

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

NOVEMBER 2023

Temperature (°C)	Anomaly	Rank in the past 142 years
Mean maximum	11.3	+0.2 33rd highest
Mean minimum	4.4	0.0 38th highest
Daily mean	7.8	0.0 37th highest
Highest maximum	16.3	on 13th Lowest maximum 3.2 on 30th
Highest minimum	10.5	on 19th Lowest minimum -3.9 on 30th
Mean grass minimum	1.5	+0.1 Lowest grass minimum -7.9 on 30th
Mean earth @30 cm	10.1	+0.4 Earth @100 cm 12.0 +0.1
Frost duration (hrs)	41.7	Rain duration (hrs) 64.4
Rainfall total (mm)	86.6	116 % 36th highest
Highest daily fall	20.8	on 1st Highest rate mm/hr 57 on 14th
Number of: Dry days (<0.2mm)	11	Wet days (>0.9mm) 13 days ≥5mm 6
Sunshine total (hrs) 94.1	Daily mean 3.14	119 % Sunniest day 7.8 on 15th & 25th
N° days with: Air frost 3	Ground frost 10	Snow falling 0 Snow lying 0
Thunder 0	Hail ≥5mm 0	Small hail/ice 0 Fog @09 0 Nil sun 8
Pressure MSL : Mean @09 GMT, mbar 1004.1	-9.4	Highest 1032.2 on 22nd Lowest 955.9 on 2nd
Relative humidity : Mean (%) 89.0	Lowest 60 on 13th	Water vapour (g/kg), mean at 09 and 15 GMT 6.1, 6.0
Overall mean wind speed (mph) 7.0	Windiest day 12.8 on 19th	Max gust 46 on 13th
Wind direction (days) N 2 NE 1 E 0 SE 1 S 5 SW 12 W 6 NW 3		
Least windy day (mph) 2.6 on 29th	Calm; less than 0.5 mph (minutes)	n/a

Anomaly = departure from 1991 to 2020 average (degrees C, percent and mbar).

Notes:

Above Average Rainfall and Sunshine and Average Temperature

Temperature: The mean this November is equal to the current 30 year average, but compared with the longer-term, is 0.9° above the 142 year median. However, it is 2.0° below last November's mean, though that was the 4th highest since before 1882. During the first third of the month, temperatures were generally close to normal, but after the 11th they became more variable though mainly mild, apart from cool nights on the 11th, 12th and 17th. It was markedly colder from the 24th to the end of the month. The highest max is 0.7° above the median and the lowest max is 1.5° below its median. The highest min is close to the median while the lowest min is 0.3° below its median. The 30th had a daily mean of -0.4°, the lowest for the month since 2016, but in 2010 the 28th had a mean of -3.2°, which was the lowest since before 1976. The mean and lowest grass min values are close to average. Earth temperature at both 30 cm and 1 m depth are slightly above average. The number of days with air frost is 2.6 below average but the duration of air frost is 2.6 hours above average. Anomalies for daily max was above +4° on the 13th, 18th and 19th, and exceeded -3° on the 25th, 29th and 30th, with extreme values of +5.4° on 13th and -5.8° on 30th. Anomalies for daily min were above +5° on the 14th, 19th and 21st, and exceeded -5° on the 25th, 26th and 30th, with extreme values of +7.1° on 19th and -6.6° on 30th. **Rainfall:** On average, November is currently the wettest month of the year, although the the record holder is an October, which in 1960 had 196.6 mm. Despite having 16% more rain than average this November, both March and October were wetter this year. The month got off to a soggy start, with 20.8 mm on the 1st adding to the 10.6 mm on the previous day and there were only 2 dry days until the 19th, then 9 in the final 11 days of the month. There was no hail, thunder or snow this November. Snow is not that rare this month, there was some in 2021, and there has been at least 1 day with snow in 15 Novembers since 1976. Rainfall accumulation compared with normal saw a surplus throughout, ranging from 19 mm on the 1st to 35 mm by the 17th, decreasing to 12mm by the 30th. Rainfall duration is 10% above average. **Sunshine:** This has been quite a sunny November, 19% above the 30 year average, with only 2005, 2006, 2007, 2017 and 2018 having a sunnier November in this millennium. The period 5th to 7th was sunny, the 3 day mean 73% of the maximum, but at the other extreme, the 5 days to the 22nd had a mean of only 7% of the maximum. Otherwise, the 15th and 25th had over 80 of the maximum. Daily accumulation compared with normal was 10 hours in surplus by the 7th, and continued with only small deviations until the 30th. Overall there were 14 days with <3 hours and 6 days with =>6 hours. **Wind:** The mean speed this November is 0.7 mph above average and is 2nd highest since 2015. Both the speed on the windiest day and the highest gust are close to average. **Pressure:** The air pressure, reduced to mean sea level, fell to 955.9 mbar on the 2nd, the lowest November value since before 1976, and the 2nd lowest for any month after 952.4 mbar on 25th February 1989.

