

# 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 2020**

Temperature (°C)		Anomaly		Rank in the past <b>139</b> years					
Mean maximum	23.1	+0.2		40 <sup>th</sup> highest					
Mean minimum	12.0	-0.6		67 <sup>th</sup> highest					
Daily mean	17.5	-0.2		46 <sup>th</sup> highest					
Highest maximum	36.9	on 31 <sup>st</sup>	Lowest maximum	19.5 on 10 <sup>th</sup>					
Highest minimum	16.9	on 25 <sup>th</sup>	Lowest minimum	6.6 on 12 <sup>th</sup>					
Mean grass minimum	9.6	-0.2	Lowest grass minimum	1.7 on 11 <sup>th</sup>					
Mean earth @30 cm	18.3	-0.4	Earth @100 cm	17.1					
Frost duration (hrs)	0.0		Rain duration (hrs)	33.8					
Rainfall total (mm)	26.5	59%	31 <sup>st</sup> lowest						
Highest daily fall	6.8	on 25 <sup>th</sup>	Highest rate mm/hr	16 on 27 <sup>th</sup>					
Number of: Dry days (<0.2mm)	20	Wet days (>0.9mm)	9	days ≥5mm	2				
Sunshine total (hrs)	198.1	Daily mean	6.39	100 %	Sunniest day	15.3 on 20 <sup>th</sup>			
N° days with: Air frost	0	Ground frost	0	Snow falling	0	Snow lying	0		
Thunder	0	Hail ≥5mm	0	Small hail/ice	0	Fog @09	0	Nil sun	1
Pressure MSL: Mean @09 GMT, mbar	1017.1	+0.5	Highest	1029.4 on 12 <sup>th</sup>	Lowest	1002.9 on 27 <sup>th</sup>			
Relative humidity : Mean (%)	69.9	Lowest	22 on 31 <sup>st</sup>	Water vapour (g/kg), mean at 09 and 15 GMT	8.2, 8.1				
Overall mean wind speed (mph)	7.0	Windiest day	15.8 on 5 <sup>th</sup>	Max gust	41 on 5 <sup>th</sup>				
Wind direction (days)	N 3 NE 0 E 0 SE 0 S 2 SW 17 W 5 NW 4								
Least windy day (mph)	3.6 on 12 <sup>th</sup>	Calm; less than 0.5 mph (minutes)	580						

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

Notes:

