

WOKINGHAM METEOROLOGICAL DATA

Wokingham Climatological Station, Emmbrook, Berkshire.

Lat/Long 51°25'N 00°51'W NGR (SU)798701 Altitude 46m ASL.

Monthly Means and Totals

JULY 2019

Temperature (°C)		Anomaly	Rank in the past	138	years				
Mean maximum	24.7	+1.8	14 th highest						
Mean minimum	13.5	+0.9	8 th highest						
Daily mean	19.1	+1.4	11 th highest						
Highest maximum	36.8	on 25 th	Lowest maximum	19.5	on 27 th				
Highest minimum	18.3	on 24 th	Lowest minimum	8.7	on 4 th				
Mean grass minimum	10.9	+1.1	Lowest grass minimum	4.7	on 15 th				
Mean earth @30 cm	19.9	+1.2	Earth @100 cm	18.5					
Frost duration (hrs)	0.0		Rain duration (hrs)	21.3					
Rainfall total (mm)	36.2	80 %	44 th lowest						
Highest daily fall	15.7	on 19 th	Highest rate mm/hr	71	on 24 th				
Number of: Dry days (<0.2mm)	23	Wet days (>0.9mm)	5	days ≥5mm	3				
Sunshine total (hrs)	227.4	Daily mean	7.34	114 %	Sunniest day				
N° days with: Air frost	0	Ground frost	0	Snow falling	0	Snow lying	0		
Thunder	2	Hail ≥5mm	0	Small hail/ice	0	Fog @09	0	Nil sun	2
Pressure MSL: Mean @09 GMT, mbar	1016.4	-0.2	Highest	1028.0	on 4 th	Lowest	1001.1	on 30 th	
Relative humidity: Mean (%)	70.1	Lowest	29	on 23 rd	Water vapour (g/kg), mean at 09 and 15 GMT	9.8,	9.1		
Overall mean wind speed (mph)	6.0	Windiest day	10.7	on 31 st	Max gust	29	on 30 th		
Wind direction (days)	N 4	NE 3	E 1	SE 2	S 4	SW 12	W 3	NW 2	
Least windy day (mph)	3.0	on 4 th	Calm; less than 0.5 mph (minutes)	440					

Anomaly = departure from 1981 to 2010 average (degrees C, percent and mbar).

Notes: **Very Warm and Sunny with Rainfall Below Average. Record Breaking Heatwave with July's Highest Temperature.**

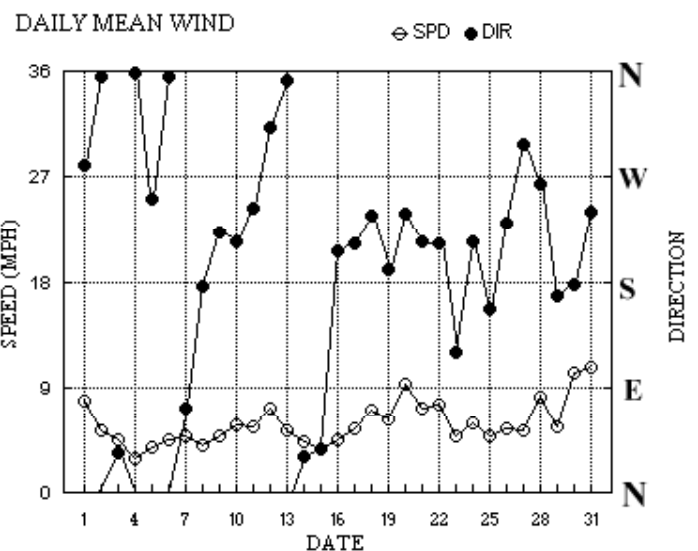
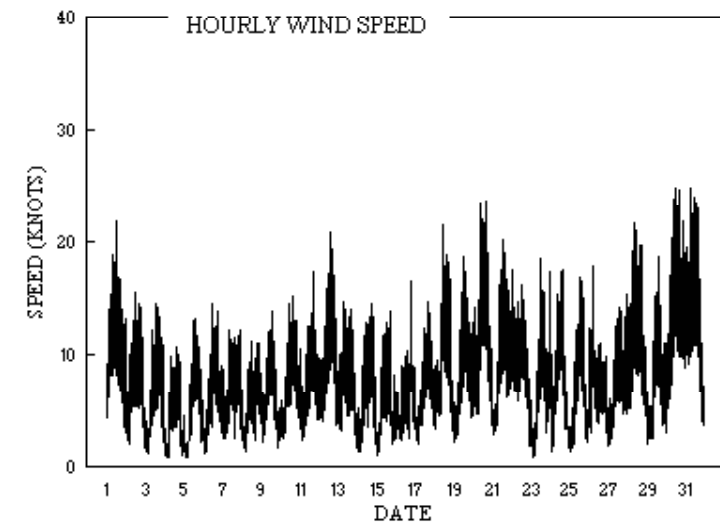
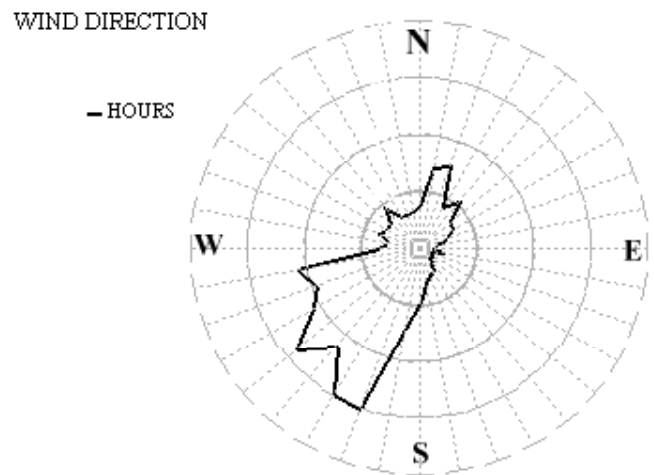
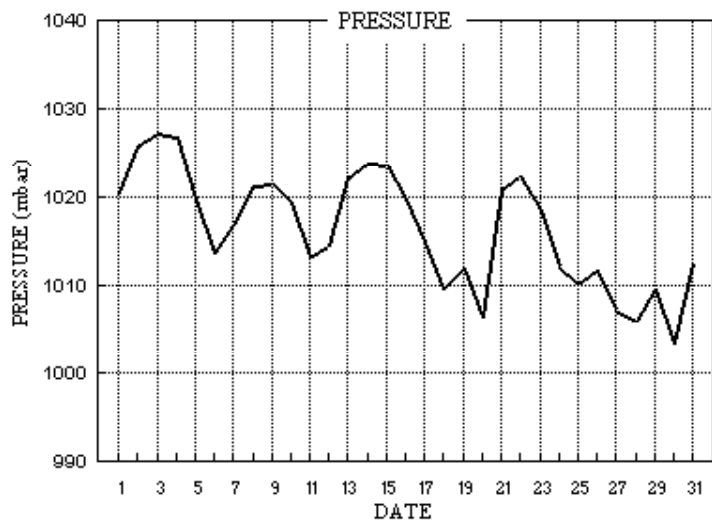
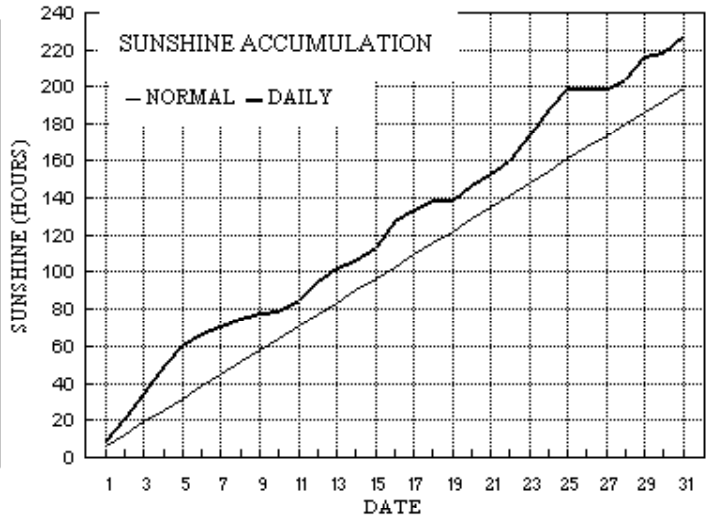
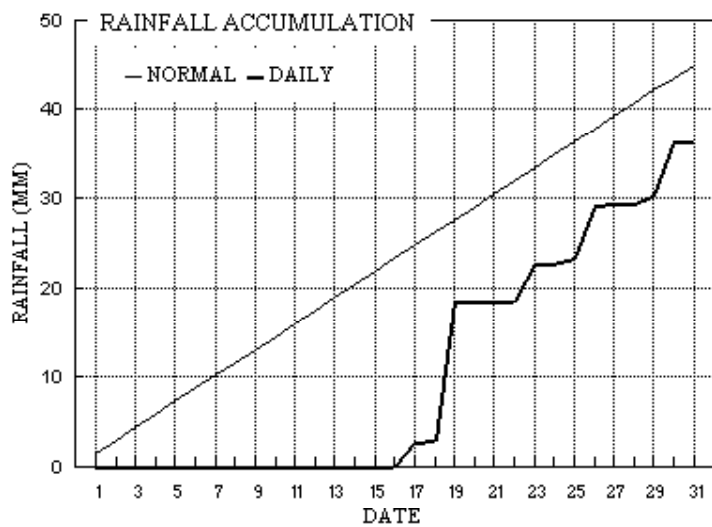
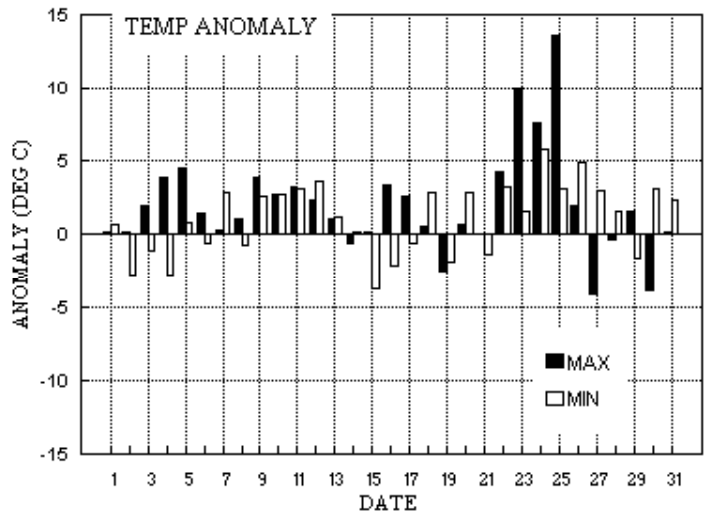
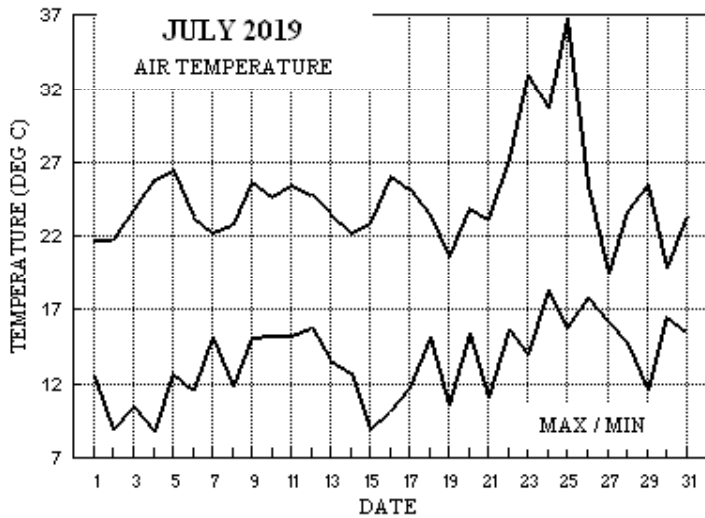
Temperature: Although the mean temperature ranks 11th highest in 138 years, it is 1.9° below the record set last July. The outstanding feature this month is the short but intense heatwave from the 22nd to the 25th, which saw a new July record set on the 25th when the maximum reached 36.8°, a value very close to Wokingham's hottest day in the past 115 years, 36.9° on the 10th August 2003. This July's highest max is 8.2° above the long-term median, while the lowest max is 2.7° above its median, and 7th highest in 107 years. The highest min is 1.8° above the median while the lowest min is 1.7° above its median. The mean grass min is highest since 2006, but the lowest grass min is close to normal. Earth temperatures at both 30cm and 1 m depth are well above average, but are lower than in the same month last year which saw record values at both depths. Anomalies for daily max were generally above normal, reaching +10° on the 23rd and an exceptional +13.6° on the 25th, though the anomaly was -4° just 2 days later, and again on the 30th. Anomalies for daily min fluctuated within +/- 4°, with the sole exception of +4.9° on the 26th. **Rainfall:** This has been a dry July overall, with just 80% of the average, but nearly half of the month's total fell on the 19th after a 22 day dry spell ended on the 16th. Compared with recent Julys, it is wetter than 2018 but much drier than in 2017. The 15.7 mm that fell on the wettest day is close to the long-term median. Accumulation of daily falls compared with normal was 23 mm in deficit at the end of the dry spell on the 16th, this reducing to 9mm by the 19th, thereafter there were enough occasional wet days to maintain the deficit near this value, the month ending 7mm down. Thunder occurred an hour either side of midnight on the 24th/25th, accompanied by a good display of lightning and a couple of short downpours giving rainfall rates of 65 mm/hr at 2348 GMT on the 23rd, and 71 mm/hr at 0033 GMT on the 24th, the highest of the month. **Sunshine:** This has been a sunny July overall, with the total 14% above average. Compared with recent years, it is 2nd sunniest after 2018 since 2014. Daily accumulation compared with normal was in surplus throughout, fluctuating between extremes of 30 hours on the 5th and 12 hours on the 11th. The first 5 days of the month were outstanding, achieving a total of 61.0 hours, a mean of 12.2 hours per day. Also, the 3 days to the 25th had a mean of 12.9 hours per day. However, 12 days up to the 19th and 6 thereafter had less than 50 % of the maximum, including less than 20 % on the 9th, 10th, 19th, 26th, 27th and 30th. Overall there were 6 days with <3 hours, 18 with =>6 hours, 11 with =>9 hours, 6 with =>12 hours and 1 with =>15 hours. **Wind:** The mean speed is slightly below average, and the month's highest gust is 5 mph below average and lowest since 2000. Daily mean speed was mostly light up to the 17th, then mainly moderate, but increasing fresh for the 30th and 31st. Directions were W'ly on 1st then mainly N'ly until 6th, veering S'ly by 8th and N'ly by 13th, continuing to veer, reaching SW'ly by 16th, thereafter mainly between S and W, except SE'ly on 23rd and NW'ly on 27th.

