Prepared by:
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Volunteer assistants (other):
Don Elliott (Waynesville Watershed Field Manager)

Index

Table 1: Gauge visits during the autumn 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
5 Oct 2019	311, 110, 105	Doug	DD, MN, CV, BR
11 Oct 2019	101, 102, 103, 100T	Doug	DD, MN, CV, BR
12 Oct 2019	304, 307	Doug, Sam P	DD, MN, CV, BR
15 Oct 2019	3; 11; 10, 4	Doug	DD, MN, CV, BR
18 Oct 2019	**make-up day**		
19 Oct 2019	305, 309, 310	Doug, Meredith, Sam P	DD, MN, CV, BR
25 Oct 2019	111, 112	Doug, Andy	DD, MN, CV, BR
26 Oct 2019	303s, 306, 308	Doug, Meredith, Sam W, Alice	DD, MN, CV, BR
1 Nov 2019	**make-up day**		
2 Nov 2019	107, 109, 104, 108	Doug, Andy, Alice	DD, MN, CV, BR
3 Nov 2019	301, 302, 300	Doug	DD, MN, CV, BR
8 Nov 2019	2; 5; 8; 106	Doug, Lyn	DD, MN, CV, BR

Gauge visitation in support of the Duke Great Smoky Mountain Rain Gauge Network (GSMRGN) during the autumn 2019 occurred over ten days spanning a period of six weeks in October - November 2019. The primary purpose of the visits in the autumn 2019 was [1] to perform downloads of gauge tip observations since the previous gauge visits in the summer 2019, [2] to complete maintenance tasks, [3] to clear vegetation and tree limbs and, [4] to replace ALL data logger batteries in anticipation of cold winter weather, when lithium batteries respond with a drop in operating voltage. Seven technicians and 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], (3) to clear vegetation and tree limbs [CV in Table 1] and, (4) to replace ALL data logger batteries [BR in Table 1] in anticipation of cold winter weather, when lithium batteries respond with a drop in operating voltage. A specialized task was the replacement of four AA batteries of the T/RH sensor at the fire tower on Mount Sterling (near g310) to record air temperature during the cool season. 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. Four ML1 loggers showed a poor response using the TA command (g003, g107, g109, and g302 [ML1-420??!!], TA error "At least 12hrs must elapse!") and might require replacement during the spring 2020 visit. 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 unleveled, and fixing or replacing the gauge mesh if it had been damaged. Task (3) consisted of cutting briars, tree branches, rhododendron, and mountain laurel within a five foot radius of the gauge using clippers or a saw. Two gauge sites (g010, g105) had tree limbs removed using an extension saw and six locations (g008, g301, g305, g306, g308, g311) will need tree limbs cleared during the spring 2020 visit via the extension saw [008, 301, 305, 306] or baseball/ rope/ rope saw method [308, 311]. Task (4) was completed successfully in every data logger at each of the rain gauge locations. The lithium battery voltage of the ML1-420 and ML1-FL loggers was good (greater than 3.50 Volts) at all of the gauge locations upon arrival during the autumn months. Several data loggers (especially ML1-420 models) show signs of recent more frequent problems and may need to be replaced when the project is extended beyond June 2020 in order to maintain the continuity of the Duke GSMRGN observations record.

The rain gauge and base of g010 was found knocked over (presumably by a bear) on 15 October 2019. The tip observations indicated that this likely happened on 15 September 2019. The gauge was righted and adjustments to the logger and gauge level were made. Underreported rain accumulation (low tip count) was found at g111 [25 October 2019], similar in behavior to what had been found earlier in the study at g106 and g109. It is assumed oxidation on the logger cables prevented good contact with the switch terminal. Test tips registered as normal when the logger cables were placed on a different terminal on the switch. However, g106 [8 November 2019] showed a return of the underreported rain accumulation (low tip count) and the switch was replaced. Test tips registered as normal when the switch was replaced. It is possible the magnet in the tipping bucket is bad at g106 and that the bucket will require replacing during the spring 2020 visit. The time adjust at several locations having ML1 loggers was set to "off" [g011, g106, g107, g109, g304] during the most recent visits as it is hoped the adjustment will self-correct during visits in the spring 2020, following the extended winter period. The rain gauge cover at g112 was found by the property owner to be off the rain gauge base for about four days (see field log report), likely, during the drought of September 2019. The ML1-420 logger at g302 was found to be acting strangely (it is an ML1-420 logger, with an RTC installed, yet it responds to the TA command) and will need to be replaced in the spring 2020 if the strange behavior results in missed tip counts. No overgrowth by vegetation was found at any rain gauge during the autumn 2019 visit campaign.

