



LOCAL CLIMATOLOGICAL DATA Monthly Summary

R.E. BYRD INTERNATIONAL AP.

LATITUDE 37° 30' N LONGITUDE 77° 20' W ELEVATION (GROUND) 164 FEET TIME ZONE EASTERN 13740

JUL 1991
 RICHMOND, VA

DATE	TEMPERATURE °F						DEGREE DAYS BASE 65°F		WEATHER TYPES		SNOW ICE PELLETS OR ICE ON GROUND AT 0700 INCHES	PRECIPITATION		AVERAGE STATION PRESSURE IN INCHES ELEV. 177 FEET ABOVE M. S. L.	WIND (M.P.H.)					SUNSHINE		SKY COVER (TENTHS)										
	MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	HEATING (SEASON BEGINS WITH JUL)	COOLING (SEASON BEGINS WITH JAN)	1 FOG	2 HEAVY FOG	3 THUNDERSTORM		4 ICE PELLETS	5 HAIL		6 GLAZE	7 DUSTSTORM	8 SMOKE, HAZE	9 BLOWING SNOW	WATER EQUIVALENT (INCHES)	SNOW, ICE PELLETS (INCHES)	INCHES	RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	PEAK GUST		FASTEST 1-MIN		MINUTES	PERCENT OF TOTAL POSSIBLE	SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT
																									SPEED	DIRECTION	SPEED	DIRECTION				
01	91	73	82	5	73	0	17	3	8	0	T	0.0	29.695	07	2.8	7.0	15	W	12	11	564	64	9	9								
02	96	71	84	7	73	0	19	23	8	0	0.32	0.0	29.670	18	4.5	7.4	28	SW	16	24	482	55	8	9								
03	92	71	82	5	72	0	17	1	8	0	0.00	0.0	29.680	04	1.3	5.8	13	NE	12	05	721	82	8	8								
04	80	72	76	-1	73	0	11	1	3	8	0	0.12	0.0	29.760	09	8.9	9.2	17	NE	12	09	185	21	10	10							
05	87	73	80	3	73	0	15	1	8	0	T	0.0	29.740	24	1.7	4.2	9	W	8	31	573	65	10	10								
06	94	73	84	7	71	0	19	1	8	0	0.00	0.0	29.790	13	1.9	6.1	13	NE	9	04	731	83	4	4								
07	97	71	84	7	72	0	19	1	8	0	0.00	0.0	29.770	20	6.6	7.5	18	S	13	21	760	87	3	3								
08	99	75	87	9	71	0	22	1	8	0	0.00	0.0	29.700	24	6.7	9.2	23	S	17	19	758	86	1	2								
09	93	73	83	5	68	0	18	1	8	0	0.05	0.0	29.740	03	4.5	6.9	16	NE	12	36	706	81	6	7								
10	88	71	80	2	71	0	15	1	8	0	T	0.0	29.750	06	3.4	6.3	15	NE	10	07	548	63	10	10								
11	90	71	81	3	70	0	16	1	8	0	0.02	0.0	29.750	04	3.8	6.7	15	N	12	04	661	76	7	7								
12	92	66	79	1	67	0	14	1	8	0	0.05	0.0	29.780	15	6.5	7.2	20	S	13	15	664	76	7	7								
13	92	73	83	5	72	0	18	1	3	8	0	1.08	0.0	29.620	23	5.2	8.7	24	W	15	25	627	72	6	6							
14	87	70	79	1	69	0	14	1	8	0	0.24	0.0	29.740	32	4.0	6.9	17	W	13	02	546	63	9	7								
15	89	65*	77	-1	65	0	12	1	8	0	0.00	0.0	29.970	36	4.3	6.3	15	E	13	10	769	88	3	4								
