

# 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

JUNE 2013

Temperature (°C / °F)			Anomaly	Rank in the past 132 years				
Mean maximum	19.7	67.5	-0.8	50 <sup>th</sup> lowest				
Mean minimum	9.7	49.5	-0.8	54 <sup>th</sup> lowest				
Daily mean	14.7	58.5	-0.8	48 <sup>th</sup> lowest				
Highest maximum	25.3	77.5	on 30 <sup>th</sup>	Lowest maximum	16.0	60.8	on 10 <sup>th</sup>	
Highest minimum	16.2	61.2	on 20 <sup>th</sup>	Lowest minimum	3.9	39.0	on 4 <sup>th</sup>	
Mean grass minimum	6.8	44.2	-0.8	Lowest grass minimum	-1.0	30.2	on 4 <sup>th</sup>	
Mean earth @30 cm	15.9	60.6	-0.9	Earth @100 cm	13.6	56.5		
Frost duration (hrs)	0.0			Rain duration (hrs)	15.6			
Rainfall total (mm / in)	17.4	0.69	35 %	19 <sup>th</sup> lowest				
Highest daily fall	3.7	0.15	on 15 <sup>th</sup>					
Number of: Dry days (<0.2mm)	22	Wet days (>0.9mm)	7	days ≥5mm	0			
Sunshine total (hrs)	160.8	Daily mean	5.36	84 %	Sunniest day	15.4	on 4 <sup>th</sup>	
N <sup>o</sup> days with: Air frost	0	Ground frost	2	Snow falling	0	Snow lying	0	
Thunder	0	Hail ≥5mm	0	Small hail/ice	0	Fog @09	0	
Nil sun	1							
Pressure MSL : Mean @09 GMT, mbar	1018.9	+1.8	Highest	1032.8	on 3 <sup>rd</sup>	Lowest	1004.3	on 22 <sup>nd</sup>
Relative humidity : Mean (%)	71.8	Lowest	35	on 4 <sup>th</sup>	Water vapour (g/kg), mean at 09 and 15 GMT	7.5,	7.4	
Overall mean wind speed (mph)	6.9	Windiest day	12.3	on 22 <sup>nd</sup>	Max gust	40	on 13 <sup>th</sup>	
Wind direction (days)	N 3	NE 8	E 0	SE 2	S 2	SW 6	W 4	NW 5
Least windy day (mph)	3.0	on 25 <sup>th</sup>	Calm; less than 0.5 mph (minutes)	357				

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

Notes:

