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 2021**

Temperature (°C)		Anomaly	Rank in the past **140** years		
Mean maximum	10.9	-0.2	46th highest		
Mean minimum	3.3	-1.1	59th lowest		
Daily mean	7.1	-0.7	59th highest		
Highest maximum	15.1	on 12th	Lowest maximum	4.3	on 28th
Highest minimum	10.1	on 13th	Lowest minimum	-2.2	on 29th
Mean grass minimum	0.8	-0.6	Lowest grass minimum	-7.3	on 29th
Mean earth @30 cm	10.0	+0.3	Earth @100 cm	11.9	0.0
Frost duration (hrs)	39.8		Rain duration (hrs)	18.9	
Rainfall total (mm)	14.6	20 %	5th lowest		
Highest daily fall	8.6	on 26th	Highest rate mm/hr	21.0	on 1st

Number of: Dry days (<0.2mm) 21 Wet days (>0.9mm) 3 days ≥5mm 1

Sunshine total (hrs) 91.3 Daily mean 3.04 116 % Sunniest day 8.0 on 22nd

Nº days with: Air frost 7 Ground frost 16 Snow falling 2 Snow lying 0

Thunder 0 Hail ≥5mm 0 Small hail/ice 0 Fog @09 0 Nil sun 8

Pressure MSL : Mean @09 GMT, mbar 1018.6 +5.1 Highest 1034.5 on 22nd Lowest 983.1 on 27th

Relative humidity : Mean (%) 86.8 Lowest 50 on 28th Water vapour (g/kg), mean at 09 and 15 GMT 5.6, 5.8

Overall mean wind speed (mph) 5.8 Windiest day 14.7 on 27th Max gust 40 on 27th

Wind direction (days) N 3 NE 1 E 0 SE 0 S 1 SW 16 W 3 NW 6

Least windy day (mph) 1.5 on 15th Calm; less than 0.5 mph (minutes) 898

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

Notes: **Cool, Sunny and Very Dry**

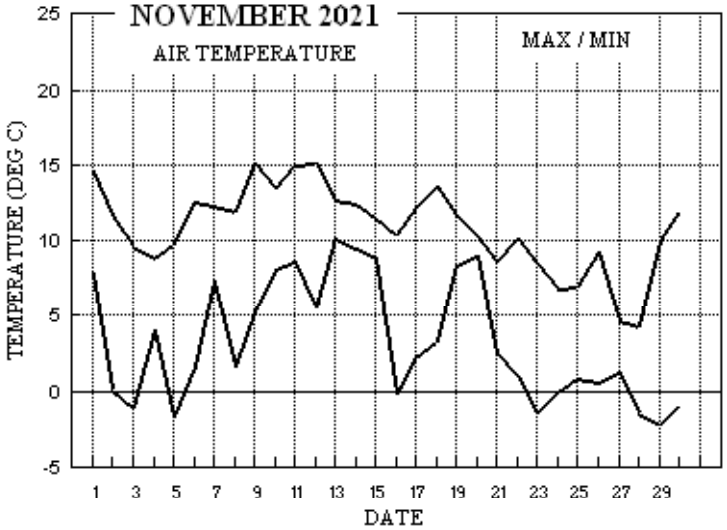
Temperature: Cold snaps early and late in the month produced a mean temperature 0.7° below average. The mean maximum, however, was only 0.2°below average, and 3 Novembers in the past decade have been colder in this respect. The mean minimum, 1.1° below average, is lowest since 2016, though 2019 was only 0.1° milder. The highest max is 0.5° below the long-term median and the lowest max is 0.4° below its median. The highest min is 0.5° below the median while the lowest min is 1.4° above its median. Although the mean grass min is 0.6°below average it is lowest only since 2019. The lowest grass min is 0.5° above the 43 year average and earth temperatures are close to average. The number of days with ground frost is 3 more than average, but the duration of air frost is close to the average for the past 41 years. Anomalies for daily max were above +3° on the 9th, 11th, 12th and 18th, and exceeded -3° on the 3rd, 4th, 27th and 28th, with extreme values of +4.0° on the 12th and -4.9°on the 28th. Anomalies for daily min were above +4° on the 13th to 15th, 19th and 20th, and exceeded -4° on the 2nd, 3rd, 5th, 23rd 28th and 29th. with extreme values of +6.8° on the 13th and -6.5° on the 3rd. **Rainfall:** This has been an exceptionally dry November, driest since 1956 and 5th driest in 140 years. The number of dry days is 6 more than average, and only 1 less than the record held jointly by 1978, 1983 and 1989, and the number of wet days (1.0 mm or more) is equal lowest with 1988 in the past 46 years. Rain duration is lowest in the past 29 years. There were 2 dry spells, the first of 7 days ended on the 8th and the 2nd of 13 days on the 25th., with only 2.4 mm falling between the 2nd and 25th. Snow fell on the 27th and 28th, enough on the latter day to give about 10% cover on the morning of the 29th. While snow is not rare in November, only 15 of the past 46 have had any. There was no thunder or hail this month. Rainfall accumulation compared with normal was 19 mm in deficit by the 8th, increasing to 56 mm by the 25th, and ending the month with a deficit of 59.8 mm. **Sunshine:** This has been a sunny month, with 16% more sunshine than average. However there have been 2 sunnier Novembers in the past decade, and 5 in this millennium, the last in 2018. The month got off to a sunny start with the first 2 days having over 80% of the maximum, and joined later by the 17th, 22nd, 23rd and 25th. However, the period 10th to 20th was quite dull, with the sole exception of the 17th, with 5 days having nil and only 1 having over 25% of the maximum. Daily accumulation compared with normal was 14 hours in surplus by the 9th, falling to zero by the 16th but increasing to 15 hours by the 25th, the month ending with a surplus of 12 hours. Overall there were 18 days with <3 hours and 8 with =>6 hours. **Wind:** The mean speed this month is 0.6 mph below average, but is lowest only since 2019. Fortunately we were spared the havoc inflicted on many parts of the UK that accompanied the windstorm on the 27th, our highest gust on that day being 40 mph, 3 mph below the month's average and lowest for November since 2014, however the mean speed on that windiest day was 1.7 mph above average.