Challenges encountered during some of the gauge visits in the autumn 2019 were a result of diminishing daylight hours and of quickly-approaching precipitation associated with T.S. Nestor [19 October 2019], which prevented the clearing of some tree limbs and replacement of "C" batteries in one of the two video cameras. Otherwise, the gauge network was functioning as smoothly as is possible. We continue to inquire with Mr. Edwin Warren, of Duke Power, on the possibility of gaining access to weather station observations taken near the Mount Sterling fire tower, next to g310 (~5,800 feet ASL). The weather observations will help discern the source of tips in the cool season; rain or melting snow.

Details of every gauge visit along with precipitation raw and CSV files can be found via Google Drive
https://drive.google.com/open?id=1uZV7d-ptUoD8MYi7ytbf5Ub4LIES1VZw
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 July – September 2019 as observed at KAVL are highlighted in yellow in **Appendix A**. Of particular relevance is the reversal of precipitation abundance that occurred early in 2019 during the July – September 2019 period, and the establishment of minor drought conditions in September.

Plans for the spring months of 2020

Table 2: Planned gauge visits during the spring 2020 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
3/??/2020	3; 11	Doug, one student	DD, MN, CA, CV
3/??/2020	2; 5; 8	Doug, one student	DD, MN, CA, CV
3/??/2020	100T, 105, 104	Doug, one student	DD, MN, CA, CV
3/??/2020	300, 308	Doug, two students	DD, MN, CA, CV
4/??/2020	106, 10	Doug, one student	DD, MN, CA, CV
4/??/2020	304, 307	Doug, two students	DD, MN, CA, CV
4/??/2020	4, 108, 109	Doug, one student	DD, MN, CA, CV
4/??/2020	311, 110	Doug, one student	DD, MN, CA, CV
4/??/2020	111, 112, 107	Doug, one student	DD, MN, CA, CV
5/??/2020	303s, 306	Doug, two students	DD, MN, CA, CV
5/??/2020	101, 102, 103	Doug, two students	DD, MN, CA, CV
5/??/2020	305, 309, 310	Doug, two students	DD, MN, CA, CV
5/??/2020	301, 302	Doug, two students	DD, MN, CA, CV

Gauge visitation in support of the Duke GSMRGN during the spring 2020 will occur over at least thirteen days spanning March through early May 2020. The primary purpose of the visits will be to download precipitation observations that were made since the previous gauge visits in October - November 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], calibrate every rain gauge [last calibration in spring 2019, CA in Table 2], and clear vegetation (and tree branches) from overhanging gauges [CV in Table 2]. Calibrations are scheduled at **ALL** rain gauge locations during the spring season due to the increased availability of daylight hours (over autumn) and to a seasonal (March, April, May) minimum in precipitation observed in the Pigeon River Basin (WaF, February 2018).

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 2019-2020 academic year consists of Meredith Avison, Marlee Burgess, Lyn Comer, Andrew Hill, Alice Monroe, Samuel Peterson, and Samantha Wood. New undergraduate research students at UNC Asheville will be recruited as field technicians for the Duke GSMRGN project in the spring 2020.