**Dry with Temperature and Sunshine Near Average but with Extreme Heat on 31<sup>st</sup>.**

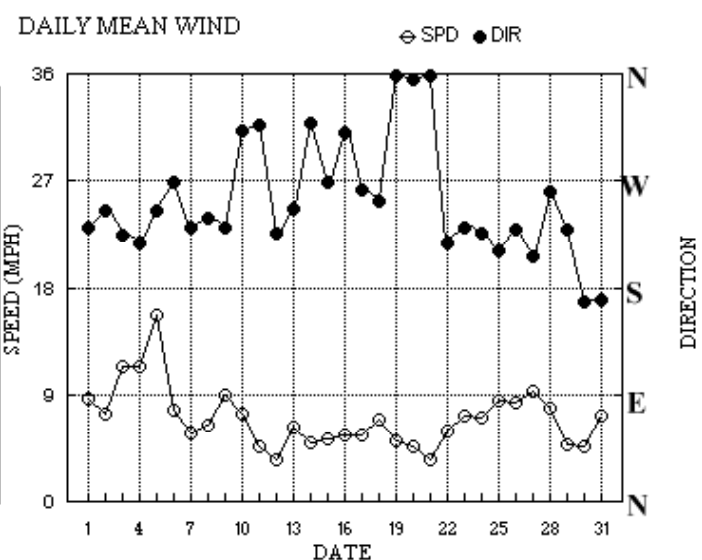
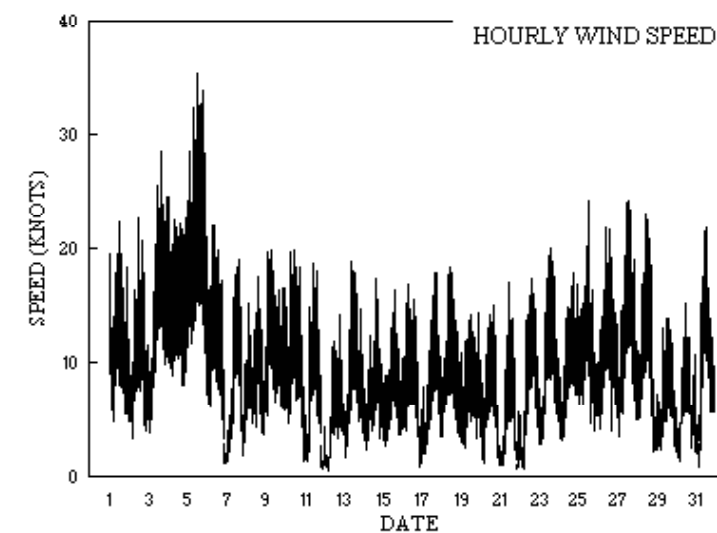
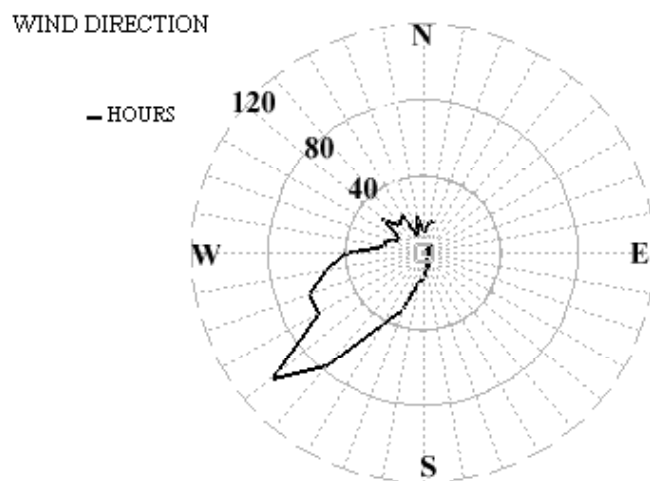
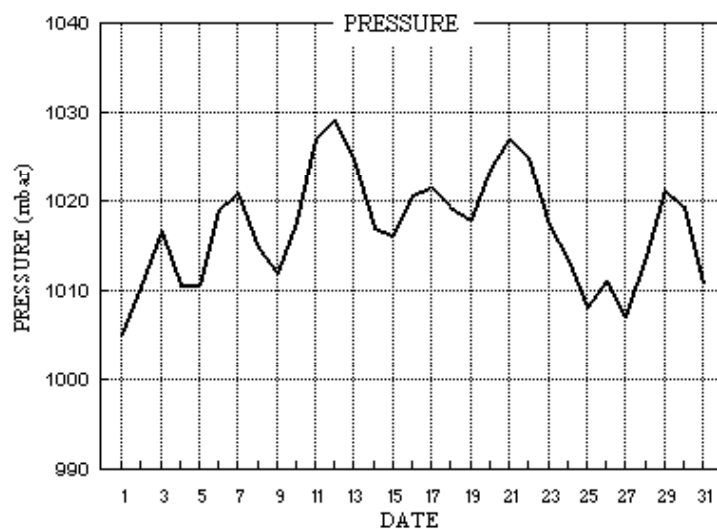
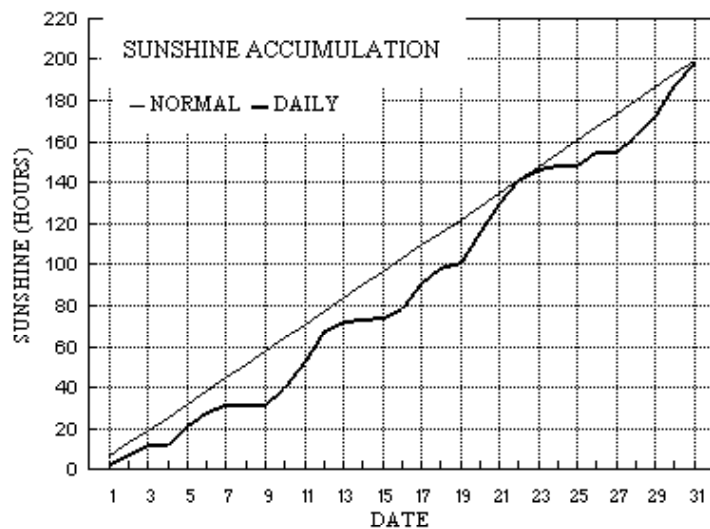
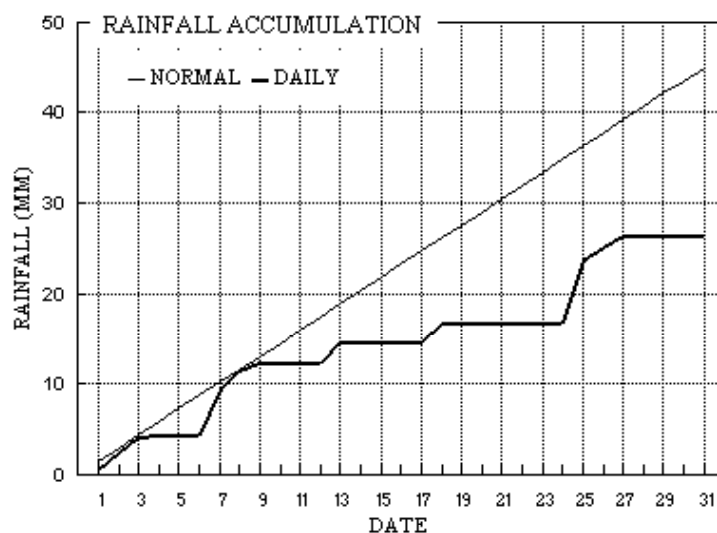
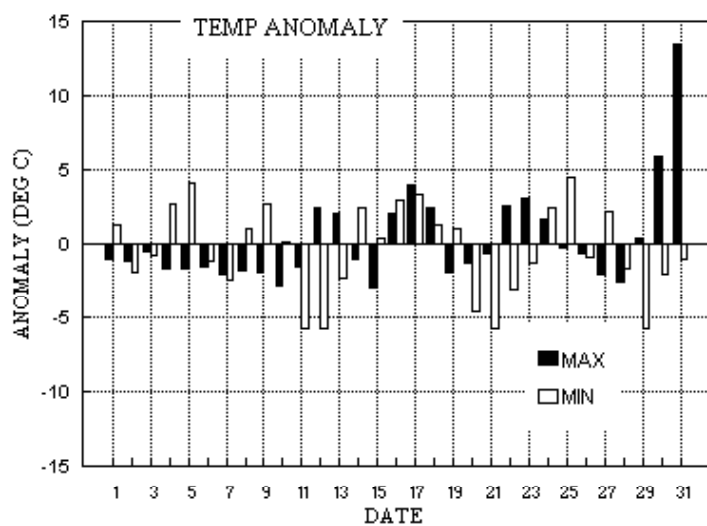
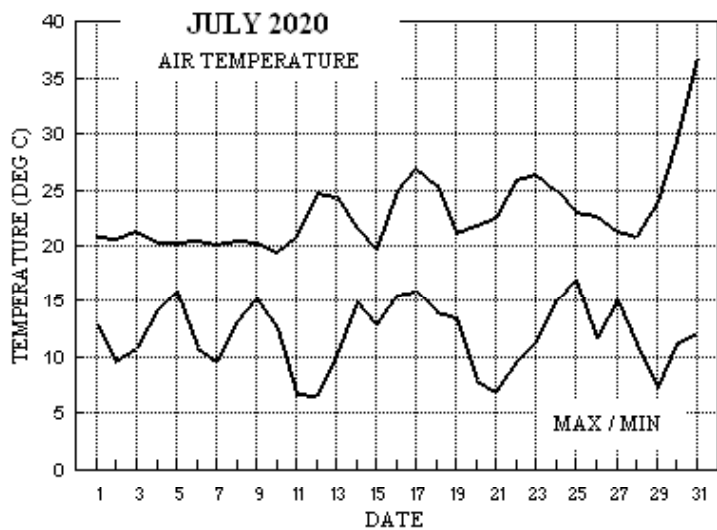
**Temperature:** Overall this has been the coolest July in the past 5 years, but despite this the mean temperature is only 0.2° below the current 30 year average, and also 0.5° above the 139 year median. Variation in daily max was rather low for much of the month, e.g. 9 of the first 11 days all within 0.6°, but a strong heat wave on the final 2 days was the exception. This culminated in an extremely hot day on the 31<sup>st</sup> when the temperature reached 36.9°, 8.2° above the median and not only a record for July, 0.1° above the previous record set last July, but also equals the all-time highest for this station set on 10<sup>th</sup> August 2003. The lowest max is 2.7° above its median while the highest min is 0.4° above the median, and the lowest min is 0.4° below its median. Both the mean and lowest grass min are lowest since 2015, but the mean earth temperature at 30 cm depth is lowest since 2011. Anomalies for daily max were generally slightly below normal until mid-month with greater variation thereafter, but with extreme values pre the heatwave between -3° on the 15<sup>th</sup> and +4° on the 17<sup>th</sup>. The anomaly for the extreme heat on the 31<sup>st</sup> was +13.5°. Anomalies for daily min exceeded -5° on the 11<sup>th</sup>, 12<sup>th</sup>, 21<sup>st</sup> and 29<sup>th</sup>, and +4° on the 5<sup>th</sup> and 25<sup>th</sup>, with extreme values of -5.8° on 12<sup>th</sup> and +4.4 on 25<sup>th</sup>. **Rainfall:** This July has been quite dry, with just over half the average fall occurring over a scattering of days throughout the month, the