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 — FEBRUARY 2011

Temperature (°C / °F)			Anomaly	Rank in the past **130** years			
Mean maximum	9.8	49.6	+1.6	23rd highest			
Mean minimum	4.1	39.4	+2.6	7th highest			
Daily mean	6.9	44.4	+2.0	11th highest			
Highest maximum	14.3	57.7	on 24th	Lowest maximum	4.8	40.6	on 28th
Highest minimum	10.2	50.4	on 6th	Lowest minimum	-3.3	26.1	on 1st
Mean grass minimum	1.1	34.0	+2.9	Lowest grass minimum	-9.4	15.1	on 1st
Mean earth @30 cm	6.3	43.3	+1.0	Earth @100 cm	7.5	45.5	
Frost duration (hrs)	10.1			Rain duration (hrs)	60.5		
Rainfall total (mm / in)	45.1	1.78	105 %	54th highest			
Highest daily fall	10.7	0.42	on 10th				

Number of: Dry days (<0.2mm) 11 Wet days (>0.9mm) 11 days ≥5mm 3

Sunshine total (hrs) 44.0 Daily mean 1.57 57 % Sunniest day 8.9 on 8th

No days with: Air frost 4 Ground frost 14 Snow falling 0 Snow lying 0

Thunder 0 Hail ≥5mm 0 Small hail/ice 0 Fog @09 1 Nil sun 13

Pressure MSL : Mean @09 GMT, mbar 1014.6 -2.8 Highest 1034.9 on 28th Lowest 987.4 on 15th

Relative humidity : Mean (%) 86.7 Lowest 47 on 8th Water vapour (g/kg), mean at 09 and 15 GMT 5.5 5.5

Overall mean wind speed (mph) 7.7 Windiest day 16.7 on 4th Max gust 43 on 3rd

Wind direction (days) N 1 NE 3 E 2 SE 2 S 6 SW 12 W 1 NW 1

Least windy day (mph) 3.6 on 8th Calm; less than 0.5 mph (minutes) 134

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

Notes: **Very Mild, Very Dull, Rainfall Near Normal.**

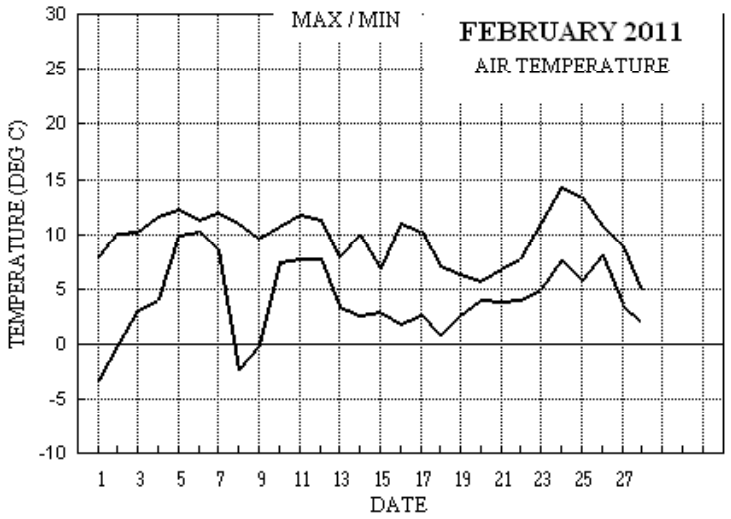
Temperature: During this February we failed to see a return to the very cold conditions of earlier in the winter, and in fact the mean temperature is highest since 2002 and 11th highest since before 1882. The mean minimum ranked even above that at 7th highest. Only the mean max failed to get into the top 10 %, ranking at 23rd. The highest max is 1.3° above the median and the lowest max 2.4° above the median. The highest min is 2.2° above the median and the lowest min is 1.7° above its median, and is highest since 2002, as is the mean grass min. Earth temperatures are above normal. The number of days with air frost is equal lowest with 2002 since 1995, and the number of hours with air frost is equal lowest with 1995 since 1990, and is 82.5 hours below average. **Rainfall:** This February started dry, with a 14 day dry spell ending on the 8th. The rest of the month produced only 3 further dry days, and enough rain to surpass the average by a small amount. The duration of measurable rain is 10.7 hours above normal. This has been a snow-free February, only the third such since 1999. Thunder and hail were also absent. **Sunshine:** This February has been exceptionally dull, with the lowest sunshine since 1976. It is also 7th lowest in the past 104 years, although with the usual caveat concerning change of instrument in 1999. The number of sunless days is 5 more than average, and most since 1979. Overall there were 21 days with <3 hours and only 2 with =>6 hours. **Commentary: From the 1st to the 8th :** Temperatures were mainly above normal, with anomalies for daily max between +0.4° on the 1st and +3.7° on the 7th. There was greater variability for anomalies for daily min, from –4.8° on the 1st to +7.5° on the 6th. This period was dry throughout, but only the 3rd and 8th were sunny. Winds were SW'ly, light on the 1st but becoming strong by the 4th before falling light on the 8th. **From the 9th to the 17th :** Temperatures remained mainly above normal, with anomalies for daily max between –0.3°on the 15th and +3.8° on the 11th. Again, anomalies for daily min showed a greater range, from –1.6° on the 9th to +6.5° on the 10th. Rain fell every day except the 16th and 17th, with the 10th and 13th wettest. Sunshine was poor again, with only the 14th managing just over 50 % of the maximum. Light or moderate winds were S'ly on the 9th, veering SW'ly by the 12th, then backing slowly to NE'ly by the 17th. **From the 18th to the 28th :** Temperatures were slightly below normal by day from the 18th to the 22nd and again after the 26th, with anomalies for daily maximum between –2.1° on the 20th and +5.9° on the 24th. By night values were generally above normal with anomalies for daily min between –0.2° on the 18th and +6.4° on the 26th. Rain fell every day except the 24th, though the wettest was only 6.3 mm on the 18th. Sunshine was conspicuous by its absence, with none at all from the 18th to the 23rd, and only sunny on the 24th which had 73 % of the max. Light or moderate winds were NE'ly until the 20th, veering S'ly by the 22nd, then further to W'ly by the 26th, ending with N'ly on the 28th.

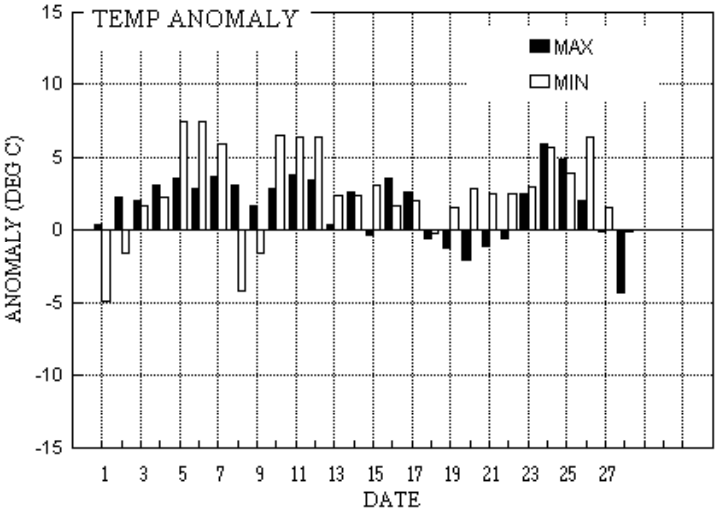
Table 1. Mean anomalies (max, min, rain, sun) for specified periods.

