

# WOKINGHAM

# METEOROLOGICAL

# DATA

## Wokingham Climatological Station, Emmbrook, Berkshire.

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

### Monthly Means and Totals

July 2024

		Anomaly		Rank in the past 143 years					
Temperature (°C)									
Mean maximum	22.9	-0.3		48th highest					
Mean minimum	12.4	-0.4		45th highest					
Daily mean	17.6	-0.3		46th highest					
Highest maximum	30.8	on 19&30	Lowest maximum	17.2	on 6th				
Highest minimum	16.9	on 31st	Lowest minimum	8.4	on 8th				
Mean grass minimum	9.8	-0.1	Lowest grass minimum	4.4	on 8th				
Mean earth @30 cm	18.6	-0.3	Earth @100 cm	17.3	+0.4				
Frost duration (hrs)	0.0		Rain duration (hrs)	38.3					
Rainfall total (mm)	55.1	117 %	57th highest						
Highest daily fall	19.9	on 5th	Highest rate mm/hr	116	on 15th				
Number of: Dry days (<0.2mm)	22	Wet days (>0.9mm)	7	days ≥5mm	4				
Sunshine total (hrs)	184.9	Daily mean	5.96	92%	Sunniest day	14.6	on 19th		
N° days with: Air frost	0	Ground frost	0	Snow falling	0	Snow lying	0		
Thunder	2	Hail ≥5mm	0	Small hail/ice	0	Fog @09	0	Nil sun	1
Pressure MSL: Mean @09 GMT, mbar	1014.1	-1.8	Highest	1026.2	on 28th	Lowest	996.6	on 6th	
Relative humidity: Mean (%)	75.0	Lowest	32	on 30th	Water vapour (g/kg), mean at 09 and 15 GMT	9.3,	9.2		
Overall mean wind speed (mph)	6.7	Windiest day	10.9	on 4th	Max gust	35	on 6th		
Wind direction (days)	N 2	NE 2	E 1	SE 1	S 1	SW 10	W 8	NW 6	
Least windy day (mph)	3.8	on 28th	Calm; less than 0.5 mph (minutes)	n/a					

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

Notes:

### Temperature and Sunshine Below Average, Rainfall Above Average

This July was a month of contrasting halves, cool wet and dull up to mid-month, becoming dry and, at times, sunny with 2 short hot spells after the 15th. **Temperature:** The overall mean this July is just below average, as are the mean maximum and mean minimum. Compared with recent years, since 2015 July has been cooler 3 times. This year, the month got off to a cool start, with the 10 day mean maximum anomaly of -2.3°, though for the mean minimum the anomaly was only -0.1°. From the 11th to the 20th, anomalies for the mean maximum and minimum were +0.5° and -0.3° respectively, but the final third of the month saw anomalies for the mean maximum and mean minimum of +2.4° and +0.4° respectively. The highest max was 2.0° above the median while the lowest max was 0.2° above its median. The highest min was 0.4° above the median while the lowest min was 1.3° above its median. The mean grass min equals the average for the past 45 years. Earth temperature at 30 cm depth is slightly below average while at 1m depth is slightly above average. Anomalies for daily max were above +6° on the 19th, 30th and 31st, and exceeded -3° on the 6th to 8th and 12th, with extreme values of +8.1° on the 19th and -5.3° on the 6th. Anomalies for daily min were above +3° on the 20th, 21st, 23rd and 31st, and exceeded -3° on the 8th, 15th and 28th, with extreme values of +4.1° on the 21st and -4.1° on the 8th. **Rainfall:** The total this July is 17% above average, but it is drier than last July and also 2021, in fact in this millennium July has been wetter than this year's on 9 occasions. This month all but 1.0 mm of the total fell before the 16th, and 64% of the total fell on just two days, the 5th and 15th. After the 15th, 14 of the 16 days were dry. There were 3 dry spells, 5 days ending on the 14th, 8 days on the 23rd and 6 days on the 30th. Thunder was heard overnight on the 6th, and near midday on the 7th. The rain rate exceeded the violent category threshold at 1945 GMT on the 15th. In this millennium the driest July was in 2022 with 11.8 mm, and the wettest 2007 with 119.1mm, but the wettest on record is 174.0 mm in 1917. **Sunshine:** The total this July is 8% below average, but it was sunnier than 13 other Julys in this millennium, including in 2023. The 2nd half of July was markedly sunnier than the first, and up to the 15th there were only 3 days having >50% of the maximum while from the 16th onwards there were 9, including >90% on the 19th, 29th and 30th. The final 5 days of the month were especially sunny, clocking up 63.7 hours, an average of 12.7 sunny hours per day. **Wind:** The mean speed of 6.7 mph is 0.4 mph above average, but the highest gust is exactly average. Daily mean speeds were light or moderate, apart from the 4th and 6th when they increased to fresh. Daily mean directions were generally between S and W, except for between W and N on the 1st, 2nd, 11th to 13th, 16th, 21st, 23rd and 27th, and between N and E on 15th, and 28th to 31st, and between E and S on 8th.