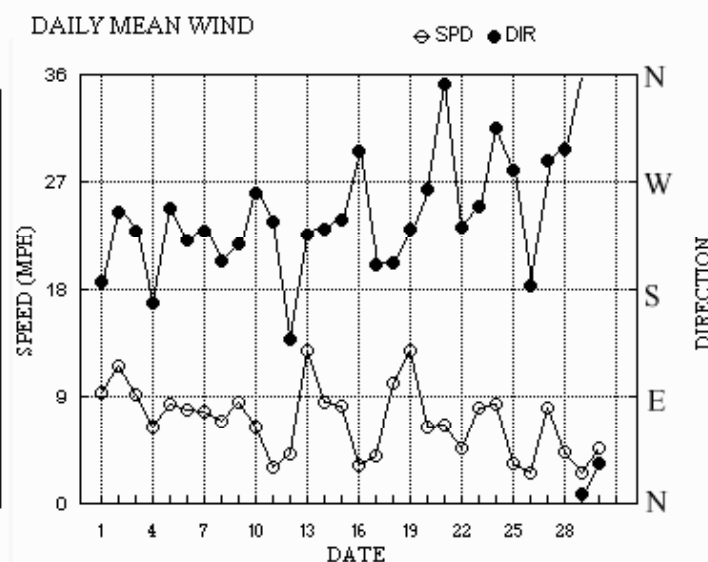
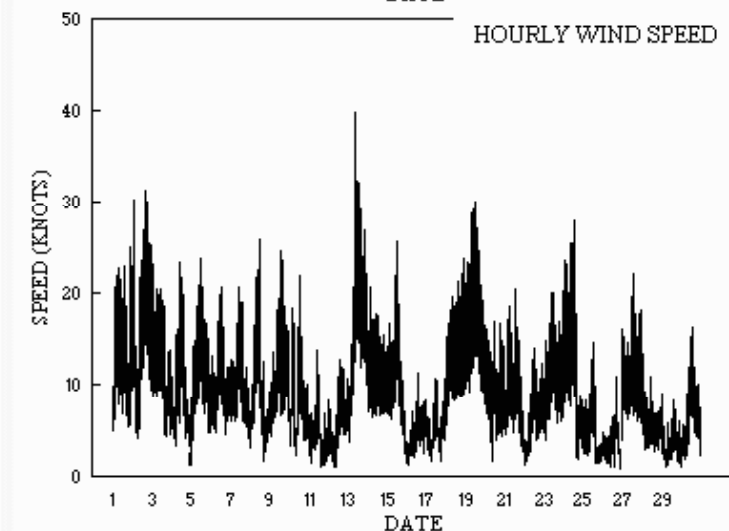
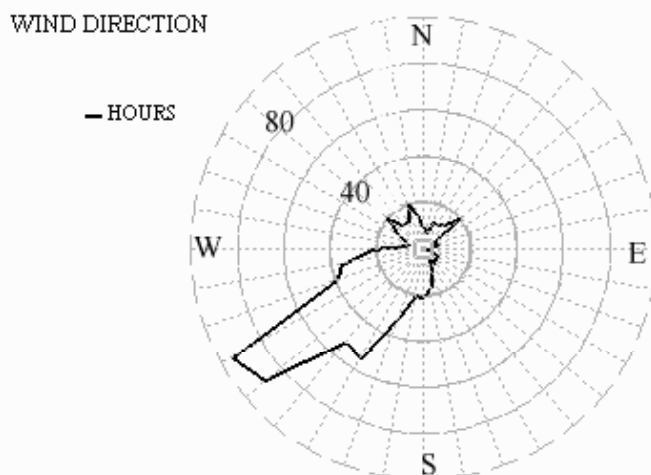
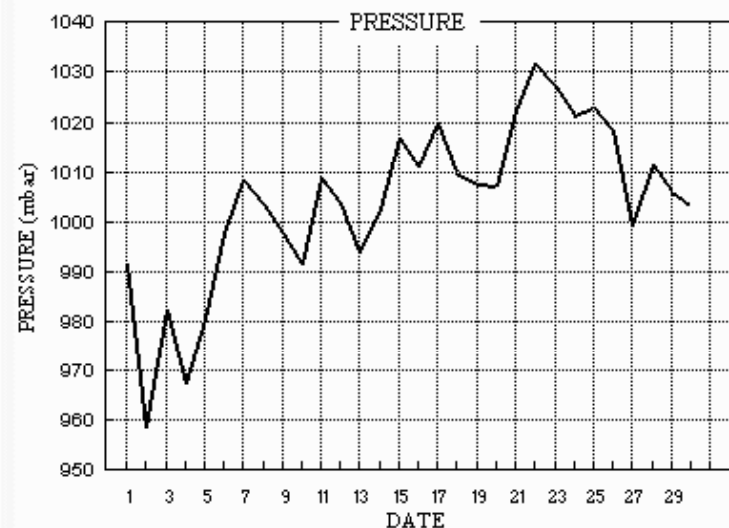
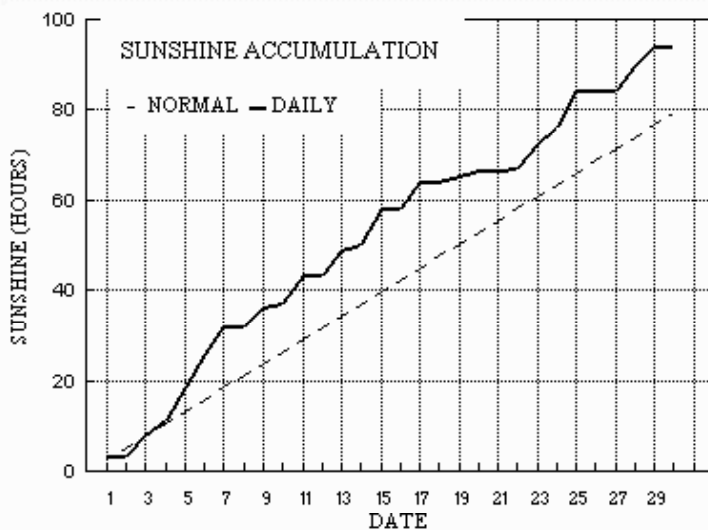
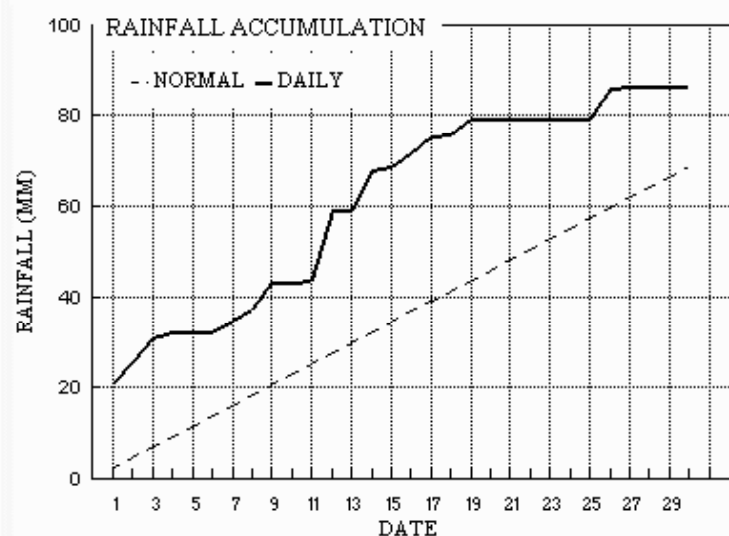
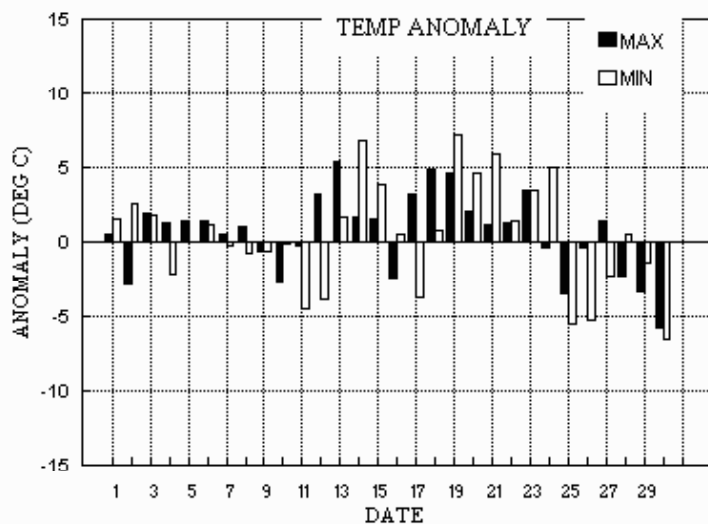
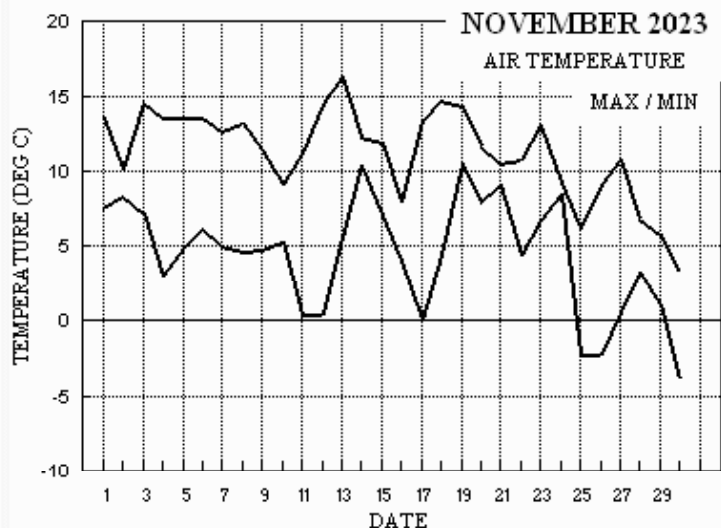
Table 1. Mean anomalies (max, min, rain, sun) for specified periods.