16	91	66	79	1	65	0	14	1	8	0	0.00	0.0	30.060	11	3.3	4.5	13	E	10	13	763	88	6	5								
17	91	66	79	1	67	0	14	1	8	0	0.00	0.0	29.945	20	6.3	7.0	17	SW	10	19	701	81	3	2								
18	94	72	83	5	70	0	18	1	8	0	0.00	0.0	29.855	21	10.7	11.4	26	SW	18	18	769	89	6	5								
19	92	73	83	5	73	0	18	1	3	8	0	0.60	0.0	29.860	20	9.3	11.1	28	SW	24	24	573	66	9	8							
20	96	73	85	7	75	0	20	1	3	8	0	0.00	0.0	29.890	20	4.4	5.7	14	SW	10	25	678	78	4	5							
21	97	72	85	7	74	0	20	1	8	0	0.00	0.0	29.880	24	3.0	5.8	15	NW	10	25	694	80	4	4								
22	97	77	87	9	74	0	22	1	8	0	0.00	0.0	29.840	29	3.5	6.3	17	W	13	27	684	79	6	6								
23	99*	78	89*	11	74	0	24	1	8	0	0.00	0.0	29.715	24	6.4	7.5	24	SW	16	23	684	80	5	6								
24	93	77	85	7	72	0	20	1	8	0	0.00	0.0	29.730	07	4.2	7.4	15	N	12	04	714	83	5	5								
25	89	74	82	4	75	0	17	1	3	8	0	0.21	0.0	29.785	12	3.2	6.0	16	N	12	04	311	36	9	9							
26	91	73	82	3	74	0	17	1	3	8	0	0.18	0.0	29.875	15	2.7	5.4	25	S	13	12	564	66	9	9							
27	74	70	72	-6	70	0	7	1	8	0	0.18	0.0	29.940	01	8.0	8.5	17	NE	14	03	146	17	10	10								
28	85	68	77	-1	65	0	12	1	8	0	T	0.0	29.940	05	6.7	7.9	16	NE	12	06	610	72	8	9								
29	74	67	71	-7	67	0	6	1	8	0	0.35	0.0	29.860	01	8.7	9.1	21	N	15	35	49	6	10	10								
30	75	67	71*	-7	68	0	6	1	8	0	0.07	0.0	29.850	02	4.5	5.0	10	E	7	06	88	10	10	10								
31	86	70	78	0	71	0	13	1	8	0	0.00	0.0	29.850	36	2.1	3.2	10	N	7	01	614	72	10	9								
SUM	SUM	SUM	SUM	SUM	SUM	TOTAL	TOTAL	NUMBER OF DAYS		TOTAL	TOTAL	FOR THE MONTH:					TOTAL	%	SUM	SUM												
2791	2211					0	494		494	3.47	0.0	29.810	16	0.5	7.0	28	SW	24	24	17937	FOR	215	215									
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	DEP.	PRECIPITATION		DEP.							DATE: 19+	DATE: 19	POSSIBLE	MONTH	AVG.	AVG.										
90.0	71.3	80.7	2.9	70.6	0	0	97	≥ .01 INCH.		13	-1.67								26897	67	6.9	6.9										
NUMBER OF DAYS						SEASON TO DATE		SNOW, ICE PELLETS		GREATEST IN 24 HOURS AND DATES					GREATEST DEPTH ON GROUND OF																	
MAXIMUM TEMP.						MINIMUM TEMP.		TOTAL		TOTAL		PRECIPITATION		SNOW, ICE PELLETS			SNOW, ICE PELLETS OR ICE AND DATE															
≥ 90°						< 32°		0		1127		THUNDERSTORMS		8			0															
20						0		0		360		CLEAR		4			PARTLY CLOUDY 12 CLOUDY 15															