Table 1. Mean anomalies (max, min, rain, sun) for specified periods.

From the 1 st to the 10 th				From the 11 th to the 20 th				From the 21 st to the 31 st			
+1.9°	-0.2°	0 %	135%	+1.1°	+0.5°	127%	105%	+2.8°	+2.3°	111%	114%

B J Burton FRMetS. Hon. Met. Officer to Wokingham Town Council.

Wokingham climatological graphs for July 2019



Daily meteorological data.

Emmbrook, WOKINGHAM, Berkshire.

Month: JULY 2019

Date	Max C	Min C	Rain mm	Grass Min	30cm C	100cm C	Sun hrs	Frost hrs	pp09 mbar	Af Gf	Sf Sl	Th Ha	Ic Fg	Vec mean ddd ff sp	Max gust ddd gg HHhh	High hr ddd ff HH	Rain hrs	
1	21.7	12.4	0.0	9.3	19.7	16.7	9.3	0.0	1020.4	0 0 0 0	0 0 0 0	0 0 0 0	279	5.7 6.9	253 22 1144	234 9 05	0.0	
2	21.8	8.9	0.0	5.1	19.4	16.9	12.1	0.0	1025.7	0 0 0 0	0 0 0 0	0 0 0 0	355	4.3 4.6	28 16 1101	14 7 17	0.0	
3	23.8	10.4	0.0	7.3	19.2	17.1	13.7	0.0	1027.3	0 0 0 0	0 0 0 0	0 0 0 0	35	3.5 3.9	31 15 1209	15 7 17	0.0	
4	25.8	8.7	0.0	5.8	19.4	17.3	15.2	0.0	1026.9	0 0 0 0	0 0 0 0	0 0 0 0	357	1.8 2.6	22 11 1510	334 5 18	0.0	
5	26.5	12.7	0.0	9.8	19.8	17.5	10.7	0.0	1019.9	0 0 0 0	0 0 0 0	0 0 0 0	251	2.3 3.4	229 13 1355	256 6 15	0.0	
6	23.3	11.6	0.0	7.7	19.9	17.8	6.3	0.0	1013.7	0 0 0 0	0 0 0 0	0 0 0 0	355	3.0 4.0	14 15 1256	12 7 17	0.0	
7	22.3	15.1	0.0	15.3	20.1	18.0	3.5	0.0	1016.8	0 0 0 0	0 0 0 0	0 0 0 0	73	1.2 4.3	63 12 0930	209 6 21	0.0	
8	22.8	11.8	tr	8.1	19.9	18.1	4.7	0.0	1021.3	0 0 0 0	0 0 0 0	0 0 0 0	176	3.1 3.5	152 11 1154	204 6 19	0.0	
9	25.7	15.1	0.0	14.6	19.8	18.2	2.3	0.0	1021.5	0 0 0 0	0 0 0 0	0 0 0 0	223	2.7 4.2	213 14 1422	233 6 12	0.0	
10	24.7	15.2	tr	13.2	20.0	18.2	1.7	0.0	1019.5	0 0 0 0	0 0 0 0	0 0 0 0	215	4.8 5.1	194 15 1643	199 8 16	0.0	
11	25.5	15.3	0.0	13.9	20.0	18.3	5.8	0.0	1013.3	0 0 0 0	0 0 0 0	0 0 0 0	243	4.8 4.9	255 17 1634	266 9 16	0.0	
12	24.8	15.8	0.0	12.7	20.1	18.4	10.0	0.0	1014.5	0 0 0 0	0 0 0 0	0 0 0 0	311	5.6 6.4	337 21 1441	334 10 15	0.0	
13	23.5	13.6	tr	9.9	19.9	18.5	6.7	0.0	1022.2	0 0 0 0	0 0 0 0	0 0 0 0	351	4.2 4.7	339 15 0701	350 8 07	0.0	
14	22.2	12.7	0.0	8.5	19.8	18.5	4.3	0.0	1023.9	0 0 0 0	0 0 0 0	0 0 0 0	31	3.7 3.8	33 15 1717	20 7 17	0.0	
15	22.9	8.9	0.0	4.7	19.3	18.6	7.2	0.0	1023.6	0 0 0 0	0 0 0 0	0 0 0 0	38	2.5 3.3	24 14 1649	38 5 08	0.0	
16	26.1	10.1	0.0	7.5	19.3	18.7	14.0	0.0	1019.9	0 0 0 0	0 0 0 0	0 0 0 0	207	3.6 4.0	193 17 1842	204 8 18	0.0	
17	25.2	11.7	2.6	8.5	19.8	18.7	6.6	0.0	1015.0	0 0 0 0	0 0 0 0	0 0 0 0	213	4.6 4.7	233 15 1526	224 8 16	1.2	
18	23.4	15.1	0.2	12.5	19.9	18.7	4.6	0.0	1009.7	0 0 0 0	0 0 0 0	0 0 0 0	237	5.7 6.2	267 22 1035	252 10 11	0.5	
19	20.6	10.6	15.7	7.1	19.5	18.7	0.0	0.0	1011.9	0 0 0 0	0 0 0 0	0 0 0 0	190	5.3 5.4	191 19 1210	203 9 14	6.3	
20	23.9	15.4	0.0	15.9	19.1	18.8	8.4	0.0	1006.4	0 0 0 0	0 0 0 0	0 0 0 0	238	7.4 8.1	259 24 1617	248 12 10	0.0	
21	23.1	11.1	0.0	7.5	19.4	18.8	5.6	0.0	1020.8	0 0 0 0	0 0 0 0	0 0 0 0	214	6.2 6.3	231 20 1349	229 10 13	0.0	
22	27.2	15.7	0.0	14.7	19.5	18.8	7.5	0.0	1022.4	0 0 0 0	0 0 0 0	0 0 0 0	212	6.5 6.6	226 18 0059	213 9 01	0.0	
23	32.9	14.0	4.2	10.1	20.0	18.8	14.2	0.0	1018.5	0 0 0 0	1 0 0 0	0 0 0 0	121	3.2 4.2	158 19 1355	159 9 13	0.8	
24	30.7	18.3	0.0	16.0	20.8	18.9	13.4	0.0	1012.2	0 0 0 0	1 0 0 0	0 0 0 0	214	3.9 5.3	208 18 1512	219 10 14	0.0	
25	36.8	15.8	0.5	13.6	21.2	19.0	11.1	0.0	1010.3	0 0 0 0	0 0 0 0	0 0 0 0	157	3.0 4.3	154 17 1424	160 9 12	0.2	
26	25.4	17.8	6.0	15.9	21.5	19.2	0.7	0.0	1011.8	0 0 0 0	0 0 0 0	0 0 0 0	230	4.6 4.7	242 18 0622	219 7 05	8.5	
27	19.5	16.1	0.1	15.8	21.1	19.3	0.0	0.0	1007.4	0 0 0 0	0 0 0 0	0 0 0 0	298	4.3 4.6	339 14 1542	321 7 15	0.6	
28	23.6	14.7	0.0	13.0	20.4	19.5	4.9	0.0	1006.0	0 0 0 0	0 0 0 0	0 0 0 0	263	6.8 7.1	298 22 0822	249 9 17	0.0	
29	25.5	11.5	0.9	7.0	20.2	19.5	11.9	0.0	1009.7	0 0 0 0	0 0 0 0	0 0 0 0	168	3.9 4.9	162 19 1444	165 9 15	0.5	
30	19.8	16.5	6.0	13.9	20.4	19.5	2.3	0.0	1003.4	0 0 0 0	0 0 0 0	0 0 0 0	178	6.9 8.9	162 25 1334	157 13 12	2.7	
31	23.4	15.5	0.0	14.5	19.8	19.5	8.7	0.0	1012.7	0 0 0 0	0 0 0 0	0 0 0 0	240	9.1 9.3	234 25 0748	243 12 08	0.0	
Total			36.2				227.4	0.0										21.3
Mean	24.7	13.5		10.9	19.9	18.5	7.34	0.0	1016.4					235	2.3 5.2			
Anom	+1.8	+0.9	80%	+1.1	+1.2	+1.7	114%											
Daily mean	19.1																	
Anom	+1.4																	

Number of days with:

Air frost = 0 Ground frost = 0 Nil sun = 2