Table 3: The Duke Great Smoky Mountain Rain Gauge Network is currently (valid as of 18 November 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 020500
CF6AVL

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

                                        STATION:   ASHEVILLE NC
                                        MONTH:     JULY
                                        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  88  66  77   4   0  12  0.00   0.0    0   7.2 20 340    M    M    0            24 330
 2  90  64  77   4   0  12  0.00   0.0    0   6.3 17 330    M    M    1 3          24 330
 3  89  66  78   5   0  13  0.11   0.0    0   5.5 17 330    M    M    2 3          21 200
 4  89  66  78   4   0  13  0.02   0.0    0   4.6 14 330    M    M    1 13         17 350
 5  86  67  77   3   0  12  0.01   0.0    0   4.4 16 200    M    M    5 123        20 180
 6  84  70  77   3   0  12  0.71   0.0    0   3.7 16 170    M    M    4 138        20 170
 7  87  69  78   4   0  13  0.00   0.0    0   3.6 18 220    M    M    3 13         27 220
 8  90  68  79   5   0  14  0.00   0.0    0   6.6 17 330    M    M    1 8          22  20
 9  83  69  76   2   0  11     T   0.0    0   3.6 12 160    M    M    7 18         17 160
10  87  70  79   5   0  14  0.00   0.0    0   3.0 12 160    M    M    5 1          16 160
11  88  72  80   6   0  15  0.01   0.0    0   5.3 18 350    M    M    4 3          24 360
12  86  70  78   4   0  13  0.76   0.0    0   5.1 23 320    M    M    6 138        32 300
13  84  69  77   3   0  12     T   0.0    0   3.8 14 210    M    M    5 138        18 220
14  87  70  79   5   0  14  0.00   0.0    0  10.0 20 330    M    M    2            27 320
15  86  68  77   3   0  12  0.14   0.0    0   4.9 15 220    M    M    2 13         20 230
16  87  67  77   3   0  12     T   0.0    0   3.0 15  10    M    M    5 123        21  10
17  88  65  77   3   0  12  0.12   0.0    0   2.8 26 190    M    M    2 123        34 190
18  87  66  77   3   0  12  0.00   0.0    0   4.5 23 340    M    M    4 1238       30 340
19  90  70  80   6   0  15  0.00   0.0    0   6.1 16 360    M    M    1            20 350
20  89  70  80   6   0  15  0.00   0.0    0   5.5 14 170    M    M    1 18         18 170
21  88  68  78   4   0  13  0.28   0.0    0   2.4 13 140    M    M    4 13         18 250
22  86  68  77   3   0  12  0.24   0.0    0   4.2 16 190    M    M    4 1238       25 230
23  74  63  69  -5   0   4  0.76   0.0    0   7.3 25 350    M    M    6 18         34 350
24  78  59  69  -5   0   4  0.00   0.0    0   9.5 18 330    M    M    0            23 330
25  80  56  68  -6   0   3  0.00   0.0    0   3.4  9 350    M    M    2            14 300
26  82  55  69  -5   0   4  0.00   0.0    0   2.1  9 140    M    M    2            13 140
27  84  58  71  -3   0   6  0.00   0.0    0   3.2 13 210    M    M    3 1          16 110
28  87  59  73  -1   0   8     T   0.0    0   3.4 10 170    M    M    3 1          14 170
29  86  62  74   0   0   9  0.00   0.0    0   4.2 14 170    M    M    2 1          18 170
30  86  61  74   0   0   9     T   0.0    0   3.7 16 210    M    M    2            22 220
31  85  65  75   1   0  10  0.53   0.0    0   3.2 20 360    M    M    3 13         25 350
===============================================================================================
```