#### Cool, dry and dull overall.

**Temperature:** This is the 6<sup>th</sup> consecutive month with below average temperature. This has been a cool June with the mean temperature the same as in 2012, and 0.1° below that of 2011, and together with 2012 it is the coolest since 1991. The mean maximum, however, is 0.8° higher than last June's, but is 2<sup>nd</sup> lowest since 1998. The highest max is 1.7° below the median and is lowest since 1991. The lowest max is 1.2° above the median, while the highest min is 1.4° above its median. The lowest min is 0.8° below the median. Mean earth temperatures at both 30 cm and 1 m depth have not been lower since 1991. There were 2 ground frosts this month, the most for June since 1991, while 20 of the past 34 Junes have had none. **Rainfall:** This has been a dry June without any significant daily rainfall totals. The total for the month is lowest since 2006, and before that 1996. The highest daily fall of 3.7 mm is 6<sup>th</sup> lowest in 110 years. The number of dry days is 3 more than average, and a 12 day dry spell ended on the 11<sup>th</sup>. Thunder and hail were absent, but a violent rain shower on the 15<sup>th</sup> had a rainfall rate of 53 mm/hr at 1423 GMT. **Sunshine:** Despite getting off to a spectacular start. with 97.2 hours of sunshine in the first 8 days, it then became much more cloudy, with only 63.6 hours over the next 21 days. The 19 day period starting on the 10<sup>th</sup> had 10 days with <10% of the maximum. Despite this, the total this June is 52.9 hours more than in June 2012, which was probably the dullest June for over a century. Overall there were 13 days with <3 hours, 10 with =>6 hours, 8 with =>9 hours, 6 with =>12 hours and 1 with =>15 hours. **Wind:** While not quite as windy as last June, this is the 2<sup>nd</sup> windiest since 1998. **Commentary: From the 1<sup>st</sup> to the 15<sup>th</sup> :** Although sunny at first temperatures were mostly near or below normal, with anomalies for daily max between -4.0° on the 15<sup>th</sup> and +3.1° on the 6<sup>th</sup>. Temperatures by night were below normal every day except the 1<sup>st</sup>, with anomalies of -5.6° on the 4<sup>th</sup> and -5.4° on the 10<sup>th</sup>, up to +0.3° on the 1<sup>st</sup>. Dry until the 12<sup>th</sup> then some rain giving a total of 8.9 mm by the 15<sup>th</sup>. Sunshine was outstanding until the 8<sup>th</sup> with a mean of 12.1 hours per day, then a complete change to dull conditions with an average of 2.3 hours per day up to the 15<sup>th</sup>. Light or moderate winds were N'ly on 1<sup>st</sup>, veering NE'ly on 3<sup>rd</sup>, veering SE'ly on 10<sup>th</sup> and increasing strong SW'ly on the 13<sup>th</sup>, decreasing moderate or fresh on the 14<sup>th</sup>. **From the 16<sup>th</sup> to the 30<sup>th</sup> :** Temperatures were again disappointing for a summer month with only 2 warm days, the 19<sup>th</sup> and 30<sup>th</sup>, with anomalies of +3.5° and +3.4° respectively, otherwise anomalies were between +1.8° on the 21<sup>st</sup> and -4.0° on the 24<sup>th</sup>. Anomalies for daily min ranged from +5.5° on the 20<sup>th</sup>, a rather humid night with a wet bulb temperature of 16°, to -4.7° on the 26<sup>th</sup>. There were 10 dry days in this period, but only 8.4 mm in total for the other 5 days. Sunshine was mostly poor with just one sunny day, the 30<sup>th</sup>, and 2 others, the 25<sup>th</sup> and 29<sup>th</sup>, with around 40% of the maximum, while the solstice on the 21<sup>st</sup> was one of the better days of the rest with 3.3 hours of sunshine. Light SW'ly winds on the 16<sup>th</sup> became NE'ly until the 19<sup>th</sup>, returning SW'ly and increasing moderate or fresh on the 21<sup>st</sup>, veering W'ly on the 23<sup>rd</sup>, decreasing light or moderate on the 25<sup>th</sup>.