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
 † TRACE AMOUNT.
 + ALSO ON EARLIER DATE(S).
 HEAVY FOG: VISIBILITY 1/4 MILE OR LESS.
 BLANK ENTRIES DENOTE MISSING OR UNREPORTED DATA.

DATA IN COLS 6 AND 12-15 ARE BASED ON 21 OR MORE OBSERVATIONS AT HOURLY INTERVALS. RESULTANT WIND IS THE VECTOR SUM OF WIND SPEEDS AND DIRECTIONS DIVIDED BY THE NUMBER OF OBSERVATIONS. COLS 16 & 17: PEAK GUST - HIGHEST INSTANTANEOUS WIND SPEED. ONE OF TWO WIND SPEEDS IS GIVEN UNDER COLS 18 & 19: FASTEST MILE - HIGHEST RECORDED SPEED FOR WHICH A MILE OF WIND PASSES STATION (DIRECTION IN COMPASS POINTS). FASTEST OBSERVED ONE MINUTE WIND - HIGHEST ONE MINUTE SPEED (DIRECTION IN TENS OF DEGREES). ERRORS WILL BE CORRECTED IN SUBSEQUENT PUBLICATIONS.

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NATIONAL CLIMATIC DATA CENTER ASHEVILLE NORTH CAROLINA

Kenneth D. Wadsworth
 DIRECTOR
 NATIONAL CLIMATIC DATA CENTER

OBSERVATIONS AT 3-HOUR INTERVALS

JUL 1991 13740
RICHMOND, VA

HOUR	L.S.T.	SKY COVER (TENTHS)	VISI-BILITY			TEMPERATURE				WIND		SKY COVER (TENTHS)	CEILING IN HUNDREDS OF FEET	WHOLE MILES	16THS MILE	WEATHER	TEMPERATURE				WIND												
			CEILING IN HUNDREDS OF FEET	WHOLE MILES	16THS MILE	AIR OF	WET BULB OF	DEN POINT OF	REL HUMIDITY %	DIRECTION	SPEED (KNOTS)						AIR OF	WET BULB OF	DEN POINT OF	REL HUMIDITY %	DIRECTION	SPEED (KNOTS)											
JUL 1st																																	
01	7	UNL	6			81	76	73	77	23	6	10	250	5		H	74	72	71	90	10	6	10	120	6		H	73	71	70	90	21	7
04	10	UNL	6			76	73	72	88	21	4	10	250	5		H	73	72	72	97	08	5	8	UNL	7		H	72	69	67	84	23	7
07	7	250	3			80	75	72	77	02	8	10	2	0	4	F	74	73	73	97	19	3	6	UNL	7		H	75	72	70	85	17	6
10	9	30	2			81	76	73	77	01	6	7	UNL	2		H	85	78	75	72	16	4	8	UNL	6		H	84	76	73	70	00	0
13	5	UNL	2			88	77	73	61	12	4	3	UNL	3		H	93	81	76	58	25	8	8	85	6		H	89	78	74	61	01	7
16	10	85	2			85	77	74	70	04	8	9	300	3		H	87	77	72	61	21	8	8	120	6		H	80	78	73	58	04	8
19	10	150	4			81	76	73	77	11	10	10	150	6		RWH	75	74	73	94	16	6	6	UNL	3		H	86	77	73	65	05	7
22	7	UNL	6			75	72	70	85	13	6	10	130	6		H	74	72	71	90	18	4	7	UNL	3		H	76	74	73	91	14	4
JUL 2nd																																	
JUL 3rd																																	
JUL 4th																																	
JUL 5th																																	
JUL 6th																																	
JUL 7th																																	
JUL 8th																																	
JUL 9th																																	
JUL 10th																																	
JUL 11th																																	
JUL 12th																																	
JUL 13th																																	
JUL 14th																																	
JUL 15th																																	
JUL 16th																																	
JUL 17th																																	
JUL 18th																																	

WEATHER CODES

- * TORNADO
- T THUNDERSTORM
- Q SQUALL
- R RAIN
- RW RAIN SHOWERS
- ZR FREEZING RAIN
- L DRIZZLE
- ZL FREEZING DRIZZLE
- S SNOW
- SN SNOW SHOWERS
- SG SNOW GRAINS
- SP SNOW PELLETS
- IC ICE CRYSTALS
- IP ICE PELLETS
- IPW ICE PELLET SHOWERS
- A HAIL
- F FOG
- IF ICE FOG
- GF GROUND FOG
- BD BLOWING DUST
- BN BLOWING SAND
- BS BLOWING SNOW
- BY BLOWING SPRAY
- K SMOKE
- H HAZE
- D DUST

CEILING: UNL INDICATES UNLIMITED
 WIND DIRECTION: DIRECTIONS ARE THOSE FROM WHICH THE WIND BLOWS, INDICATED IN TENS OF DEGREES FROM TRUE NORTH: I.E., 09 FOR EAST, 18 FOR SOUTH, 27 FOR WEST. AN ENTRY OF 00 INDICATES CALM
 SPEED: THE OBSERVED AVERAGE ONE-MINUTE VALUE, EXPRESSED IN KNOTS (MPH=KNOTS X 1.15).