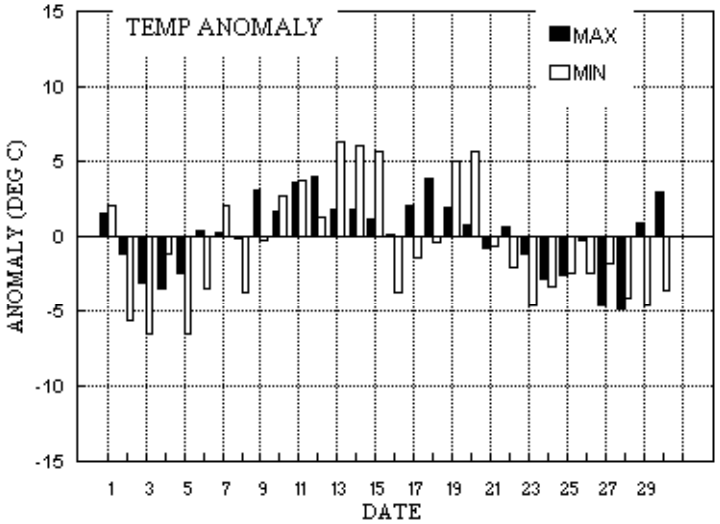
Table 1. Mean anomalies (max, min, rain, sun) for specified periods.

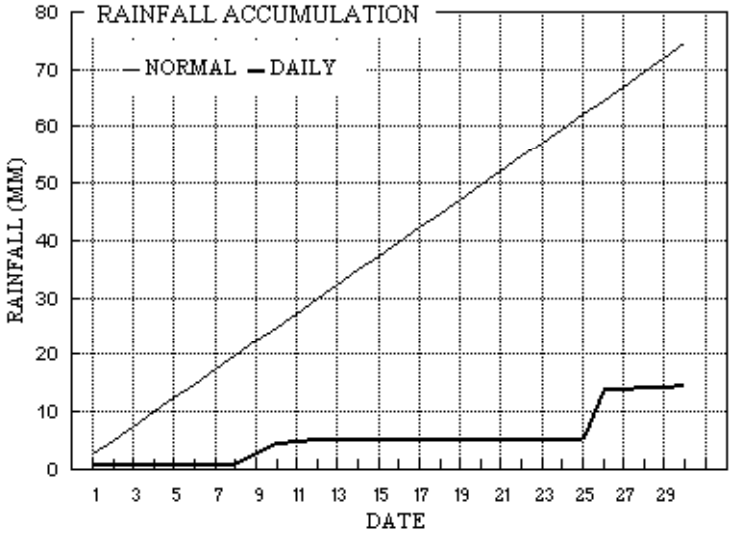
From the 1st to the 10th				From the 11th to the 20th				From the 21st to the 30th			
-0.3°	-2.0°	18%	144%	+2.1°	+2.8°	3%	57%	-1.3°	-3.0°	37%	146%

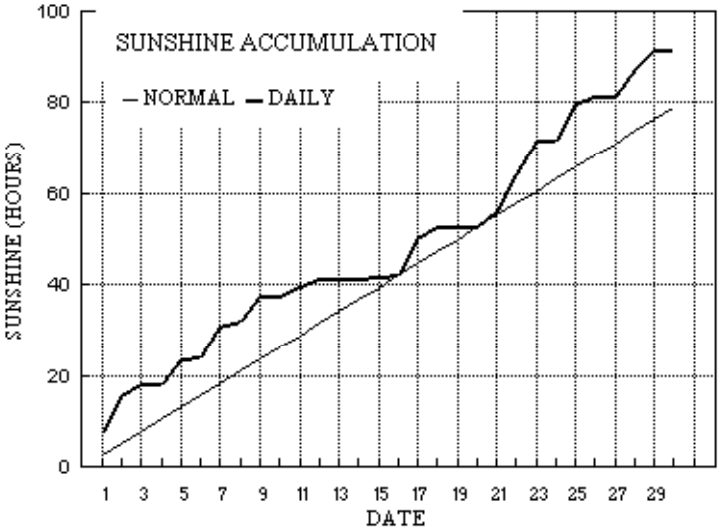
B J Burton FRMetS. Hon. Met. Officer to Wokingham Town Council.

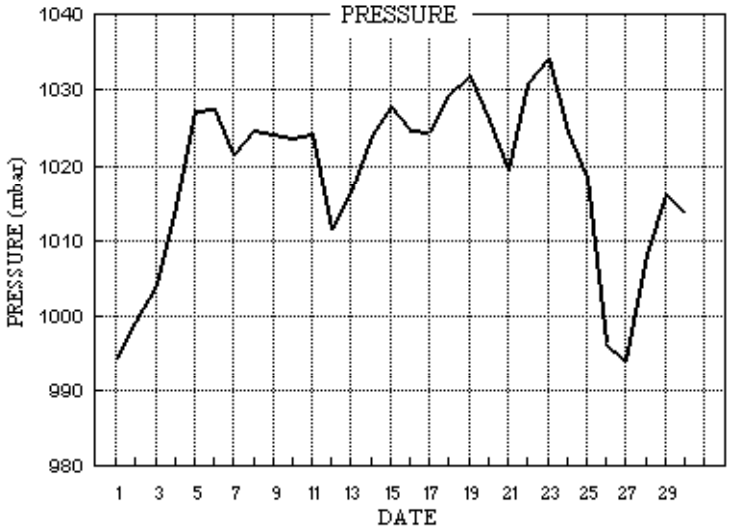
Wokingham climatological graphs for November 2021