number of dry days being exactly average. The highest daily fall ranks 15<sup>th</sup> lowest in 117 years. The relatively rare absence of thunder makes this only the 12<sup>th</sup> July since 1908 to have none. Daily accumulation compared with normal shows a deficit of 4 mm on the 6<sup>th</sup> which had fallen to zero by the 8<sup>th</sup>, thence a steady increase in deficit, reaching 18 mm by the 24<sup>th</sup>, and although decreasing to 13 mm on 27<sup>th</sup> ended the month with a deficit of 19 mm. **Sunshine:** An average month sunshinewise, yet only 5 Julys have been sunnier this millennium, 2 of which were in 2019 and 2018. The second half of the month was decidedly sunnier than the first. In the first 15 days, 12 had <50% of the maximum and 5 had <5 %, while in the final 16 days, only 8 had <50% and 2 <5%. The 11<sup>th</sup>, 12<sup>th</sup>, 17<sup>th</sup>, 20<sup>th</sup>, 21<sup>st</sup> and 30<sup>th</sup> all had over 75 % of the maximum. Daily accumulation compared with normal was 29 hours in deficit by the 9<sup>th</sup>, decreasing to 11 hours by the 12<sup>th</sup>, increasing to 24 hours by the 15<sup>th</sup> but decreasing to zero by the 22<sup>nd</sup>, and ending the month with zero after a temporary deficit of 16 hours on the 27<sup>th</sup>. Overall there were 9 days with <3 hours, 14 with =>6 hours, 10 with =>9 hours, 6 with =>12 hours and 2 with =>15 hours. **Wind.** The mean this July is 0.7 mph above average. The mean speed on the windiest day is 4.4 mph above average and is highest for any July day since before 1988. The highest gust is 6 mph above average and is highest for July since 2001. Daily mean speeds were mainly light or moderate, but fresh on the 3<sup>rd</sup>, 4<sup>th</sup> and 27<sup>th</sup>, and strong on the 5<sup>th</sup>. Directions were mostly SW'ly, but were NW or N on 10<sup>th</sup>, 11<sup>th</sup> 14<sup>th</sup>, 16<sup>th</sup> and 19<sup>th</sup> to 21<sup>st</sup>, and S'ly on the 30<sup>th</sup> and 31<sup>st</sup>.