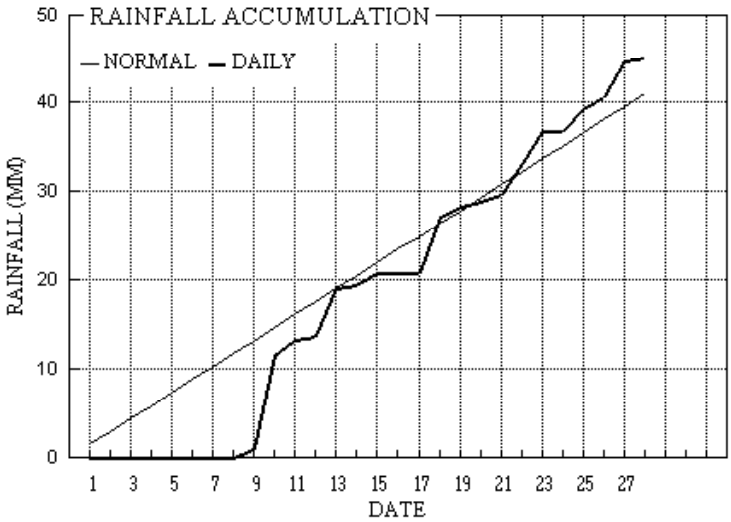
From the 1st to the 10th				From the 11th to the 20th				From the 21st to the 28th			
+2.6°	+1.9°	79 %	62 %	+1.2°	+2.9	112 %	58 %	+1.2°	+3.2°	132 %	54 %

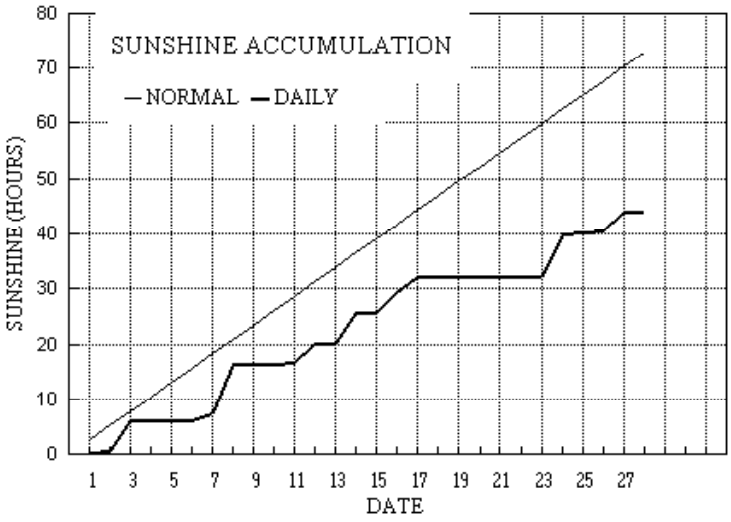
B J Burton FRMetS. Hon. Met. Officer to Wokingham Town Council.

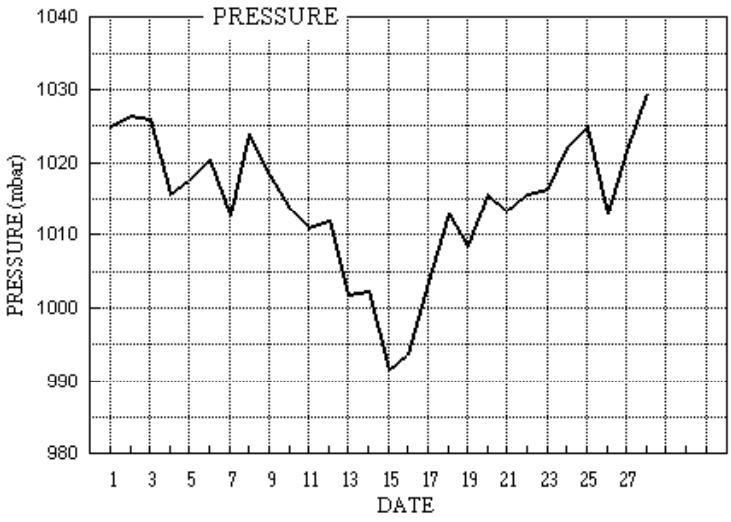
Wokingham climatological graphs for February 2011

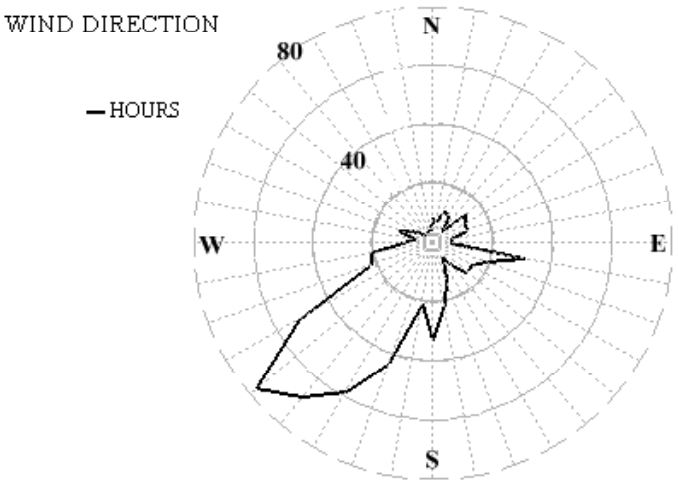


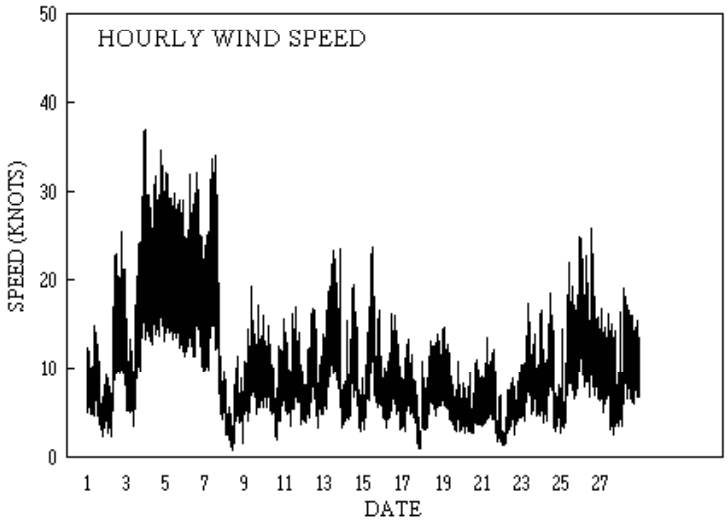


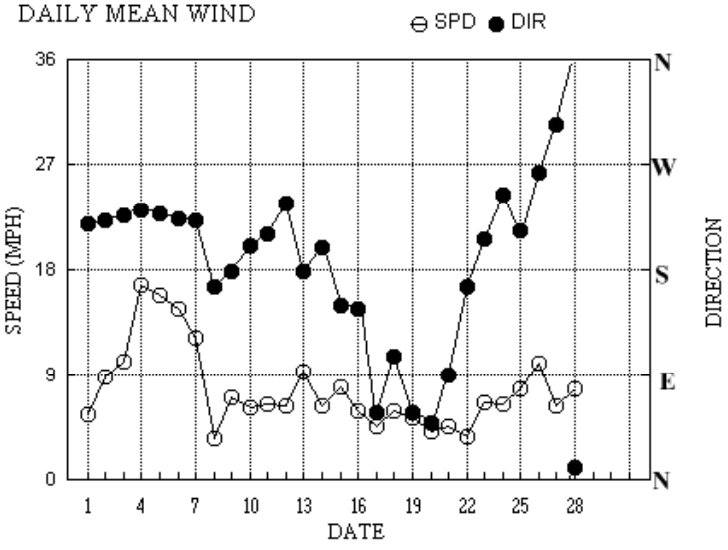












Daily meteorological data. Emmbrook, WOKINGHAM, Berkshire.