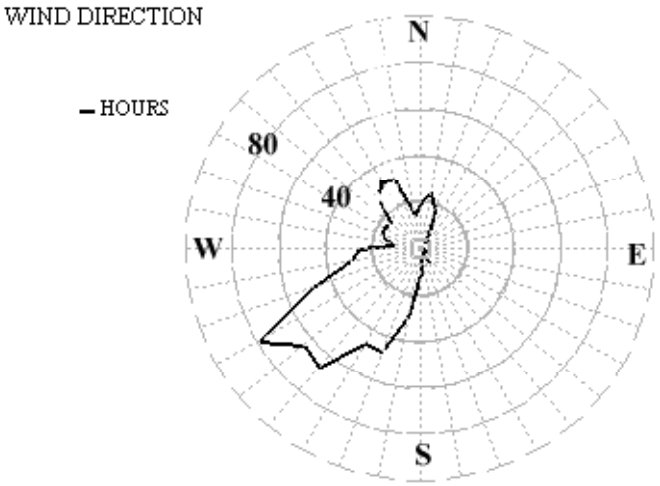


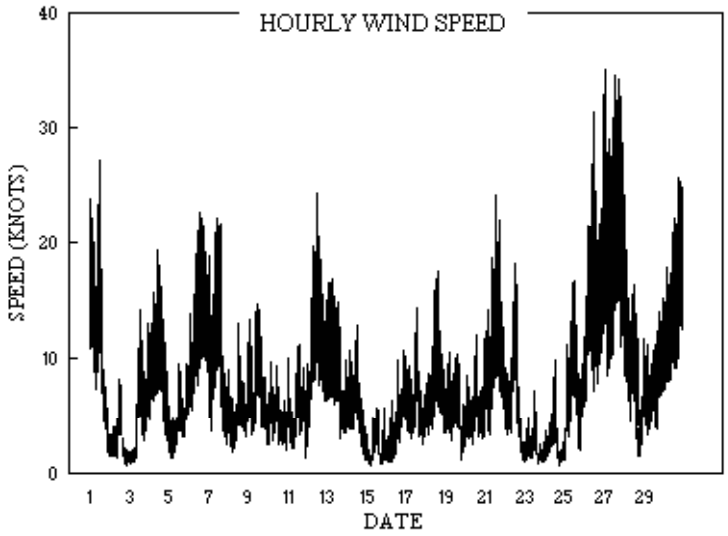


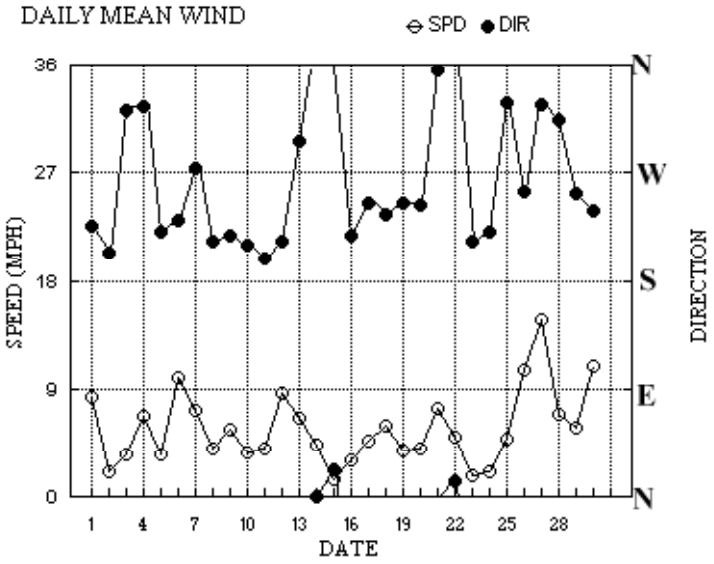












Daily meteorological data. Emmbrook, WOKINGHAM, Berkshire.