From the 1 st to the 10 th				From the 11 th to the 20 th				From the 21 st to the 30 th			
+0.2°	+0.3°	175%	141%	+2.4°	+1.3°	145%	113%	-0.9°	-0.5°	29%	104%

B J Burton FRMetS.

Hon. Met. Officer to Wokingham Town Council.

Wokingham climatological graphs for November 2023



Daily meteorological data. Emmbrook, WOKINGHAM, Berkshire.

Month: NOVEMBER 2023

Date	Max C	Min C	Rain mm	Grass Min	30cm C	100cm C	Sun hrs	Frost hrs	pp09 mbar	Af Gf	Sf SI	Th Ha	Ic Fg	Vec mean ddd ff sp	Max gust ddd gg HHhh	High hr ddd ff HH	Rain hrs
1	13.6	7.5	20.8	8.9	12.5	14.0	3.7	0.0	991.4	0 0 0 0	0 0 0 0	0 0 0 0	186	6.8 8.1	133 25 2250	237 11	13 8.7
2	10.1	8.3	4.9	6.5	12.7	13.9	0.0	0.0	958.4	0 0 0 0	0 0 0 0	0 0 0 0	245	6.4 10.1	257 31 1627	253 15	16 4.6
3	14.6	7.2	5.4	4.4	12.2	13.8	4.5	0.0	982.4	0 0 0 0	0 0 0 0	0 0 0 0	228	7.9 8.0	229 23 0124	232 11	01 3.1
4	13.6	3.0	1.1	-0.8	11.8	13.7	3.5	0.0	967.2	0 1 0 0	0 0 0 0	0 0 0 0	168	4.0 5.6	83 24 0915	204 10	13 1.5
5	13.6	4.9	0.0	1.4	11.5	13.5	7.0	0.0	980.3	0 0 0 0	0 0 0 0	0 0 0 0	248	6.7 7.2	273 24 1113	256 11	11 0.0
6	13.6	6.2	0.2	3.2	11.3	13.3	7.3	0.0	997.8	0 0 0 0	0 0 0 0	0 0 0 0	221	6.6 6.8	228 21 1308	232 10	11 0.2
7	12.6	5.0	2.2	1.1	10.9	13.2	6.2	0.0	1008.3	0 0 0 0	0 0 0 0	0 0 0 0	228	6.5 6.7	256 21 1147	250 10	11 2.2
8	13.1	4.6	2.8	0.2	10.6	13.0	0.0	0.0	1003.4	0 0 0 0	0 0 0 0	0 0 0 0	203	5.3 6.0	216 26 1133	191 11	09 3.9
9	11.4	4.7	5.7	1.0	10.7	12.8	4.0	0.0	997.7	0 0 0 0	0 0 0 0	0 0 0 0	217	7.1 7.4	273 25 1347	234 10	10 3.7
10	9.1	5.3	0.2	1.4	10.5	12.6	0.8	0.0	991.5	0 0 0 0	0 0 0 0	0 0 0 0	261	3.3 5.6	316 22 1315	232 10	04 0.7
11	11.1	0.4	0.2	-3.2	10.0	12.4	6.6	0.0	1008.7	0 1 0 0	0 0 0 0	0 0 0 0	237	1.1 2.8	306 14 1114	276 6	12 0.5
12	14.4	0.4	15.5	-3.5	9.3	12.2	0.0	0.0	1003.9	0 1 0 0	0 0 0 0	0 0 0 0	138	2.3 3.6	127 13 1515	181 6	23 7.9
13	16.3	5.5	tr	6.2	9.7	12.0	5.3	0.0	993.9	0 0 0 0	0 0 0 0	0 0 0 0	225	9.8 11.1	261 40 1023	246 17	10 0.2
14	12.2	10.3	9.1	6.0	10.2	11.8	1.5	0.0	1002.6	0 0 0 0	0 0 0 0	0 0 0 0	230	7.3 7.4	230 21 0438	232 10	00 3.5
15	11.9	7.1	0.9	4.1	10.1	11.8	7.8	0.0	1016.9	0 0 0 0	0 0 0 0	0 0 0 0	238	6.9 7.1	264 26 1232	252 12	12 0.8
16	7.9	4.0	2.8	0.4	9.6	11.7	0.0	0.0	1011.0	0 0 0 0	0 0 0 0	0 0 0 0	295	0.9 2.9	307 11 1439	297 5	14 3.2
17	13.3	0.0	3.7	-3.5	9.3	11.6	5.9	0.0	1020.0	0 1 0 0	0 0 0 0	0 0 0 0	200	3.2 3.5	158 11 2359	219 6	11 5.2
18	14.7	4.4	0.3	0.9	9.2	11.4	0.0	0.0	1009.8	0 0 0 0	0 0 0 0	0 0 0 0	202	8.0 8.8	215 24 2324	225 11	23 0.4
19	14.3	10.5	3.5	7.0	9.9	11.3	1.2	0.0	1007.6	0 0 0 0	0 0 0 0	0 0 0 0	231	11.0 11.1	234 30 1107	233 15	11 1.8
20	11.6	7.9	tr	4.6	10.1	11.2	1.4	0.0	1007.0	0 0 0 0	0 0 0 0	0 0 0 0	263	4.0 5.6	297 17 1130	231 8	00 0.7
21	10.5	9.1	tr	8.9	10.3	11.3	0.0	0.0	1022.2	0 0 0 0	0 0 0 0	0 0 0 0	352	5.6 5.8	9 21 1307	11 9	13 0.4
22	10.7	4.4	0.0	-0.3	10.2	11.3	0.3	0.0	1031.8	0 1 0 0	0 0 0 0	0 0 0 0	232	3.8 4.1	227 14 1326	230 7	12 0.0
23	13.0	6.6	tr	2.4	10.0	11.3	5.6	0.0	1027.2	0 0 0 0	0 0 0 0	0 0 0 0	250	6.7 7.0	324 20 2335	251 10	12 0.0
24	9.2	8.4	tr	7.0	10.0	11.3	3.9	0.6	1021.4	0 0 0 0	0 0 0 0	0 0 0 0	315	6.7 7.2	313 28 1316	322 12	13 0.4
25	6.1	-2.3	0.0	-6.5	9.1	11.2	7.8	13.0	1022.9	1 1 0 0	0 0 0 0	0 0 0 0	280	2.3 3.0	328 15 1217	314 7	12 0.0
26	9.1	-2.2	6.7	-5.8	8.0	11.1	0.0	8.8	1018.1	1 1 0 0	0 0 0 0	0 0 0 0	182	1.9 2.3	184 11 1646	185 6	17 9.7
27	10.7	0.6	0.6	5.5	8.2	10.8	0.2	0.0	999.1	0 0 0 0	0 0 0 0	0 0 0 0	287	4.6 7.0	350 22 1543	327 9	20 1.1
28	6.8	3.2	tr	-1.7	8.6	10.6	5.4	0.0	1011.3	0 1 0 0	0 0 0 0	0 0 0 0	297	2.5 3.9	328 14 0141	334 6	00 0.0
29	5.8	1.0	0.0	-2.3	8.2	10.5	4.2	3.1	1005.9	0 1 0 0	0 0 0 0	0 0 0 0	9	0.7 2.3	235 9 0048	235 5	00 0.0
30	3.2	-3.9	0.0	-7.9	7.7	10.4	0.0	16.2	1003.2	1 1 0 0	0 0 0 0	0 0 0 0	35	4.0 4.1	49 16 1415	48 7	13 0.0
Total			86.6				94.1	41.7									64.4
Mean	11.3	4.4		1.5	10.1	12.0	3.14	1.4	1004.1					235	3.8 6.1		
Anom	+0.2	+0.0	116%	+0.1	+0.4	+0.1	119%		-9.4								
Daily mean		7.8															
Anom		+0.0															