Month: FEBRUARY 2011

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	7.9	-3.3	0.1	-9.4	3.3	6.8	0.3	4.0	1025.1	1 1 0 0		0 0 0 0		220	4.7	4.9	242	15	1024	236	7	10	0.0
2	10.1	-0.2	tr	-5.7	3.6	6.6	0.5	0.0	1026.4	1 1 0 0		0 0 0 0		222	7.4	7.6	210	26	1813	213	11	12	0.0
3	10.3	3.1	tr	-2.6	4.3	6.5	5.6	0.0	1026.0	0 1 0 0		0 0 0 0		227	8.7	8.8	232	37	2301	231	16	23	0.0
4	11.7	4.0	tr	5.3	4.8	6.5	0.0	0.0	1015.7	0 0 0 0		0 0 0 0		231	14.4	14.5	232	35	1910	225	17	18	0.0
5	12.3	9.9	tr	8.9	5.8	6.6	0.0	0.0	1017.5	0 0 0 0		0 0 0 0		228	13.8	13.8	234	32	0107	230	16	02	0.0
6	11.4	10.2	tr	8.9	6.6	6.7	0.0	0.0	1020.3	0 0 0 0		0 0 0 0		224	12.6	12.7	232	32	1338	230	15	14	0.0
7	12.0	8.5	tr	6.0	6.8	7.0	1.2	0.0	1012.6	0 0 0 0		0 0 0 0		223	10.0	10.5	215	34	1201	206	16	09	0.0
8	11.0	-2.4	tr	-8.2	6.4	7.2	8.9	6.1	1024.0	1 1 0 0		0 0 0 1		166	2.3	3.1	130	12	1559	147	5	23	0.0
9	9.6	-0.2	0.8	-1.8	5.8	7.3	0.1	0.0	1018.2	1 1 0 0		0 0 0 0		179	5.9	6.1	160	19	0937	158	9	09	1.5
10	10.7	7.5	10.7	6.7	6.3	7.3	0.0	0.0	1013.6	0 0 0 0		0 0 0 0		201	5.2	5.3	201	15	0411	210	8	04	10.3
11	11.8	7.7	1.8	5.8	6.9	7.4	0.1	0.0	1010.9	0 0 0 0		0 0 0 0		210	5.6	5.6	203	17	1445	212	8	00	2.9
12	11.4	7.7	0.2	6.2	7.2	7.5	3.6	0.0	1011.9	0 0 0 0		0 0 0 0		237	4.9	5.5	254	17	1117	257	8	13	0.5
13	8.0	3.4	5.5	-0.1	7.1	7.7	0.0	0.0	1001.8	0 1 0 0		0 0 0 0		179	7.7	8.0	208	24	2100	183	11	09	12.5
14	10.0	2.7	0.3	-1.6	7.0	7.8	5.4	0.0	1002.3	0 1 0 0		0 0 0 0		199	4.6	5.4	247	20	1229	227	9	12	0.3
15	6.9	3.0	1.5	-1.5	6.5	7.8	0.0	0.0	991.5	0 1 0 0		0 0 0 0		149	5.9	6.8	139	24	1105	153	11	12	2.0
16	11.0	1.8	0.0	-2.8	6.4	7.8	3.6	0.0	993.7	0 1 0 0		0 0 0 0		147	4.3	5.0	157	16	1143	144	7	13	0.0
17	10.2	2.6	0.0	-1.2	6.3	7.8	2.9	0.0	1003.4	0 1 0 0		0 0 0 0		57	3.9	4.0	66	14	0817	70	6	08	0.0
18	7.1	0.7	6.3	-4.1	6.3	7.8	0.0	0.0	1012.9	0 1 0 0		0 0 0 0		105	5.1	5.1	89	14	1810	108	7	12	5.9
19	6.3	2.7	1.1	1.5	6.3	7.8	0.0	0.0	1008.4	0 0 0 0		0 0 0 0		57	2.7	4.6	103	15	0351	101	6	01	2.3
20	5.7	4.1	0.6	-0.5	6.3	7.7	0.0	0.0	1015.6	0 1 0 0		0 0 0 0		48	2.7	3.5	102	11	1800	106	4	20	1.3
21	6.9	3.9	0.8	3.5	6.3	7.7	0.0	0.0	1013.3	0 0 0 0		0 0 0 0		89	3.9	4.0	93	14	0755	99	5	14	3.7
22	7.8	4.1	3.5	4.1	6.4	7.7	0.0	0.0	1015.6	0 0 0 0		0 0 0 0		166	2.7	3.2	165	10	2332	184	5	15	5.7
23	11.0	5.0	3.6	3.0	6.6	7.7	0.0	0.0	1016.3	0 0 0 0		0 0 0 0		206	5.1	5.8	206	18	0953	196	8	09	2.3
24	14.3	7.6	0.0	5.2	7.0	7.8	7.7	0.0	1021.9	0 0 0 0		0 0 0 0		245	5.3	5.6	259	19	1203	260	9	11	0.0
25	13.3	5.8	2.6	-1.0	7.4	7.8	0.4	0.0	1024.9	0 1 0 0		0 0 0 0		213	6.6	6.7	215	25	2321	205	11	23	3.3
26	10.8	8.1	1.3	7.5	7.8	8.0	0.3	0.0	1012.9	0 0 0 0		0 0 0 0		264	6.7	8.6	299	26	1433	201	11	01	2.2
27	8.9	3.6	4.1	0.8	7.6	8.1	3.4	0.0	1021.5	0 0 0 0		0 0 0 0		304	4.3	5.5	303	17	0314	278	8	11	2.9
28	4.8	2.0	0.3	-1.2	7.1	8.2	0.0	0.0	1029.4	0 1 0 0		0 0 0 0		11	6.4	6.7	11	19	0554	19	9	08	0.9
Total			45.1				44.0	10.1															60.5
Mean	9.8	4.1		1.1	6.3	7.5	1.57	0.4	1014.6					212	3.9	6.7							
Anom	+1.6	+2.6	105%	+2.9	+1.0	+0.7	57%	11%	-2.8														

Daily mean 6.9 Pressure, abs highest = 1034.9 on 28

Anom +2.0 Pressure, abs lowest = 987.4 on 15

Number of days with:

Air frost = 4 Ground frost = 14 Nil sun = 13

Snow falling = 0 Snow lying = 0 Thunder = 0

Hail=>5mm = 0 Hail<5mm or ice = 0 Fog at 09GMT = 1

Abbreviations.