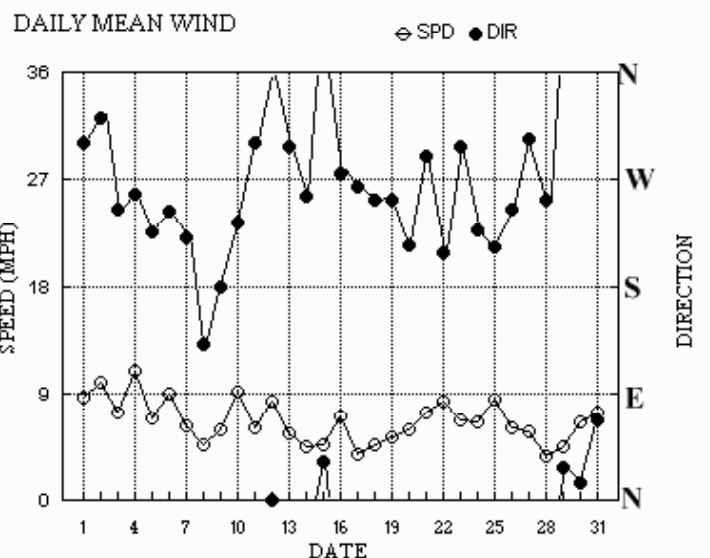
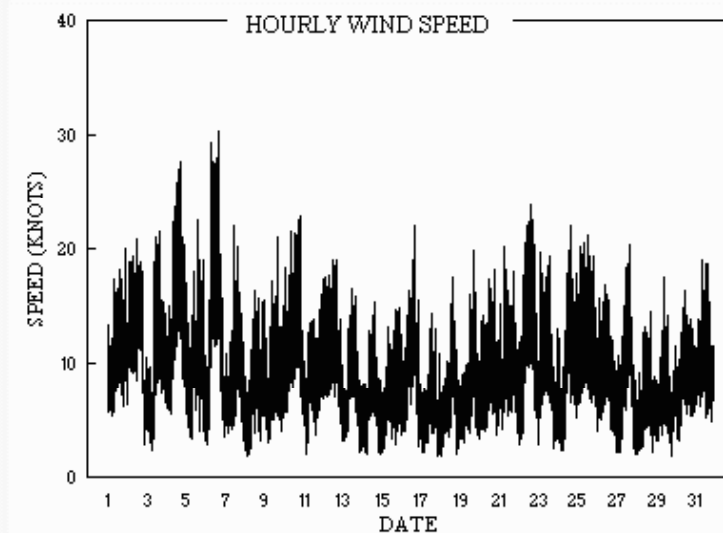
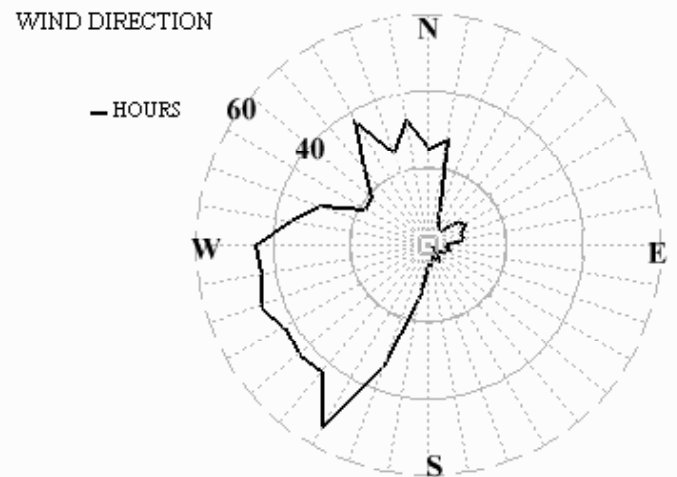
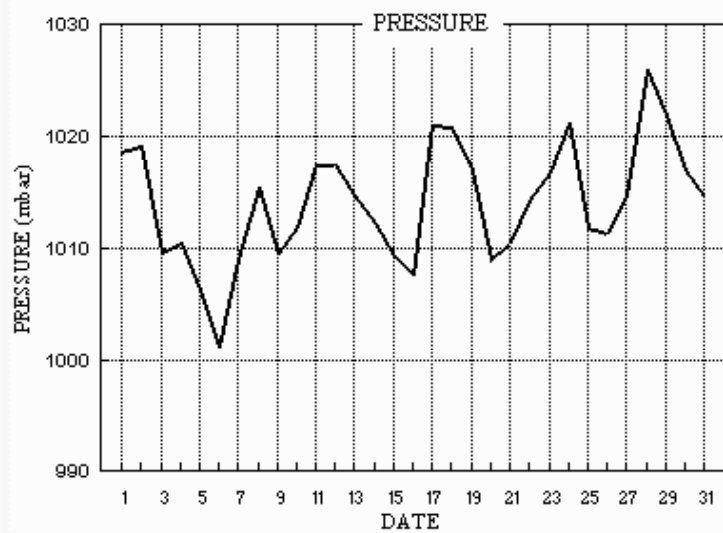
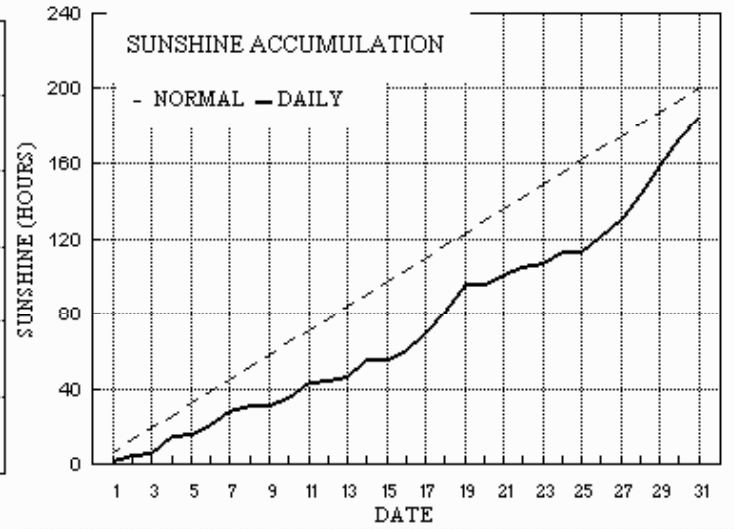