Month: NOVEMBER 2021

Date	Max	Min	Rain	Grass	30cm	100cm	Sun	Frost	pp09	Af	Sf		Th	Ic		Vec mean			Max gust			High hr			Rain
	C	C	mm	Min	C	C	hrs	hrs	mbar	Gf		Sl	Ha		Fg	ddd	ff	sp	ddd	gg	HHhh	ddd	ff	HH	hrs
1	14.6	7.9	0.8	4.9	12.4	13.9	7.9	0.0	994.4	0	0	0	0	0	0	226	7.2	7.3	268	27	1218	218	11	02	0.3
2	11.7	0.1	0.0	-2.6	11.7	13.8	7.7	0.0	999.2	0	1	0	0	0	0	203	1.4	1.9	274	8	1153	248	4	12	0.0
3	9.6	-1.1	tr	-3.7	10.8	13.5	2.7	6.1	1004.2	1	1	0	0	0	0	321	2.4	3.1	314	14	1234	335	6	12	0.7
4	8.9	4.0	0.0	3.6	10.5	13.2	0.0	0.0	1014.5	0	0	0	0	0	0	325	5.8	5.9	330	20	0921	325	8	09	0.0
5	9.8	-1.7	tr	-4.9	10.2	12.9	5.4	5.1	1027.4	1	1	0	0	0	0	220	2.9	3.1	237	10	1244	211	5	23	0.3
6	12.6	1.6	tr	4.3	10.0	12.6	0.4	0.0	1027.6	0	0	0	0	0	0	231	8.6	8.6	251	23	1427	232	11	18	0.0
7	12.3	7.3	0.0	3.4	10.5	12.4	6.7	0.0	1021.5	0	0	0	0	0	0	273	6.0	6.4	305	22	1140	290	11	12	0.0
8	11.9	1.6	tr	-1.5	10.2	12.3	1.3	0.0	1024.7	0	1	0	0	0	0	212	3.5	3.6	208	13	1345	234	6	13	0.0
9	15.1	5.1	2.0	4.4	10.5	12.1	5.7	0.0	1024.2	0	0	0	0	0	0	218	4.7	4.9	235	15	1144	228	7	11	1.6
10	13.4	8.1	1.8	4.9	10.8	12.1	0.0	0.0	1023.6	0	0	0	0	0	0	209	3.1	3.2	181	10	0405	233	5	10	2.0
11	15.0	8.6	0.4	8.9	11.5	12.0	2.1	0.0	1024.2	0	0	0	0	0	0	198	3.2	3.5	185	11	1518	162	5	20	0.8
12	15.1	5.6	0.2	1.7	11.4	12.1	1.6	0.0	1011.4	0	0	0	0	0	0	212	7.0	7.6	227	24	1257	232	12	12	0.5
13	12.7	10.1	tr	6.6	11.4	12.1	0.0	0.0	1016.2	0	0	0	0	0	0	295	5.1	5.7	297	17	0628	254	8	01	0.3
14	12.4	9.5	tr	8.3	11.5	12.2	0.0	0.0	1024.0	0	0	0	0	0	0	1	3.6	3.8	9	13	1315	14	6	13	0.3
15	11.5	8.9	0.0	8.4	11.6	12.2	0.4	0.0	1027.7	0	0	0	0	0	0	23	0.8	1.3	309	6	2230	49	3	13	0.0
16	10.4	-0.2	tr	-2.7	11.0	12.2	0.4	0.2	1024.7	1	1	0	0	0	0	218	2.4	2.7	210	11	2102	228	6	21	0.0
17	12.2	2.2	0.0	0.7	10.6	12.1	7.8	0.0	1024.6	0	0	0	0	0	0	244	3.6	4.1	258	15	1324	283	7	13	0.0
18	13.6	3.3	0.0	-1.1	9.6	12.0	2.7	0.0	1029.3	0	1	0	0	0	0	235	5.0	5.2	284	18	1411	265	8	14	0.0
19	11.6	8.3	0.1	4.7	10.2	11.8	0.0	0.0	1031.9	0	0	0	0	0	0	244	3.0	3.5	266	11	0538	256	5	13	0.3
20	10.3	9.0	tr	8.9	10.7	11.7	0.0	0.0	1026.1	0	0	0	0	0	0	243	3.4	3.6	272	12	1401	266	5	13	0.0
21	8.6	2.5	0.0	-2.1	10.6	11.7	3.5	0.0	1019.3	0	1	0	0	0	0	355	6.1	6.5	347	24	1456	6	9	14	0.0
22	10.1	0.9	0.0	-4.6	9.7	11.6	8.0	0.2	1030.8	0	1	0	0	0	0	13	4.1	4.4	25	18	1301	22	9	12	0.0
23	8.5	-1.5	0.0	-4.9	8.8	11.5	7.4	9.0	1034.3	1	1	0	0	0	0	213	1.2	1.6	175	7	1330	203	4	13	0.0
24	6.8	0.0	tr	-1.8	8.3	11.2	0.0	0.0	1024.5	0	1	0	0	0	0	221	1.3	1.8	275	10	1317	285	5	13	0.1
25	7.0	0.8	tr	-3.9	8.4	10.9	7.9	0.0	1018.4	0	1	0	0	0	0	327	3.1	4.3	322	17	1340	351	7	13	0.1
26	9.3	0.6	8.6	-4.0	7.8	10.7	1.6	0.0	996.5	0	1	0	0	0	0	254	8.4	9.2	263	32	1332	255	12	23	8.1
27	4.6	1.2	0.2	-0.3	7.7	10.5	0.1	0.0	994.1	0	1	1	0	0	0	326	12.1	12.8	304	35	0242	328	16	15	1.1
28	4.3	-1.5	0.2	-4.3	7.1	10.2	6.0	9.5	1008.2	1	1	1	0	0	0	313	5.8	6.0	313	26	0020	317	12	00	1.6
29	10.0	-2.2	tr	-7.3	6.5	10.0	4.0	9.7	1016.0	1	1	0	0	0	0	253	4.4	5.1	233	14	1956	232	8	22	0.0
30	11.9	-0.9	0.3	-1.1	6.5	9.7	0.0	0.0	1013.5	1	1	0	0	0	0	238	9.4	9.5	223	26	2053	227	14	22	0.8
Total			14.6				91.3	39.8																	18.9
Mean	10.9	3.3		0.8	10.0	11.9	3.04	1.3	1018.6							262	3.0	5.0							
Anom	-0.2	-1.1	20%	-0.6	+0.3	+0.0	116%		+5.1																

Daily mean 7.1 Pressure, abs highest = 1034.5 on 22

Anom -0.7 Pressure, abs lowest = 983.1 on 27

Number of days with:

Air frost = 7 Ground frost = 16 Nil sun = 8

Snow falling = 2 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.