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

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

Grass min = Lowest overnight temperature at grass tip level.

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

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

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

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

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

Sp = 24 hour mean wind speed in knots.

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

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

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

Anom = Departure from 1981-2010 climatological average.

All temperatures in degrees Celsius.

Weather observations. Emmbrook, Wokingham, Berkshire.

Observations at 0900 GMT for February 2011

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	60	7	23	05	08	3.4	0.6	81	3.9	1025.1	3	003	05	2	2	7	6	4	/	2	86715	83620	85635	1	U/a cont
2	57	7	21	08	17	5.3	5.1	99	5.4	1026.4	8	007	28	4	2	7	6	2	/	1	87705	87075		2	COTRA
3	58	7	22	04	07	4.0	2.9	93	4.6	1026.0	2	013	10	1	1	2	0	9	7	7	81367	88272		3	2As68 COTRA
4	67	7	23	13	26	10.2	7.8	85	6.5	1015.7	5	003	20	6	5	7	5	4	/	/	82712	87620		4	
5	62	7	23	14	27	11.0	8.1	82	6.7	1017.5	2	011	58	6	5	7	5	4	/	/	82715	86620	87635	5	
6	75	7	22	14	26	11.2	6.9	75	6.1	1020.3	2	005	02	2	2	7	8	5	/	/	81820	83625	87635	6	Cu fra
7	70	8	20	15	34	9.0	5.1	76	5.4	1012.6	8	017	02	2	2	7	5	5	/	7	87620	88275		7	
8	05	1	32	01	03	-0.2	-0.4	98	3.7	1024.0	1	013	41	4	0	0	0	9	0	1	81080			8	COTRA Hoar mod Gnd frzn vv4kSW
9	57	8	16	07	15	8.3	6.2	86	5.8	1018.2	8	002	05	2	2	8	6	3	/	/	87708	88710		9	
10	20	8	19	05	09	9.0	8.4	96	6.8	1013.6	6	004	59	6	5	7	7	2	2	/	83704	87706	88515	10	
11	20	8	19	04	10	8.9	8.4	97	6.9	1010.9	1	005	58	6	5	8	7	2	/	/	83703	88705		11	
12	59	7	26	07	12	8.0	6.7	91	6.1	1011.9	2	011	05	5	2	6	6	3	7	1	86708	86363		12	/Ci72 COTRA
13	58	8	18	10	19	7.5	6.0	90	5.9	1001.8	7	020	50	5	2	7	5	4	2	/	82712	87615	88535	13	
14	82	1	21	05	09	5.2	3.4	88	4.9	1002.3	2	011	02	0	0	0	0	9	0	2	81070			14	
15	63	8	12	09	17	5.8	3.9	87	5.1	991.5	7	016	21	6	2	8	8	4	/	/	83812	87620	88656	15	Cu med
16	60	7	15	05	12	5.9	5.0	94	5.5	993.7	2	011	05	1	1	7	6	4	0	0	87710			16	
17	30	8	07	05	13	5.5	4.7	95	5.3	1003.4	2	021	10	2	2	8	6	2	/	/	88705			17	
18	20	8	11	04	10	4.3	3.3	93	4.8	1012.9	3	008	05	2	2	8	6	2	/	/	88705			18	
19	50	8	09	06	12	5.1	4.5	96	5.2	1008.4	3	003	51	6	5	8	5	3	/	/	85706	87708	88612	19	
20	62	8	03	04	07	4.8	2.3	84	4.5	1015.6	1	009	02	2	2	8	5	4	/	/	81615	88618		20	
21	18	8	11	05	09	4.1	3.1	93	4.7	1013.3	7	010	62	6	2	7	7	3	2	/	87706	88520		21	
22	14	8	15	03	07	5.0	4.4	96	5.2	1015.6	3	010	50	5	2	8	7	2	/	/	86704	88705		22	
23	20	8	19	07	14	7.7	7.1	96	6.2	1016.3	6	005	59	6	5	7	7	2	2	/	82704	85706	87708	23	8Ns15
24	61	7	25	06	11	10.6	8.3	85	6.7	1021.9	2	019	03	2	2	1	6	4	7	2	81712	83364	87070	24	1Ac57 COTRA
25	62	7	21	07	17	11.1	9.3	89	7.2	1024.9	1	002	02	2	2	7	5	6	3	2	87635	87072		25	/Ac67
26	60	7	29	08	18	8.2	6.4	89	6.0	1012.9	3	023	62	6	2	7	5	4	7	/	85710	85625	87358	26	Absent 26&27 vv&cld est
27	81	6	27	08	14	4.9	1.3	77	4.1	1021.5	1	010	03	1	1	1	0	9	3	2	81365	86072		27	
28	58	8	01	08	17	4.2	1.6	83	4.2	1029.4	2	015	21	6	2	8	8	4	/	/	81715	84820	88645	28	Cu med

Mean vis = 10.5 km

Mean cloud = 7.0 88%

Mean wind speed = 7.0 kn

Mean gust = 14 kn

Mean TT = 6.7 ℃

Mean TdTd = 5.0 ℃

Mean RH = 89.1 %

Mean r = 5.5 g/kg

Mean PPP = 1014.6 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 February 2011