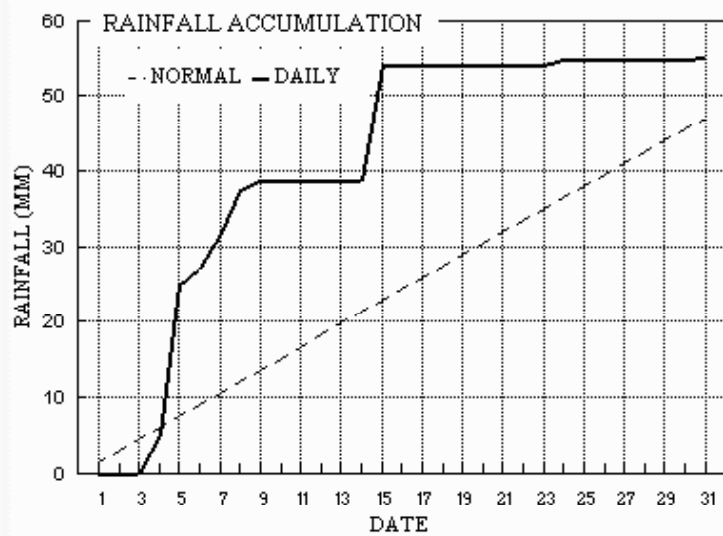
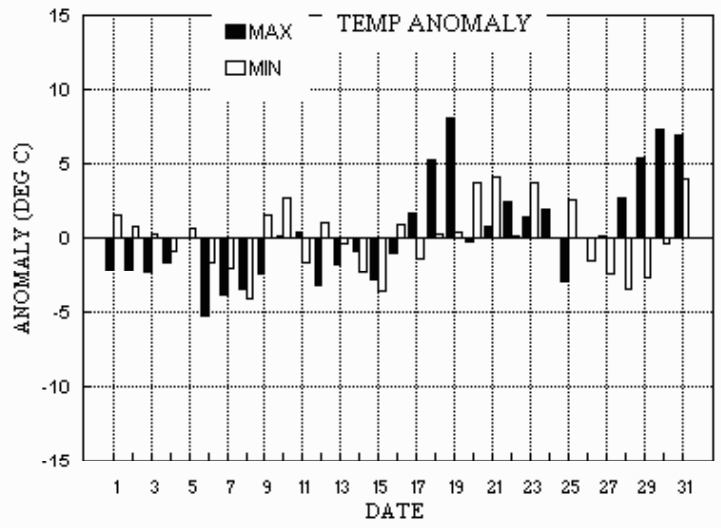
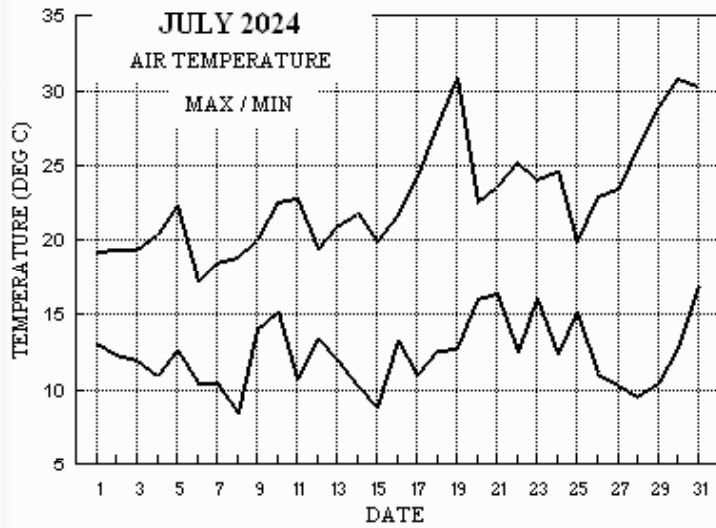
Table 1. Mean anomalies (max, min, rain, sun) for specified periods.