```
SM 2661 2036        0 340 3.69    0.0 146.1      M      92
================================================================================
AV 85.8 65.7                        4.7 FASTST  M   M   3    MAX(MPH)
                      MISC ---->  # 26 190              # 34  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:    JULY
                                 YEAR:     2019
                                 LATITUDE:  35 25 N
                                 LONGITUDE: 82 33 W
```

[TEMPERATURE DATA]   [PRECIPITATION DATA]   SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 75.8   TOTAL FOR MONTH: 3.69   1 = FOG OR MIST
DPTR FM NORMAL: 2.0   DPTR FM NORMAL: -0.62   2 = FOG REDUCING VISIBILITY
HIGHEST: 90 ON 19, 8 GRTST 24HR 1.00 ON 22-23   TO 1/4 MILE OR LESS
LOWEST: 55 ON 26   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
[NO. OF DAYS WITH]   [WEATHER - DAYS WITH]   9 = BLOWING SNOW
                                                 X = TORNADO

MAX 32 OR BELOW: 0   0.01 INCH OR MORE: 12
MAX 90 OR ABOVE: 3   0.10 INCH OR MORE: 9
MIN 32 OR BELOW: 0   0.50 INCH OR MORE: 4
MIN 0 OR BELOW: 0   1.00 INCH OR MORE: 0

[HDD (BASE 65)]
TOTAL THIS MO.   0   CLEAR (SCALE 0-3) 17
DPTR FM NORMAL   0   PTCLDY (SCALE 4-7) 14
TOTAL FM JUL 1   0   CLOUDY (SCALE 8-10) 0
DPTR FM NORMAL   0

[CDD (BASE 65)]
TOTAL THIS MO. 340
DPTR FM NORMAL   65   [PRESSURE DATA]
TOTAL FM JAN 1 722   HIGHEST SLP 30.34 ON 27
DPTR FM NORMAL 212   LOWEST SLP 29.85 ON 8

[REMARKS]
#FINAL-07-19#

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CXUS52 KGSP 011305
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CF6AVL

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

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

DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	12Z DPTH	AVG SPD	MX SPD	2MIN DIR	MIN	PSBL	S-S	WX	SPD	DR
		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
1	83	63	73	-1	0	8	T	0.0	0	3.3	14	150	M	M	5	1238	18	160
2	80	66	73	-1	0	8	0.48	0.0	0	3.5	17	220	M	M	6	13	20	210
3	84	65	75	1	0	10	0.00	0.0	0	4.9	15	170	M	M	3	123	19	170
4	85	65	75	1	0	10	0.86	0.0	0	3.1	12	80	M	M	5	138	19	130
5	85	66	76	2	0	11	0.02	0.0	0	4.4	12	130	M	M	6	38	16	120
6	85	62	74	0	0	9	T	0.0	0	3.9	13	340	M	M	5	123	18	350
7	87	64	76	2	0	11	T	0.0	0	4.3	17	350	M	M	4	12	21	330
8	87	63	75	1	0	10	0.00	0.0	0	7.3	16	350	M	M	0		22	340
9	88	65	77	3	0	12	0.00	0.0	0	5.1	17	340	M	M	1		20	340
10	83	68	76	2	0	11	0.32	0.0	0	2.8	17	10	M	M	5	13	25	350
11	86	67	77	3	0	12	0.00	0.0	0	3.4	12	170	M	M	4	128	15	170
12	86	69	78	4	0	13	0.00	0.0	0	3.6	15	210	M	M	4	3	20	180
13	91	71	81	8	0	16	0.39	0.0	0	2.6	26	340	M	M	2	13	43	320
14	85	69	77	4	0	12	0.12	0.0	0	5.2	15	340	M	M	4	18	19	340
15	87	67	77	4	0	12	T	0.0	0	4.4	15	350	M	M	1	1	18	350
16	89	64	77	4	0	12	0.00	0.0	0	4.8	16	330	M	M	1		19	340
17	91	63	77	4	0	12	0.00	0.0	0	3.7	14	330	M	M	1		26	350
18	89	65	77	4	0	12	0.00	0.0	0	3.2	14	330	M	M	2	13	18	330
19	89	65	77	4	0	12	0.27	0.0	0	3.2	24	140	M	M	1	123	35	150
20	84	64	74	1	0	9	0.00	0.0	0	3.3	16	160	M	M	5	12	20	160
21	87	66	77	4	0	12	0.04	0.0	0	3.1	28	360	M	M	3	1238	37	340
22	87	67	77	5	0	12	1.03	0.0	0	3.4	24	330	M	M	5	1238	29	320
23	85	67	76	4	0	11	0.34	0.0	0	4.5	13	180	M	M	5	13	16	200
24	73	63	68	-4	0	3	T	0.0	0	3.9	13	160	M	M	10	12	17	160
25	69	61	65	-7	0	0	T	0.0	0	3.9	9	170	M	M	10	18	12	170
26	72	62	67	-5	0	2	0.01	0.0	0	4.8	13	160	M	M	10	1	18	160
27	70	64	67	-5	0	2	0.10	0.0	0	2.7	8	180	M	M	10	18	10	180
28	83	60	72	0	0	7	T	0.0	0	6.9	22	340	M	M	5	1	27	340
29	81	56	69	-2	0	4	0.00	0.0	0	6.4	15	340	M	M	0	1	19	360
30	84	52	68	-3	0	3	0.00	0.0	0	2.6	10	170	M	M	0	12	12	160
31	85	56	71	0	0	6	0.00	0.0	0	2.0	10	120	M	M	1	1	15	140