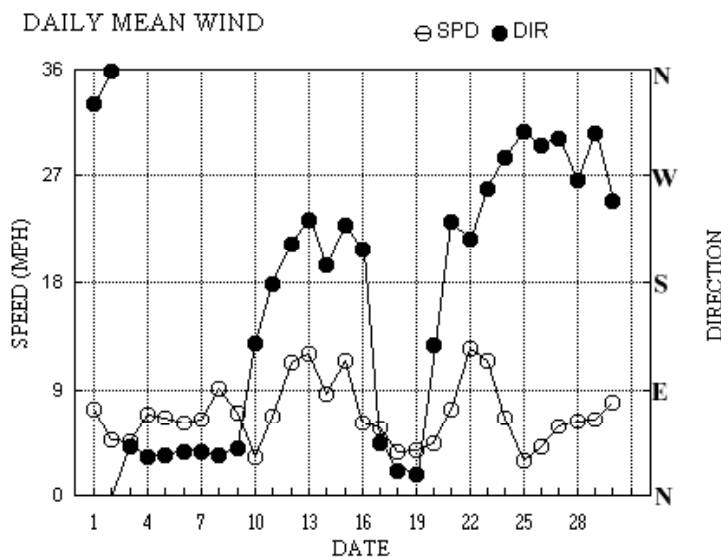
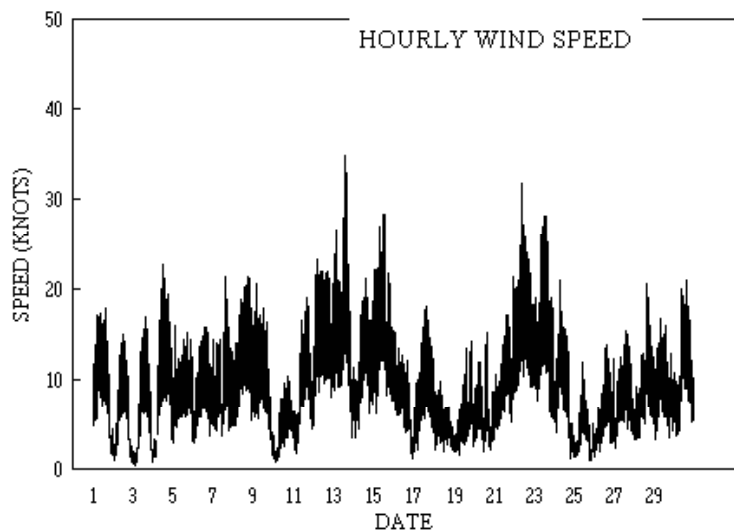
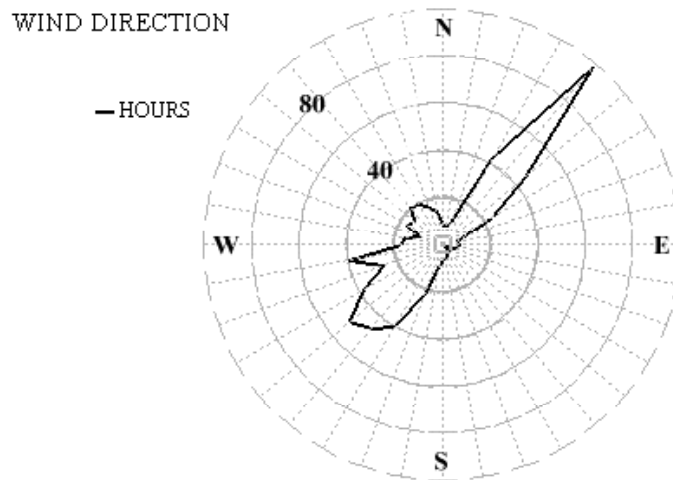
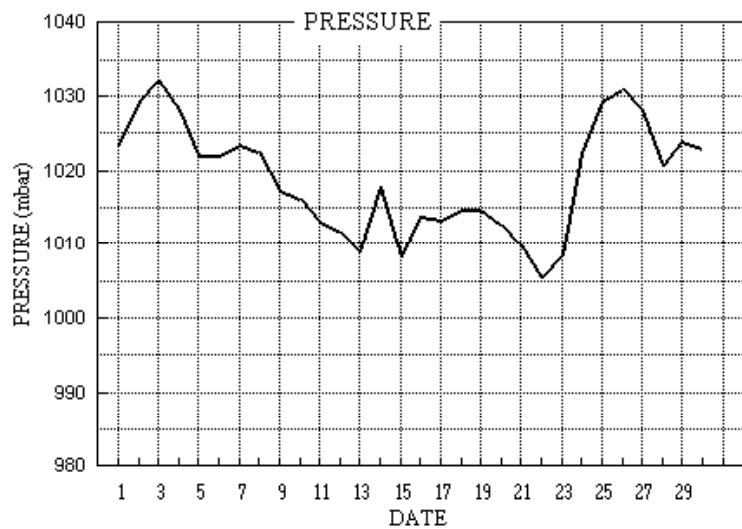
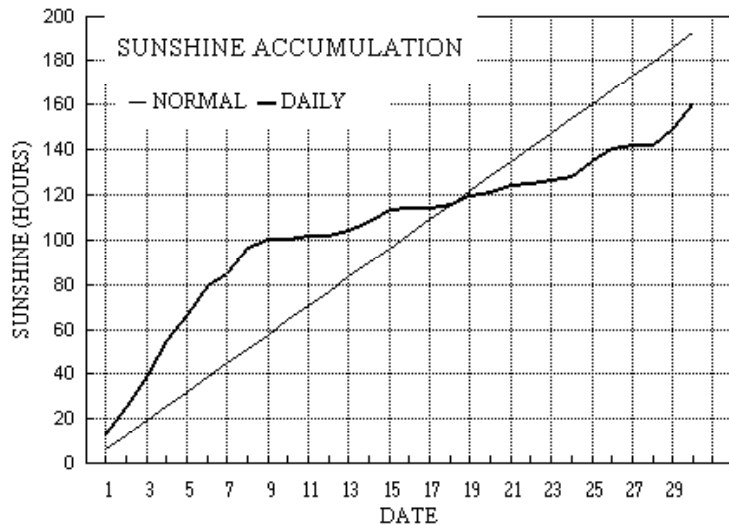