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

From the 1 <sup>st</sup> to the 10 <sup>th</sup>				From the 11 <sup>th</sup> to the 20 <sup>th</sup>				From the 21 <sup>st</sup> to the 31 <sup>st</sup>			
-1.6°	+0.6°	86%	63%	+0.4°	-0.7°	30%	119%	+1.9°	-1.1°	61%	116%

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

# Wokingham climatological graphs for July 2020



Month: JULY 2020

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	Rain HH hrs				
1	20.8	12.9	0.5	11.4	18.0	17.0	3.0	0.0	1005.2	0 0 0 0	0 0 0 0	0 0 0 0	231	7.5	7.6	255	23 1142	232	10	09	0.7
2	20.7	9.7	2.0	7.0	17.9	16.9	4.4	0.0	1010.5	0 0 0 0	0 0 0 0	0 0 0 0	244	6.1	6.5	257	23 1147	258	10	16	1.1
3	21.4	10.9	1.7	7.7	17.9	16.9	4.8	0.0	1016.6	0 0 0 0	0 0 0 0	0 0 0 0	224	9.8	9.9	225	29 1533	214	14	13	3.0
4	20.3	14.3	0.1	13.7	18.1	16.9	0.0	0.0	1010.6	0 0 0 0	0 0 0 0	0 0 0 0	218	9.9	9.9	207	25 0045	216	12	00	0.4
5	20.4	15.9	0.0	15.5	18.1	16.9	9.8	0.0	1010.8	0 0 0 0	0 0 0 0	0 0 0 0	245	13.3	13.7	248	36 1150	255	16	12	0.0
6	20.6	10.8	tr	7.9	18.0	16.9	6.1	0.0	1019.1	0 0 0 0	0 0 0 0	0 0 0 0	269	6.0	6.7	251	22 0952	252	10	07	0.0
7	20.2	9.6	5.1	5.2	17.6	16.9	3.9	0.0	1021.0	0 0 0 0	0 0 0 0	0 0 0 0	231	4.1	5.0	235	19 1404	232	9	11	9.4
8	20.6	13.3	2.2	13.4	17.6	16.8	0.1	0.0	1014.7	0 0 0 0	0 0 0 0	0 0 0 0	238	5.3	5.6	262	18 1507	251	8	15	4.2
9	20.4	15.2	0.8	14.9	18.0	16.8	0.1	0.0	1012.0	0 0 0 0	0 0 0 0	0 0 0 0	231	6.3	7.8	225	20 0639	221	11	05	1.8
10	19.5	12.6	0.0	12.5	18.0	16.8	8.0	0.0	1017.7	0 0 0 0	0 0 0 0	0 0 0 0	311	6.3	6.5	309	20 1147	318	9	10	0.0
11	20.8	6.7	0.0	1.7	17.7	16.8	12.8	0.0	1027.1	0 0 0 0	0 0 0 0	0 0 0 0	317	3.3	4.1	312	19 0951	315	8	13	0.0
12	24.8	6.6	0.0	2.8	17.5	16.8	14.8	0.0	1029.1	0 0 0 0	0 0 0 0	0 0 0 0	226	2.4	3.1	218	14 1929	202	7	19	0.0
13	24.5	10.1	2.3	6.2	18.1	16.8	5.1	0.0	1024.8	0 0 0 0	0 0 0 0	0 0 0 0	247	5.0	5.5	262	19 1035	261	9	12	2.5
14	21.6	14.9	0.0	14.7	18.5	16.9	0.4	0.0	1017.1	0 0 0 0	0 0 0 0	0 0 0 0	318	3.9	4.4	324	18 1658	333	7	17	0.0
15	19.7	12.9	tr	10.5	18.4	17.0	0.8	0.0	1016.2	0 0 0 0	0 0 0 0	0 0 0 0	268	4.5	4.6	263	16 1404	256	8	14	0.2
16	24.9	15.6	0.0	14.8	18.1	17.0	4.6	0.0	1020.6	0 0 0 0	0 0 0 0	0 0 0 0	310	4.6	4.9	319	17 0756	313	7	13	0.0
17	26.9	16.0	0.0	14.0	18.6	17.0	12.3	0.0	1021.5	0 0 0 0	0 0 0 0	0 0 0 0	262	4.7	4.9	269	18 1714	260	9	18	0.0
18	25.5	14.0	2.0	10.9	18.9	17.1	7.4	0.0	1019.4	0 0 0 0	0 0 0 0	0 0 0 0	252	5.6	6.0	260	19 1029	246	9	10	3.2
19	21.2	13.6	tr	14.1	19.3	17.2	2.6	0.0	1018.0	0 0 0 0	0 0 0 0	0 0 0 0	358	3.8	4.6	346	14 2103	10	6	09	0.3
20	21.9	8.0	0.0	3.0	18.7	17.4	15.3	0.0	1023.6	0 0 0 0	0 0 0 0	0 0 0 0	354	3.9	4.1	325	15 1511	341	7	17	0.0
21	22.6	6.9	0.0	2.1	18.5	17.4	13.5	0.0	1027.1	0 0 0 0	0 0 0 0	0 0 0 0	358	2.7	3.2	333	17 1132	3	6	14	0.0
22	25.9	9.6	0.0	5.7	18.6	17.4	11.2	0.0	1025.0	0 0 0 0	0 0 0 0	0 0 0 0	218	4.9	5.2	249	17 1611	232	9	17	0.0
23	26.4	11.4	tr	7.4	19.0	17.4	5.2	0.0	1017.3	0 0 0 0	0 0 0 0	0 0 0 0	230	6.0	6.4	244	20 1421	226	9	13	0.0
24	24.9	15.1	0.1	13.5	19.2	17.5	2.4	0.0	1013.4	0 0 0 0	0 0 0 0	0 0 0 0	226	6.0	6.2	220	18 1923	219	9	15	0.2
25	23.0	16.9	6.8	16.2	19.4	17.6	0.3	0.0	1008.1	0 0 0 0	0 0 0 0	0 0 0 0	211	7.2	7.3	216	24 1458	209	11	12	3.7
26	22.7	11.7	1.6	9.3	18.7	17.7	5.6	0.0	1011.1	0 0 0 0	0 0 0 0	0 0 0 0	229	7.1	7.3	254	22 1114	240	10	12	2.3
27	21.4	15.0	1.3	13.9	18.8	17.6	0.7	0.0	1007.1	0 0 0 0	0 0 0 0	0 0 0 0	207	7.1	8.0	198	24 1432	229	12	17	0.8
28	20.9	11.2	0.0	8.9	18.4	17.6	8.1	0.0	1013.9	0 0 0 0	0 0 0 0	0 0 0 0	261	6.2	6.9	260	23 1150	257	11	14	0.0
29	24.0	7.3	0.0	2.6	17.8	17.5	9.0	0.0	1021.3	0 0 0 0	0 0 0 0	0 0 0 0	229	3.9	4.3	227	14 1434	218	7	14	0.0
30	29.3	11.2	0.0	8.5	18.1	17.4	15.2	0.0	1019.5	0 0 0 0	0 0 0 0	0 0 0 0	168	3.4	4.1	192	15 1209	155	7	17	0.0
31	36.9	12.2	tr	8.4	18.7	17.4	10.6	0.0	1010.8	0 0 0 0	0 0 0 0	0 0 0 0	170	4.2	6.2	166	22 1403	151	11	11	0.0

Total 26.5 198.1 0.0 33.8

Mean 23.1 12.0 9.6 18.3 17.1 6.39 0.0 1017.1 243 4.4 6.1

Anom +0.2 -0.6 59% -0.2 -0.4 +0.3 100% +0.5

Daily mean 17.5 Pressure, abs highest = 1029.4 on 12

Anom -0.2 Pressure, abs lowest = 1002.9 on 27

Number of days with:

Air frost = 0 Ground frost = 0 Nil sun = 1

Snow falling = 0 Snow lying = 0 Thunder = 0

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 2020

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	pppww	W1W2	NhCl	hCrCl	NChshs	NChshs	NChshs	Date	Remarks						
1	82	7	23	09	17	18.5	12.9	70	9.3	1005.2	0	006	03	2	2	7	8	5	//	85820	86645	1	Cu med			
2	80	7	24	08	15	16.3	12.1	76	8.7	1010.5	1	009	21	6	1	7	8	4	//	84815	83625	87650	2	Cu hum jpNW+S vv50k ex p		
3	82	7	23	12	20	16.7	10.3	66	7.7	1016.6	7	003	03	1	1	7	8	5	3	1	86828	83635		3	/Ac100 /Ci250 COTRA Cu hum	
4	70	8	22	13	21	18.5	15.4	82	10.8	1010.6	8	003	20	5	2	8	5	4	//	85710	87615	88620	4	jpN vv50k ex p		
5	80	3	26	12	31	18.0	9.9	59	7.6	1010.8	1	018	01	6	1	3	8	6	0	0	83830			5	1Sc35 Cu hum	
6	83	5	26	10	20	15.8	7.3	57	6.3	1019.1	2	015	03	1	1	5	8	6	0	0	83833	83650		6	Cu med	
7	82	7	22	07	14	18.1	9.5	57	7.3	1021.0	7	011	03	1	1	2	8	6	3	/	82830	86360		7	1Sc50 Cu med	
8	20	8	25	05	09	16.6	16.1	97	11.3	1014.7	1	004	58	6	5	8	7	2	//	82703	87705	88708	8			
9	84	8	22	08	14	17.4	15.2	87	10.7	1012.0	0	001	02	2	2	8	5	4	//	86710	88615		9			
10	88	2	33	08	17	16.2	7.9	58	6.6	1017.7	1	016	03	1	1	2	8	5	0	0	82825			10	1Sc56 Cu hum	
11	88	1	31	07	14	16.7	7.1	53	6.2	1027.1	1	011	03	0	0	1	2	6	0	0	81833			11	Cu med	
12	86	5	24	02	05	18.4	9.2	55	7.1	1029.1	0	001	03	1	1	1	1	6	0	2	81835	85078		12	COTRA Cu hum	
13	88	6	25	05	12	19.6	8.0	47	6.6	1024.8	8	004	01	2	2	1	5	7	7	5	81656	84358		13	1Ac62 1Cs72 2Ci78 COTRA Ac len	
14	80	7	35	05	12	18.3	12.7	70	9.1	1017.1	0	001	01	2	2	4	8	5	0	6	82820	83650	87272	14	Cu hum Halo 22°	
15	84	8	25	04	09	16.0	11.0	72	8.1	1016.2	3	002	03	2	2	8	8	4	//	84818	83625	88650	15	Cu hum		
16	84	8	33	07	14	17.3	11.6	69	8.4	1020.6	2	012	02	5	2	8	5	5	//	86625	88630		16			
17	84	2	28	05	11	22.5	12.4	53	8.9	1021.5	0	001	03	1	1	1	8	6	0	1	81835			17	1Sc50 1Ci80 Cu med	
18	83	7	26	09	18	17.9	11.9	68	8.6	1019.4	2	004	02	2	2	7	5	5	//	87622			18			
19	75	8	36	05	12	14.6	12.8	89	9.1	1018.0	1	010	20	6	5	8	5	4	//	82712	86615	88625	19			
20	89	1	35	05	11	17.2	7.0	51	6.1	1023.6	0	005	03	0	0	1	1	6	0	1	81835			20	1Ci75 1Ci80 COTRA Cu hum	
21	86	2	33	04	10	17.3	7.1	51	6.2	1027.1	1	004	03	0	0	1	1	6	0	1	81838			21	2Ci80 COTRA Cu hum	
22	83	3	23	07	11	20.7	9.3	48	7.2	1025.0	8	002	01	1	1	1	0	9	3	1	81363	83080		22	COTRA	
23	88	7	22	07	14	19.0	10.3	57	7.7	1017.3	8	010	01	2	2	3	0	9	7	2	81364	83465	86075	23	1Ac68 COTRA Halo22° part	
24	81	4	23	05	12	21.1	13.3	61	9.5	1013.4	1	004	03	1	1	4	8	5	0	1	82822	83650		24	1Ci80 COTRA Cu med	
25	82	7	22	09	17	20.1	15.7	76	11.1	1008.1	7	004	20	5	2	7	5	4	3	/	81712	85615	86625	25	/Ac65	
26	56	7	24	08	16	17.5	14.0	80	9.9	1011.1	1	014	25	8	1	7	8	4	3	1	82812	83630	85650	26	/Ac65 /Ci75 Cu med jpN vv40k ex N	
27	75	7	16	09	15	16.8	14.8	88	10.5	1007.1	8	026	21	6	5	7	5	4	7	/	81710	87650		27	2Sc18 /Ac62	
28	84	4	27	08	16	17.0	8.7	58	7.0	1013.9	1	013	03	1	1	5	8	6	0	0	83833			28	2Sc50 Cu med	
29	84	5	29	04	09	18.2	8.7	54	6.9	1021.3	1	005	03	1	1	4	8	6	0	1	83833			29	2Sc40 2Ci80 Cu hum	
30	89	1	16	06	10	21.2	7.8	42	6.5	1019.5	7	003	02	0	0	1	0	9	3	1	81367			30	1Ci75	
31	82	0	13	07	15	29.3	10.4	31	7.8	1010.8	7	020	02	0	0	0	0	9	0	0					31	