Number of days with:
 Air frost = 3 Ground frost = 10 Nil sun = 8
 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. SI = 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.
 Maximum daily rain rate in mm/hr
 All temperatures in degrees Celsius.
 Anomaly - Departure from the 1991 to 2020 climatological average

Weather observations. Emmbrook, Wokingham, Berkshire.

Observations at 0900 GMT for NOVEMBER 2023

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	pppww	W1W2	NhCl	hCrCl	NChshs	NChshs	NChshs	Date	Remarks					
1	75	7	20	10	18	12.1	9.8	86	7.7	991.4	8	003	21	6	2	1	7	4	7	8	81715	83359	85363	1	7Cs75 COTRA
2	61	8	30	06	11	10.0	9.7	98	7.9	958.4	3	016	20	5	2	8	7	2	/	/	88705			2	
3	80	7	22	11	19	9.2	6.8	85	6.3	982.4	2	017	25	8	1	7	5	3	7	2	81709	83635	86650	3	/Ac58 /Ci70
4	60	8	08	07	15	8.0	7.6	97	6.8	967.2	7	065	61	6	6	7	7	3	2	/	87708	88545		4	
5	88	1	27	09	18	9.4	6.1	80	6.0	980.3	2	054	01	1	1	1	8	4	4	1	81815			5	1Sc45 1Ac60 1Ci70 Cu fra
6	84	1	23	09	16	8.8	6.6	86	6.1	997.8	2	025	02	0	0	0	0	9	0	1	81070			6	1Ci78 COTRA Dist Cu con top W
7	80	1	23	08	15	7.3	5.8	90	5.7	1008.3	2	013	02	0	0	1	0	9	4	3	81360			7	1Ci70 Dist Cb cap W
8	50	8	19	10	22	11.0	10.2	95	7.8	1003.4	7	028	58	6	5	7	7	3	2	/	87706	88545		8	
9	82	6	21	08	13	8.6	6.6	87	6.1	997.7	8	009	15	1	1	3	5	6	8	0	81640	83656	85360	9	Ac cas vir jp NW Parhellow in vir
10	50	8	06	02	05	7.1	6.7	97	6.2	991.5	8	005	61	6	6	5	5	5	2	/	82620	84635	88562	10	
11	80	1	24	05	08	4.3	4.0	98	5.1	1008.7	2	015	02	0	0	0	0	9	0	1	81075			11	Hoar mod in shade
12	35	8	06	01	03	5.5	5.4	99	5.6	1003.9	3	011	60	6	2	3	5	2	2	/	81705	83656	88558	12	1Sc35
13	82	4	23	12	25	14.4	12.8	90	9.3	993.9	5	016	03	6	1	4	2	4	0	1	84815			13	1Ci75 Cu fra/med
14	60	8	22	08	17	11.8	9.4	85	7.4	1002.6	7	010	05	1	1	8	0	9	7	/	82364	88466		14	
15	75	1	24	09	15	8.1	7.0	93	6.2	1016.9	2	017	02	0	0	1	5	6	4	0	81645			15	1Ac59
16	56	8	05	02	06	5.3	5.0	98	5.4	1011.0	7	013	63	6	2	8	0	6	2	/	88535			16	
17	80	1	22	04	08	4.4	4.3	99	5.1	1020.0	2	014	02	0	0	1	5	7	0	1	81650			17	1Ci78 Hoar slt in shade
18	25	8	20	09	19	13.3	12.8	97	9.2	1009.8	6	020	51	6	5	7	5	2	/	/	82704	87705	88615	18	
19	65	6	23	13	29	12.0	8.3	78	6.8	1007.6	3	002	25	8	1	6	8	5	0	0	83820	85640		19	Cu fra/med jpNW
20	57	7	33	02	06	9.1	8.6	97	7.0	1007.0	5	005	21	6	2	7	5	3	/	/	83709	84615	86630	20	
21	86	7	34	05	16	9.6	6.7	82	6.0	1022.2	2	026	02	2	2	7	5	4	/	/	82613	87617		21	
22	61	7	22	05	09	6.5	5.6	94	5.5	1031.8	0	003	02	2	2	7	0	9	7	1	84358	85361		22	/Ac65 /Ci75
23	75	6	26	07	15	10.6	8.5	87	6.8	1027.2	5	000	03	2	2	4	6	4	0	9	84712	83173		23	
24	75	7	30	08	18	8.5	4.7	77	5.2	1021.4	0	002	02	6	2	7	8	5	/	/	83822	87638		24	Cu fra/hum
25	84	1	25	03	06	0.0	-1.9	87	3.3	1022.9	4	000	02	0	0	0	0	9	0	1	81081			25	COTRA Hoar mod Gnd frzn
26	61	7	19	01	04	0.3	-0.1	97	3.7	1018.1	7	008	03	2	2	6	5	6	7	2	82630	85640	87363	26	/Ci75 COTRA Hoar slt Gnd frzn
27	63	7	24	07	13	8.2	7.6	96	6.6	999.1	7	016	02	6	2	6	5	3	3	/	81708	85618		27	3Sc50 4Ac63
28	62	1	34	04	07	4.0	3.1	94	4.7	1011.3	2	019	01	1	1	1	5	3	0	0	81708			28	1Sc35
29	50	8	07	01	03	2.0	1.7	98	4.3	1005.9	5	001	10	1	1	3	6	3	4	7	83708	88272		29	1Ac68 COTRA Halo 22° part
30	15	8	07	05	10	-0.9	-1.2	98	3.5	1003.2	2	010	10	2	2	8	6	2	/	/	88703			30	Hoar thk Gnd sfc frzn