 Snow falling = 0 Snow lying = 0 Thunder = 2
 Hail=>5mm = 0 Hail<5mm or ice = 0 Fog at 09GMT = 0

Abbreviations.

Max/min = highest and lowest air temperature at 1.2m in 24 hour period ending at 09 GMT
 Rain = total rainfall and melted snowfall in 24 hour period ending at 09 GMT, millimetres. (Tr = trace, <.05mm).
 Grass min = Lowest overnight temperature at grass tip level.
 Sun = hours of bright sunshine, measured electronically. Frost = Number of hours with air temp below 0 deg C.
 pp09 = Air pressure corrected to mean sea level at 0900 GMT, millibars.
 Af = Air frost. Gf = Ground frost. Sf = Snow falling. Sl = Snow lying at 09 GMT.
 Th = Thunder. Ha = Hail =>5mm. Ic = Hail <5mm or ice. Fg = Fog at 09 GMT.
 Vec mean = 24 hour mean wind vector, ddd = direction in degrees from true north, ff = speed in knots.
 Sp = 24 hour mean wind speed in knots.
 Max gust = Highest gust in 24 hours, gg = speed in knots, HHhh = Time, hours and minutes, GMT.
 High hr = Highest hourly mean wind, HH = hour commencing. Rain Hrs = Duration of rain, 24 hours to 09 GMT. Excludes snow/hail.
 30cm and 100 cm are earth temperatures at those depths, read at 09 GMT.
 Anom = Departure from 1981-2010 climatological average.
 All temperatures in degrees Celsius.

Weather observations. Emmbrook, Wokingham, Berkshire.

Observations at 0900 GMT for JULY 2019

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	pppww	W1W2	NhCl	hCrCl	NChshs	NChshs	NChshs	Date	Remarks					
1	88	4	28	07	18	17.8	8.6	55	6.9	1020.4	2	010	01	1	1	4	5	6	0	1	84633	1	1Ci75		
2	84	1	36	05	11	16.8	10.4	66	7.7	1025.7	0	002	03	0	0	1	8	5	0	1	81825	2	1Sc40 1Ci80 COTRA Cu med		
3	82	1	03	06	12	18.9	10.5	58	7.7	1027.3	0	004	03	0	0	1	2	5	0	0	81828	3	Cu med		
4	88	1	08	03	10	19.1	11.4	61	8.2	1026.9	6	007	03	0	0	0	0	9	0	4	81080	4	COTRA		
5	80	2	35	02	07	20.3	12.0	59	8.6	1019.9	8	010	02	0	0	2	0	9	7	0	81366	5	2Ac72		
6	89	2	35	04	10	21.1	13.0	90	9.3	1013.7	8	004	03	0	0	1	1	6	3	0	81830	6	2Ac58 Absent 6-8 inc vv&cld est		
7	70	8	06	06	11	15.6	14.0	90	9.8	1016.8	3	009	02	2	2	8	5	3	/	/	83709	85615	88620	7	
8	82	7	18	04	09	18.6	8.8	53	7.0	1021.3	4	000	03	2	2	4	8	6	0	1	83830	86075		8	2Sc45
9	80	7	21	07	12	19.5	12.3	63	8.8	1021.5	6	002	02	2	2	6	8	6	7	/	81830	86656	87358	9	Cu hum
10	86	7	24	05	10	20.7	13.2	62	9.3	1019.5	8	001	03	2	2	6	5	6	7	1	83635	84650	86363	10	/Ci75
11	81	7	24	05	10	19.7	14.3	71	10.1	1013.3	7	002	01	2	2	2	1	5	7	/	82823	83359	85361	11	Cu hum
12	81	5	30	05	12	21.0	13.4	62	9.5	1014.5	2	005	03	1	1	5	8	5	0	1	85825			12	1Sc50 1Ci75 Cu med
13	84	7	01	06	14	19.4	11.9	62	8.6	1022.2	0	001	03	2	2	4	5	5	0	1	84625	86080		13	COTRA
14	75	7	06	04	09	16.9	13.4	80	9.4	1023.9	1	007	01	6	2	7	5	4	/	/	81710	87620		14	
15	82	7	04	04	12	16.1	10.8	71	8.0	1023.6	4	000	02	2	2	7	5	5	/	/	87623			15	
16	84	1	24	02	08	20.2	12.4	61	8.9	1019.9	8	010	02	0	0	0	0	9	0	1	81081			16	COTRA
17	65	7	18	04	08	21.4	14.1	63	9.9	1015.0	8	006	03	2	2	0	0	9	0	6	83272	87078		17	COTRA
18	70	7	25	07	13	18.2	16.2	88	11.4	1009.7	3	005	03	6	5	7	8	4	/	/	84810	83640	87650	18	Cu fra/hum
19	50	8	16	06	12	16.1	14.6	91	10.3	1011.9	8	008	20	6	5	8	5	4	/	/	82710	86618	88650	19	
20	84	7	23	07	16	20.6	16.8	79	12.0	1006.4	3	008	03	6	5	7	8	4	/	/	83813	87625		20	Cu med
21	84	7	22	09	14	20.2	14.1	68	9.9	1020.8	2	006	03	2	2	2	8	5	0	1	82822	86075		21	1Sc50 COTRA Cu med
22	75	8	23	06	15	20.6	17.2	81	12.1	1022.4	1	006	02	2	2	8	5	4	/	/	87614	88618		22	
23	65	2	11	05	09	24.7	17.7	65	12.5	1018.5	8	020	01	1	1	1	6	4	0	1	81710			23	2Ci75 COTRA
24	68	2	23	06	11	25.1	19.0	69	13.6	1012.2	1	008	03	0	0	1	1	5	0	1	81820			24	2Ci80 Cu hum
25	80	1	13	03	11	29.4	17.6	49	12.5	1010.3	8	011	02	0	0	0	0	9	0	1	81080			25	
26	65	7	22	04	10	20.4	16.2	77	11.4	1011.8	3	008	02	2	2	1	1	4	8	/	81815	83362	87365	26	1Ac59 Cu fra Ac cas
27	59	8	29	04	09	17.4	16.4	94	11.6	1007.4	7	006	61	6	6	6	7	3	7	/	85706	88358		27	2Sc50
28	84	6	29	08	22	18.8	12.1	65	8.8	1006.0	2	001	01	2	2	3	5	5	3	1	83625	83358	85075	28	COTRA
29	86	1	21	04	09	20.3	11.8	58	8.6	1009.7	0	000	03	0	0	1	1	6	0	0	81830			29	Cu hum
30	50	8	13	11	20	17.2	15.4	89	10.9	1003.4	7	012	61	6	5	7	5	4	2	/	83712	86615	88550	30	
31	81	6	25	12	21	19.8	13.5	67	9.6	1012.7	1	014	02	8	2	5	8	5	3	0	83822	84656		31	2Ac58 Cu med