```
================================================================================
SM 2600 1985         0 284  3.98       0.0 124.2          M          124
================================================================================
AV 83.9 64.0                           4.0 FASTST  M    M    4    MAX(MPH)
                              MISC ---->  # 28 360                # 43  320
================================================================================
```

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:    AUGUST
                    YEAR:     2019
                    LATITUDE:  35 25 N
                    LONGITUDE: 82 33 W


[TEMPERATURE DATA]        [PRECIPITATION DATA]        SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 74.0    TOTAL FOR MONTH:   3.98     1 = FOG OR MIST
DPTR FM NORMAL:   1.1    DPTR FM NORMAL:   -0.42     2 = FOG REDUCING VISIBILITY
HIGHEST:    91 ON 17,13  GRTST 24HR  1.34 ON 22-23       TO 1/4 MILE OR LESS
LOWEST:     52 ON 30                                 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
[NO. OF DAYS WITH]        [WEATHER - DAYS WITH]      9 = BLOWING SNOW
                                                     X = TORNADO
MAX 32 OR BELOW:  0    0.01 INCH OR MORE:  12
MAX 90 OR ABOVE:  2    0.10 INCH OR MORE:   9
MIN 32 OR BELOW:  0    0.50 INCH OR MORE:   2
MIN  0 OR BELOW:  0    1.00 INCH OR MORE:   1

[HDD (BASE 65) ]
TOTAL THIS MO.    0    CLEAR  (SCALE 0-3)  11
DPTR FM NORMAL   -2    PTCLDY (SCALE 4-7)  16
TOTAL FM JUL 1    0    CLOUDY (SCALE 8-10)  4
DPTR FM NORMAL   -2

[CDD (BASE 65) ]
TOTAL THIS MO.  284
DPTR FM NORMAL   37    [PRESSURE DATA]
TOTAL FM JAN 1 1006    HIGHEST SLP 30.22 ON 31
DPTR FM NORMAL  249    LOWEST  SLP 29.82 ON  7

[REMARKS]
#FINAL-08-19#
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000
CXUS52 KGSP 030040

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

                                   STATION:   ASHEVILLE NC
                                   MONTH:     SEPTEMBER
                                   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   83   57   70   -1    0    5  0.00   0.0    0   1.7   9 150   M     M    2  1      12 180
 2   87   59   73    3    0    8  0.00   0.0    0   4.2  15 330   M     M    1  1      21 330
 3   90   61   76    6    0   11  0.00   0.0    0   2.2  13 150   M     M    1         16 150
 4   90   63   77    7    0   12  0.00   0.0    0   6.6  15 340   M     M    0  1      22 320
 5   89   68   79    9    0   14  0.00   0.0    0  10.9  21 340   M     M    2         28 350
 6   85   65   75    5    0   10  0.00   0.0    0   9.7  18 360   M     M    0         25 350
 7   86   61   74    5    0    9  0.00   0.0    0   5.6  14 320   M     M    1         18 340
 8   87   58   73    4    0    8  0.00   0.0    0   2.1  10 190   M     M    0         14 160
 9   91   60   76    7    0   11  0.00   0.0    0   3.0  15 340   M     M    0         19 330
10   89   62   76    8    0   11  0.00   0.0    0   2.3  14 160   M     M    1         20 170
11   90   64   77    9    0   12  0.00   0.0    0   2.7  14 340   M     M    2 128     18 190
12   91   63   77    9    0   12     T   0.0    0   2.9  14 340   M     M    2  3      18 350
13   90   65   78   11    0   13  0.03   0.0    0   4.1  16 190   M     M    3 138     22 200
14   84   66   75    8    0   10  0.36   0.0    0   2.3  14  40   M     M    7 123     23  30