OBSERVATIONS AT 3-HOUR INTERVALS

JUL 1991 RICHMOND, VA 13740

HOUR L.S.T.	VISI-BILITY			WEATHER	TEMPERATURE				WIND			HOUR L.S.T.	VISI-BILITY			WEATHER	TEMPERATURE				WIND									
	SKY COVER (TENTHS)	CEILING IN HUNDREDS OF FEET	WHOLE MILES		AIR OF	WET BULB OF	DEW POINT OF	REL HUMIDITY %	DIRECTION	SPEED (KNOTS)	SKY COVER (TENTHS)		CEILING IN HUNDREDS OF FEET	WHOLE MILES	AIR OF		WET BULB OF	DEW POINT OF	REL HUMIDITY %	DIRECTION	SPEED (KNOTS)	SKY COVER (TENTHS)	CEILING IN HUNDREDS OF FEET	WHOLE MILES	AIR OF	WET BULB OF	DEW POINT OF	REL HUMIDITY %	DIRECTION	SPEED (KNOTS)
JUL 19th																														
01	6	UNL	8		75	72	70	85	19	10	7	UNL	6	F	74	73	73	97	15	3	4	UNL	7		76	74	73	91	20	7
04	10	12	8		74	71	69	85	21	10	3	UNL	5	F	75	74	74	97	19	5	5	UNL	3		74	73	72	94	13	4
07	10	10	7		75	72	71	87	21	11	9	5	3	FH	77	76	75	94	21	7	0	UNL	3	H	78	74	72	82	28	4
10	8	90	8		85	77	73	67	20	11	3	UNL	6	H	87	79	75	68	20	5	3	UNL	5	H	89	78	74	61	01	4
13	9	40	8		90	79	74	59	21	7	4	UNL	6	H	93	81	76	58	13	4	7	80	3	H	94	80	75	54	18	3
16	8	75	8		90	80	76	64	18	10	4	UNL	7	H	95	81	75	53	25	5	7	80	2	H	96	80	74	49	23	7
19	9	60	7		77	74	73	88	35	5	9	250	7	H	84	78	76	77	19	7	4	UNL	2	H	91	78	73	56	24	7
22	10	16	7	T	74	72	71	90	17	7	7	UNL	7	H	80	76	74	82	13	4	3	UNL	1	H	80	77	75	85	20	5
JUL 20th																														
JUL 21st																														
JUL 22nd																														
JUL 23rd																														
JUL 24th																														
JUL 25th																														
JUL 26th																														
JUL 27th																														
JUL 28th																														
JUL 29th																														
JUL 30th																														
JUL 31st																														

SUMMARY BY HOURS

HOUR L.S.T.	SKY COVER (TENTHS)	AVERAGES						RESULTANT WIND	
		STATION PRESSURE (INCHES)	TEMPERATURE			WIND SPEED (MPH)	DIRECTION	SPEED (MPH)	
			AIR TEMP OF	WET BULB OF	DEW POINT OF				
01	7	29.800	75	72	71	89	5.6	18	1.4
04	7	29.800	73	71	70	90	5.6	32	0.9
07	7	29.820	76	72	71	85	6.9	33	1.1
10	6	29.830	83	75	71	68	7.5	01	1.6
13	7	29.810	87	76	71	60	8.6	17	0.8
16	7	29.780	87	75	70	60	9.3	20	1.4
19	7	29.790	82	74	71	71	7.6	13	2.8
22	7	29.820	76	73	71	84	5.8	13	2.3

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

JUL 1991
RICHMOND, VA

13740

DATE	A.M. HOUR ENDING AT												P.M. HOUR ENDING AT												DATE
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
01																								01	
02			0.31	T												T	0.01	T	T				T	02	
03															T								T	03	
04										T	0.01	0.05				0.06	T							04	
05	T	T																						05	
06																								06	
07																								07	
08																								08	
09																						0.05	T	09	
10																			T	T			T	10	
11	0.02																							11	
12																						0.03	0.02	12	
13	0.07	0.11	0.12	0.65	0.13	T																		13	
14															0.13	0.11	T							14	
15																								15	
16																								16	
17																								17	
18															T	T	0.36	0.13			0.11	T		18	
19																								19	
20																								20	
21																								21	
22																								22	
23																								23	
24																								24	
25											T	0.15	0.01		0.03	0.02							T	25	
26		0.02															0.01	0.05	0.09	0.01				26	
27	0.15	0.01								T	T	T	T		0.01	0.01	T						27		
28																			T	T				28	
29	T	0.04	0.05	T	0.06	0.14	0.01	T	0.04	T	T	T	T		0.01	T	T	T	T		T		29		
30		T	T								0.05	0.02												30	
31																								31	

MAXIMUM SHORT DURATION PRECIPITATION

TIME PERIOD (MINUTES)	5	10	15	20	30	45	60	80	100	120	150	180
PRECIPITATION (INCHES)	0.25	0.43	0.46	0.51	0.60	0.69	0.72	0.78	0.78	0.78	0.81	0.90
ENDED: DATE	13	13	13	13	13	13	13	13	13	13	13	13
ENDED: TIME	0401	0402	0408	0402	0406	0422	0435	0447	0510	0519	0519	0519

THE PRECIPITATION AMOUNTS FOR THE INDICATED TIME INTERVALS MAY OCCUR AT ANY TIME DURING THE MONTH. THE TIME INDICATED IS THE ENDING TIME OF THE INTERVAL. DATE AND TIME ARE NOT ENTERED FOR TRACE AMOUNTS.

VALIDATED BY:
MATTHEW BODOSKY

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