Mean vis = 36.2 km

Mean cloud = 5.1 64%

Mean wind speed = 5.5 kn

Mean gust = 12 kn

Mean TT = 19.7 °C

Mean TdTd = 13.6 °C

Mean RH = 69.9 %

Mean r = 9.8 g/kg

Mean PPP = 1016.4 mbar

See appendix 2 below for full code details

VV = Visibility code (Code FM12-4377)

N = Total cloud amount, oktas

dd = Direction from which wind is blowing, tens of degrees true

ff = 10 minute mean wind speed, knots

gg = Highest gust in past hour, knots

TT = Air temperature at 1.2 m, deg Celsius

TdTd = Dew point temperature at 1.2 m, deg Celsius

RH = Relative humidity at 1.2 m

r = Humidity mixing ratio at 1.2 m, g/kg

PPP = Air pressure reduced to sea level, mbar

a = Characteristic of pressure tendency (Code FM12-0200)

ppp = 3 hr pressure tendency, tenths of mbar

ww = Present weather code (Code FM12-4677)

W1, W2 = Past weather code (Code FM12-4561)- covers past 3 hours.

Nh = Amount of low cloud present, oktas

Cl = Type of low cloud (Code Fm12-0513)

h = Height of low cloud (Code FM12-1600)

Cm = Type of medium cloud (Code FM12-0515)

Ch = Type of high cloud (Code FM12-0509)

8 groups. 8 = indicator for cloud detail

N = Amount of cloud, oktas

C = Type of cloud (FM12-0500)

hshs= Height of cloud (FM12-1677)

Remarks : COTRA = persistent condensation trails present

Weather observations. Emmbrook, Wokingham, Berkshire.

Observations at 1500 GMT for JULY 2019

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	pppww	W1W2	NhCl	hCrCl	NChshs	NChshs	NChshs	Date	Remarks					
1	88	7	29	07	17	21.4	10.3	49	7.7	1021.0	1	003	03	1	1	7	5	6	/ /	87642	1				
2	86	6	36	04	12	19.3	9.2	52	7.1	1024.8	5	003	02	1	1	6	4	7	0	1	82850	86650	81080	2	Cu hum
3	81	1	06	05	13	23.7	9.7	41	7.3	1025.8	7	007	01	1	1	1	4	7	0	0	81650			3	
4	89	5	03	03	11	24.8	9.1	37	7.1	1022.8	7	021	02	1	1	0	0	9	0	1	85077			4	
5	82	7	26	06	13	25.2	11.0	41	8.1	1017.1	8	019	02	2	2	0	0	9	3	2	83370	86075		5	Absent 5 to 7 inc vv&cld est
6	82	7	01	06	12	22.5	15.4	64	10.8	1012.8	4	000	02	2	2	5	8	6	7	/	81830	85656	87358	6	
7	80	5	11	03	12	20.5	13.5	64	9.5	1017.0	8	003	01	2	2	4	8	6	3	1	82830	83650		7	3Ac57 /Ci75
8	84	7	19	02	08	22.1	11.5	51	8.3	1020.0	7	009	02	2	2	2	8	6	6	1	82848	83358		8	1Sc56 /Ci80 COTRA Cu con
9	82	6	23	07	14	25.4	10.8	40	8.0	1019.8	7	011	01	2	2	5	4	7	4	1	82850	84656		9	3Ac57 2Ci80 COTRA Cu hum Sc len Ac len
10	82	7	20	07	12	23.9	14.6	56	10.2	1016.8	7	018	02	2	2	5	8	6	3	2	82835	84650	85075	10	3Ac65 Cu med
11	84	5	22	07	14	24.3	14.1	53	10.0	1012.0	6	003	02	2	2	3	8	6	3	1	83835			11	1Sc50 2Ac62 1Ci75 Cu med
12	84	5	33	10	21	23.8	11.5	46	8.4	1015.7	3	006	02	2	2	3	2	7	6	1	83850			12	2Ac57 1Ci75 Cu med
13	81	6	05	04	13	23.4	13.0	52	9.2	1021.5	7	009	01	2	2	3	8	6	0	1	82842	85080		13	2Sc50 COTRA Cu med
14	83	7	05	05	13	20.3	13.0	63	9.2	1023.1	7	008	02	2	2	7	8	6	/ /		82835	87656		14	Cu med
15	84	3	05	05	13	20.5	11.7	57	8.4	1021.7	7	010	02	1	1	3	4	6	0	0	81842	83645		15	
16	84	3	22	04	09	25.6	9.4	36	7.3	1017.5	7	011	02	0	0	2	1	7	0	1	82856			16	2Ci80 COTRA Cu hum
17	81	8	21	07	12	24.6	11.9	45	8.6	1012.6	6	012	03	2	2	1	1	7	7	7	81850	83365	87270	17	1Ac63 COTRA Cu hum Halo 22° part
18	84	6	26	08	19	22.7	11.4	49	8.4	1010.3	1	002	01	2	2	2	8	7	3	1	82850	83363		18	1Sc56 3Ci75 COTRA Cu hum
19	59	8	20	09	18	18.3	16.8	91	11.9	1010.0	7	009	50	5	2	8	5	3	/ /		85707	88610		19	
20	84	5	25	10	21	22.9	12.5	52	9.0	1009.4	3	015	02	2	2	5	8	6	0	0	83842	83650		20	Cu med
21	86	7	21	08	16	21.7	13.9	61	9.7	1021.3	0	003	03	2	2	6	8	6	0	8	82835	85650	87275	21	Cu hum
22	80	3	21	08	15	26.5	18.4	61	13.0	1021.1	7	011	02	1	1	2	4	6	0	1	82830			22	1Sc35 2Ci78 COTRA Cu hum
23	80	0	16	07	16	32.7	13.9	32	9.8	1014.7	7	019	02	0	0	0	0	9	0	0				23	
24	81	6	22	11	17	30.2	11.7	32	8.5	1012.6	2	002	03	1	1	0	0	9	0	1	86080			24	COTRA
25	75	5	15	10	17	36.0	15.7	30	11.1	1007.5	8	012	03	1	1	5	0	9	8	0	85363			25	Ac cas
26	78	7	22	06	11	24.8	15.7	57	11.1	1010.1	6	014	02	2	2	2	1	6	7	/	82838	84359	87465	26	Cu hum
27	63	8	31	06	14	19.3	15.4	78	10.9	1006.8	2	003	21	6	2	6	8	4	7	/	83815	85640	88359	27	Cu med jpNW vv30k W
28	83	7	26	08	16	22.0	10.5	48	7.9	1005.8	7	001	02	2	2	7	8	6	/ /		82848	87650		28	Cu hum
29	84	3	16	07	19	24.2	10.1	41	7.7	1008.1	6	005	03	1	1	1	1	7	8	0	81850			29	1Ac59 2Ac61 Cu hum Ac cas
30	57	7	21	10	23	18.2	16.2	88	11.5	1002.1	3	004	81	8	6	7	8	4	/ /		81710	86815		30	/Sc35 Cu med
31	83	6	26	10	22	23.0	9.4	42	7.3	1013.2	0	001	01	2	2	1	8	6	0	1	81845	86078		31	1Sc56 COTRA Cu hum Parhelion U/a L/a cont

