0	0	2.3	24	350	M	M	2	13	34	350	
26	85	66	76	4	0	11	0.69	0.0	0	4.2	32	200	M	M	3	138	39	220	
27	84	66	75	2	0	10	0.06	0.0	0	4.0	25	330	M	M	4	13	31	330	
28	82	66	74	1	0	9	0.16	0.0	0	7.3	16	330	M	M	4	13	21	340	
29	86	68	77	4	0	12	0.00	0.0	0	3.7	13	340	M	M	4		16	170	
30	87	68	78	5	0	13	0.00	0.0	0	3.1	12	140	M	M	3		15	140	
SM	2558	1922			0	294	2.57		0.0	154.5			M		75				
AV	85.3	64.1								5.2	FASTST		M	M	3		MAX (MPH)		
										MISC	---->	#	32	200			#	39	330

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: 2018
LATITUDE: 35 25 N
LONGITUDE: 82 33 W

[TEMPERATURE DATA]

AVERAGE MONTHLY: 74.7
DPTR FM NORMAL: 4.2
HIGHEST: 91 ON 18
LOWEST: 54 ON 6

[PRECIPITATION DATA]

TOTAL FOR MONTH: 2.57
DPTR FM NORMAL: -2.08
GRTST 24HR 0.69 ON 26-26
SNOW, ICE PELLETS, HAIL
TOTAL MONTH: 0.0 INCH
GRTST 24HR 0.0
GRTST 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: 1
MIN 32 OR BELOW: 0
MIN 0 OR BELOW: 0

[WEATHER - DAYS WITH]

0.01 INCH OR MORE: 10
0.10 INCH OR MORE: 6
0.50 INCH OR MORE: 2
1.00 INCH OR MORE: 0

[HDD (BASE 65)]

TOTAL THIS MO. 0
DPTR FM NORMAL -14
TOTAL FM JUL 1 3778
DPTR FM NORMAL -417

CLEAR (SCALE 0-3) 19
PTCLDY (SCALE 4-7) 10
CLOUDY (SCALE 8-10) 1

[CDD (BASE 65)]

TOTAL THIS MO. 294
DPTR FM NORMAL 117
TOTAL FM JAN 1 457
DPTR FM NORMAL 222

[PRESSURE DATA]

HIGHEST SLP 30.20 ON 8
LOWEST SLP 29.75 ON 22

[REMARKS]

#FINAL-06-18#