15   89   65   77   10    0   12  0.00   0.0    0   4.6  14 340   M     M    5 128     17 340
16   90   60   75    9    0   10  0.00   0.0    0   5.6  15 340   M     M    0         20 340
17   90   63   77   11    0   12     T   0.0    0   4.0  16 330   M     M    4         22 350
18   74   65   70    4    0    5  0.01   0.0    0   5.0  12 170   M     M    9 18      17 170
19   66   60   63   -2    2    0     T   0.0    0   4.3  12 160   M     M   10  1      14 160
20   78   54   66    1    0    1  0.00   0.0    0   3.5  12 160   M     M    3  1      16 150
21   83   56   70    5    0    5  0.00   0.0    0   3.0  13 340   M     M    3 12      16 320
22   83   56   70    6    0    5  0.00   0.0    0   2.7  14 160   M     M    1  1      18 160
23   86   53   70    6    0    5  0.00   0.0    0   5.5  15 340   M     M    4 12      19 350
24   84   63   74   10    0    9  0.00   0.0    0   4.8  15 340   M     M    3         18 340
25   85   54   70    7    0    5  0.00   0.0    0   1.5  10 200   M     M    0         13 190
26   86   58   72    9    0    7     T   0.0    0   6.8  16 340   M     M    2         21 340
27   86   64   75   13    0   10     T   0.0    0   2.2  13 170   M     M    4  1      16 170
28   83   67   75   13    0   10  0.11   0.0    0   2.5  14 150   M     M    4 123     17 150
29   90   63   77   15    0   12  0.00   0.0    0   2.3   8 190   M     M    4 12      13 170
30   91   64   78   17    0   13  0.39   0.0    0   1.8  13 170   M     M    M 23      19 140
================================================================================
SM 2576 1837          2  267  0.90        0.0 120.4          M          78
================================================================================
AV 85.9 61.2                              4.0 FASTST   M    M    3    MAX(MPH)
                              MISC ---->  # 21 340                # 28  350
================================================================================
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:    SEPTEMBER
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                              YEAR:      2019
                              LATITUDE:   35 25 N
                              LONGITUDE:  82 33 W


[TEMPERATURE DATA]      [PRECIPITATION DATA]      SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 73.6    TOTAL FOR MONTH:   0.90   1 = FOG OR MIST
DPTR FM NORMAL:   7.2    DPTR FM NORMAL:   -2.91   2 = FOG REDUCING VISIBILITY
HIGHEST:    91 ON 30,12  GRTST 24HR  0.39 ON 30-30     TO 1/4 MILE OR LESS
LOWEST:     53 ON 23                               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
[NO. OF DAYS WITH]      [WEATHER - DAYS WITH]      9 = BLOWING SNOW
                                                   X = TORNADO

MAX 32 OR BELOW:   0    0.01 INCH OR MORE:   5
MAX 90 OR ABOVE:  10    0.10 INCH OR MORE:   3
MIN 32 OR BELOW:   0    0.50 INCH OR MORE:   0
MIN  0 OR BELOW:   0    1.00 INCH OR MORE:   0


[HDD (BASE 65) ]
TOTAL THIS MO.     2    CLEAR  (SCALE 0-3)  19
DPTR FM NORMAL   -53    PTCLDY (SCALE 4-7)   8
TOTAL FM JUL 1     2    CLOUDY (SCALE 8-10)  2
DPTR FM NORMAL   -55

[CDD (BASE 65) ]
TOTAL THIS MO.   267
DPTR FM NORMAL   172    [PRESSURE DATA]
TOTAL FM JAN 1  1273    HIGHEST SLP 30.35 ON 21
DPTR FM NORMAL   421    LOWEST  SLP 29.83 ON  5

[REMARKS]
#FINAL-09-19#
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