Mean vis = 22.0 km

Mean cloud = 5.5 69%

Mean wind speed = 6.4 kn

Mean gust = 13 kn

Mean TT = 7.6 °C

Mean TdTd = 6.3 °C

Mean RH = 91.5 %

Mean r = 6.1 g/kg

Mean PPP = 1004.1 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 NOVEMBER 2023

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	ppp	ww	W1	W2	Nh	Cl	h	Cr	N	Ch	shs	N	Ch	shs	Date	Remarks
1	80	4	22	09	19	12.3	7.6	73	6.6	990.1	1	004	15	8	1	1	9	5	6	3	81925	81830	83068	1	1Sc40 1Ac65 jpSW&W		
2	84	8	26	14	27	9.2	7.6	90	6.8	969.0	2	048	21	6	2	7	5	4	2	/	86618	87625	88550	2			
3	65	7	25	08	19	11.4	9.3	87	7.5	982.8	3	006	25	8	2	6	9	4	6	3	81712	82915	85650	3	1Cu20 3Ac59 2Ci70 jp NE&SW		
4	58	5	21	10	20	11.3	9.2	87	7.6	964.8	3	006	80	8	1	3	9	4	6	/	81712	82918	84360	4	1Sc45 1Ac65 Rainbow		
5	70	2	24	09	20	11.7	6.8	72	6.3	986.4	2	023	15	1	1	2	8	5	0	1	81825			5	2Sc45 1Ci75 Cu med jpNW Vis 50k ex p		
6	82	3	24	06	19	10.8	8.4	85	6.9	1000.5	3	009	25	8	1	1	9	5	6	3	81920	83070		6	1Cu25 1Ac59 COTRA jpW&E vv80k ex p		
7	80	5	25	09	19	12.4	7.3	71	6.4	1009.1	3	002	16	1	1	5	8	5	0	0	81822	85650		7	Cu med/con NW&SW jpW vv60k ex p		
8	86	8	24	05	11	11.5	9.9	90	7.6	1002.0	1	008	02	6	2	7	8	4	2	/	81812	87640		8	/As65 Cu med in line to N		
9	82	7	22	08	18	9.8	5.0	72	5.5	994.7	7	019	15	8	2	2	4	5	6	3	82828	86069		9	1Sc45 1Ac65 Cu med jpW		
10	89	7	31	05	15	8.3	4.7	78	5.4	999.4	2	048	02	2	2	7	8	5	/	/	81822	87630		10	Cu hum		
11	84	5	18	01	05	7.9	5.5	85	5.6	1007.9	6	006	03	1	1	2	4	5	0	6	81828	84077		11	2Sc32 2Cs72 Cu hum Halo 22° part		
12	70	8	13	06	11	8.5	7.6	94	6.5	1003.2	5	006	21	6	2	7	5	3	2	/	85708	86625	88458	12			
13	70	3	24	17	32	13.7	7.5	66	6.5	997.9	2	015	02	1	1	3	4	6	0	0	83832			13	1Sc40 Cu hum		
14	82	3	25	07	15	10.1	8.7	91	7.0	1003.7	3	015	21	6	1	2	5	4	4	1	82615			14	1Ac60 1Ci70		
15	86	3	26	09	19	10.4	4.3	66	5.1	1018.0	2	008	03	0	0	1	4	6	0	4	81830			15	1Sc45 2Ci71 Cu hum		
16	62	8	30	04	11	7.0	5.5	90	5.6	1013.9	3	022	60	6	2	6	5	6	2	/	82635	85650	88556	16			
17	80	8	21	04	09	8.8	6.6	86	6.0	1020.8	8	002	03	1	1	1	8	5	4	7	81825	88272		17	1Sc50 1Ac68 Cu hum		
18	82	8	22	07	14	14.1	12.5	90	9.0	1008.1	7	011	02	5	2	2	5	4	7	8	81712	87367		18	2Sc18 /Cs72		
19	86	7	24	13	26	13.7	9.7	77	7.5	1006.3	5	004	21	6	2	7	5	5	/	/	86622	87628		19			
20	65	7	28	05	11	11.1	7.4	78	6.4	1009.2	1	008	15	2	2	7	8	4	/	/	84818	85625		20	Cu hum/med jpNW vv50k ex p		
21	84	7	01	07	17	9.5	7.4	87	6.3	1026.1	2	026	20	5	2	7	5	4	/	/	81810	83617	87635	21	Cu fra		
22	72	7	23	06	12	10.0	7.6	85	6.4	1028.7	7	010	03	2	2	7	5	4	7	/	84710	86620		22	/Ac65		
23	82	2	25	06	17	12.4	8.3	76	6.7	1024.1	6	019	03	0	0	1	8	5	4	1	81820			23	1Sc35 1Ac68 2Ci80 COTRA Cu fra Parhelion		
24	89	1	35	07	21	6.4	-3.0	51	3.0	1021.6	1	004	01	1	1	1	1	6	0	1	81838			24	1Ci80 Cu hum		
25	84	2	35	05	11	5.2	-0.6	66	3.6	1021.2	6	007	02	0	0	0	0	9	0	1	82078			25	COTRA Absent vv&cld est		
26	30	8	09	01	03	4.4	3.7	95	4.9	1013.5	7	027	50	5	2	8	5	2	/	/	83705	87708	88615	26			
27	70	7	36	08	16	6.0	4.6	91	5.3	999.0	3	017	21	6	2	7	8	3	/	/	86708	87615		27	jpE vv40k ex p		
28	86	6	25	04	07	6.0	2.6	79	4.6	1010.9	5	004	02	2	2	6	8	5	/	/	81820	83635	85640	28	Cu hum		
29	83	7	02	08	08	4.7	0.1	72	3.8	1003.6	5	008	03	1	1	7	8	5	/	1	82825	84630	86656	29	/Ci72 Cu med		
30	84	4	04	06	16	2.8	0.0	82	3.8	1002.7	2	002	01	1	1	1	1	4	7	0	81815	84360		30	1Ac58 Cu fra Ac sheet to S with edge ovhd		