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 2021

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	ppp	ww	W1	W2	Nh	Cl	h	Cr	Cm	Ch	shs	NChshs	NChshs	NChshs	Date	Remarks
1	78	2	22	09	16	9.5	5.5	76	5.7	994.4	1	014	02	0	0	1	5	7	0	1		81650				1	2Ci75 Parhelion
2	65	1	20	01	03	4.3	4.2	99	5.2	999.2	1	005	02	0	0	0	0	9	0	1		81072				2	COTRA Hoar slt
3	58	7	28	02	06	4.1	3.8	98	5.0	1004.2	1	015	10	1	1	7	5	6	/	/		87645				3	
4	86	7	33	06	14	6.3	3.5	82	4.8	1014.5	2	021	21	6	2	7	5	4	/	/		86615	87625			4	
5	80	4	25	03	05	1.5	1.1	97	4.0	1027.4	2	023	02	0	0	0	0	9	0	1		84078				5	COTRA Parhelion Hoar mod Gnd sfc frzn
6	72	7	24	09	19	9.6	7.5	87	6.4	1027.6	6	003	02	2	2	1	5	4	7	8		81712	83362	85466		6	1Sc25 7Cs72 COTRA
7	70	7	26	08	15	9.4	4.8	73	5.3	1021.5	1	007	02	2	2	2	0	9	3	2		82369	83072	87078		7	COTRA
8	65	7	19	03	05	5.1	4.4	95	5.1	1024.7	0	005	03	2	2	3	0	9	7	2		81465	83367	86072		8	Ci cas
9	75	2	21	04	08	11.3	10.2	93	7.6	1024.2	1	007	03	0	0	1	5	3	0	1		81707				9	1Sc30 1Ci80 COTRA
10	20	8	22	03	07	11.8	11.3	97	8.2	1023.6	3	012	59	6	5	8	5	2	/	/		87703	88618			10	Heavy radz
11	20	7	22	02	05	8.9	8.8	99	6.9	1024.2	1	007	28	4	2	3	6	1	0	1		83702	87078			11	COTRA
12	50	8	20	08	15	12.1	11.5	96	8.4	1011.4	7	017	58	6	5	7	7	3	2	/		85706	87708	88520		12	
13	78	7	30	07	15	11.4	8.1	80	6.7	1016.2	2	025	02	2	2	7	8	4	/	/		81815	87635			13	Cu fra/hum
14	60	8	35	04	09	10.5	8.9	90	7.0	1024.0	1	015	05	2	2	8	6	3	/	/		86708	88712			14	
15	63	8	35	03	05	9.5	8.7	95	6.9	1027.7	1	007	02	2	2	8	5	6	/	/		81635	88642			15	
16	18	6	20	01	02	2.2	2.1	99	4.3	1024.7	7	003	28	4	1	6	5	5	0	0		86626				16	
17	63	7	24	03	06	7.6	6.9	95	6.1	1024.6	2	025	03	1	1	3	0	9	3	1		83368	86072			17	COTRA
18	62	6	23	06	10	8.3	6.9	91	6.1	1029.3	0	009	02	1	1	1	0	9	3	1		81360	86080			18	COTRA
19	86	8	24	03	06	11.1	8.7	85	6.8	1031.9	2	012	02	2	2	8	5	4	/	/		88613				19	
20	58	8	26	02	07	9.4	8.8	96	6.9	1026.1	7	010	50	5	2	8	5	3	/	/		83708	88612			20	Absent vv&cld est
21	84	1	35	06	13	5.0	1.7	79	4.2	1019.3	3	012	03	0	0	1	8	5	0	0		81820				21	1Sc35 Absent vv&cld est
22	70	1	35	04	08	3.5	2.2	91	4.4	1030.8	2	025	02	0	0	1	5	6	0	0		81635				22	Hoar slt. Gnd sfc frzn
23	40	3	20	02	03	0.0	-0.1	99	3.7	1034.3	3	008	10	1	1	3	0	9	3	0		83361				23	Hoar mod Gnd sfc frzn
24	30	8	21	03	05	5.0	4.0	93	5.0	1024.5	6	012	05	2	2	8	5	4	/	/		86612	88615			24	
25	80	0	35	04	11	2.6	0.0	83	3.8	1018.4	3	017	02	0	0	0	0	9	0	0						25	Hoar slt
26	75	7	23	11	21	6.0	4.5	90	5.3	996.5	6	052	60	6	2	7	5	4	/	/		83712	83645	86650		26	
27	86	7	34	10	29	2.7	1.5	92	4.3	994.1	2	057	21	6	2	7	7	3	/	/		87709				27	
28	86	1	33	05	10	-0.7	-4.9	73	2.6	1008.2	1	011	02	0	0	1	0	9	4	2		81362				28	1Ci72 Hoar slt Gnd sfc frzn
29	50	7	25	04	09	-0.9	-1.5	96	3.4	1016.0	2	016	10	2	2	1	0	9	3	1		81368	87072			29	COTRA Parhelion Snly 10% <1cm Icy pat Gnd sfc frzn
30	75	7	25	09	16	10.0	7.8	86	6.5	1013.5	7	001	03	2	2	7	5	4	/	/		81715	87622			30	

Mean vis = 22.0 km
Mean cloud = 5.6 70%
Mean wind speed = 4.8 kn
Mean gust = 10 kn
Mean TT = 6.6 °C
Mean TdTd = 5.0 °C
Mean RH = 90.2 %
Mean r = 5.6 g/kg
Mean PPP = 1018.6 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

Weather observations. Emmbrook, Wokingham, Berkshire.

Observations at 1500 GMT for NOVEMBER 2021

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	ppp	ww	W1	W2	Nh	Cl	h	Cm	Ch	NChshs	NChshs	NChshs	Date	Remarks
1	86	2	23	06	17	11.4	6.3	71	6.0	995.3	0	000	01	8	1	1	8	6	6	1	81833			1	1Sc50 1Ac58 1Ci68 2Ci75 COTRA Cu hum Cb top SE&N
2	86	4	18	02	07	10.5	4.2	65	5.2	998.8	1	005	02	1	1	1	8	6	0	3	81834	84070		2	1Sc50 1Ci66 Cu med Cb top N&NW
3	62	7	34	05	10	8.7	6.3	85	6.0	1005.5	3	007	21	6	2	7	8	4	/	/	82813	85625	87640	3	
4	86	7	32	08	16	8.4	4.0	74	5.0	1017.2	2	014	02	2	2	7	8	5	/	/	82825	87633		4	Cu hum
5	40	8	25	04	09	8.9	6.2	83	5.8	1028.1	3	003	50	5	1	8	6	4	/	/	88711			5	
6	88	7	22	06	11	12.6	7.9	73	6.5	1023.4	6	019	02	2	2	7	8	5	/	1	81825	87635		6	/Ci73 Cu hum
7	75	7	29	08	22	11.7	4.0	59	5.0	1021.7	5	005	02	2	2	0	0	9	0	8	82275	87078		7	COTRA Parhelia
8	70	8	21	06	10	11.2	8.1	81	6.6	1023.3	6	011	02	2	2	8	5	4	/	/	83612	88615		8	
9	83	6	23	06	14	14.0	8.8	71	7.0	1023.1	5	008	03	1	1	6	8	5	0	0	81822	83627	85635	9	Cu hum
10	63	8	21	02	05	13.0	12.2	95	8.7	1022.8	5	004	51	5	2	8	5	2	/	/	82705	86709	88615	10	
11	65	8	21	04	07	13.0	9.6	80	7.4	1022.0	7	015	15	2	2	8	8	4	/	/	83815	85625	88638	11	jpSSW vv50k ex p
12	62	7	22	09	17	13.2	10.4	83	7.8	1008.7	7	010	15	8	2	7	8	4	/	/	81815	83630	87650	12	Cu med jpW,NW&S
13	80	7	33	05	15	12.5	8.6	77	6.9	1017.8	2	005	02	2	2	7	8	5	/	/	81820	87632		13	Cu hum
14	62	7	36	05	10	12.3	10.2	87	7.6	1024.9	3	001	02	6	2	7	5	4	/	/	85613	87650		14	
15	82	6	02	02	06	11.0	6.4	73	5.9	1026.7	6	007	01	2	2	5	8	4	0	1	81815	85642		15	1Sc35 3Ci80 COTRA Cu hum
16	58	7	21	05	10	10.3	7.9	85	6.5	1021.1	7	017	05	2	2	6	5	4	0	4	83618	85642	85075	16	COTRA
17	65	6	27	06	13	10.9	4.8	66	5.3	1025.6	3	004	03	1	1	1	1	6	0	5	81830	86080		17	2Cs75 COTRA Cu hum
18	84	7	26	09	18	13.0	10.0	82	7.5	1029.2	6	004	03	2	2	7	5	4	/	/	87615			18	
19	82	8	27	05	10	11.1	8.7	85	6.8	1030.6	7	009	02	2	2	8	5	4	/	/	88613			19	Absent vv&cld est
20	80	8	26	05	12	10.1	6.6	79	6.0	1022.1	6	023	02	2	2	8	5	4	/	/	88618			20	Absent vv&cld est
21	82	7	36	11	24	7.4	1.7	67	4.2	1020.5	3	005	02	2	2	7	5	5	/	/	87628			21	Absent vv&cld est
22	80	1	02	08	17	8.3	3.4	71	4.7	1031.4	3	002	01	0	0	1	1	5	0	1	81828			22	1Ci75 Cu hum
23	61	1	24	02	05	6.8	4.6	86	5.2	1031.7	7	015	02	0	0	1	5	4	0	1	81617			23	1Ci75
24	72	8	25	02	05	6.2	4.2	87	5.1	1019.0	7	029	02	2	2	8	5	4	/	/	85615	88620		24	
25	80	3	34	07	15	6.0	0.6	68	3.9	1017.4	6	012	03	0	0	1	1	5	0	5	81828	83080		25	1Cs75 Cu hum
26	80	7	29	11	25	6.2	2.7	78	4.7	991.2	6	020	25	8	1	2	9	4	7	/	81918	83362	86365	26	2Sc25 Cb&jp SW vv70k ex p
27	82	7	33	15	35	4.3	-0.5	71	3.7	1000.0	2	020	02	6	2	7	5	5	/	/	83626	87629		27	
28	84	7	31	06	14	3.5	-5.2	53	2.6	1007.1	5	006	03	1	1	7	0	9	7	2	83458	87360		28	/Ci70
29	70	7	22	04	10	2.2	0.1	86	3.8	1016.3	5	003	03	2	2	6	0	8	7	2	83357	86359		29	/Ci70
30	82	7	24	10	22	11.6	8.8	83	7.0	1010.2	8	023	03	2	2	7	5	4	/	/	87615			30	