From the 1 <sup>st</sup> to the 10 <sup>th</sup>				From the 11 <sup>th</sup> to the 20 <sup>th</sup>				From the 21 <sup>st</sup> to the 31 <sup>st</sup>			
-2.3°	-0.1°	255%	54%	+0.5°	-0.3°	101%	95%	+2.4°	+0.4°	6 %	125%

B J Burton FRMetS.

Hon. Met. Officer to Wokingham Town Council.

# Wokingham climatological graphs for July 2024



Daily meteorological data.

Emmbrook, WOKINGHAM, Berkshire.

Month: JULY 2024

Date	Max C	Min C	Rain mm	Grass Min	30cm C	100cm C	Sun hrs	Frost hrs	pp09 mbar	Af Gf	Sf Sl	Th Ha	Ic Fg	Vec ddd	mean ff sp	Max gust ddd	gg HHhh	High hr ddd ff	Rain HH hrs
1	19.3	13.1	tr	12.4	18.8	17.2	2.3	0.0	1018.6	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	301	7.1 7.6	311 20	2132 315 10	22	0.0
2	19.4	12.4	tr	11.2	18.5	17.2	3.0	0.0	1019.1	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	321	8.4 8.7	325 21	1055 336 12	13	0.1
3	19.4	12.0	tr	7.8	18.1	17.2	0.7	0.0	1009.7	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	244	5.5 6.4	215 22	1545 223 9	15	0.1
4	20.4	10.9	5.1	5.6	17.8	17.1	9.9	0.0	1010.5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	258	9.3 9.5	263 28	1604 259 13	15	3.3
5	22.3	12.6	19.9	12.3	17.8	17.0	0.6	0.0	1006.2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	226	5.0 6.1	200 23	1404 228 9	13	12.3
6	17.2	10.5	2.2	11.4	18.0	17.0	5.1	0.0	1001.1	0 0 0 0	0 0 0 0	1 0 0 0	0 0 0 0	243	7.5 7.8	248 30	1532 251 14	12	2.5
7	18.5	10.5	4.4	5.9	17.5	17.0	6.8	0.0	1009.0	0 0 0 0	0 0 0 0	1 0 0 0	0 0 0 0	221	5.2 5.5	294 22	1129 224 9	14	1.6
8	18.9	8.4	5.9	4.4	17.4	16.9	3.4	0.0	1015.4	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	131	1.7 4.1	165 16	1134 53 7	22	6.9
9	20.0	14.0	1.3	13.5	17.5	16.8	0.3	0.0	1009.5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	180	3.1 5.1	213 21	1607 204 7	16	3.4
10	22.5	15.2	tr	13.0	17.7	16.8	3.1	0.0	1011.9	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	233	7.6 8.0	245 23	2047 262 11	18	0.1
11	22.8	10.7	0.0	6.5	17.9	16.8	8.9	0.0	1017.4	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	301	3.6 5.3	9 18	2329 5 8	21	0.0
12	19.4	13.4	0.0	13.3	18.3	16.8	0.7	0.0	1017.5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1	7.1 7.2	1 19	1612 357 10	16	0.0
13	20.9	12.0	tr	8.8	18.1	16.9	2.3	0.0	1014.7	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	297	4.1 5.0	309 17	1237 328 8	10	0.2
14	21.8	10.2	0.0	6.5	18.1	17.0	8.7	0.0	1012.1	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	255	3.6 3.9	216 15	1539 279 7	10	0.0
15	19.9	8.8	15.3	5.0	18.0	17.0	0.5	0.0	1009.3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	32	1.6 4.1	222 15	2132 226 7	21	4.4
16	21.6	13.3	tr	12.0	17.9	17.0	4.6	0.0	1007.6	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	275	5.6 6.1	305 22	1728 303 11	17	0.2
17	24.2	10.9	0.0	7.1	17.8	17.0	9.5	0.0	1021.0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	264	3.0 3.4	174 14	1338 221 5	18	0.0
18	27.8	12.6	0.0	9.3	18.3	17.0	11.2	0.0	1020.8	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	253	1.2 4.1	190 18	1520 203 8	14	0.0
19	30.8	12.7	tr	10.2	19.0	17.1	14.6	0.0	1016.9	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	253	1.8 4.6	179 20	1751 198 8	17	0.0
20	22.5	16.0	tr	13.4	19.8	17.2	0.2	0.0	1008.9	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	215	5.0 5.2	187 18	1846 196 8	15	0.1
21	23.6	16.5	tr	16.8	19.7	17.4	4.7	0.0	1010.5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	289	5.5 6.4	341 20	0740 334 11	06	0.0
22	25.2	12.5	tr	8.7	19.6	17.6	4.0	0.0	1014.2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	208	7.1 7.2	203 24	1653 195 11	16	0.5
23	24.1	16.0	tr	14.9	19.8	17.7	2.0	0.0	1016.7	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	297	4.4 5.9	229 20	0340 292 9	10	0.3
24	24.6	12.3	0.8	9.2	19.7	17.8	6.2	0.0	1021.2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	227	4.4 5.8	179 22	1644 215 10	13	1.6
25	19.9	15.1	tr	15.1	19.8	17.9	0.0	0.0	1011.9	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	212	6.8 7.4	179 21	1426 202 9	09	0.4
26	23.0	11.1	0.0	6.8	19.3	17.9	7.9	0.0	1011.4	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	245	4.8 5.4	262 17	1038 280 7	08	0.0
27	23.5	10.3	0.0	6.2	19.2	17.9	9.6	0.0	1014.6	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	304	4.5 5.1	332 20	1646 319 10	16	0.0
28	26.2	9.5	0.0	5.7	19.2	17.9	13.5	0.0	1025.9	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	252	1.2 3.3	220 15	1906 158 5	15	0.0
29	28.9	10.5	0.0	6.9	19.4	17.9	14.5	0.0	1021.9	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	28	1.6 4.0	159 18	1026 105 6	11	0.0
30	30.8	12.7	0.0	9.0	19.7	18.0	14.3	0.0	1017.0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	15	4.6 5.8	70 17	1229 41 8	19	0.0
31	30.3	16.9	0.2	13.5	20.4	18.1	11.8	0.0	1014.6	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	68	6.1 6.5	70 19	1043 74 8	10	0.3

Total 55.1 184.9 0.0 264 2.9 5.8 38.3

Mean 22.9 12.4 9.8 18.6 17.3 5.96 0.0 1014.1

Anom -0.3 -0.4 117% -0.1 -0.3 +0.4 92% -1.8

Daily mean 17.6 Pressure, abs highest = 1026.2 on 28

Anom -0.3 Pressure, abs lowest = 996.6 on 6

Number of days with:

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

Snow falling = 0 Snow lying = 0 Thunder = 2

Hail=>5mm = 0 Hail<5mm or ice = 0 Fog at 09GMT = 0

Abbreviations.

Max/min = highest and lowest air temperature at 1.2m in 24 hour period ending at 09 GMT

Rain = total rainfall and melted snowfall in 24 hour period ending at 09 GMT, millimetres. (Tr = trace, <.05mm).

Grass min = Lowest overnight temperature at grass tip level.

Sun = hours of bright sunshine, measured electronically. Frost = Number of hours with air temp below 0 deg C.

pp09 = Air pressure corrected to mean sea level at 0900 GMT, millibars.

Af = Air frost. Gf = Ground frost. Sf = Snow falling. Sl = Snow lying at 09 GMT.

Th = Thunder. Ha = Hail =>5mm. Ic = Hail <5mm or ice. Fg = Fog at 09 GMT.

Vec mean = 24 hour mean wind vector, ddd = direction in degrees from true north, ff = speed in knots.