Mean vis = 44.8 km

Mean cloud = 5.2 65%

Mean wind speed = 7.1 kn

Mean gust = 14 kn

Mean TT = 18.3 °C

Mean TdTd = 11.0 °C

Mean RH = 63.9%

Mean r = 8.2 g/kg

Mean PPP = 1017.1 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 2020

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	ppp	ww	W1	W2	Nh	Cl	h	Cr	Ch	NChs	hNChs	NChs	Date	Remarks
1	70	7	24	08	20	18.4	13.1	71	9.4	1006.3	2	010	25	8	2	7	8	5	6	/	82820	83640	86650	1	/Ac58 Cu con jp SE-SW vv60k ex p
2	70	6	26	07	16	19.1	12.4	65	8.9	1012.2	2	007	25	8	2	5	8	6	6	/	82830	84650	85358	2	Cu con jpSE vv60k ex SE
3	82	7	23	12	25	19.6	10.0	54	7.6	1015.1	6	010	02	2	2	1	1	6	7	2	81835	83358	86360	3	/Ac65 /Ci72 Cu hum
4	68	8	22	11	22	19.1	15.8	81	11.1	1010.4	7	003	02	8	2	8	5	4	/	/	86613	88618		4	
5	80	5	26	14	33	18.3	7.1	48	6.3	1012.6	2	009	03	1	1	5	8	6	0	0	83845			5	2Sc50 Cu med
6	86	7	29	07	17	18.2	7.9	51	6.5	1021.6	2	008	02	8	2	7	8	6	/	/	83840	87656		6	Cu med
7	84	8	24	08	19	19.4	8.7	50	6.9	1018.6	8	014	03	2	2	8	8	6	/	/	82840	85650	88656	7	Cu hum
8	82	7	25	08	16	20.4	15.8	75	11.1	1015.0	8	001	01	6	5	7	8	4	/	/	83818	85625	87650	8	Cu med
9	50	8	23	08	15	17.9	16.6	92	11.7	1011.2	8	005	21	5	6	8	5	2	/	/	82705	86708	88620	9	jpNW vv30k SW
10	86	5	31	08	19	18.1	4.7	41	5.2	1019.8	1	006	01	2	2	5	8	6	0	0	81848	84656		10	2Sc50 Cu med
11	88	2	35	05	14	20.2	5.1	37	5.3	1027.2	7	002	02	0	0	2	4	7	0	0	82850			11	1Sc50 Cu hum
12	88	6	26	05	11	24.6	5.9	30	5.7	1026.7	7	016	02	1	1	1	4	7	0	1	81856	86078		12	1Sc56 1Cc73 COTRA Cu hum
13	82	7	26	09	18	23.7	11.4	46	8.3	1021.0	7	019	02	2	2	1	4	6	7	1	81848	83360	85078	13	1Sc56 2Ac63 COTRA Cu hum
14	82	7	32	06	12	21.3	11.9	55	8.6	1015.3	7	012	02	2	2	4	8	6	7	2	83833	87367		14	2Sc56 /Ci72 Cu med
15	86	8	26	09	16	18.4	11.2	63	8.2	1016.2	4	000	02	2	2	8	8	5	/	/	82825	86632	88645	15	Cu hum
16	86	3	32	06	14	22.8	13.0	54	9.2	1020.3	8	006	01	1	1	2	1	6	0	1	82837			16	2Ci80 COTRA Cu hum
17	82	2	24	07	16	25.9	12.0	42	8.6	1019.9	6	009	02	0	0	2	1	7	0	1	82850			17	1Ci80 COTRA Cu hum
18	88	4	21	07	16	24.8	11.4	43	8.3	1016.6	8	021	03	0	0	1	1	6	8	2	81845	83072		18	1Ac69 Cu hum
19	84	7	01	05	13	19.4	9.6	53	7.4	1018.3	1	003	02	2	2	7	8	6	/	/	82838	87650		19	Cu med
20	85	1	01	06	14	21.0	5.4	36	5.5	1023.2	7	003	02	0	0	1	4	7	0	0	81850			20	1Sc50 Cu hum
21	84	3	02	06	14	22.3	6.1	35	5.8	1025.7	6	006	02	0	0	2	4	7	0	1	81856			21	2Sc56 2Ci80
22	83	2	22	07	16	25.8	7.9	32	6.5	1021.3	8	017	02	0	0	2	1	7	0	1	82856			22	1Ci78 COTRA Cu hum
23	84	7	21	09	20	24.2	7.4	34	6.4	1013.4	6	020	21	6	2	3	5	7	7	2	83656	85359	86363	23	/Ci75
24	86	7	19	09	15	24.1	14.2	54	10.1	1011.7	7	011	02	2	2	7	8	6	/	/	85835	87650		24	Cu med
25	70	8	23	12	24	17.2	15.4	89	10.9	1006.7	3	001	61	6	2	8	8	3	/	/	81806	83618	88656	25	
26	60	7	25	11	22	18.5	12.7	69	9.1	1012.3	2	010	80	8	2	7	8	5	4	8	82822	83633	86656	26	/Ac65 7Cs75 vv60k ex N
27	65	8	22	12	24	19.5	16.7	84	11.9	1003.5	6	010	50	5	2	8	5	3	/	/	83709	87615	88625	27	
28	88	6	26	12	23	19.1	7.8	48	6.6	1015.9	1	008	02	2	2	6	8	6	0	0	82845	85650		28	Cu hum
29	84	5	21	07	14	21.9	9.1	44	7.1	1019.5	7	010	03	1	1	2	4	7	4	1	82650	83080		29	1Ac60 2Ac64 COTRA
30	89	1	19	06	12	28.8	6.2	24	5.9	1016.2	7	017	02	0	0	1	0	9	3	2	81368			30	1Ci78
31	75	5	19	11	22	32.3	13.5	32	9.6	1008.6	5	000	03	1	1	5	0	9	8	0	81360	83363	85367	31	Ac cas