Mean vis = 31.1 km
Mean cloud = 6.3 79%
Mean wind speed = 6.1 kn
Mean gust = 14 kn
Mean TT = 9.7 °C
Mean TdTd = 5.7 °C
Mean RH = 76.8 %
Mean r = 5.8 g/kg
Mean PPP = 1017.8 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

2021

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	0.56	0.36	0.35	0.00	0.32	0.00	0.06	0.19	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	1.00	1.00	0.32	0.00	1.00	0.00	0.16	0.35	1.00	0.00	0.03	0.00	0.00	0.00	0.00	0.23
9	1.00	1.00	0.30	0.00	1.00	0.07	0.54	0.39	1.00	0.00	0.18	0.01	0.00	0.00	0.00	0.10
10	1.00	1.00	0.79	0.00	1.00	0.17	1.00	0.19	1.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00
11	0.85	1.00	0.85	0.00	1.00	0.13	1.00	0.04	0.53	0.00	0.67	0.32	0.00	0.00	0.00	0.00
12	0.55	0.53	0.08	0.00	0.88	0.00	1.00	0.14	0.80	0.00	0.91	0.63	0.00	0.00	0.00	0.03
13	0.74	0.82	0.00	0.00	0.22	0.00	1.00	0.00	0.62	0.00	0.31	0.10	0.00	0.00	0.00	0.00
14	0.90	0.63	0.00	0.00	0.00	0.05	1.00	0.00	0.27	0.00	0.00	0.37	0.00	0.00	0.23	0.00
15	1.00	0.99	0.00	0.00	0.00	0.00	0.76	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.19	0.09
16	0.27	0.41	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	**7.88**	**7.73**	**2.69**	**0.00**	**5.42**	**0.42**	**6.70**	**1.29**	**5.66**	**0.00**	**2.10**	**1.63**	**0.00**	**0.00**	**0.43**	**0.44**

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	0.14	0.00	0.00	0.12	0.10	0.06	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.09
8	1.00	1.00	0.00	0.00	1.00	1.00	0.58	0.00	1.00	0.00	0.00	0.85	0.58	0.00	0.40
9	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.45
10	1.00	0.32	0.00	0.00	0.32	1.00	1.00	0.00	1.00	0.25	0.03	1.00	0.79	0.00	0.43
11	1.00	0.00	0.00	0.00	0.86	1.00	1.00	0.00	1.00	0.01	0.00	1.00	1.00	0.00	0.44
12	1.00	0.22	0.00	0.00	0.17	1.00	1.00	0.00	1.00	0.86	0.00	1.00	0.56	0.00	0.41
13	1.00	0.02	0.00	0.00	0.02	1.00	1.00	0.00	1.00	0.35	0.00	1.00	0.06	0.00	0.31
14	1.00	0.02	0.00	0.00	0.03	1.00	1.00	0.00	1.00	0.06	0.00	0.10	0.00	0.00	0.26
15	0.69	0.00	0.00	0.00	0.04	0.90	0.81	0.00	0.85	0.10	0.00	0.00	0.00	0.00	0.22
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	**7.83**	**2.73**	**0.00**	**0.00**	**3.54**	**8.00**	**7.44**	**0.00**	**7.88**	**1.63**	**0.03**	**5.96**	**3.98**	**0.00**	**91.43**