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	63	7	24	04	11	7.5	5.7	89	5.6	1024.8	7	002	03	6	5	7	5	3	/	/	85708	87615		1	
2	61	8	21	11	20	8.8	7.3	90	6.3	1022.1	6	022	20	5	2	8	5	3	/	/	86709	88612		2	
3	75	6	24	11	21	9.5	2.5	62	4.5	1023.3	7	023	03	1	1	1	8	5	0	1	81828	86075		3	1Sc35 COTRA Parhelia U/a cont
4	62	8	24	13	29	11.1	7.3	77	6.3	1016.5	2	001	20	5	2	8	5	4	/	/	82712	87615	88625	4	
5	67	7	23	13	28	12.2	8.1	76	6.7	1017.4	5	007	21	6	2	7	5	4	/	/	81618	86622	87635	5	
6	80	7	23	16	30	10.8	6.4	74	5.9	1019.6	7	007	21	6	2	7	8	5	/	/	82820	87630		6	Cu hum/fra
7	81	7	26	14	30	10.5	3.8	63	5.0	1012.3	3	021	01	6	5	1	8	5	3	1	81828	87075		7	1Sc35 1Ac67 Cu hum 22° halo part Parhelia
8	84	2	13	03	09	10.0	0.1	50	3.8	1022.0	8	021	02	0	0	0	0	9	0	1	82080			8	
9	63	7	19	06	13	9.0	4.8	75	5.3	1016.2	6	014	02	2	2	5	6	4	7	/	85618	83361	87363	9	
10	22	8	15	02	05	10.0	9.5	96	7.4	1010.7	6	017	63	6	6	7	7	2	2	/	83703	87705	88510	10	
11	50	7	21	08	17	11.0	9.6	91	7.4	1010.5	5	006	50	6	5	7	5	3	/	/	86707	83625	87650	11	
12	81	2	26	07	14	10.0	2.1	58	4.4	1011.9	4	000	01	1	1	2	8	6	0	0	82830			12	1Sc50 Cu med
13	59	8	17	10	22	7.5	6.1	91	5.9	998.3	7	022	63	6	6	6	5	4	2	/	82712	86618	88530	13	
14	82	7	19	10	17	8.4	2.0	64	4.4	1001.5	8	010	02	8	2	1	9	5	3	3	81925	81830	87068	14	1Ac62 Cu med CbSW
15	58	8	13	07	14	6.1	5.0	93	5.6	988.0	7	016	58	6	5	8	5	3	/	/	87708	88612		15	
16	82	7	16	05	16	9.6	2.2	60	4.5	994.3	4	000	02	2	2	1	2	6	3	2	81830	86072		16	1Ac66 Cu med
17	57	7	04	06	09	9.7	4.5	70	5.2	1006.0	2	006	05	2	2	1	5	5	3	1	81620	86075		17	1Ac65 COTRA
18	35	7	09	05	13	6.7	3.7	81	4.9	1012.5	6	008	05	2	2	7	6	4	/	/	87712			18	
19	35	8	01	04	07	6.0	5.4	96	5.6	1009.0	2	004	20	5	2	8	7	2	/	/	87705	88708		19	
20	60	8	06	02	07	5.4	2.9	84	4.6	1015.2	7	005	05	2	2	8	5	4	/	/	81710	86712	88620	20	
21	56	8	09	06	12	6.6	4.4	86	5.2	1010.6	6	010	20	6	5	8	5	4	/	/	83715	86625	88630	21	
22	45	8	20	05	09	7.3	5.8	90	5.7	1016.5	3	005	05	6	5	8	5	3	/	/	82706	86712	88625	22	
23	61	8	22	06	11	10.4	9.7	95	7.5	1014.5	7	010	21	6	2	8	5	3	/	/	82707	87710	88615	23	
24	75	7	26	06	16	12.6	6.8	68	6.1	1023.5	3	002	02	2	2	1	1	5	3	1	81825	87075		24	1Ac69 COTRA Cu hum Halo 22° part
25	75	8	22	08	20	13.0	8.5	74	6.8	1023.3	7	014	02	2	2	8	5	5	/	/	82620	88640		25	Absent 25 to 27 inc. vv&cld est
26	60	7	30	08	26	7.8	4.9	82	5.4	1013.8	5	000	80	8	2	7	8	4	/	/	81815	83820	87650	26	2Sc40
27	58	7	03	06	15	5.8	4.4	91	5.2	1019.5	5	009	61	6	2	7	5	4	/	/	84615	87635		27	
28	61	8	04	05	16	4.0	1.4	83	4.1	1030.8	3	004	60	6	2	8	8	4	/	/	81715	83822	85635	28	8Sc45 Cu med

Mean vis = 16.8 km

Mean cloud = 7.0 88%

Mean wind speed = 7.4 kn

Mean gust = 16 kn

Mean TT = 8.8 ℃

Mean TdTd = 5.2 ℃

Mean RH = 78.9 %

Mean r = 5.5 g/kg

Mean PPP = 1013.7 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

2011

Hour	01-Feb	02-Feb	03-Feb	04-Feb	05-Feb	06-Feb	07-Feb	08-Feb	09-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.15	0.00
8	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.98	0.00
9	0.00	0.49	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
10	0.00	0.00	0.50	0.00	0.00	0.00	0.00	1.00	0.01	0.00	0.00	0.24	0.00	1.00	0.00
11	0.00	0.02	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.68	0.00	0.95	0.00
12	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.53	0.00	0.24	0.00
13	0.00	0.00	1.00	0.00	0.00	0.00	0.18	1.00	0.00	0.00	0.01	0.61	0.00	0.42	0.00
14	0.10	0.00	1.00	0.00	0.00	0.00	0.73	1.00	0.00	0.00	0.00	0.67	0.00	0.31	0.00
15	0.00	0.00	0.60	0.00	0.00	0.00	0.24	1.00	0.00	0.00	0.00	0.64	0.00	0.39	0.00
16	0.18	0.00	0.00	0.00	0.00	0.00	0.05	0.76	0.00	0.00	0.00	0.23	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
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	**0.28**	**0.51**	**5.58**	**0.00**	**0.00**	**0.00**	**1.21**	**8.88**	**0.01**	**0.00**	**0.01**	**3.62**	**0.00**	**5.44**	**0.00**

Hour	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	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
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
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
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
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
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
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
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.04
8	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.50	0.00	0.11
9	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.08	0.00	0.86	0.00	0.17
10	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.36	0.00	0.98	0.00	0.20
11	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.00	0.27	0.00	0.19
12	0.47	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.15
13	0.40	0.26	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.02	0.00	0.00	0.17
14	0.52	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.23
15	0.16	0.86	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.24	0.00	0.00	0.18
16	0.15	0.74	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.11
17	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.07	0.00	0.00	0.01
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
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
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
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
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
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
Tot	**3.57**	**2.91**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.67**	**0.45**	**0.33**	**3.39**	**0.00**	**43.82**