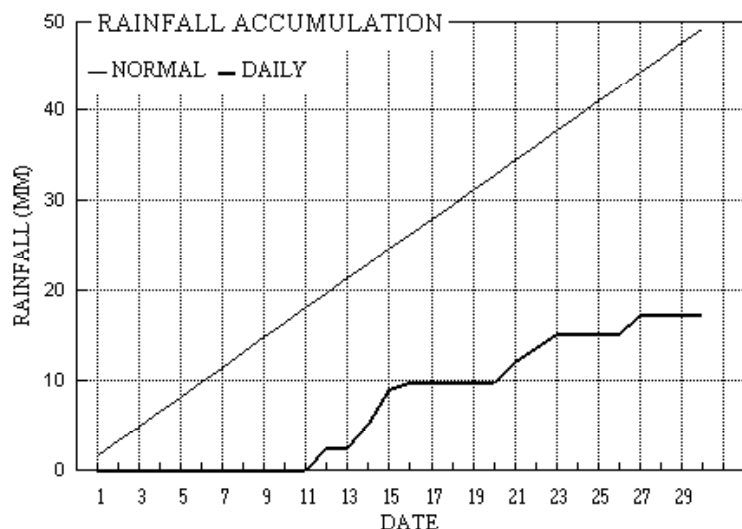
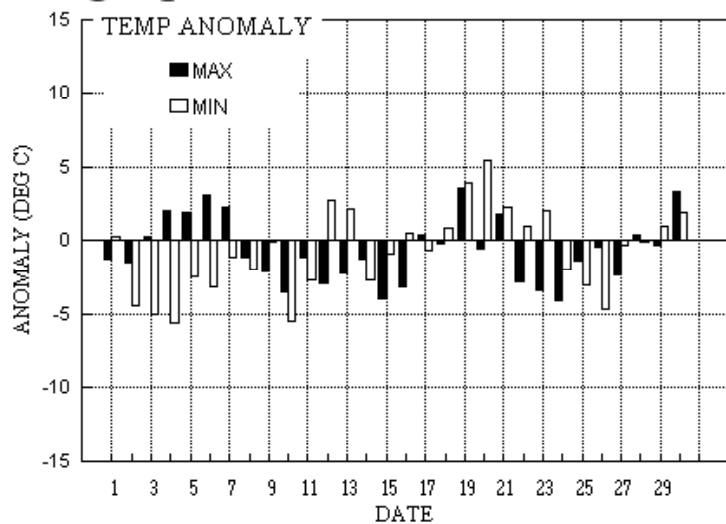
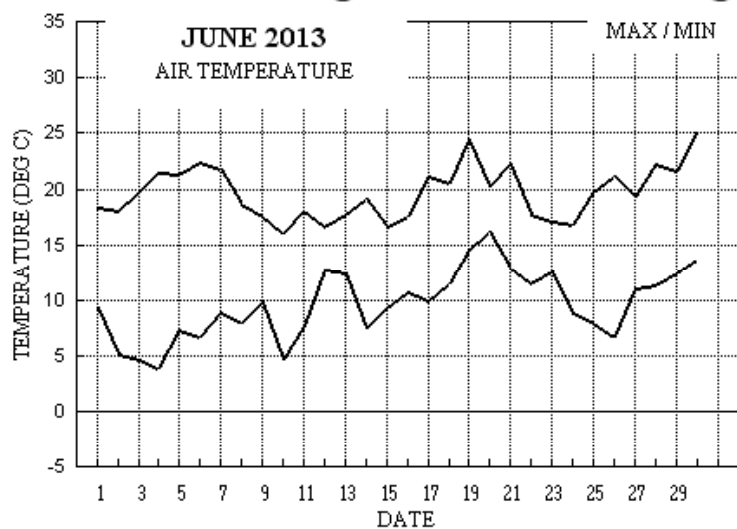
Table 1. Mean anomalies (max, min, rain, sun) for specified periods.