Sp = 24 hour mean wind speed in knots.

Max gust = Highest gust in 24 hours, gg = speed in knots, HHhh = Time, hours and minutes, GMT.

High hr = Highest hourly mean wind, HH = hour commencing. Rain Hrs = Duration of rain, 24 hours to 09 GMT. Excludes snow/hail.

30cm and 100 cm are earth temperatures at those depths, read at 09 GMT.

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 1500 GMT for JULY 2024

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	pppww	W1W2	NhCl	hCrCl	NChshs	NChshs	NChshs	Date	Remarks					
1	82	8	28	08	16	18.2	11.3	64	8.2	1018.0	6	007	15	2	2	6	8	5	7	82828	86635	88462	1	/Ac57 Cu hum jpN vv70k ex p	
2	81	7	32	08	16	17.3	9.0	58	7.1	1018.6	8	006	01	2	2	6	8	6	3	82835	83650		2	2Sc45 /Ac65 Cu med	
3	65	8	22	09	18	18.3	12.7	70	9.2	1006.3	7	014	15	2	2	8	5	5	/	85622	88630		3	jp W&NW	
4	82	5	26	12	27	18.8	6.0	43	5.8	1010.4	5	000	03	1	1	4	4	7	0	81850	84650		4	3Ci78 Cu hum	
5	59	8	23	09	23	18.9	16.9	88	12.0	1004.9	7	008	61	6	2	8	8	5	/	85825	88650		5	Cu med	
6	70	5	26	10	25	16.1	8.6	61	7.0	1005.7	2	022	15	8	2	5	9	5	6	3	81928	82833		6	2Sc50 1Ac58 1Ci68 jp S&W vv70k ex p
7	62	6	23	09	20	17.8	10.9	64	8.1	1009.7	1	001	15	9	2	4	9	5	6	3	81925	82830		7	2Sc50 2Ac60 /Ci68 Cb&p W vv70k ex p
8	83	8	17	05	13	18.2	12.4	69	8.9	1015.1	6	008	80	8	2	7	8	6	2	/	82833	86650	88462	8	
9	72	8	22	07	16	20.0	17.6	86	12.5	1009.2	7	004	61	6	6	6	8	4	2	/	85811	83620	88558	9	Cu med
10	88	5	25	10	21	22.0	13.9	60	9.8	1012.4	0	002	02	2	2	5	8	6	0	1	84830			10	2Sc50 1Ci80 Cu med
11	88	7	31	04	12	21.6	9.2	45	7.2	1016.8	7	004	03	1	1	2	4	7	0	8	82850	83272	87075	11	1Sc56 Cu hum
12	82	7	35	07	16	18.5	9.0	54	7.1	1016.6	7	007	02	2	2	6	8	6	7	/	82838	85656	85365	12	3Ac58 Cu med
13	70	6	33	06	14	19.4	9.3	52	7.3	1012.8	7	013	15	2	2	4	3	6	7	1	81930	83656	85358	13	1Cu040 /Ci78 Cb&jp SE-SW vv40k ex p
14	84	7	23	06	13	20.2	11.7	58	8.5	1011.5	5	002	02	2	2	5	4	6	3	1	83835	85368		14	2Sc50 /Ci72 Cu med
15	65	8	09	05	13	19.8	15.0	74	10.7	1006.0	7	016	15	6	2	7	5	4	7	/	85617	85650	88463	15	/Ac60 jpSW
16	84	7	31	08	19	19.5	14.7	74	10.4	1011.6	2	017	02	8	2	7	8	5	/	/	83822	87645		16	/Sc56 Cu med
17	84	7	28	04	10	24.2	11.2	44	8.2	1020.4	7	005	02	1	1	2	4	6	0	1	82848	87078		17	1Sc56 COTRA Cu med
18	84	3	20	08	17	26.5	13.9	46	9.8	1018.9	7	009	02	0	0	1	1	7	4	8	81848			18	2Ac63 1Cs75 Cu hum Cs edge SE
19	83	1	19	05	14	30.7	15.9	41	11.2	1013.4	7	018	02	0	0	1	1	7	0	1	81850			19	1Ci80 Cu hum
20	86	8	20	08	17	21.6	15.9	70	11.3	1006.5	7	014	02	2	2	7	8	5	/	8	85822	87628		20	/Cs70 Cu hum
21	88	5	28	04	10	22.5	13.0	55	9.3	1011.8	1	004	01	2	2	3	8	6	3	0	83835	83365		21	1Sc50 Cu med
22	86	5	20	11	21	24.7	16.2	59	11.4	1013.6	7	005	02	2	2	5	4	6	0	2	85835			22	1Sc50 1Ci75 Cu med Ci distant S
23	86	7	33	07	19	22.9	14.7	60	10.3	1020.0	2	010	02	2	2	7	8	6	/	/	81832	87650		23	Cu med
24	83	7	21	09	20	23.0	14.6	59	10.2	1018.9	7	009	03	2	2	3	1	6	8	5	83832	83360	87075	24	1Cs70 Cu hum Ac cas
25	82	8	20	07	18	19.5	16.7	84	11.8	1009.0	8	018	02	6	2	8	5	3	/	/	81709	87611	88618	25	
26	86	6	26	07	16	21.3	11.1	52	8.2	1011.1	4	000	02	2	2	2	2	6	6	9	82845	83172		26	2Ac57 Cu med
27	86	5	30	07	16	23.2	9.9	43	7.6	1015.0	2	005	02	2	2	2	4	5	6	0	82850	83358		27	1Sc56 Cu med
28	86	5	18	04	11	25.9	10.1	37	7.6	1024.3	7	013	03	1	1	2	4	7	0	4	81850	84080		28	2Sc50 Cu hum U/a cont faint
29	84	1	12	03	04	28.6	13.7	40	9.6	1018.2	7	019	02	0	0	1	1	7	8	0	81856			29	1Ac62 Cu hum Ac cas
30	81	2	35	06	12	30.6	12.5	33	9.0	1015.3	8	011	02	0	0	0	0	9	0	1	82081			30	COTRA
31	80	1	09	07	16	29.9	14.8	40	10.5	1012.6	7	012	02	0	0	1	1	7	3	0	81850			31	1Ac65 Cu hum El hz lyr