February 2011	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	2.94	8.0	1551	-2.3	2	89.5	98.7	2122	77.5	936	1.36	4.20	5.7	1456	2.8	0	1025.99	1028.7	2338	1024.6	1446	0.0
2	6.46	10.2	2149	0.4	700	93.2	99.8	706	75.7	2239	5.39	5.56	6.9	2020	3.8	702	1024.42	1028.6	205	1020.5	1854	0.1
3	6.99	9.9	2356	3.0	749	79.5	93.8	812	56.7	1526	3.56	4.85	5.7	2357	4.1	1525	1023.06	1026.8	1023	1017.1	2321	0.0
4	10.42	11.8	1218	9.4	648	80.5	91.3	701	73.5	1222	7.20	6.28	6.8	806	5.6	14	1016.48	1017.7	0	1015.1	703	0.0
5	11.17	12.4	1415	10.4	2105	81.9	89.5	2106	75.4	1430	8.20	6.71	7.0	2100	6.4	0	1017.81	1020.5	2357	1015.7	117	0.0
6	10.39	11.5	937	8.8	2046	78.4	85.4	107	69.8	1313	6.79	6.09	6.8	11	5.6	1850	1019.88	1021.0	1111	1018.5	2359	0.0
7	8.26	12.1	1405	3.8	2357	78.0	90.3	2358	61.4	1507	4.60	5.28	7.2	1340	4.4	2331	1015.11	1019.8	2359	1010.0	1248	0.0
8	4.11	10.2	1422	-2.5	704	80.9	98.8	800	46.8	1413	0.72	3.99	5.4	1131	3.0	704	1022.04	1024.4	1041	1019.7	0	0.2
9	8.07	9.1	1431	7.0	206	84.8	92.4	2231	73.9	1450	5.64	5.64	6.3	2359	4.9	0	1017.31	1020.0	4	1015.2	1727	0.0
10	9.47	10.8	1723	8.4	9	94.4	97.8	1645	88.7	433	8.62	6.95	7.8	1723	6.3	9	1012.26	1016.1	19	1009.6	1712	9.1
11	9.50	11.9	1401	7.5	539	94.4	97.3	931	90.1	1427	8.64	6.98	8.0	1333	6.1	353	1010.78	1011.6	2008	1010.0	344	1.2
12	7.93	11.5	1310	3.4	2312	84.4	97.0	315	55.1	1454	5.33	5.62	7.3	29	4.3	1900	1011.15	1012.4	1050	1008.9	2359	1.2
13	7.10	8.1	1155	4.4	0	89.2	95.3	2355	81.8	354	5.44	5.65	6.2	2055	4.7	0	1001.10	1008.9	0	996.9	1925	4.9
14	5.60	9.7	1204	2.7	723	82.6	96.5	513	58.7	1207	2.69	4.67	5.7	40	3.9	1739	1000.90	1002.9	1052	997.1	2359	0.5
15	5.47	7.0	1927	3.5	132	91.1	95.6	301	78.0	1002	4.12	5.21	6.0	1735	4.7	132	991.03	997.2	0	987.4	1706	1.4
16	6.20	11.0	1415	1.7	521	83.6	97.2	542	53.9	1416	3.47	4.96	5.8	1017	4.2	521	994.33	998.9	2358	991.3	0	0.1
17	5.11	9.9	1458	0.8	2226	89.9	97.4	2359	69.7	1459	3.52	4.93	5.7	1355	3.9	2226	1004.76	1011.2	2358	998.7	2	0.0
18	4.38	7.1	1421	2.6	2100	88.6	97.4	0	76.9	1541	2.65	4.59	5.1	6	4.0	2034	1012.29	1013.6	1047	1011.0	2358	0.0
19	5.12	6.3	1400	3.2	10	95.4	97.3	1104	91.5	0	4.45	5.23	5.8	1333	4.4	0	1009.90	1013.5	2359	1007.9	657	6.3
20	4.75	5.8	1436	3.8	2352	90.1	96.0	2358	79.7	1209	3.25	4.78	5.1	248	4.3	1209	1015.11	1016.3	2150	1013.3	0	0.1
21	5.04	7.0	1410	3.8	608	90.9	96.5	125	81.8	1651	3.66	4.93	5.5	1336	4.6	655	1012.94	1016.0	33	1010.4	1559	0.7
22	5.87	7.7	1526	4.5	314	93.1	97.0	730	87.0	1539	4.83	5.33	5.9	1338	4.8	15	1016.37	1019.2	2236	1014.0	13	0.7
23	8.53	11.1	1716	5.9	39	93.4	96.4	1423	88.7	1830	7.54	6.46	7.8	1605	5.1	42	1016.48	1019.0	21	1014.3	1443	5.5
24	10.20	14.1	1259	5.8	2109	82.6	94.1	7	64.3	1314	7.28	6.29	7.2	11	5.2	2046	1022.40	1026.0	2200	1017.3	0	0.0
25	10.64	13.4	1351	5.6	49	86.2	97.0	550	73.1	1441	8.35	6.75	7.5	959	5.3	49	1023.36	1026.0	241	1016.9	2359	0.0
26	8.29	11.0	1352	4.7	2359	82.8	96.2	616	67.7	1745	5.48	5.66	7.1	623	4.1	2338	1014.49	1019.2	2359	1010.5	618	3.1
27	5.06	9.1	1107	2.6	2325	82.7	95.3	2347	59.4	1117	2.28	4.45	5.3	1454	3.9	612	1021.27	1026.2	2358	1018.9	26	3.9
28	3.74	4.8	1250	2.0	247	85.6	95.4	4	76.5	1251	1.54	4.17	4.6	26	3.9	1239	1030.33	1034.9	2358	1026.2	3	0.3
Total																						39.3
Mean	7.03	9.73		4.10		86.7	95.45		72.62		4.88	5.43	6.33		4.59		1014.40	1017.73		1011.32		
Max	11.17	14.12		10.36		95.4	99.80		91.50		8.64	6.98	8.03		6.37		1030.33	1034.85		1026.17		
Min	2.94	4.82		-2.54		78.0	85.40		46.83		0.72	3.99	4.63		2.79		991.03	997.17		987.35		

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
Rtot = 00-24 GMT rainfall total from AWS tipping bucket raingauge, mm
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.

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 — WINTER 2010/2011

Temperature (°C)			Rank in the past **129** years
Mean maximum	6.7	(-1.4)	32nd lowest
Mean minimum	1.0	(-0.8)	48th lowest
Daily mean	3.8	(-1.2)	39th lowest
Rainfall total (mm)	144.7	(86 %)	52nd lowest
Sunshine total (hours)	118.1	(60 %)	

N° of:	Dry days	46 (+1)	Wet days	25 (-7)						
Days with: Air frost	40 (+9)	Ground frost	57 (+6)	Snow falling	14 (+4)	Snow lying	13 (+8)			
Thunder	1 (0)	Hail ≥5mm	0 (-1)	Small hail/ice	4 (+1)	Fog @09 GMT	6 (0)	Nil sun	44 (+15)	
Air pressure MSL : Mean @09 GMT (mbar)	1016.2	(-0.4)								

Departure from 1981 to 2010 average shown in brackets.

Notes: **Cold, Very Dull, Rainfall Below Normal.**

Temperature: This has been a cold winter overall, with the mean temperature 0.7° below the long-term median. However, the cold was not unrelenting, and despite a very cold December, February was very mild. Compared to last winter, in which the cold was more prolonged, the mean temperature this winter is 0.8° higher. It is not unknown to get two cold winters running, though the last example was 1986/1987. This winter, December was the coldest month, mean 0.6°, and February the mildest, mean 6.9°. The highest temperature was 14.3° on the 24th Feb, 0.4° above the median. The lowest max was 0.6° on the 6th Dec, 0.3° below the median. The highest min was 10.8° on 14th Jan, 0.9° above the median, and the lowest min was –11.5° on the 20th Dec, 4.0° below the median and 3.8° above the record for Wokingham. The mean grass min of –1.7° is 0.6° below average, while the lowest grass min of –17.7° on the 20th Dec is 4.7° below average and is lowest since 1987. Earth temperature at 30cm depth was 5.1°, 0.7° below average, and at 1m depth was 7.2°. The lowest temperature at 30cm was 2.5° on the 27th Dec. The duration of air frost, 436.8 hours is 151 hours above average, and most since 1996. **Rainfall:** Rainfall this winter was quite low, 14% below average and least since 2006. A dry December with only 34% of average contributed most to the deficit, but both January and February had above average rainfall. The wettest day was the 17th Jan, when 17.8mm fell, an amount quite close to the long-term median. There were significant snow falls in December, with depths of 5cm recorded on the 2nd and 21st, and lying snow on 13 days, but very little fell in January, and February was snow free. The Eden winter snow index is 33, compared with 208 at the same time last year, and a 34 year average of 6.8. The duration of measurable rain was 126.0 hours, well below normal, but this excludes 16 days when no measurement was possible because of snow or ice. There were 46 dry days and 3 dry spells, one of 11 days ending on the 15th Dec, 6 days on the 26th Dec and 14 days on the 8th Feb. **Sunshine:** The most notable feature of this winter was the lack of sunshine. The total of 118.1 hours is about 75 hours below average, and is one of the lowest winter totals in the last 103 years. This seems all the more surprising as all recent winters, since 1999, have had well above average sunshine, with the 6 sunniest winters on record amongst them. January was the sunniest month, daily mean 1.60 hours, and December the dullest, mean 0.79 hours. The number of days with nil sun is 15 above average, and most since before 1980. Overall there were 74 days with <3 hours and only 5 with =>6 hours. **Wind:** The mean wind speed of 6.6 mph is 1.2 mph below average. The 4th Feb was the windiest day, mean speed 16.7 mph, and the season's highest gust was on the 3rd Feb, and at 43 mph is 15 mph below average and is lowest since before 1988. The 31st Dec was the least windy day, mean 2.0 mph, and there were 1695 minutes (28.3 hrs) with a mean speed of 0.5 mph or less. Daily mean direction/number of days; N,14 NE,16 E,3 SE,5 S,11 SW,24 W,9 NW,8. Compared with average, N and NE winds were 11% more frequent, at the expense of S and SW, 11% less frequent. **Humidity:** The overall mean relative humidity was 87.4 %, and the lowest value recorded was 47 % on the 7th Feb. The mean water vapour content per kg of air was 4.6 g at 0900 and 4.7 g at 1500 GMT. **Pressure:** The lowest pressure was 986.1 mbar on the 8th Jan, and the highest 1040.5 mbar on the 21st Jan.