Mean vis = 44.1 km

Mean cloud = 5.6 70%

Mean wind speed = 8.3 kn

Mean gust = 18 kn

Mean TT = 21.4 °C

Mean TdTd = 10.5 °C

Mean RH = 52.6 %

Mean r = 8.1 g/kg

Mean PPP = 1016.2 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
2020	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	0.34	0.44	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.35	0.33	0.00	0.00	0.07	0.00
	5	0.83	1.00	0.55	0.00	0.01	0.60	0.82	0.00	0.12	0.03	1.00	1.00	0.57	0.00	0.00	0.00
	6	0.71	0.35	1.00	0.00	0.36	0.45	1.00	0.00	0.00	0.67	1.00	1.00	0.71	0.00	0.72	0.18
	7	0.48	0.00	0.49	0.00	0.73	1.00	1.00	0.00	0.00	0.98	1.00	1.00	0.00	0.01	0.00	0.04
	8	0.10	0.01	0.48	0.00	0.47	0.28	0.93	0.00	0.00	1.00	0.99	1.00	0.27	0.05	0.00	0.00
	9	0.05	0.00	0.29	0.00	0.53	0.36	0.12	0.00	0.00	0.96	0.63	1.00	1.00	0.00	0.00	0.00
	10	0.08	0.25	0.33	0.00	0.87	0.02	0.00	0.00	0.01	0.27	0.73	0.99	0.64	0.00	0.00	0.01
	11	0.17	0.26	0.61	0.00	0.91	0.02	0.00	0.00	0.00	0.24	0.63	1.00	0.14	0.00	0.00	0.08
	12	0.17	0.34	0.34	0.00	0.96	0.01	0.00	0.00	0.00	0.22	0.42	0.93	0.08	0.00	0.00	0.34
	13	0.00	0.42	0.34	0.00	0.52	0.09	0.00	0.00	0.00	0.21	0.76	0.84	0.22	0.13	0.00	0.54
	14	0.00	0.04	0.04	0.00	0.65	0.13	0.00	0.02	0.00	0.31	0.87	0.99	0.57	0.10	0.00	0.79
	15	0.00	0.01	0.21	0.00	0.54	0.11	0.00	0.00	0.00	0.24	0.92	1.00	0.72	0.01	0.00	0.83
	16	0.00	0.77	0.09	0.00	0.61	0.90	0.00	0.00	0.00	0.62	0.62	0.93	0.04	0.00	0.00	0.75
	17	0.00	0.40	0.00	0.00	0.85	0.97	0.00	0.00	0.00	1.00	0.90	1.00	0.18	0.05	0.00	0.77
	18	0.00	0.09	0.00	0.00	0.79	0.54	0.00	0.00	0.02	0.25	0.83	0.84	0.00	0.00	0.00	0.27
	19	0.00	0.00	0.00	0.00	0.98	0.45	0.00	0.00	0.00	0.82	1.00	0.92	0.00	0.00	0.00	0.00
	20	0.06	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.20	0.10	0.04	0.00	0.00	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		<b>2.99</b>	<b>4.37</b>	<b>4.77</b>	<b>0.00</b>	<b>9.81</b>	<b>6.10</b>	<b>3.88</b>	<b>0.02</b>	<b>0.14</b>	<b>8.02</b>	<b>12.76</b>	<b>14.80</b>	<b>5.15</b>	<b>0.35</b>	<b>0.80</b>	<b>4.62</b>
	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	0.19	0.00	0.00	0.35	0.36	0.35	0.00	0.00	0.00	0.35	0.00	0.27	0.24	0.44	0.41	0.15
	5	1.00	0.24	0.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.51
	6	1.00	0.01	0.00	1.00	1.00	0.06	0.13	0.00	0.00	0.65	0.00	0.78	1.00	1.00	1.00	0.51
	7	1.00	0.00	0.00	1.00	1.00	0.48	0.49	0.72	0.00	0.08	0.00	0.98	1.00	1.00	1.00	0.50
	8	1.00	0.08	0.00	1.00	1.00	1.00	0.46	0.64	0.01	0.52	0.02	0.64	0.95	1.00	1.00	0.48
	9	0.72	0.44	0.00	1.00	1.00	1.00	0.60	0.49	0.03	0.82	0.00	0.25	0.56	1.00	1.00	0.45
	10	0.27	0.53	0.00	1.00	1.00	0.99	0.85	0.00	0.00	0.69	0.00	0.10	0.22	1.00	1.00	0.38
	11	0.61	0.30	0.28	1.00	1.00	0.87	0.63	0.00	0.01	0.40	0.00	0.01	0.20	1.00	1.00	0.37
	12	0.40	0.90	0.10	0.98	0.89	0.27	0.93	0.17	0.00	0.66	0.00	0.22	0.17	1.00	1.00	0.37
	13	0.83	1.00	0.06	1.00	0.90	0.67	0.90	0.19	0.00	0.14	0.00	0.31	0.27	1.00	1.00	0.40
	14	0.84	1.00	0.07	1.00	1.00	0.96	0.18	0.05	0.00	0.08	0.01	0.37	0.54	1.00	0.76	0.40
	15	0.73	0.99	0.04	1.00	1.00	0.60	0.00	0.12	0.00	0.16	0.08	0.10	0.91	1.00	0.25	0.37
	16	1.00	0.58	0.26	0.99	0.96	1.00	0.00	0.00	0.04	0.00	0.01	0.61	1.00	1.00	0.11	0.42
	17	1.00	1.00	0.13	1.00	0.65	0.88	0.00	0.00	0.00	0.00	0.12	0.76	0.85	1.00	0.00	0.44
	18	1.00	0.32	0.74	1.00	0.43	0.84	0.00	0.00	0.00	0.00	0.17	0.86	0.05	1.00	0.06	0.33
	19	0.75	0.00	0.88	0.98	0.31	0.19	0.00	0.00	0.20	0.00	0.25	0.85	0.08	0.74	0.02	0.30
	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	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		<b>12.32</b>	<b>7.39</b>	<b>2.57</b>	<b>15.30</b>	<b>13.49</b>	<b>11.17</b>	<b>5.16</b>	<b>2.37</b>	<b>0.30</b>	<b>5.56</b>	<b>0.66</b>	<b>8.12</b>	<b>9.03</b>	<b>15.18</b>	<b>10.61</b>	<b>197.80</b>