Mean vis = 41.0 km

Mean cloud = 5.6 70%

Mean wind speed = 6.8 kn

Mean gust = 15 kn

Mean TT = 23.7 °C

Mean TdTd = 12.6 °C

Mean RH = 51.9 %

Mean r = 9.1 g/kg

Mean PPP = 1015.3 mbar

See appendix 2 below for full code details

VV = Visibility code (Code FM12-4377)

N = Total cloud amount, oktas

dd = Direction from which wind is blowing, tens of degrees true

ff = 10 minute mean wind speed, knots

gg = Highest gust in past hour, knots

TT = Air temperature at 1.2 m, deg Celsius

TdTd = Dew point temperature at 1.2 m, deg Celsius

RH = Relative humidity at 1.2 m

r = Humidity mixing ratio at 1.2 m, g/kg

PPP = Air pressure reduced to sea level, mbar

a = Characteristic of pressure tendency (Code FM12-0200)

ppp = 3 hr pressure tendency, tenths of mbar

ww = Present weather code (Code FM12-4677)

W1, W2 = Past weather code (Code FM12-4561)- covers past 3 hours.

Nh = Amount of low cloud present, oktas

Cl = Type of low cloud (Code Fm12-0513)

h = Height of low cloud (Code FM12-1600)

Cm = Type of medium cloud (Code FM12-0515)

Ch = Type of high cloud (Code FM12-0509)

8 groups. 8 = indicator for cloud detail

N = Amount of cloud, oktas

C = Type of cloud (FM12-0500)

hshs= Height of cloud (FM12-1677)

Remarks : COTRA = persistent condensation trails present

Wokingham Sunshine Hourly analysis	Hour	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul
2019	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4	0.42	0.41	0.00	0.42	0.00	0.35	0.00	0.16	0.00	0.03	0.00	0.00	0.31	0.00	0.00	0.26
	5	0.88	1.00	0.89	1.00	0.88	1.00	0.00	0.06	0.00	0.46	0.00	0.53	1.00	0.00	0.00	0.99
	6	0.88	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.12	0.06	0.57	1.00	0.00	0.00	1.00
	7	0.50	1.00	1.00	1.00	1.00	1.00	0.00	0.93	0.07	0.02	0.32	0.74	1.00	0.00	0.00	1.00
	8	0.74	1.00	1.00	1.00	1.00	1.00	0.00	0.82	0.00	0.20	0.07	0.62	1.00	0.00	0.00	1.00
	9	0.82	1.00	0.89	1.00	0.87	0.95	0.00	0.82	0.05	0.20	0.70	0.55	0.44	0.03	0.00	1.00
	10	0.93	0.54	0.48	1.00	0.91	0.10	0.00	0.75	0.07	0.04	0.23	0.38	0.00	0.00	0.06	1.00
	11	0.76	0.78	0.46	1.00	0.55	0.53	0.19	0.53	0.09	0.11	0.18	0.73	0.07	0.00	0.78	0.93
	12	0.78	0.54	0.76	1.00	0.70	0.09	0.62	0.35	0.29	0.02	0.00	0.52	0.20	0.00	0.35	0.93
	13	0.80	0.48	0.99	1.00	0.67	0.02	0.47	0.07	0.69	0.27	0.38	0.37	0.40	0.30	0.85	0.97
	14	0.27	0.06	1.00	1.00	0.66	0.15	0.43	0.07	0.65	0.09	0.66	0.43	0.19	0.26	0.41	0.56
	15	0.09	0.10	1.00	1.00	0.37	0.06	0.80	0.05	0.44	0.07	0.63	0.88	0.54	0.05	0.92	1.00
	16	0.00	0.94	1.00	1.00	0.55	0.00	0.78	0.08	0.00	0.02	1.00	0.78	0.40	0.74	0.97	0.97
	17	0.00	0.97	1.00	1.00	0.00	0.06	0.20	0.00	0.00	0.00	0.57	0.90	0.00	0.82	1.00	0.45
	18	0.89	1.00	1.00	1.00	0.36	0.00	0.00	0.00	0.00	0.00	0.71	1.00	0.13	1.00	1.00	1.00
	19	0.54	1.00	1.00	0.79	0.92	0.00	0.00	0.00	0.00	0.00	0.25	0.98	0.00	1.00	0.83	0.91
	20	0.00	0.27	0.22	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.09	0.00	0.00
	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot		9.28	12.09	13.68	15.21	10.69	6.31	3.48	4.70	2.34	1.66	5.76	10.04	6.67	4.29	7.17	13.95
	Hour	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	Mean
	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4	0.27	0.00	0.00	0.00	0.33	0.00	0.10	0.00	0.08	0.00	0.00	0.00	0.11	0.32	0.00	0.12
	5	0.82	0.00	0.00	0.00	1.00	0.00	1.00	0.64	1.00	0.00	0.00	0.00	0.78	0.94	0.00	0.48
	6	1.00	0.00	0.00	0.00	0.21	0.02	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.54	0.00	0.46
	7	1.00	0.00	0.00	0.28	0.67	0.00	1.00	1.00	1.00	0.05	0.00	0.00	1.00	0.00	0.14	0.51
	8	1.00	0.00	0.00	0.25	1.00	0.00	1.00	1.00	1.00	0.06	0.00	0.59	1.00	0.03	0.26	0.54
	9	1.00	0.01	0.00	0.45	0.47	0.00	1.00	1.00	1.00	0.00	0.00	0.56	0.87	0.00	0.50	0.52
	10	0.70	0.00	0.00	0.46	0.11	0.31	1.00	1.00	1.00	0.00	0.00	0.16	0.45	0.02	0.28	0.39
	11	0.32	0.02	0.00	0.69	0.02	0.00	1.00	0.97	0.58	0.26	0.00	0.18	0.98	0.11	0.79	0.44
	12	0.44	0.04	0.00	0.72	0.17	0.56	1.00	1.00	0.99	0.09	0.00	0.62	0.90	0.00	0.77	0.47
	13	0.00	0.26	0.00	0.46	0.23	0.71	1.00	1.00	0.81	0.00	0.00	0.28	1.00	0.03	0.72	0.49
	14	0.00	0.61	0.00	0.32	0.04	0.93	1.00	1.00	0.95	0.18	0.00	0.13	0.98	0.04	0.89	0.45
	15	0.00	0.66	0.00	0.95	0.08	0.98	1.00	1.00	0.17	0.00	0.00	0.06	0.92	0.00	1.00	0.48
	16	0.00	0.82	0.00	1.00	0.34	1.00	1.00	1.00	0.07	0.00	0.00	0.79	0.87	0.00	1.00	0.55
	17	0.05	0.69	0.00	1.00	0.64	1.00	1.00	1.00	0.20	0.00	0.00	0.82	0.84	0.27	1.00	0.50
	18	0.00	0.73	0.00	1.00	0.13	1.00	0.68	0.76	0.78	0.00	0.00	0.28	0.16	0.00	1.00	0.50
	19	0.00	0.74	0.00	0.80	0.14	0.98	0.45	0.00	0.47	0.00	0.00	0.39	0.00	0.00	0.29	0.40
	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot		6.60	4.58	0.00	8.37	5.56	7.50	14.23	13.37	11.10	0.66	0.00	4.86	11.88	2.30	8.65	227.00