Mean vis = 42.8 km

Mean cloud = 5.8 73%

Mean wind speed = 7.1 kn

Mean gust = 16 kn

Mean TT = 21.9 °C

Mean TdTd = 12.7 °C

Mean RH = 57.5 %

Mean r = 9.2 g/kg

Mean PPP = 1013.4 mbar

See appendix 2 below for full code details

VV = Visibility code (Code FM12-4377)

N = Total cloud amount, oktas

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

ff = 10 minute mean wind speed, knots

gg = Highest gust in past hour, knots

TT = Air temperature at 1.2 m, deg Celsius

TdTd = Dew point temperature at 1.2 m, deg Celsius

RH = Relative humidity at 1.2 m

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

PPP = Air pressure reduced to sea level, mbar

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

ppp = 3 hr pressure tendency, tenths of mbar

ww = Present weather code (Code FM12-4677)

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

Nh = Amount of low cloud present, oktas

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

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

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

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

8 groups. 8 = indicator for cloud detail

N = Amount of cloud, oktas

C = Type of cloud (FM12-0500)

hshs= Height of cloud (FM12-1677)

Remarks : COTRA = persistent condensation trails present

Wokingham Sunshine Hourly analysis	Hour	01-Jul	02-Jul	03-Jul	04-Jul	05-Jul	06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul
2024	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	0.11	0.00	0.00	0.42	0.00	0.02	0.27	0.41	0.00	0.00	0.32	0.00	0.00	0.29	0.28	0.00
	5	0.00	0.00	0.00	1.00	0.00	0.02	0.07	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.16	0.60
	6	0.47	0.00	0.00	1.00	0.00	0.00	0.89	0.80	0.00	0.06	1.00	0.00	0.00	1.00	0.01	0.82
	7	0.94	0.00	0.00	0.93	0.00	0.06	0.03	0.32	0.00	0.11	1.00	0.00	0.27	1.00	0.00	0.92
	8	0.44	0.00	0.05	0.95	0.02	0.03	0.07	0.52	0.00	0.05	1.00	0.00	0.00	0.78	0.00	0.58
	9	0.33	0.00	0.00	0.72	0.02	0.00	0.27	0.34	0.00	0.00	0.74	0.00	0.00	0.59	0.00	0.02
	10	0.00	0.02	0.00	0.74	0.20	0.00	0.15	0.00	0.00	0.00	0.63	0.00	0.00	0.04	0.00	0.00
	11	0.00	0.00	0.00	0.82	0.07	0.20	0.01	0.00	0.00	0.00	0.62	0.10	0.00	0.40	0.00	0.00
	12	0.00	0.00	0.00	0.53	0.29	0.35	0.41	0.00	0.00	0.00	0.61	0.00	0.00	0.03	0.00	0.07
	13	0.00	0.00	0.00	0.70	0.01	0.25	0.55	0.00	0.00	0.34	0.70	0.26	0.34	0.08	0.00	0.02
	14	0.00	0.00	0.00	0.44	0.00	0.38	0.17	0.00	0.00	0.53	0.31	0.17	0.94	0.00	0.00	0.19
	15	0.00	0.24	0.00	0.33	0.00	0.47	0.25	0.00	0.00	0.73	0.06	0.07	0.39	0.23	0.00	0.14
	16	0.00	0.25	0.00	0.54	0.00	0.90	0.75	0.00	0.00	0.52	0.46	0.00	0.00	0.48	0.00	0.29
	17	0.00	0.92	0.01	0.77	0.00	0.34	1.00	0.00	0.00	0.44	0.04	0.00	0.00	0.64	0.00	0.00
	18	0.00	0.89	0.12	0.00	0.00	0.93	0.95	0.00	0.19	0.15	0.05	0.00	0.00	1.00	0.00	0.46
	19	0.00	0.61	0.52	0.00	0.00	1.00	0.96	0.00	0.14	0.16	0.20	0.02	0.35	1.00	0.00	0.51
	20	0.00	0.00	0.05	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.10	0.00	0.00
	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot		<b>2.29</b>	<b>2.95</b>	<b>0.74</b>	<b>9.88</b>	<b>0.61</b>	<b>5.12</b>	<b>6.80</b>	<b>3.38</b>	<b>0.34</b>	<b>3.10</b>	<b>8.86</b>	<b>0.65</b>	<b>2.29</b>	<b>8.67</b>	<b>0.45</b>	<b>4.63</b>
	Hour	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	Mean
	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4	0.28	0.00	0.27	0.00	0.00	0.00	0.00	0.15	0.00	0.38	0.00	0.39	0.32	0.32	0.00	0.14
	5	0.59	0.08	1.00	0.00	0.00	0.00	0.03	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.01	0.37
	6	0.81	0.19	1.00	0.00	0.00	0.00	0.17	1.00	0.00	1.00	0.68	1.00	1.00	0.88	0.03	0.45
	7	1.00	0.77	1.00	0.00	0.65	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.81	1.00	0.51
	8	1.00	1.00	1.00	0.00	0.08	0.00	0.00	0.84	0.00	0.83	1.00	1.00	1.00	1.00	1.00	0.46
	9	0.71	0.92	1.00	0.00	0.09	0.00	0.00	0.55	0.00	0.71	1.00	1.00	1.00	1.00	1.00	0.39
	10	0.66	1.00	1.00	0.00	0.00	0.06	0.00	0.07	0.00	0.55	0.95	1.00	1.00	1.00	1.00	0.32
	11	0.33	1.00	1.00	0.00	0.00	0.13	0.01	0.18	0.00	0.29	0.59	0.60	1.00	1.00	1.00	0.30
	12	0.09	0.99	0.82	0.00	0.01	0.75	0.10	0.61	0.00	0.35	0.85	0.65	1.00	1.00	0.98	0.34
	13	0.73	0.91	0.90	0.00	0.18	0.62	0.32	0.20	0.00	0.46	0.21	0.68	1.00	1.00	0.84	0.37
	14	0.66	0.93	1.00	0.00	0.36	0.27	0.04	0.39	0.00	0.09	0.70	0.82	1.00	1.00	1.00	0.37
	15	0.57	0.99	0.88	0.05	0.56	0.09	0.36	0.18	0.00	0.59	0.39	0.85	1.00	1.00	1.00	0.37
	16	0.80	1.00	1.00	0.12	0.35	0.39	0.89	0.00	0.00	0.36	0.52	0.96	1.00	1.00	1.00	0.44
	17	0.09	1.00	1.00	0.00	0.44	0.93	0.02	0.00	0.00	0.22	0.78	1.00	1.00	1.00	1.00	0.41
	18	0.48	0.48	1.00	0.00	0.98	0.58	0.02	0.00	0.00	0.00	0.30	1.00	0.87	1.00	0.97	0.40
	19	0.72	0.00	0.77	0.00	0.98	0.23	0.00	0.00	0.00	0.07	0.67	0.53	0.28	0.31	0.00	0.32
	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	0.01
	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot		<b>9.51</b>	<b>11.24</b>	<b>14.63</b>	<b>0.16</b>	<b>4.66</b>	<b>4.04</b>	<b>1.96</b>	<b>6.17</b>	<b>0.00</b>	<b>7.89</b>	<b>9.63</b>	<b>13.48</b>	<b>14.46</b>	<b>14.33</b>	<b>11.83</b>	<b>184.79</b>