NOVEMBER 2021	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	8.74	14.6	1202	2.5	2358	79.7	97.7	2354	58.2	1203	5.3	5.6	6.7	1235	4.5	2358	994.85	997.9	2353	991.5	203	0.8
2	4.42	11.7	1426	0.1	726	91.4	99.5	820	56.8	1431	3.0	4.8	6.2	1148	3.8	726	999.30	1001.4	2355	997.6	41	0.2
3	4.93	9.6	1158	-1.1	547	91.7	99.6	505	77.8	1340	3.6	5.0	6.2	1653	3.5	547	1005.22	1010.5	2358	1001.3	2	0.1
4	6.44	8.9	1244	2.1	2358	81.3	92.7	2324	72.7	1316	3.4	4.8	5.3	0	4.0	2351	1016.11	1022.9	2358	1010.4	0	0
5	4.88	9.8	1239	-1.7	632	90.1	99.0	811	62.2	1242	3.3	4.8	6.2	1606	3.3	632	1027.00	1029.3	2347	1022.8	7	0.1
6	10.55	12.6	1127	7.8	14	84.6	93.8	0	72.5	1503	8.0	6.6	7.6	2310	6.0	14	1024.96	1029.2	1	1019.7	2352	0
7	9.22	12.3	1312	3.7	2354	74.9	94.1	2359	55.8	1405	4.9	5.3	7.7	101	4.5	2354	1021.95	1024.4	2349	1020.0	29	0
8	7.83	11.7	2352	1.6	657	90.6	97.9	720	73.2	1233	6.3	6.0	8.1	2352	4.1	711	1023.95	1025.0	1020	1023.1	1447	0
9	11.97	15.1	1115	8.9	738	84.6	97.4	807	65.9	1257	9.3	7.2	8.1	6	6.7	1403	1023.45	1024.5	1056	1022.7	1648	0
10	11.61	13.4	1217	8.1	112	95.8	98.1	2339	91.7	345	11.0	8.1	8.9	1217	6.3	112	1023.02	1023.9	2007	1021.9	333	3.4
11	10.16	15.0	1304	5.6	2355	93.6	99.3	912	71.6	1305	9.1	7.1	8.1	1132	5.5	2355	1022.50	1024.4	803	1018.8	2358	0
12	11.14	15.1	1245	5.7	24	90.2	98.8	207	67.2	1247	9.5	7.4	8.7	953	5.5	24	1011.52	1018.9	1	1008.5	1508	0.7
13	11.41	12.7	1234	10.1	33	80.8	91.0	34	74.7	1344	8.2	6.7	7.2	5	6.3	644	1016.65	1021.6	2333	1010.5	4	0.1
14	10.74	12.4	1327	9.5	614	88.3	95.7	2356	77.1	145	8.9	7.0	7.9	1354	6.1	145	1024.43	1027.3	2230	1021.3	47	0
15	8.18	11.5	1409	2.2	2359	92.4	98.5	2342	71.6	1434	7.0	6.2	7.1	0	4.3	2359	1027.15	1027.9	1025	1026.5	353	0
16	5.78	10.4	1427	-0.2	725	95.1	100.0	729	83.8	1411	5.0	5.5	7.2	2115	3.7	725	1022.93	1026.8	24	1019.5	2341	0
17	7.58	12.2	1302	3.3	2314	86.8	97.7	514	61.4	1231	5.4	5.5	6.5	0	4.5	2314	1024.85	1029.1	2136	1019.9	0	0
18	9.49	13.6	1331	4.2	13	89.5	95.5	2250	79.5	1335	7.8	6.5	7.8	1302	4.8	13	1029.35	1030.9	2344	1028.0	442	0.1
19	10.90	11.6	1315	10.2	2108	88.0	93.5	158	84.3	1442	9.0	7.0	7.3	10	6.7	1758	1030.82	1032.3	1032	1029.4	2358	0
20	9.41	10.3	217	7.4	2158	88.6	96.4	846	78.0	1420	7.6	6.4	7.0	1000	5.8	2157	1024.02	1029.5	2	1018.3	2353	0.1
21	5.88	8.7	126	2.5	737	79.4	93.0	759	65.7	1515	2.5	4.5	6.1	32	3.9	1927	1020.54	1025.6	2345	1017.8	233	0
22	4.03	10.1	1256	-0.2	2359	87.3	97.9	2355	63.4	1310	2.0	4.3	5.3	1213	3.6	2354	1030.70	1034.5	2339	1025.6	0	0.1
23	2.43	8.5	1305	-1.5	551	94.2	99.0	621	71.3	1248	1.5	4.2	5.3	1341	3.3	551	1032.55	1034.4	33	1029.6	2359	0.1
24	4.84	6.8	1245	1.6	2252	92.5	98.0	2325	84.1	1248	3.7	4.9	5.5	1141	4.1	2249	1021.92	1029.6	0	1016.1	2208	0
25	3.65	7.0	1242	0.6	1943	82.1	97.7	301	63.3	1256	0.8	4.0	5.3	329	3.6	1943	1016.90	1019.0	1010	1012.5	2359	0
26	4.77	9.3	1036	2.1	100	81.1	90.9	822	70.4	1853	1.8	4.4	6.1	1032	3.6	2020	996.15	1012.6	0	985.7	2357	1.5
27	2.81	4.6	1341	0.8	2355	80.7	95.7	540	64.3	1911	-0.3	3.8	4.5	1013	2.8	2223	995.89	1006.0	2355	983.1	150	7
28	0.76	4.3	1311	-2.2	2319	73.7	98.0	2326	50.1	1306	-3.7	2.9	3.7	1843	2.5	1427	1007.85	1011.4	2357	1005.6	16	0
29	1.31	4.4	2232	-1.7	26	89.5	97.1	0	79.1	1219	-0.3	3.7	4.6	2359	3.2	26	1015.21	1016.9	1801	1011.4	0	0.2
30	9.75	11.9	1359	4.3	0	85.5	93.3	206	80.6	1257	7.4	6.4	7.2	2358	4.6	0	1010.34	1015.2	123	998.4	2359	0.2
Total																						14.7
Mean	7.19	10.67		3.21		86.8	96.56		70.95		5.04	5.56	6.64		4.50		1018.07	1022.10		1013.91		
Max	11.97	15.14		10.24		95.8	100.00		91.70		10.97	8.05	8.94		6.72		1032.55	1034.51		1029.57		
Min	0.76	4.28		-2.22		73.7	90.90		50.05		-3.66	2.92	3.70		2.49		994.85	997.89		983.09		

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

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

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

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 2021

Temperature (°C)			Rank in the past **140** years
Mean maximum	16.3	(+0.8)	7th highest
Mean minimum	7.9	(+0.6)	10th highest
Daily mean	12.1	(+0.7)	5th highest
Rainfall total (mm)	159.0	(79 %)	49th lowest
Sunshine total (hours)	348.7	(100 %)	

Nº of:	Dry days	57 (+9)	Wet days	23 (-8)							
Days with: Air frost	7 (0)	Ground frost	16 (-5)	Snow falling	2 (+1)	Snow lying	0 (0)				
Thunder	0 (-3)	Hail ≥5mm	0 (0)	Small hail/ice	0 (-1)	Fog @09 GMT	2 (-1)	Nil sun	15 (+2)		
Air pressure MSL : Mean @09 GMT (mbar)	1017.4	(+2.5)									

Departure from 1991 to 2020 average shown in brackets.