JULY 2019	T mn	Tx	Time	Tn	Time	RHmn	RH x	Time	RH n	Time	Tdmn	r mn	r x	Time	r n	Time	p mn	p x	Time	p n	Time	
1	17.03	21.7	1456	12.4	200	66.2	90.5	222	47.4	1456	10.3	7.7	8.6	1452	6.6	835	1020.81	1025.1	2356	1018.2	149	
2	15.64	21.8	1348	8.9	402	66.5	94.5	417	42.2	1349	8.9	7.0	8.2	1230	6.4	1616	1025.30	1026.8	901	1024.1	1639	
3	17.17	23.8	1623	10.4	359	61.8	89.6	416	35.7	1353	9.1	7.1	8.6	1214	6.1	1354	1026.58	1027.9	2224	1025.2	1736	
4	17.87	25.8	1519	8.7	343	64.2	95.0	442	34.7	1521	10.2	7.6	9.3	1518	6.4	1433	1024.56	1028.0	54	1021.0	1857	
5	19.71	26.5	1439	12.7	419	61.8	95.2	440	35.9	1437	11.5	8.4	10.1	1153	6.7	2026	1018.51	1021.8	44	1015.1	2308	
6	18.36	23.3	1317	11.6	349	73.2	93.1	353	54.3	1145	13.3	9.5	11.6	1316	7.1	15	1013.75	1015.4	2	1012.5	1452	
7	17.31	22.3	1546	15.1	611	79.6	94.7	742	50.7	1648	13.6	9.6	11.2	1225	7.9	1652	1016.76	1019.8	2358	1014.5	211	
8	17.58	22.8	1449	11.8	308	63.2	93.9	202	44.3	1546	10.1	7.6	9.3	1203	6.3	908	1020.63	1021.9	2247	1019.4	141	
9	19.43	25.7	1456	15.1	338	62.6	81.8	2329	37.1	1251	11.8	8.5	10.7	1450	6.1	1159	1020.76	1021.9	533	1019.1	1724	
10	19.96	24.7	1356	15.2	444	66.8	92.6	448	50.6	1858	13.3	9.5	11.2	1324	7.5	2226	1017.85	1020.3	7	1014.8	2327	
11	19.80	25.5	1452	15.3	435	64.6	77.7	736	48.9	1542	12.8	9.2	11.4	1415	7.7	5	1012.97	1015.1	10	1011.7	1835	
12	19.79	24.8	1414	15.5	2338	64.8	89.1	413	39.9	1357	12.5	9.0	10.6	936	7.3	1357	1015.59	1020.7	2337	1012.6	47	
13	17.88	23.5	1531	13.4	2356	71.3	95.0	2359	49.4	1530	12.4	8.8	10.3	1457	8.1	1133	1021.85	1023.1	2357	1020.2	10	
14	16.45	22.2	1513	11.5	2359	78.8	96.5	136	51.6	1629	12.5	8.9	10.3	1349	7.6	2343	1023.32	1024.1	813	1022.4	1838	
15	15.82	22.9	1512	8.9	254	73.8	97.8	332	47.2	1613	10.7	7.9	9.1	1056	6.7	248	1022.49	1024.3	36	1020.4	1801	
16	18.54	26.1	1511	10.1	431	65.0	95.7	541	31.5	1544	10.9	8.1	9.5	931	6.4	1544	1019.00	1021.5	3	1016.6	1826	
17	18.95	25.2	1235	11.7	442	67.4	95.8	515	39.8	1226	12.2	8.8	10.8	1011	7.2	1226	1013.92	1017.7	6	1011.2	2359	
18	18.11	23.4	1428	12.9	2359	72.0	96.4	746	42.3	1518	12.5	9.1	12.1	806	6.9	1534	1010.69	1013.6	2339	1009.1	645	
19	15.69	18.6	1724	10.6	201	91.5	95.7	2354	78.3	0	14.3	10.3	12.6	1723	7.1	108	1010.85	1013.5	147	1007.3	2359	
20	19.00	23.9	1403	13.9	2359	74.5	96.9	626	46.9	1341	13.9	10.0	12.8	757	7.6	1914	1009.23	1016.9	2356	1005.3	656	
21	17.64	23.1	1200	11.1	430	74.1	96.9	444	52.7	1159	12.6	9.0	10.2	1159	7.8	347	1020.44	1022.1	2234	1016.7	1	
22	21.37	27.2	1417	16.1	0	75.6	96.4	2350	55.8	1630	16.6	11.7	13.8	1218	10.0	0	1021.52	1022.6	844	1020.5	1636	
23	23.97	32.9	1437	14.0	433	65.4	99.1	601	28.7	1422	15.6	11.0	13.8	1127	8.6	1422	1016.64	1021.5	4	1010.0	2324	
24	23.69	30.7	1432	17.4	2355	68.1	98.1	523	31.8	1502	16.4	11.7	14.9	936	8.4	1612	1012.09	1014.4	2128	1008.8	50	
25	25.98	36.8	1329	15.8	421	60.7	94.0	441	28.8	1450	16.6	11.7	14.2	1035	10.0	2331	1009.89	1013.1	0	1007.2	1541	
26	20.91	25.4	1439	16.6	2330	73.4	95.9	2336	54.2	1435	15.8	11.1	12.4	1229	9.6	37	1010.61	1013.0	520	1009.3	2351	
27	17.36	19.5	1438	15.6	2353	88.5	97.5	343	77.0	1446	15.4	10.9	11.8	1041	9.7	2342	1007.46	1009.5	8	1006.5	1711	
28	18.40	23.6	1634	14.3	2357	67.6	88.9	0	41.0	1629	11.9	8.7	9.8	1225	7.4	1628	1006.40	1008.8	2359	1005.3	1632	
29	19.16	25.5	1358	11.5	505	63.4	95.4	511	35.8	1447	11.2	8.3	9.5	1302	7.0	1611	1008.45	1010.1	804	1006.4	2342	
30	17.52	19.6	1409	16.4	2350	83.1	94.9	1033	65.6	0	14.6	10.4	12.2	1033	8.7	8	1004.56	1008.9	2358	1001.1	1252	
31	18.69	23.4	1451	14.8	0	64.3	90.0	433	32.0	1810	11.1	8.3	10.2	1152	4.9	1841	1012.79	1016.6	2358	1008.6	0	
Total																						
Mean	18.86	24.58		13.19		70.1	93.70		45.54		12.72	9.20	11.01		7.47		1016.01	1018.70		1013.58		
Max	25.98	36.76		17.36		91.5	99.10		78.30		16.64	11.75	14.88		10.02		1026.58	1028.00		1025.17		
Min	15.64	18.61		8.65		60.7	77.70		28.70		8.93	7.00	8.21		4.89		1004.56	1008.81		1001.06		

Wokingham Automatic Weather Station
 AWS samples taken every 0.5 seconds
 x and n refer to maximum and minimum respectively

Readings taken at Wokingham Climatological Station, Emmbrook, Berkshire
Lat 51.425 N, Long 0.853 W, NGR (SU) 798701
Altitude 45 m ASL.

Tmn = 00 to 24 GMT mean air temperature at 1.2 m, deg C
 RHmn = 00-24 GMT mean relative humidity at 1.2 m, percent
 TDmn = 00-24 GMT mean dew point at 1.2 m, deg C
 rmn = 00-24 GMT mean humidity mixing ratio, g/kg
 pmn = 00-24 GMT mean air pressure reduced to mean sea level, mbar
 Time = hours and minutes in GMT of extreme values

Temperature and humidity are from an aspirated Vaisala HMP45 unit
 Pressure is from a Setra CS100 sensor
 Data is logged on a Campbell Scientific CR10X measurement and control system

Explanation and definition of some of the terms used in the Wokingham Weather Reports.

Average: Generally refers to the 30 year climatological average, currently 1981 to 2010. This will be next updated in 2020. For some parameters, notably wind, the climatological average is not available, and if the word average is used in the context of wind, it refers to the average for the period for which data is held, namely 1988 to present.

For sunshine, there was a change, in July 1999, in the type of instrument used to detect sunshine amount, making the climatological average based on the old instrument of little use. In general, the new instrument produces higher values in the winter half year, and lower ones in the summer half, than the old type, due to a combination of faster reaction and higher sensitivity than the old type. The average used in this case is based on a theoretical equivalent 1981 to 2010 average, drawn from comparison with the Met Office published tables of departure from climatological average sunshine in the months since 2000 for their area 'Southern England'. Users of the Wokingham Monthly Weather reports should be aware of this, and regard anomalies for sunshine published therein as a guide only, until such time has elapsed since the introduction of the new instrument that a genuine average becomes available.

Mean: The mean of the data under discussion, often the monthly mean of daily data. The mean is obtained by summation of the individual values and dividing by the number of values. The term 'daily mean' in respect of temperature is defined as '(max + min) / 2'. A true daily 24 hour (00 to 24 GMT) mean temperature is available from the Automatic Weather Station (AWS), and is currently published on page 7 of the Wokingham Monthly Weather report, on the Wokingham Weather web site, page 1. <http://www.woksat.info/wwp1.html>

Anomaly: When a value is given for anomaly, this will have one of the following meanings:

- a): The departure of a mean from the current climatological average.
- b): The departure of a value on a particular day from the average for that day, (this need not be a climatological average).

When the word anomaly is used in respect of temperature, any values given are in °C. In respect of rainfall or sunshine, percent. In respect of wind, mph. In respect of pressure, millibars (hpa).

Categories: Reference may be made in the reports to 'categories'. Each category has a strict statistical range, as outlined below.

Temperature: The terms cold/mild are used in the winter half year, and cool/warm in the summer half. The term 'normal' is used when the individual mean (monthly, seasonal or annual) value is within 20 % of the median of all ranked values for that month/season/year.

Mild/warm: The value lies between 10 % and 30 % below the highest value in the ranked series.

Very mild/very warm: The value lies within 10 % of the highest value in the ranked series.

Cold/cool: The value lies between 10 % and 30 % above the lowest value in the ranked series.

Very cold/very cool: The value lies within 10 % of the lowest value in the ranked series.

Sunshine: The terms for sunshine are very sunny, sunny, normal, dull and very dull.

The definition of these terms follow the same rules as for temperature.

Rainfall: The terms for rainfall are very dry, dry, normal, wet and very wet.

The definition of the term 'normal' follows the same rule as for temperature and sunshine.