Mean vis = 37.7 km

Mean cloud = 5.6 70%

Mean wind speed = 7.1 kn

Mean gust = 16 kn

Mean TT = 9.4 °C

Mean TdTd = 6.1 °C

Mean RH = 80.4 %

Mean r = 6.0 g/kg

Mean PPP = 1004.6 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 2023	Hour	01-Nov	02-Nov	03-Nov	04-Nov	05-Nov	06-Nov	07-Nov	08-Nov	09-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
	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	0.00	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
	5	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
	6	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
	7	0.00	0.00	0.45	0.00	0.21	0.29	0.30	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.17	0.00
	8	0.27	0.00	0.24	0.00	1.00	1.00	1.00	0.00	0.27	0.00	1.00	0.00	0.27	0.00	1.00	0.00
	9	0.17	0.00	0.45	0.00	1.00	1.00	1.00	0.00	0.50	0.00	1.00	0.00	0.77	0.00	1.00	0.00
	10	0.01	0.00	0.93	0.51	1.00	1.00	1.00	0.00	0.25	0.00	1.00	0.00	1.00	0.00	1.00	0.00
	11	0.30	0.00	0.77	0.98	1.00	1.00	0.74	0.00	0.78	0.03	1.00	0.00	0.78	0.00	1.00	0.00
	12	0.40	0.00	0.47	0.65	0.37	1.00	0.37	0.00	0.98	0.22	1.00	0.00	0.77	0.00	0.98	0.00
	13	0.79	0.00	0.35	0.62	0.69	0.80	0.26	0.00	0.48	0.10	0.97	0.00	0.27	0.00	1.00	0.00
	14	0.84	0.00	0.41	0.25	0.87	0.54	0.61	0.00	0.72	0.00	0.33	0.00	0.77	0.73	0.88	0.00
	15	0.89	0.00	0.25	0.52	0.63	0.32	0.80	0.00	0.00	0.28	0.00	0.00	0.68	0.74	0.75	0.00
	16	0.00	0.00	0.21	0.00	0.21	0.31	0.12	0.00	0.00	0.17	0.00	0.00	0.00	0.02	0.00	0.00
	17	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
	18	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
	19	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
	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	0.00
	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		3.67	0.00	4.53	3.53	6.99	7.25	6.20	0.00	4.01	0.81	6.55	0.00	5.31	1.50	7.78	0.00

Hour	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	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
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
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
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
4	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
5	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
6	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
7	0.14	0.00	0.04	0.00	0.00	0.00	0.05	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.06
8	1.00	0.00	0.20	0.03	0.00	0.07	0.76	0.00	1.00	0.00	0.00	0.90	0.00	0.00	0.33
9	1.00	0.00	0.74	0.35	0.00	0.06	0.01	0.01	1.00	0.00	0.07	1.00	0.60	0.00	0.39
10	1.00	0.00	0.21	0.51	0.00	0.00	0.00	0.00	1.00	0.00	0.11	0.78	1.00	0.00	0.41
11	1.00	0.00	0.03	0.26	0.00	0.00	0.83	0.09	1.00	0.00	0.04	0.92	1.00	0.00	0.45
12	1.00	0.00	0.00	0.13	0.00	0.16	1.00	0.92	1.00	0.00	0.00	0.82	1.00	0.00	0.44
13	0.39	0.00	0.00	0.08	0.00	0.05	1.00	1.00	1.00	0.00	0.00	0.87	0.64	0.00	0.38
14	0.34	0.00	0.00	0.03	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.04	0.00	0.00	0.35
15	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.91	0.80	0.00	0.00	0.09	0.00	0.00	0.29
16	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
17	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
18	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
19	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
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
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
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
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
Tot	5.88	0.00	1.21	1.39	0.00	0.33	5.57	3.93	7.83	0.00	0.22	5.42	4.24	0.00	94.12