From the 1 <sup>st</sup> to the 10 <sup>th</sup>				From the 11 <sup>th</sup> to the 20 <sup>th</sup>				From the 21 <sup>st</sup> to the 30 <sup>th</sup>			
0.0°	-2.9°	1 %	158%	-1.1°	+0.9°	61%	31%	-0.9°	-0.2°	49%	62%

B J Burton FRMetS.

Hon. Met. Officer to Wokingham Town Council.

# Wokingham climatological graphs for June 2013



Month: JUNE 2013

Date	Max C	Min C	Rain mm	Grass Min	30cm C	100cm C	Sun hrs	Frost hrs	pp09 mbar	Af Gf	Sf Sl	Th Ha	Ic Fg	Vec mean ddd ff sp	Max gust ddd gg HHhh	High hr ddd ff HH	Rain hrs						
1	18.3	9.4	0.0	6.8	13.8	11.7	13.5	0.0	1023.5	0 0 0 0	0 0 0 0	0 0 0 0	331	6.3	6.4	337	18	1606	328	10	07	0.0	
2	18.1	5.1	0.0	0.8	13.9	11.9	12.4	0.0	1029.3	0 0 0 0	0 0 0 0	0 0 0 0	358	3.6	4.0	345	15	1338	7	7	15	0.0	
3	19.8	4.6	0.0	0.5	14.1	12.0	13.5	0.0	1032.1	0 0 0 0	0 0 0 0	0 0 0 0	41	3.6	4.0	60	17	1523	25	7	10	0.0	
4	21.5	3.9	0.0	-1.0	14.7	12.2	15.4	0.0	1028.0	0 1 0 0	0 0 0 0	0 0 0 0	32	5.9	6.0	67	23	1133	27	9	18	0.0	
5	21.3	7.3	0.0	2.5	15.2	12.4	11.7	0.0	1021.9	0 0 0 0	0 0 0 0	0 0 0 0	33	5.7	5.8	30	16	0247	25	8	18	0.0	
6	22.5	6.7	tr	3.2	15.8	12.6	13.1	0.0	1022.0	0 0 0 0	0 0 0 0	0 0 0 0	37	5.3	5.4	26	16	1400	36	7	11	0.0	
7	21.8	8.9	tr	6.8	16.2	12.8	5.4	0.0	1023.4	0 0 0 0	0 0 0 0	0 0 0 0	37	5.4	5.6	66	22	1531	57	8	15	0.0	
8	18.7	7.9	0.0	5.8	15.8	13.1	12.2	0.0	1022.5	0 0 0 0	0 0 0 0	0 0 0 0	33	7.8	7.8	33	22	1707	25	10	18	0.0	
9	17.6	9.8	0.0	9.9	16.3	13.3	3.5	0.0	1017.3	0 0 0 0	0 0 0 0	0 0 0 0	39	6.0	6.0	55	21	0320	31	9	08	0.0	
10	16.0	4.6	0.1	-0.5	15.9	13.4	0.1	0.0	1016.2	0 1 0 0	0 0 0 0	0 0 0 0	129	1.3	2.8	179	11	1838	191	5	20	0.3	
11	18.1	7.6	tr	2.8	15.5	13.6	1.3	0.0	1013.1	0 0 0 0	0 0 0 0	0 0 0 0	179	5.0	5.8	190	19	1643	198	10	17	0.0	
12	16.6	12.8	2.4	10.9	15.4	13.6	0.1	0.0	1011.6	0 0 0 0	0 0 0 0	0 0 0 0	212	9.7	9.8	214	23	0402	221	12	09	2.0	
13	17.8	12.5	tr	11.5	15.4	13.6	2.7	0.0	1008.8	0 0 0 0	0 0 0 0	0 0 0 0	233	9.9	10.4	251	35	1450	250	17	14	0.0	
14	19.2	7.4	2.8	2.6	15.1	13.6	3.5	0.0	1017.7	0 0 0 0	0 0 0 0	0 0 0 0	195	7.1	7.5	199	21	1537	197	11	15	1.4	