JULY 2020

	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	R tot
1	16.36	20.8	1126	12.5	2353	79.6	91.4	444	57.2	1129	12.7	9.2	10.8	1156	7.4	2324	1005.96	1009.0	2354	1004.1	349	0.5
2	15.59	20.7	1640	9.7	431	79.2	96.0	451	56.8	1738	11.8	8.6	11.0	1225	7.1	428	1011.78	1016.3	2359	1008.8	0	2
3	15.63	21.4	1304	10.9	328	75.6	93.9	348	47.7	1408	11.0	8.1	9.6	2357	7.2	1434	1015.73	1017.1	431	1012.9	2359	1.4
4	17.43	20.3	1243	15.0	215	86.7	95.0	352	74.4	1245	15.1	10.7	11.5	1756	9.6	4	1010.86	1013.2	2	1009.9	2240	0.6
5	17.02	20.4	1139	12.2	2359	64.6	91.9	435	40.0	1246	9.8	7.7	10.6	558	5.4	1700	1011.53	1015.3	2359	1008.1	156	0.1
6	15.27	20.6	1602	10.4	2347	62.5	84.9	2349	42.3	1725	7.8	6.5	7.3	1600	5.7	2012	1019.91	1023.8	2222	1015.1	2	0
7	15.15	20.2	1115	9.6	159	71.9	95.5	2031	45.0	1115	9.6	7.4	9.5	2306	6.3	1230	1019.91	1023.6	47	1015.8	2358	0.4
8	16.60	20.6	1517	14.1	253	91.7	96.8	857	71.3	1518	15.2	10.7	11.9	1301	9.3	15	1014.69	1016.1	0	1013.7	2351	7.2
9	16.91	20.4	1117	13.4	2356	88.7	94.7	1421	72.0	1119	15.0	10.6	12.1	1421	8.6	2359	1011.79	1013.9	5	1009.9	1848	1.1
10	15.18	19.5	1556	9.0	2347	63.7	91.4	230	38.1	1618	7.8	6.6	8.6	0	5.0	1618	1018.60	1024.4	2358	1013.4	34	0.1
11	14.43	20.8	1408	6.7	344	63.7	95.7	514	34.1	1421	6.7	6.0	6.9	636	5.0	1421	1026.87	1028.6	2311	1024.3	2	0
12	16.57	24.8	1646	6.6	413	60.6	97.3	513	28.6	1729	7.4	6.3	7.7	755	5.2	1324	1027.72	1029.4	728	1025.4	1800	0
13	18.05	24.5	1529	10.1	228	61.7	94.8	2357	24.5	1032	9.6	7.5	10.1	2201	4.4	1032	1022.74	1027.0	21	1018.1	2359	2.2
14	17.28	21.6	1456	14.6	2354	72.8	96.8	222	52.6	1455	12.1	8.8	10.4	243	7.0	2322	1016.50	1018.3	0	1015.0	1607	0.2
15	16.15	19.7	1316	12.9	307	72.6	85.2	1939	58.5	1226	11.2	8.2	9.6	2008	7.0	47	1016.44	1018.3	2354	1015.5	428	0
16	19.35	24.9	1701	15.6	213	67.2	82.0	2346	48.7	1454	12.9	9.2	11.0	2328	8.1	759	1020.13	1021.7	2334	1018.1	0	0
17	20.88	26.9	1455	14.9	2359	62.0	86.8	511	37.9	1344	12.8	9.1	10.7	0	7.9	1344	1020.69	1021.9	730	1019.1	1648	0
18	18.91	25.5	1438	14.0	431	66.8	88.7	434	39.0	1508	12.1	8.7	9.6	1415	7.6	1508	1018.25	1020.6	15	1016.0	1653	0
19	16.61	21.2	1406	12.3	2344	72.0	95.6	656	40.1	1811	11.1	8.2	10.5	502	5.9	1817	1018.26	1021.8	2354	1016.1	435	2.1
20	15.35	21.9	1447	8.0	445	59.9	94.5	459	33.9	1536	6.7	6.0	6.8	747	5.3	1255	1023.46	1025.8	2359	1021.6	4	0
21	15.28	22.6	1408	6.9	416	60.3	96.0	425	31.4	1351	6.4	5.9	6.8	850	5.0	1117	1026.09	1027.3	812	1024.9	1759	0
22	18.38	25.9	1458	9.6	421	56.8	93.4	509	31.1	1432	8.6	6.9	8.1	709	5.9	1040	1023.12	1026.4	137	1019.7	1815	0
23	18.36	26.4	1402	11.4	216	63.6	89.5	2342	28.7	1400	10.5	7.9	10.0	2209	5.6	1515	1015.88	1020.9	0	1012.7	1942	0
24	19.61	24.9	1344	15.1	128	70.3	88.8	358	47.7	1346	13.7	9.7	10.6	743	8.7	1017	1012.27	1013.5	838	1010.5	2348	0
25	17.43	23.0	1148	13.0	2358	87.3	96.4	2344	61.9	1152	15.2	10.8	12.7	947	8.9	2358	1007.38	1010.8	0	1004.9	1800	7.5
26	16.75	22.7	1213	11.7	359	77.3	97.5	420	47.5	1252	12.4	9.0	10.4	827	7.6	1252	1010.90	1013.4	2112	1006.7	2	0.2
27	17.13	21.4	1716	13.9	2359	86.1	93.5	843	70.0	2226	14.8	10.5	12.4	1436	7.9	2233	1007.31	1013.0	9	1002.9	1437	3.1
28	15.55	20.9	1345	9.7	2359	65.4	94.5	452	41.4	1701	8.5	6.9	8.6	636	5.6	1919	1014.95	1020.1	2324	1009.3	3	0
29	16.25	24.0	1545	7.3	411	64.8	95.4	428	37.5	1545	8.9	7.0	8.1	1052	5.9	402	1020.13	1021.6	838	1018.6	1728	0
30	20.21	29.2	1547	11.2	436	54.1	92.5	443	22.4	1402	8.9	7.1	8.9	718	5.3	1402	1017.59	1020.2	0	1014.9	1941	0
31	23.72	36.9	1318	12.2	417	57.3	89.8	417	21.7	1252	13.0	9.4	12.3	2358	7.4	950	1011.22	1015.2	6	1007.4	1357	0
Total																						28.7
Mean	17.20	23.05		11.43		69.9	92.78		44.65		10.94	8.22	9.84		6.72		1016.73	1019.62		1013.98		
Max	23.72	36.90		15.59		91.7	97.50		74.40		15.21	10.78	12.65		9.55		1027.72	1029.38		1025.41		
Min	14.43	19.50		6.59		54.1	82.00		21.67		6.44	5.91	6.79		4.36		1005.96	1008.97		1002.87		

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

## Appendix 1.

### **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, 1<sup>st</sup> January to 31<sup>st</sup> 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  $-0.1^{\circ}\text{C}$  or below. A ground frost day is recorded when the grass minimum temperature read at 0900 GMT on that day is  $-0.1^{\circ}\text{C}$  or lower.

Duration of air frost is defined as the number of minutes that the AWS one minute average temperature is below  $0.0^{\circ}\text{C}$ , 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 of 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.