NOVEMBER 2023	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	11.44	13.6	1308	8.6	1843	88.0	97.9	202	70.4	1426	9.5	7.6	9.1	341	5.8	1738	989.53	998.7	0	971.6	2359	10
2	9.54	11.5	128	8.3	329	89.5	98.3	754	71.1	2303	7.8	6.9	8.2	114	5.5	1711	967.09	978.3	2357	955.9	700	13.9
3	9.18	14.6	1325	5.8	2345	85.0	94.9	1905	69.0	1157	6.7	6.3	7.8	1545	5.4	2345	982.25	984.9	2156	978.2	0	0.8
4	8.12	13.6	1233	3.0	421	93.5	98.5	518	77.9	1237	7.1	6.6	8.4	1117	4.8	421	969.28	983.7	0	963.9	1310	4.9
5	9.27	13.6	1306	4.9	54	84.0	99.0	145	61.8	1148	6.6	6.2	6.8	1428	5.5	54	981.92	992.9	2344	966.0	2	0.1
6	8.77	13.6	1250	6.2	555	86.1	95.1	740	66.8	1252	6.5	6.1	6.9	1143	5.5	2359	999.02	1005.5	2359	992.7	53	0.4
7	8.00	12.6	1212	5.0	515	87.3	95.5	357	68.9	1354	5.9	5.8	6.8	1131	5.1	629	1008.72	1011.5	2127	1005.3	0	0.3
8	8.60	13.1	1221	4.6	144	94.2	97.4	1820	77.9	1611	7.7	6.7	9.1	1231	5.1	144	1004.39	1011.3	30	1000.9	1224	4.1
9	7.55	11.4	1255	4.7	117	86.0	94.9	0	63.2	1322	5.3	5.6	6.3	947	5.0	117	996.79	1002.6	0	993.5	1615	2
10	6.48	9.1	1217	3.8	2254	89.5	97.8	935	74.1	1610	4.9	5.5	6.5	1016	4.6	2247	997.18	1006.0	2353	991.3	900	3.3
11	4.03	11.1	1312	0.4	352	92.7	99.5	2348	65.2	1314	2.8	4.7	6.0	1029	3.9	352	1007.05	1009.1	1011	1003.5	2354	0.3
12	6.70	9.6	2359	0.8	0	96.9	99.8	3	88.5	1301	6.2	6.0	7.2	2359	4.0	0	1003.53	1005.3	2055	1002.4	508	0.9
13	12.42	16.3	1006	9.6	45	81.9	98.5	537	59.6	1036	9.2	7.4	9.6	757	6.2	1114	998.66	1003.8	2	993.1	809	11.9
14	10.08	12.2	1003	8.1	2228	90.3	95.4	2359	81.8	1	8.6	7.0	7.9	1104	6.3	2228	1005.11	1012.5	2358	1001.3	1052	8.3
15	8.42	11.9	1202	4.5	2342	84.3	96.4	2355	62.3	1414	5.8	5.7	6.7	114	5.0	2342	1016.72	1018.9	1910	1012.3	1	0.3
16	5.36	7.9	1356	3.2	2201	96.0	98.0	2229	86.6	1359	4.8	5.3	5.9	1314	4.6	2201	1014.36	1018.2	2345	1010.7	1039	2.9
17	5.85	10.2	1259	0.0	748	93.1	99.9	841	77.5	1301	4.8	5.3	6.1	1349	3.7	748	1019.91	1021.7	1829	1017.0	133	1
18	12.14	14.7	1318	7.5	7	92.8	97.5	258	84.4	2346	11.0	8.2	9.8	1155	5.9	0	1010.55	1019.5	3	1007.5	1800	2.9
19	11.75	14.3	1333	9.6	2356	82.5	94.0	1623	70.7	1031	8.8	7.1	8.1	1612	6.3	724	1007.96	1010.6	2325	1005.6	1335	1.6
20	9.98	11.6	1233	7.9	434	86.9	97.1	853	77.1	1233	7.9	6.6	7.3	1032	5.8	431	1009.90	1015.0	2358	1006.4	734	1.6
21	9.32	10.5	1317	5.4	2355	86.1	94.7	321	79.2	1808	7.1	6.2	7.2	1239	5.1	2355	1023.79	1031.1	2321	1014.8	0	0
22	7.45	10.4	1711	4.4	600	91.9	97.4	614	80.7	1300	6.2	5.8	6.8	1711	4.9	600	1030.11	1032.2	752	1028.1	2359	0
23	10.70	13.0	1247	8.8	20	86.1	94.7	1	71.7	1306	8.4	6.8	7.3	2331	6.4	1642	1025.47	1028.3	3	1022.3	2154	0
24	10.99	13.3	1	0.4	2336	86.1	94.7	1907	71.7	1346	8.7	6.9	7.4	0	3.3	1457	1022.12	1023.4	2333	1020.9	1305	0.1
25	0.89	6.1	1214	-2.3	749	84.2	96.9	2225	61.8	1217	-1.6	3.3	3.7	1412	3.0	749	1022.09	1023.5	300	1020.7	2333	0.2
26	2.74	8.5	2359	-2.2	117	96.4	99.5	2334	91.0	1052	2.2	4.6	6.9	2359	3.1	117	1014.77	1020.7	42	1005.1	2349	3.6
27	7.49	10.7	1110	4.6	1731	92.1	98.8	0	84.2	1238	6.3	6.0	7.2	30	4.7	1806	1001.12	1005.8	2355	996.8	1249	2.7
28	4.74	6.8	1218	2.0	2115	86.4	96.1	803	74.4	1221	2.6	4.6	5.1	339	4.0	2115	1009.81	1012.0	1047	1005.7	0	0
29	2.59	5.8	1241	-2.3	2356	86.6	98.0	857	67.6	1252	0.5	4.0	4.7	1035	3.1	2352	1004.92	1008.2	0	1002.9	2355	0
30	-0.78	3.2	1419	-3.6	445	94.8	98.7	154	81.5	1439	-1.5	3.4	4.2	1202	2.9	444	1003.41	1006.2	2359	1002.1	417	0.1

Total																					78.2	
Mean	7.66	11.16		4.07		89.0	97.16		73.95		5.89	5.94	7.03		4.82		1004.92	1010.04		999.94		
Max	12.42	16.33		9.64		96.9	99.90		91.00		10.99	8.21	9.77		6.42		1030.11	1032.20		1028.12		
Min	-0.78	3.20		-3.56		81.9	94.00		59.58		-1.62	3.33	3.72		2.85		967.09	978.30		955.90		

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
 R tot = Rainfall from TBR, uncorrected

WOKINGHAM METEOROLOGICAL DATA

Wokingham Climatological Station, Emmbrook, Berkshire.

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

Seasonal Means and Totals

AUTUMN 2023

Seasonal Means and Totals		AUTUMN 2023		Rank in the past 142 years	
Temperature (°C)					
Mean maximum	17.3	(+1.8)		2nd highest	
Mean minimum	8.6	(+1.3)		4th highest	
Daily mean	13.0	(+1.6)		2nd highest	
Rainfall total (mm)	258.4	(128%)		19th highest	
Sunshine total (hours)	414.5	(119%)			
N° of:					
Dry days	46	(-2)	Wet days	32	(+1)
Days with: Air frost	4	(-3)	Ground frost	12	(-9)
			Snow falling	0	(-1)
			Snow lying	0	(0)
Thunder	3	(0)	Hail ≥5mm	0	(0)
			Small hail/ice	0	(-1)
			Fog @09 GMT	0	(-3)
			Nil sun	13	(0)
Air pressure MSL : Mean @09 GMT (mbar)	1008.3	(-6.6)			

Departure from 1991 to 2020 average shown in brackets.