15	16.7	9.4	3.7	7.0	15.3	13.7	5.1	0.0	1008.2	0 0 0 0	0 0 0 0	0 0 0 0	229	9.8	10.0	236	29	1411	218	15	13	1.0	
16	17.6	10.7	0.8	9.5	15.5	13.7	1.1	0.0	1013.8	0 0 0 0	0 0 0 0	0 0 0 0	207	4.4	5.3	224	16	0059	235	8	01	2.0	
17	21.1	9.9	0.0	5.6	15.8	13.7	0.2	0.0	1013.4	0 0 0 0	0 0 0 0	0 0 0 0	44	4.8	4.9	62	18	1604	33	8	15	0.0	
18	20.6	11.5	tr	9.2	16.2	13.8	1.3	0.0	1014.7	0 0 0 0	0 0 0 0	0 0 0 0	20	0.5	3.2	30	13	0002	39	5	00	0.0	
19	24.4	14.5	0.0	12.5	16.4	13.9	3.7	0.0	1014.7	0 0 0 0	0 0 0 0	0 0 0 0	18	1.9	3.3	65	15	2212	26	6	20	0.0	
20	20.2	16.2	tr	14.3	17.2	14.0	1.4	0.0	1012.6	0 0 0 0	0 0 0 0	0 0 0 0	127	1.2	3.8	230	15	1630	220	9	16	0.0	
21	22.3	12.9	2.4	9.5	16.9	14.2	3.3	0.0	1009.9	0 0 0 0	0 0 0 0	0 0 0 0	231	6.2	6.4	199	20	2347	240	9	18	3.1	
22	17.7	11.6	1.4	10.9	16.9	14.4	1.0	0.0	1005.3	0 0 0 0	0 0 0 0	0 0 0 0	217	10.6	10.7	240	32	1018	221	14	10	0.7	
23	17.2	12.6	1.7	11.0	16.6	14.5	1.3	0.0	1008.4	0 0 0 0	0 0 0 0	0 0 0 0	259	9.3	9.9	266	28	1327	263	13	11	1.4	
24	16.9	8.8	0.0	4.4	16.2	14.6	1.9	0.0	1022.3	0 0 0 0	0 0 0 0	0 0 0 0	285	5.3	5.8	287	21	0747	312	10	08	0.0	
25	19.8	7.9	0.0	3.9	16.0	14.6	7.1	0.0	1029.3	0 0 0 0	0 0 0 0	0 0 0 0	307	1.5	2.6	332	12	1140	326	5	11	0.0	
26	21.1	6.7	0.0	2.3	16.2	14.6	4.8	0.0	1030.8	0 0 0 0	0 0 0 0	0 0 0 0	296	2.8	3.6	315	14	1524	287	6	17	0.0	
27	19.3	11.1	2.1	7.4	16.4	14.6	1.8	0.0	1028.0	0 0 0 0	0 0 0 0	0 0 0 0	302	4.6	5.0	300	16	1559	308	7	16	3.6	
28	22.2	11.4	tr	11.3	16.7	14.6	0.0	0.0	1020.7	0 0 0 0	0 0 0 0	0 0 0 0	266	5.3	5.4	263	21	1551	258	9	16	0.1	
29	21.7	12.5	0.0	11.4	16.8	14.7	6.7	0.0	1023.8	0 0 0 0	0 0 0 0	0 0 0 0	305	4.8	5.5	340	17	0857	329	8	08	0.0	
30	25.3	13.7	0.0	10.5	17.4	14.8	11.7	0.0	1023.0	0 0 0 0	0 0 0 0	0 0 0 0	248	6.8	6.9	231	21	1657	231	10	11	0.0	
Total			17.4				160.8	0.0															15.6
Mean	19.7	9.7		6.8	15.9	13.6	5.36	0.0	1018.9					271	1.6	6.0							
Anom	-0.8	-0.8	35%	-0.8	-0.9	-1.0	84%			+1.8													
Daily mean		14.7																					
Anom		-0.8																					