December: Very cold, very dull, dry but with 2 snowy episodes. 2nd coldest in 129 years, coldest since 1980. Mean max lowest since 1933. Mean min equal lowest with 1981 since 1890. Highest max lowest since 1976. Lowest min is 3rd lowest Dec temperature on record. Most air frost since before 1981, and 2nd highest after Feb 1986 for any month in that period. Driest since 2001. Sunshine 3rd lowest in 103 years and lowest since 1969. Mean wind speed lowest since before 1987.

January: Below average temperature and sunshine, above average rainfall. Sunshine over double the amount for December, but still well below average.

February: Very mild, very dull, rainfall near normal. Mean temperature highest since 2002 and 11th highest in 130 years. Mean min 7th highest in the same period. Air frost duration equal lowest with 1995 since 1990. Exceptionally dull, least sunshine since 1976. Most sunless days since 1979.

Month	Mean Max	Anom	Mean Min	Anom	Rain mm	Anom	Sun hrs	Anom	Wind Mn mph	Max gust	Mean pressure	Anom
December	3.7	-4.6	-2.5	-5.0	21.8	34 %	24.4	39 %	5.2	36	1015.2	+0.1
January	7.0	-0.8	1.6	-0.2	77.8	125 %	49.7	79 %	6.9	40	1018.6	+1.9
February	9.8	+1.6	4.1	+2.6	45.1	105 %	44.0	57 %	7.7	43	1014.6	-2.8

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

Wokingham Meteorological Data

Wokingham Climatological Station, Emmbrook, Berkshire.

Annual Report and Introduction, 2010

1. A copy of this report will be placed on the Wokingham Weather web site at www.woksat.info/wwp4.html.

2. Details of the site, instrumentation and publications can be found in the appendix to this annual report. There have been no major changes made to these during the past year.

3. During 2010, a full and complete program of daily climatological observations has been carried out, completing the 35th year of continuous climatological record for Wokingham. In addition to the daily climatological observations taken at 0900 GMT each day, full synoptic observations have been made each day at 0900 and 1500 GMT throughout the year.

4. The records are tabulated and archived by the Hon. Met. Officer, who has made all of the observations. During absences data from the Automatic Weather Station (AWS) have been used. All the observations are quality controlled and a high standard of accuracy is achieved. Checks are periodically made against spare instruments at the station, as well as comparisons with the data for other stations in the area. In addition to a hand-written log, the data is processed and stored on a home PC.

5. The Town Council have, each month during 2010, been provided with a report entitled Monthly Means and Totals. (For details see appendix). A copy of this report, together with computer generated graphs of temperature, rainfall, sunshine, pressure and wind, were provided to the Town Hall Information Office for dissemination and display. Copies of these, together with, in some cases, a printout of the full daily climatological log, were also provided to interested parties as required. All the publications are also placed in the reference section of the Wokingham Public Library. The data is also placed on the Wokingham Weather web site at: www.woksat.info/wwp1.html

6. The Wokingham data continues to be published in the Climatological Observers Link, where it appears together with data from numerous other U.K. stations. The Wokingham station is also listed in the Register of Weather Stations published by the Royal Meteorological Society and the University of Stirling. Throughout 2010 monthly returns have been submitted to the Environment Agency for onward transmission to the Met. Office. The new weather station site at the Emmbrook Junior School was last inspected by the Met Office and Environment Agency inspectors on the 21st April 2010, and was deemed to be in excellent condition.

7. This is the fourth full year of operation at the new site. The majority of the data show a high degree of continuity with that from the old site, with the sole exception of the 1 metre earth temperature. However, there is continuing evidence during the past 24 months that the readings at this depth are slowly returning to equivalent values at the old site. The anomaly over the previous three years was presumably caused by the unavoidable disturbance to the soil when the instrument was installed.

8. 23rd January, float chamber on the Tilting Siphon Raingauge removed for maintenance. Leak in siphon spout repaired. New polystyrene float manufactured and fitted, and sealed with hot candle wax. Some miniature brass screws needed replacing, and one had to be drilled out. Unit returned to service on the 25th, and has operated successfully throughout the rest of the year. In the same raingauge, the chart drum clock stopped on the 19th February. After removal, it was dismantled, cleaned and oiled, and returned to service on the 23rd and has given no further problem in 2010. 23rd March, amended software for the AWS was uploaded containing a new calibration factor for the pressure sensor. The Tipping Bucket mechanism on the AWS raingauge failed on the 7th June. The shaft bearings were found to have slipped out of alignment in their casing. After adjustment the unit has operated well. A GEM temperature probe failed on the 15th August, requiring the purchase of a new probe. Examination of the failed probe indicated that stress damage to the cable was the most probable cause. The new probe was installed on the 25th. 24th September to 4th October, a GEM high precision calibration probe was clamped to the GEM dry bulb probe allowing an accurate calibration to be made. The cal probe was then strapped to the HMP45 temperature sensor on the AWS for a 21 day calibration run.

9. A lease for the new weather station site was received from the Wokingham Borough Council by the Town Clerk in August 2007, giving us security of tenure for at least five years.

10. As in the past, the Hon. Met. Officer would like to thank all those who have made possible the continuation of this project. Special thanks go to the Mayor of Wokingham and other members of the Town Council for there solid support, and especially to the Town Clerk, Mr K Abnett. Special thanks must go to Mr Paul Rowe, headmaster of Emmbrook Junior School, and latterly to Mrs Page, deputy head, in whose grounds the climatological station is situated, and thanks too to the other staff and the caretaker, who have given wholehearted support during the year. Thanks also to Mr A Matthias, the headmaster of Emmbrook School, who has expressed his support for the continued presence of the anemometer and anemograph at the school.

11. Finally, it is planned to continue the Met Project at the new site, in its present form, throughout 2011, adding the 36th year to the Wokingham Climatological Record.

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

February 2011

Appendix 1.

The Old Climatological Site closed in September 2006. Details of that site may be found in past Annual Introductions.