JULY 2024

	T mn	Tx	Time	Tn	Time	RHmn	RH x	Time	RH n	Time	Tdmn	r mn	r x	Time	r n	Time	p mn	p x	Time	p n	Time	R tot
1	16.42	19.3	1259	13.2	337	65.1	77.0	336	50.3	949	9.8	7.4	8.6	1455	6.4	935	1018.23	1019.2	2241	1017.1	1	0
2	15.20	19.4	1545	12.4	518	68.6	83.2	118	48.7	1703	9.3	7.2	8.8	117	6.3	1920	1018.22	1019.6	1104	1014.8	2344	0
3	15.70	19.4	1410	12.0	415	76.7	89.9	2359	61.8	1257	11.6	8.5	10.2	1737	7.0	258	1008.83	1015.0	0	1004.8	1909	0
4	15.59	20.4	1333	10.9	453	60.5	92.6	117	36.2	1326	7.4	6.4	8.7	17	5.2	1327	1009.86	1011.1	2128	1006.4	5	0
5	16.30	22.3	1318	12.9	435	87.5	97.8	2357	61.7	1336	14.1	10.1	12.7	1017	6.5	33	1005.29	1010.8	50	999.8	2337	18
6	13.40	17.2	1508	10.5	731	80.3	98.6	318	50.8	1836	9.8	7.6	9.6	26	5.5	1928	1003.17	1009.3	2359	996.6	343	5.3
7	14.10	18.5	1431	10.5	57	79.9	94.9	1233	59.7	1820	10.6	7.9	10.1	1020	7.0	1814	1010.14	1013.8	2358	1008.6	1110	3.9
8	14.44	18.5	1403	8.4	428	85.3	99.0	522	63.2	934	11.8	8.6	9.8	1306	6.6	428	1014.70	1016.0	1220	1012.3	2356	4.2
9	17.06	20.0	1457	14.3	1	93.1	98.2	432	84.1	1501	15.9	11.2	13.0	1433	9.8	2	1009.77	1012.5	0	1009.0	1458	2.1
10	17.50	22.5	1508	14.2	2354	75.0	92.3	23	51.8	1608	12.8	9.2	10.5	1321	7.6	1812	1012.61	1016.8	2350	1009.5	142	0
11	17.17	22.8	1338	10.7	435	70.4	96.6	442	40.6	1342	11.1	8.1	9.7	758	6.6	1400	1017.17	1018.3	748	1016.4	1917	0.1
12	15.39	19.4	1348	12.6	2225	73.7	89.0	329	47.6	1530	10.5	7.8	9.0	1153	6.5	1530	1016.97	1017.7	1024	1016.1	1859	0
13	15.26	20.9	1524	12.0	54	77.0	94.7	2359	49.2	1523	11.0	8.1	9.2	1408	7.0	1434	1014.11	1016.6	4	1012.6	1533	0
14	16.45	21.8	1353	10.5	430	73.7	98.1	550	48.6	1735	11.3	8.3	9.6	1352	7.4	1732	1011.97	1013.0	7	1011.0	1757	0
15	15.26	19.9	1619	8.7	428	89.1	98.3	456	70.1	1053	13.4	9.6	11.6	1318	6.7	428	1007.85	1012.2	33	1004.0	1927	12.5
16	16.93	21.6	1616	13.3	334	82.7	97.2	52	63.0	1845	13.8	9.8	11.7	1405	8.9	2359	1010.34	1017.5	2359	1005.6	9	0.1
17	17.64	24.2	1458	11.2	426	74.9	98.6	459	43.4	1503	12.6	8.9	10.1	1150	7.8	1510	1020.26	1021.4	2042	1017.4	0	0
18	19.83	27.8	1423	12.5	307	71.5	97.4	411	40.3	1622	13.7	9.6	11.9	1354	8.6	1622	1020.04	1021.6	120	1018.3	1715	0.1
19	22.27	30.8	1438	12.7	406	67.7	97.9	521	35.0	1349	15.0	10.6	13.8	1027	8.7	1349	1015.44	1019.6	6	1012.0	2357	0
20	19.07	22.5	1551	16.0	303	83.1	96.4	457	68.1	1552	16.1	11.3	12.1	1336	10.3	227	1008.09	1012.2	1	1005.2	1813	0
21	18.50	23.6	1513	13.8	2357	70.8	93.1	547	49.8	1755	12.8	9.2	11.8	50	7.1	1945	1010.96	1015.4	2351	1006.1	11	0
22	18.92	25.2	1352	12.5	247	77.7	91.8	1010	55.7	1454	14.8	10.4	13.3	1010	7.4	29	1014.39	1015.4	16	1013.4	1455	0
23	18.98	24.1	1635	16.0	605	77.0	93.6	324	48.8	1627	14.6	10.2	11.8	1134	8.8	1627	1018.21	1022.5	2257	1013.9	312	0.1
24	18.24	24.6	1222	12.3	444	76.9	98.3	525	51.7	1236	13.8	9.7	11.4	950	8.5	442	1019.84	1022.4	28	1016.1	2345	0.5
25	17.04	19.9	1415	13.8	2359	90.2	95.6	203	81.2	1420	15.4	10.9	12.2	1705	8.7	2359	1011.12	1016.4	0	1007.9	1856	0.4
26	17.40	23.0	1316	11.1	353	72.1	97.6	416	45.3	1605	11.8	8.6	9.9	1313	7.4	1617	1011.12	1013.0	2255	1009.5	59	0.0
27	17.10	23.5	1519	10.3	408	69.1	97.1	424	38.6	1449	10.7	7.9	8.8	1059	6.5	1531	1015.69	1022.1	2358	1012.6	51	0.1
28	18.47	26.2	1631	9.5	433	67.0	97.1	503	37.4	1331	11.2	8.2	9.6	1420	7.0	1338	1024.45	1026.2	959	1021.9	0	0
29	20.21	28.9	1557	10.5	416	65.4	97.7	459	32.3	1545	12.3	8.8	11.1	1220	7.5	1545	1020.38	1024.2	129	1016.8	1831	0
30	22.50	30.8	1429	12.7	432	63.2	97.2	525	31.8	1539	14.0	9.9	12.4	1117	8.5	1539	1016.29	1018.2	5	1014.3	1812	0
31	22.79	30.3	1340	16.9	527	60.0	82.0	641	35.7	1414	14.1	9.9	12.3	1143	8.1	2333	1014.13	1016.6	137	1012.0	1640	0
Total																						47.4
Mean	17.46	22.89		12.23		75.0	94.48		51.05		12.49	9.03	10.82		7.48		1013.86	1016.99		1011.03		
Max	22.79	30.84		16.94		93.1	99.00		84.10		16.05	11.31	13.78		10.30		1024.45	1026.24		1021.93		
Min	13.40	17.21		8.39		60.0	77.00		31.84		7.45	6.44	8.64		5.18		1003.17	1009.35		996.58		