Wet: The value lies between 10 % and 30% of the highest value in the ranked series.

Very wet: The value lies within 10 % of the highest value in the ranked series.

Dry: The value lies between 10 % and 30 % above the lowest value in the ranked series.

Very dry: The value lies within 10 % of the lowest value in the ranked series.

Long-term: Mention may be made in the reports to the 'long-term'. The long-term record comprises a temperature/rainfall/sunshine data series compiled from records of various weather stations in the Wokingham area in the years prior to the establishment of the weather station at Emmbrook in 1976 together with data from this station.

In the case of monthly max, min and mean temperature and of rainfall total the series starts in 1882. For temperature extremes, the highest max and lowest min go back to 1904, and lowest max and highest min to 1913.

Rank: The word rank refers to the position of a value for a particular month/season/year in the ranked series, and may be expressed relative to either the highest or lowest value in the series. The central value in the ranked series is known as the **median**. This value may be different from the average of the whole series if the population is skewed. It can also be different from the climatological average which only refers to a 30 year period.

Month: Calendar month.

Season: Spring, March to May.

Summer, June to August

Autumn, September to November

Winter, December to February.

When discussing 'winter', if a single year is given this refers to the year in which the January/February fall.

Annual or Year: The calendar year, 1st January to 31st December.

The climatological day: runs from 0900 to 0900 GMT. The max temperature and rainfall read at 0900 hours are attributed to the previous day (thrown back), as is the duration of measurable rain. The min temperature and grass min read at 0900 hours are attributed to the day of reading. Pressure read at 0900 GMT, and the monthly mean pressure is the mean of the 0900 GMT readings. Sunshine data, wind data, rainfall rate data and 24 hour data from the AWS use the normal 00-24 GMT day.

Frost: An air frost day is recorded when the minimum temperature read at 0900 GMT on that day is -0.1°C or below. A ground frost day is recorded when the grass minimum temperature read at 0900 GMT on that day is -0.1°C or lower.

Duration of air frost is defined as the number of minutes that the AWS one minute average temperature is below 0.0°C , and the day runs from midnight to midnight.

Snow: A day with snow falling is triggered if snow falls at any time in the 24 hours from midnight on that day. A day with snow lying is entered if there is at least 50% snow cover at the 0900 GMT observation.

Snow depth is the depth of undrifted snow. Snow that collects in the raingauge funnel is melted and the amount recorded as rainfall.

Hail: A day of hail is recorded if hailstones 5 mm or more in diameter are observed or recorded on the hail pad in a 24 hour period starting at midnight.

A day of small hail is recorded if hailstones less than 5 mm diameter are observed or recorded in a 24 hour period starting at midnight. The term small hail also includes various other types of ice meteor such as ice pellets, snow grains and some types of snow pellets.

Fog: A day with fog is recorded if the horizontal visibility at 0900 GMT is below 1000 m.

Thunder: A day of thunder is recorded if thunder is heard in the 24 hour period from midnight on that day. The appearance of lightning without thunder being heard does not qualify as a thunder day.

Trace of rainfall: A trace of rain, entered as 'tr' in the daily log, is recorded if rain is observed to fall but is of insufficient quantity to collect in the raingauge, or if the amount of rain in the gauge is less than 0.05 mm.

Dry spell: A dry spell is defined as a period of 5 or more consecutive dry days.

Dry day: A dry day is one with less than 0.2 mm of rainfall.

Rain day: A rain day is one with 0.2 mm or more of rainfall.

Wet day: A wet day is one having 1.0 mm or more of rainfall.

Appendix 2.

Explanation and decode for code figures used in the Wokingham 0900 and 1500 GMT observations

VV : Visibility.

Code figures 00 to 50 are in km and tenths e.g. 01 = 0.1 km = 100 m, 33 = 3.3 km, 50 = 5.0 km

Code figures 60 to 80. Subtract 50 to obtain visibility in km. e.g. 56 = 6 km, 65 = 15 km, 77 = 27 km.

Code figures 81 to 89. Subtract 50 and add 5 for every one above 80. e.g. 83 = 45 km, 86 = 60 km.

Code figure 89 = visibility above 70 km.

N : Total cloud amount in okta (eighths of sky covered). 9 = sky obscured (e.g. by fog or snow)

dd : Wind direction in tens of degrees from true north. Wind is measured at a height of 10 m, and the direction is the mean over a period of 10 minutes ending at the observation time.

ff : Wind speed in knots, measured at 10 m, and is the mean over a period of 10 minutes ending at observation time.

gg : Wind gust in knots at 10 m. The highest gust in the 60 minutes up to observation time.

TT : Air temperature at 1.2m, degrees C and tenths.

TdTd : Dew point temperature at 1.2m, degrees C and tenths.

RH : Relative humidity at 1.2m, %.

r : Humidity mixing ratio (amount of water vapour per kg of air), grams and tenths.

PPP : Air pressure reduced to MSL, millibars and tenths.

a : Characteristic of pressure tendency during the past 3 hours.

Code figures 0 to 3, pressure higher than 3 hours ago, 5 to 8, pressure lower than 3 hours ago

Code figure 0 = Increasing then decreasing, pressure the same as or higher than 3 hours ago

1 = Increasing then steady or increasing more slowly

2 = Increasing steadily or unsteadily

3 = Decreasing or steady then increasing, or increasing then increasing more rapidly

4 = Steady, pressure the same as 3 hours ago

5 = Decreasing then increasing, pressure lower than 3 hours ago

6 = Decreasing then steady or decreasing more slowly

7 = Decreasing steadily or unsteadily

8 = Steady or increasing then decreasing, or decreasing then decreasing more rapidly

ppp : 3 hour pressure tendency in tenths of a millibar

ww : Present weather code figures, 00 to 99.

Present weather decode:

00 = Cloud development not observed or not observable

01 = Clouds generally dissolving or becoming less developed

02 = State of sky on the whole unchanged

03 = Clouds generally increasing or becoming more developed

04 = Visibility reduced by smoke, e.g. veldt or forest fires, industrial smoke or volcanic ashes.

05 = Haze, visibility reduced by extremely small dry particles (RH less than appx. 95 %)

06 = Widespread dust in suspension, not raised by the wind near the station at the time of the observation

07 = Dust or sand raised by the wind at or near the station at the time of the observation, but no well-developed dust whirls or sand whirls, and no duststorm or sandstorm seen: In marine environments, blowing spray at the station.

08 = Well-developed dust or sand whirls seen at or near the station during the preceding hour or at the time of the observation, but no duststorm or sandstorm.

09 = Duststorm or sandstorm within sight at the time of the observation, or at the station during the preceding hour

10 = Mist
11 = Patches of shallow fog not deeper than 2 metres on land
12 = More or less continuous shallow fog not deeper than 2 metres on land
13 = Lightning visible, no thunder heard
14 = Precipitation within sight, not reaching the ground
15 = Precipitation within sight, reaching the ground more than 5 km from the station
16 = Precipitation within sight, reaching the ground, near to but not at the station
17 = Thunderstorm, but no precipitation at the time of the observation
18 = Squalls at or within sight of the station at the time of the observation or during the preceding hour
19 = Funnel cloud(s) at or within sight of the station at the time of the observation or during the preceding hour

20 = Drizzle (not freezing) at the station during the preceding hour but not at the time of the observation
21 = Rain (not freezing) at the station during the preceding hour but not at the time of the observation
22 = Snow at the station during the preceding hour but not at the time of the observation
23 = Rain and snow or ice pellets at the station during the preceding hour but not at the time of the observation
24 = Freezing drizzle or freezing rain at the station during the preceding hour but not at the time of the observation
25 = Shower(s) of rain at the station during the preceding hour but not at the time of the observation
26 = Shower(s) of snow or rain and snow at the station during the preceding hour but not at the time of the observation
27 = Shower(s) of hail or rain and hail at the station during the preceding hour but not at the time of the observation
28 = Fog or ice fog at the station during the preceding hour but not at the time of the observation
29 = Thunderstorm, with or without precipitation at the station during the preceding hour but not at the time of the observation

30 = Slight or moderate duststorm or sandstorm has decreased during the preceding hour
31 = Slight or moderate duststorm or sandstorm with no appreciable change during the past hour
32 = Slight or moderate duststorm or sandstorm has begun or increased during the past hour
33 = Severe duststorm or sandstorm has decreased during the preceding hour
34 = Severe duststorm or sandstorm with no appreciable change during the past hour
35 = Severe duststorm or sandstorm has begun or increased during the past hour
36 = Slight or moderate drifting snow generally below eye level
37 = Heavy drifting snow generally below eye level
38 = Slight or moderate blowing snow generally above eye level
39 = Heavy blowing snow generally above eye level

40 = Fog or ice fog at a distance at the time of the observation, but not at the station during the preceding hour, the fog extending to a level above that of the observer.
41 = Fog or ice fog in patches
42 = Fog or ice fog, sky visible has become thinner during the past hour
43 = Fog or ice fog, sky invisible has become thinner during the past hour
44 = Fog or ice fog, sky visible no appreciable change during the past hour
45 = Fog or ice fog, sky invisible no appreciable change during the past hour
46 = Fog or ice fog, sky visible has begun or become thicker during the past hour
47 = Fog or ice fog, sky invisible has begun or become thicker during the past hour
48 = Fog, depositing rime, sky visible
49 = Fog depositing rime, sky invisible