The New Wokingham Climatological Site: is located about 350 m Northwest of the old site, in the grounds of The Emmbrook Junior School, Emmbrook Road, Wokingham. The National Grid Reference is (SU) 4,7985 1,7013. The Latitude is 51.4245 degrees North, Longitude 0.8530 degrees West. The altitude of the station raingauge is 44 metres above mean sea level. The site is positioned on a grassed area sloping gently towards the east, where a normally shallow stream, the Emm, flows. The Emm drains northwards through a shallow valley, with the land rising by about 40 metres within 1 km to both the east and west. The site is enclosed by an open chain link fence. The soil at the site is basically a mixed topsoil, probably put there at the time the school was built, with black clay at about 80 cm depth. During wet periods the water table rises to the surface and the ground becomes squelchy with water standing on the surface. During prolonged dry periods the ground contracts markedly, and the soil becomes quite dusty. The general character of the site is semi-urban, although it is on the outskirts of the town. Residential housing borders the site in most directions, at a distance varying from 60 m at the closest, and generally more than 150m. The school buildings, mostly single storey, lay from Southeast around to Southwest, and are 14 m from the enclosure at the closest. The maximum local urban fetch is to the Southeast, where the centre of Wokingham lies, and is about 3.5 km. The urban conurbation of Reading is centred 9 km to the Northwest. The exposure of the site is estimated to be slightly more open than the old site. There is obvious shelter to the east where a number of tall poplar trees act as a wind break. The site conforms to the requirements laid down for climatological stations by the Meteorological Office (Observer's Handbook, Met O 805, HMSO). The site has been inspected and accepted by the Met Office and Environment Agency. From a limited overlap of readings between the old and new site through July to September 2006, there were no pronounced differences in temperature and rainfall.

Instrumentation and Equipment. An inventory for the Wokingham Climatological Station is given below:

Thermometer screen, louvered, ordinary pattern; One
Thermometer, minimum, alcohol in glass, index, sheathed; Four
Thermometer, ordinary, mercury in glass, sheathed; Three
Raingauge, 5 in, Met O Mk2 pattern; Two
Glass rain measure, millimetre graduation: Two
Thermometer screen, louvered, large pattern: One
Thermometer, maximum, mercury in glass, restriction, sheathed; Two
Thermometer, electronic, with data logger (TinyTag); *Four*
Thermometer precision calibrated, electronic; One
Raingauge, autographic, tilting siphon, MO Mk2; One

Campbell Scientific automatic weather station, comprising CR10X data logger, HMP45 Temperature and humidity probe, Gill aspirated radiation shield, T107 thermistor probe, Heated tipping bucket raingauge, CS100 Setra barometric pressure sensor, Cs-GSM dual band transceiver, Cables and transformers, Associated software. Electronic anemograph, (2 sets), comprising: Anemometer cup generator Mk4, (2), Wind vane, Mk 4g (2); Power supply unit, 240V input, 110V and 55V output; Power supply unit, 240V input, 240V and 50V output; 7 core armoured cable, 100 metres; 8 metre mast, fittings and fixtures; Anemograph. Recorder, (2), plus assorted spares. *Thermograph, bi-metallic, weekly clock; One

Other instruments, deployed at Cantley Crescent: Barometer, mercury, Kew pattern; One. *Microbarograph, weekly clock, Casella*; One. *Hail Pad, aluminium foil*; One. *Electronic sunshine recorder, R&D, with Pico AD converter and software*; One. Associated PC; One. *WindSonic anemometer;* One. Associated PC; One. * Instruments marked thus were taken out of use during 2005. The earth thermometers used at the old station have been replaced by electronic probes at the new one.

With the exception of those in italics, the instruments conform to the standards laid down by the Meteorological Office. Most of the thermometers have a British Standards Institution certificate, or a Met Office test lab certificate. The TinyTag probes and the HMP45 have been calibrated against the precision probe. The anemometer and wind vane are mounted on the 8 metre mast sited on top of the flat roof of the 2 storey school building at the old site. The exposure is at a height of 15 metres above ground, and the effective height is 10 metres, the international standard height for surface wind measurement. The Sonic anemometer is mounted 5 m above a pitched roof, and 9 m above ground.

The Readings: are taken each day at 0900 GMT during both summer and winter. From the thermometers in the louvered screen, exposed at a height of 1.2 metres above ground, values of dry bulb and wet bulb temperature, and maximum and minimum temperature since 0900 GMT the previous day, are obtained. Also read is the overnight minimum temperature at grass tip level and the total precipitation since 0900 GMT the previous day. The electronic thermometers, anemograph, microbarograph, autographic raingauge, psychrometer, sunshine recorder and instruments attached to the AWS maintain a continuous record of air, grass, and earth temperature, wind, pressure, precipitation duration and intensity, humidity and sunshine amount. Readings are entered in a written log as well as on the home PC. Data from the AWS is transferred by GSM link to the home PC. WEF August 2007, hourly mean values of both wind direction and speed have been taken from the sonic anemometer. Wind gusts from the Munro are compared with the sonic, and are used if they are more than 2 knots greater. Monthly, seasonal and annual archives of the data is kept on the main PC, with backup on a second hard drive and recorded on CD.

The Reports. Each month a report entitled Monthly Means and Totals is produced for the Wokingham Town Council. This report forms the basis of the town's official meteorological record. The report consists of the means and extremes for the past month of temperature, air, grass minimum, 30 cm earth and 100 cm earth, and of rainfall, wind, pressure and sunshine. Totals of rainfall are given, along with duration of measurable rain, and of frost. The number of days with air frost, ground frost, snow falling, snow lying at 0900 GMT, thunder, hail and fog is also listed. Comparisons with the 30 year climatological mean and with longer term values for the area are also given. In a section headed 'Notes' brief details are given of aspects of the past month's weather. A second monthly publication listing all the daily readings, is also produced and is made available to anyone interested. On a seasonal basis, four publications per year entitled Seasonal Means and Totals has a similar format to its monthly counterpart. An annual report, giving a detailed breakdown of the past year's readings, is also published in early January. All the reports can also be accessed from the Wokingham Weather web site, http://woksat.info/wwp.html .

The Archive. Readings at Emmbrook commenced in January 1976, and then consisted of daily rainfall and maximum and minimum air temperature. Grass minimum and 30 cm earth temperatures were added in November 1979. Continuous wind data commenced in December 1987. Earth temperature at 1 metre was added in July 1989. Daily sunshine was added in 1980, but at first consisted of estimated values based on readings taken at Reading University, at Arborfield and at Easthampstead. This was supplemented by data from an experimental electric sunshine recorder from February 1993. Another electronic recorder, R&D, was installed in Jan 1999, and sunshine data is taken solely from this instrument after that date. Rainfall has been measured in the Wokingham area since 1882, and a complete record of monthly totals since that date is held. Meteorological records have been researched, and a comprehensive set of data for the Wokingham area has been assembled. In addition to rainfall, the series lists monthly means of maximum and minimum temperature back to 1882. Extremes of rainfall and temperature from 1904 onwards are listed. Monthly mean sunshine is from 1908. This data set, called the Wokingham Weather Series, has been processed so that the figures may be compared directly with the readings from the Climatological station at Emmbrook.

Change to the Wokingham Monthly Report pages.

With effect from the August 2010 report, page 6 containing RH statistics from the 1 minute AWS readings will be replaced with a page containing hourly values of sunshine for each day of the month, derived from the R&D electronic sunshine detector.

If any user of these reports has a requirement for the monthly table of RH statistics, they should notify me by e-mail to b.j.burton@btinternet.com

Bernard Burton 1 September 2010

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 1971 to 2000. This will be next updated in 2010. 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 1971 to 2000 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 2 October 2009.

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.