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

## Appendix 1.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Month:** Calendar month.

**Season:** Spring, March to May.

Summer, June to August

Autumn, September to November

Winter, December to February.

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

**Annual or Year:** The calendar year, 1<sup>st</sup> January to 31<sup>st</sup> December.

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

**Frost:** An air frost day is recorded when the minimum temperature read at 0900 GMT on that day is  $-0.1^{\circ}\text{C}$  or below. A ground frost day is recorded when the grass minimum temperature read at 0900 GMT on that day is  $-0.1^{\circ}\text{C}$  or lower.

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

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

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

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

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

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

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

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

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

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

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

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

## Appendix 2.

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

**VV** : Visibility.

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

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

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

Code figure 89 = visibility above 70 km.

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

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

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

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

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

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

**RH** : Relative humidity at 1.2m, %.

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

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

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

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

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

1 = Increasing then steady or increasing more slowly

2 = Increasing steadily or unsteadily

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

4 = Steady, pressure the same as 3 hours ago

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

6 = Decreasing then steady or decreasing more slowly

7 = Decreasing steadily or unsteadily

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

**ppp** : 3 hour pressure tendency in tenths of a millibar

**ww** : Present weather code figures, 00 to 99.

Present weather decode:

00 = Cloud development not observed or not observable

01 = Clouds generally dissolving or becoming less developed

02 = State of sky on the whole unchanged

03 = Clouds generally increasing or becoming more developed

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Hail includes large hail, small hail and snow pellets.

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

Code figures:

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

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

**Cl :** Type of low cloud

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

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

**Cm :** Type of medium cloud.

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

**Ch :** Type of high cloud

0 = No high cloud

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

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

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

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

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

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

7 = Veil of Cirrostratus covering the celestial dome.

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

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

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

**8 Groups**

**N** = Amount of cloud reported by C, okta.

**C** = Type of cloud

0 = Cirrus (Ci)

1 = Cirrocumulus (Cc)

2 = Cirrostratus (Cs)

3 = Altocumulus (Ac)

4 = Altostratus (As)

5 = Nimbostratus (Ns)

6 = Stratocumulus (Sc)

7 = Stratus (St)

8 = Cumulus (Cu)

9 = Cumulonimbus (Cb)

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

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

00 to 50 = Height in hundreds of feet

51 to 55 Not used

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

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