Notes: **Near Record Temperature with Sunshine Well Above Average and Rainfall Above Average.**

Temperature: This autumn season is equal 2nd warmest with 2011 since before 1882. The mean maximum is also 2nd warmest, 0.4° below the record set in 2006. An illustration of how our climate is changing is that all but 3 of the warmest 10% of autumn seasons in the past 142 years have occurred in this millennium, though some of this change may be caused by the local increase in housing. There was a near record warm September, mean 18.0°, anomaly +3.1°, then a warm October, mean 13.1°, anomaly +1.6°, and a normal November, mean 7.8° anomaly 0.0°. The season's hottest day was the 9th September when 32.0° was reached, 7.4° above the median and 3rd highest in 120 years. The coldest day was the 30th November, max 3.2°, 1.5° below its median. The highest min was 17.1° on 11th Sep, 1.7° above the median, and the lowest min was -3.9° on 30th Nov, exactly on the median. The mean grass min was 6.0°, anomaly +1.9°, equal highest with 2022 since 2006. The lowest grass min was -7.9° on 30th Nov, close to average. The mean earth temperature at 30 cm depth was 14.6°, a new record high for autumn, 0.2° above the previous highest in 2014, likewise, the highest daily value of 20.5° on 10th Sep is a new seasonal record since before 1980. At 1m depth, the mean of 15.3° is equal highest with 2011 since before 1989, and the highest value of 18.7° on the 14th Sep is also a new record. There were fewer frosts than average but the duration of air frost, 45.1 hr, is close to average. The first frosts of the winter half year were, air 16th Oct after 173 frost free days, ground 15th Oct after 147 days.

Rainfall: The total this autumn of 258.4 mm is 28 % above average, and its ranking of 19th in 142 years puts it well into the wet category. However, in this millennium 5 autumns have been wetter, including 2022 and 2019 in recent years. The wettest day was the 20th Sep when 37.4 mm fell, 12.7 mm above the median, and ranking 16th highest in 120 years. All months had above average rainfall, Oct was the wettest with 113.8 mm, anomaly 155%, then Nov with 86.6 mm, 116%, then Sep with 58.0mm, 108%. Dry spells were 9 days to the 9th Sep, also only 1.4 mm in the first 16 days of that month, 8 days to the 10th Oct and 6 days to the 25th Nov. Overall there were 2 fewer dry days than average. Notable 2 day falls were 40.3 mm, 20th and 21st Sep, 38.6 mm, 18th and 19th Oct, and 31.4 mm, 31st Oct and 1st Nov. Rainfall rate exceeded the violent category on 20th Sep, 2nd and 19th Oct and 14th Nov, with the maximum rate of 113 mm/hr at 1618 GMT on 19th Oct. The duration of rainfall was 159.2 hours, 110 % of average. The 3 days with thunder were the 17th and 21st Sep, and 2nd Oct. There was no hail this autumn. Estimated soil moisture deficit was sufficient to cause stress to unirrigated shallow rooted plants between the 12th and 22nd Sep. **Sunshine:** This has been the 3rd sunniest autumn in this millennium.

The daily mean of 4.55 hours is highest since 2018, and before that, 2003. Each month this season had above average sunshine, with Sep the sunniest month, mean 6.04 hr, 117% of average, then Oct, 4.49 hr, 122%, and Nov, 3.14 hr, 119%. 13 days had nil sun, which is average. The sunniest day was the 5th Sep with 12.6 hours. Notable sunny spells were 3rd to 9th Sep, daily mean 10.8 hr, and 6th to 10th Oct, mean 8.4 hr. There were no prolonged dull spells, but several of 2 days length, apart from the 18th to 22nd Nov when the sun shone for a total of only 2.9 hours. Overall there were 34 days with <3 hours, 32 with =>6 hours and 2 with =>12 hours. **Wind:** The mean speed this autumn of 5.6 mph is 0.5 mph below average and lowest since 2016. November was the windiest month, mean 7.0 mph, then Oct with 5.2 mph, then Sep with 4.7 mph. The 19th Nov was the windiest day, mean 12.8 mph, but the season's highest gust of 46 mph was on Nov 13th. The 9th Sep was the least windy day, mean 1.3 mph. Daily mean direction/number of days; N,4 NE,8 E,7 SE,3 S,20 SW,34 W,11 NW,4. Compared with average, winds from S and SW combined were 10% more frequent, chiefly at the expense of NW and N combined, down 7.2%.

Humidity: The overall mean relative humidity was 85.9 % and the lowest was 36 % on the 4th Sep. The mean water vapour content per kg of air was 8.2 g at 0900 GMT and 8.1 g at 1500 GMT, this latter value highest in the past 27 years. **Pressure:** The mean this autumn is lowest since 2000 and 2nd lowest since before 1976. The highest pressure was 1032.2 mbar on the 22nd Nov, and the lowest was 955.9 mbar on the 2nd Nov, span 76.3 mbar, anomaly +20.7 mbar. The lowest pressure is lowest for any autumn since before 1976. **September:** Near record warmth with above average rainfall and sunshine. Mean temperature equal highest in 142 years. Mean max highest since 1929. Highest max is highest for the month since 1911. Lowest max 2nd highest in 111 years. Mean earth temperature at 30cm and 1m depth highest on record. Heavy rain on 20th produced 21.4 mm in one hour. **October:** Very mild and wet but quite sunny. Mean temperature 8th highest in 142 years. Mean earth temperature at both 30cm and 1m depth highest on record. Rainfall 55% above average. **November:** Above average rainfall and sunshine and average temperature. Air pressure fell to 955.9 mbar on 2nd, the 2nd lowest value for any month since before 1976.

Month	Mean Max	Anom	Mean Min	Anom	Rain mm	Anom	Sun hrs	Anom	Mean Wind mph	Max gust	Mean pressure	Anom
Sep	23.4°	+3.7°	12.6°	+2.6°	58.0	108%	181.2	117%	4.7	41	1014.8	-1.9
Oct	17.2°	+1.7°	8.9°	+1.4°	113.8	155%	139.2	122%	5.2	36	1007.6	-6.9
Nov	11.3°	+0.2°	4.4°	0.0°	86.6	116%	94.1	119%	7.0	46	1004.1	-9.4

B J Burton FRMetS.

Hon. Met. Officer to Wokingham Town Council.

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.