50 = Drizzle, not freezing, intermittent slight at time of observation
51 = Drizzle, not freezing, continuous slight at time of observation
52 = Drizzle, not freezing, intermittent moderate at time of observation
53 = Drizzle, not freezing, continuous moderate at time of observation
54 = Drizzle, not freezing, intermittent heavy at time of observation
55 = Drizzle, not freezing, continuous heavy at time of observation
56 = Drizzle, freezing, slight
57 = Drizzle, freezing, moderate or heavy (dense)
58 = Drizzle and rain, slight
59 = Drizzle and rain, moderate or heavy

60 = Rain, not freezing, intermittent slight at time of observation
61 = Rain, not freezing, continuous slight at time of observation
62 = Rain, not freezing, intermittent moderate at time of observation
63 = Rain, not freezing, continuous moderate at time of observation
64 = Rain, not freezing, intermittent heavy at time of observation
65 = Rain, not freezing, continuous heavy at time of observation
66 = Rain, freezing, slight
67 = Rain, freezing, moderate or heavy
68 = Rain or drizzle and snow, slight
69 = Rain or drizzle and snow, moderate or heavy

70 = Intermittent fall of snowflakes slight at time of observation
71 = Continuous fall of snowflakes slight at time of observation
72 = Intermittent fall of snowflakes moderate at time of observation
73 = Continuous fall of snowflakes moderate at time of observation
74 = Intermittent fall of snowflakes heavy at time of observation
75 = Continuous fall of snowflakes heavy at time of observation
76 = Diamond dust (with or without fog)
77 = Snow grains (with or without fog)
78 = Isolated star-like snow crystals (with or without fog)
79 = Ice pellets

80 = Rain shower(s), slight
81 = Rain shower(s), moderate or heavy
82 = Rain shower(s), violent
83 = Shower(s) of rain and snow mixed, slight
84 = Shower(s) of rain and snow mixed, moderate or heavy
85 = Snow shower(s), slight
86 = Snow shower(s), moderate or heavy
87 = Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, slight
88 = Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, moderate or heavy
89 = Shower(s) of hail, with or without rain or rain and snow mixed, not associated with thunder, slight
90 = Shower(s) of hail, with or without rain or rain and snow mixed, not associated with thunder, moderate or heavy

91 = Slight rain at time of observation, thunderstorm during the past hour but not at time of observation
92 = Moderate or heavy rain at time of observation, thunderstorm during the past hour but not at time of observation
93 = Slight snow, or rain and snow mixed, or hail at time of observation, thunderstorm during the past hour but not at time of observation
94 = Moderate or heavy snow, or rain and snow mixed, or hail at time of observation, thunderstorm during the past hour but not at time of observation
95 = Thunderstorm, slight or moderate, without hail but with rain and or snow at time of observation
96 = Thunderstorm, slight or moderate, with hail at time of observation
97 = Thunderstorm, heavy, without hail but with rain and or snow at time of observation
98 = Thunderstorm combined with duststorm or sandstorm at time of observation
99 = Thunderstorm, heavy, with hail at time of observation

Hail includes large hail, small hail and snow pellets.

W1, W2 : Past weather (for 0900 and 1500 GMT observations, the period covered is 3 hours)

Code figures:

- 0 = Cloud covering half or less of the sky throughout the period
- 1 = Cloud covering more than half the sky during only part of the period
- 2 = Cloud covering more than half the sky throughout the period
- 3 = Sandstorm, duststorm or blowing snow
- 4 = Fog or ice fog or thick haze (visibility less than 1000 m)
- 5 = Drizzle
- 6 = Rain
- 7 = Snow or rain and snow mixed
- 8 = Shower(s)
- 9 = Thunderstorm(s) with or without precipitation

Nh : Amount of low cloud, or medium cloud if no low cloud present, okta

Cl : Type of low cloud

- 0 = No low cloud
- 1 = Cumulus with little vertical extent and seemingly flattened, or ragged Cumulus other than bad weather, or both
- 2 = Cumulus of moderate or strong vertical extent, either accompanied or not by other Cumulus or Stratocumulus all having their bases at the same level
- 3 = Cumulonimbus whose summits, at least partially, lack sharp outline, but are neither clearly fibrous (cirriform), nor in the form of an anvil; Cumulus, Stratocumulus or Stratus may also be present
- 4 = Stratocumulus formed by the spreading out of Cumulus; Cumulus may also be present
- 6 = Stratus in a more or less continuous sheet or layer, or ragged shreds, or both, but no Stratus fractus of bad weather
- 7 = Stratus fractus of bad weather or Cumulus fractus of bad weather or both (pannus), usually below Altostratus or Nimbostratus
- 8 = Cumulus and Stratocumulus other than that formed by the spreading out of Cumulus, the bases of the Cumulus and Stratocumulus are not at the same level.
- 9 = Cumulonimbus, the upper part of which is clearly fibrous (cirriform), often in the form of an anvil, either accompanied or not by any other type(s) of low cloud
- / = Types of low cloud invisible due to darkness, fog, blowing dust or sand or other similar phenomena.

'Bad weather' denotes the conditions which generally exist during precipitation and a short time before and after.

Cm : Type of medium cloud.

- 0 = No medium cloud.
- 1 = Altostratus, the greater part of which is semi-transparent; through this part the sun or moon may be weakly visible, as through ground glass
- 2 = Altostratus, the greater part of which is sufficiently dense to hide the sun or moon, or Nimbostratus
- 3 = Altocumulus, the greater part of which is semi-transparent; the various elements of the cloud change only slowly and are all at a single level
- 4 = Altocumulus in patches (often in the form of almonds or fishes), the greater part of which is semi-transparent ; the clouds occur at one or more levels and the elements are continually changing in appearance
- 5 = Altocumulus in bands semi-transparent, of Altocumulus in one or more fairly continuous layers (semi-transparent or opaque), progressively invading the sky; these Altocumulus clouds generally thicken as a whole
- 6 = Altocumulus resulting from the spreading out of Cumulus (or Cumulonimbus)
- 7 = Altocumulus in two or more layers, usually opaque in places, and not progressively invading the sky; or opaque layer of Altocumulus not progressively invading the sky; or Altocumulus together with Altostratus or Nimbostratus
- 8 = Altocumulus with sproutings in the form of small towers or battlements, or Altocumulus having the appearance of cumuliform tufts
- 9 = Altocumulus of a chaotic sky, generally at several levels
- / = Types of medium cloud invisible owing to darkness, fog, blowing dust or sand or other similar phenomena, or more often because of the presence of a continuous layer of lower clouds.

Ch : Type of high cloud

0 = No high cloud

1 = Cirrus in the form of filaments, strands or hooks, not progressively invading the sky.

2 = Dense cirrus, in patches or entangled sheaves, which usually do not increase and sometimes seem to be the remains of the upper part of a Cumulonimbus; or Cirrus with sproutings in the form of small turrets or battlements, or Cirrus having the appearance of cumuliform tufts

3 = Dense Cirrus, often in the form of an anvil, being the remains of the upper part of Cumulonimbus, or where the rest of the Cumulonimbus is below the horizon

4 = Cirrus in the form of hooks or filaments, or both, progressively invading the sky; they generally become denser as a whole

5 = Cirrus (often in bands converging towards one or two opposite points on the horizon) and Cirrostratus, or Cirrostratus alone; in either case they are progressively invading the sky, and generally growing denser as a whole, but the continuous veil does not reach 45 degrees above the horizon.

6 = Cirrus (often in bands converging towards one or two opposite points on the horizon) and Cirrostratus, or Cirrostratus alone; in either case they are progressively invading the sky, and generally growing denser as a whole; the continuous veil extends more than 45 degrees above the horizon, without the sky being totally covered

7 = Veil of Cirrostratus covering the celestial dome.

8 = Cirrostratus not progressively invading the sky and not completely covering the celestial dome

9 = Cirrocumulus alone, or accompanied by Cirrus or Cirrostratus, or both, but Cirrocumulus is predominant.

/ = Types of high cloud invisible owing to darkness, fog, blowing dust or sand or other similar phenomena, or more often because of the presence of a continuous layer of lower clouds.

8 Groups

N = Amount of cloud reported by C, okta.

C = Type of cloud

0 = Cirrus (Ci)

1 = Cirrocumulus (Cc)

2 = Cirrostratus (Cs)

3 = Altocumulus (Ac)

4 = Altostratus (As)

5 = Nimbostratus (Ns)

6 = Stratocumulus (Sc)

7 = Stratus (St)

8 = Cumulus (Cu)

9 = Cumulonimbus (Cb)

/ = Cloud type not visible owing to darkness, fog, duststorm, or other analogous phenomena.

hshs = Height of cloud above station level reported by type C

00 to 50 = Height in hundreds of feet

51 to 55 Not used

56 to 80 = Subtract 50 to obtain cloud height in thousands of feet

81 to 88 = Height of cloud between 35000 and 70000 ft in 5000 ft steps.