Notes: **Mild and Dry with Average Sunshine.**

Temperature: The mean this autumn puts it in the very mild category, ranking 5th highest in 140 years. Notably, all of the autumns milder than this year's have occurred since 2006, and before the start of this millennium the mildest autumn was in 1949, mean 12.0°. The mean maximum, ranking 8th highest, has 4 milder years prior to 2000, with 1958 at 16.9° the then record holder. In terms of the mean minimum, there have been 6 milder autumns in this millennium, and prior to that 1968 with 8.1°was the record holder. Monthly mean temperatures showed a normal downward trend from 16.6° in September to 7.1° in November, but both September and October were mild, anomalies +1.7° and +1.0° respectively, while November was cool, anomaly -0.7°. The season's highest temperature was 29.8° on the 7th September, 5.2° above the median, and the lowest maximum was 4.3° on the 28th November, 0.3° below its median. The highest minimum was 16.6° on 11th September, 1.2°above the median, and the lowest min was -2.2° on the 29th November, 1.6°above its median. The mean grass min was 5.1°, anomaly +1.1°, and the lowest was -7.3° on 29th November. The number of days with air frost is equal to the average but there were 5 fewer ground frosts than average. The duration of air frost was 39.8 hours, 8 fewer than average. The first ground frost of the season was on 2nd November after 159 frost free days, 30 above average, and the first air frost was on the 3rd November after 189 days free of frost. The mean earth temperature at 30cm depth was 14.0°, anomaly +0.8°, and at 1m depth, 14.9°, anomaly +0.4°, both highest since 2014. **Rainfall:** Autumn is on average out wettest season, with a mean rainfall of just over 200 mm, but this year we have had 159.0 mm, a deficit of 21 %. However there have been 12 autumns in the past 140 years having less than 100 mm, with 1978 holding the record with just 43.7 mm. In this millennium 6 autumns have been drier than this year's, the last in 2017. October was the wettest month and November the driest (see table below). The wettest day was the 28th September with 21.3 mm, and overall there were 8 fewer wet days than average, and 9 more dry days. There were dry spells in each month, a 19 day one started in August and ended on 7th September, and another of 11 days on the 25th, one of 7 days ended on 11th October and in November 7 days to the 8th and 13 days to the 25th. Rainfall rate reached a maximum for the season on 28th September when 123 mm/hr was recorded at 1830 GMT, though 122 mm/hr occurred on the previous day also, but these were the only occasions to exceed 100 mm/hr, the next highest being 72 mm/hr on 4th October. Thunder was absent this autumn, statistically only 18% of autumns are thunder free. Snow was recorded on 2 days, both in November, again statistically 64% of autumns see no snow. There were no exceptionally wet periods this season, but the 9 days to the 4th October had a total of 65.7 mm, and 34.8 mm fell over 2 days to the 20th October. **Sunshine:** The 348.7 hours of sunshine this autumn is close to average, but is lowest since 2017. In this millennium 12 autumn seasons have had less sun. Both September and October had less than average, 93% and 99% respectively, but November was relatively sunny with 116 %. The 7th September was the sunniest day with 12.6 hours, and the 3 day period to the 8th of that month had a total of 34.1 hours. However, the 11 day period to 20th November had only 1 sunny day with 7.8 hours, the other 10 days only managing a total of 7.3 hours, and included 5 sunless ones. Overall there were 43 days with <3 hours, 26 with =>6 hours, 7 with =>9 hours and 1 with =>12 hours. **Wind:** The mean speed this autumn was 5.9 mph, 0.2 mph below average. The 27th November was the windiest day, mean 14.7 mph, and the season's highest gust was 43 mph on the 31st October. The least windy day was the 15th November, mean 1.5 mph, and there were 2767 calm minutes, slightly below average. Daily mean direction/number of days; N 6, NE 8, E 4, SE 2, S 17, SW 35, W 8, NW 11. Compared with average, winds from the S and SW combined were 8.5 % more frequent, and NW 4.6 % more frequent, at the expense of all other directions. **Humidity:** The overall mean relative humidity was 85.1% and the lowest value was 34% on the 8th September. The mean water vapour content per kg of air was 7.7 g at both 0900 and 1500 GMT, both highest since 2014. **Pressure:** The seasons highest pressure was 1034.5 mbar on the 22nd November, and the lowest was 983.1 mbar on the 27th November, a span of 51.4 mbar, average 55.7 mbar. **September:** Very warm with rainfall and sunshine slightly below average. 5th warmest in 140 years. Highest max 6th highest in 119 years. Lowest min10th highest in 119 years. Mean wind speed lowest since 2014. Amount of water vapour measured at 1500 GMT equal highest in 25 years. **October:** Mild with above average rainfall and near average sunshine. Lowest min 4th highest in 118 years. Lowest grass min highest since 2006. **December:** Cool, sunny and very dry. Driest since 1956 and 5th driest in 140 years. Duration of rain lowest in past 29 years.

Month	Mean Max	Anom	Mean Min	Anom	Rain mm	Anom	Sun hrs	Anom	Mean Wind mph	Max gust	Mean pressure	Anom
Sept	21.6°	+1.9°	11.6°	+1.6°	48.4	90%	143.6	93%	5.1	39	1018.8	+2.1
Oct	16.3°	+0.8°	8.7°	+1.2°	96.0	131%	113.8	99%	6.7	43	1015.0	+0.5
Nov	10.9°	-0.2°	3.3°	-1.1°	14.6	20%	91.3	116%	5.8	40	1018.6	+5.1

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

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, 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.

B J Burton. 3 August 2009. Updated 4 May 2014.

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 of 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.