Number of days with:

Air frost = 0      Ground frost = 2      Nil sun = 1  
Snow falling = 0      Snow lying = 0      Thunder = 0  
Hail=>5mm = 0      Hail<5mm or ice = 0      Fog at 09GMT = 0

Abbreviations.

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

Rain = total rainfall and melted snowfall in 24 hour period ending at 09 GMT, millimetres. (Tr = trace, &lt;.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 =&gt;5mm. Ic = Hail &lt;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 JUNE 2013

Date	VV	N	dd	ff	gg	TT	Td	Td	RH	r	PPP	a	ppp	ww	W1	W2	Nh	Cl	h	Cr	Cl	NCh	shs	NCh	shs	NCh	shs	Date	Remarks			
1	82	6	33	09	18	13.2	5.4	59	5.5	1023.5	1	008	03	1	1	3	8	6	0	1	81830	83635	85075						1	COTRA Cu hum Sc len		
2	86	1	35	06	13	14.3	5.8	57	5.6	1029.3	2	006	03	0	0	1	8	6	0	1	81832									2	1Sc50 1Ci78 Cu med	
3	86	1	03	04	09	14.8	5.2	53	5.4	1032.1	8	007	02	1	1	1	1	6	0	1	81835									3	1Ci80 COTRA Cu hum	
4	89	3	02	08	17	15.1	4.6	50	5.2	1028.0	8	013	02	0	0	0	0	9	0	1	83080									4	COTRA Exceptional vis	
5	78	5	05	05	12	12.9	7.3	68	6.3	1021.9	8	009	01	2	2	1	5	5	0	1	81620	85081									5	COTRA
6	68	2	04	06	13	13.3	7.8	70	6.5	1022.0	0	000	01	1	1	2	5	5	0	0	82650									6		
7	80	7	04	07	15	14.4	6.9	61	6.1	1023.4	2	003	15	8	2	1	5	7	8	/	81656	83359	86362						7	Ac cas jp N&SE vv60k ex p		
8	80	2	04	09	17	14.0	7.8	66	6.5	1022.5	8	008	02	1	1	2	1	5	0	0	82825									8	Cu hum	
9	84	8	03	11	17	11.8	6.8	72	6.1	1017.3	2	001	02	2	2	8	5	5	/	/	88620									9		
10	80	8	07	03	06	11.6	6.3	70	5.9	1016.2	0	004	02	2	2	8	8	5	/	/	82825	88630									10	Cu hum
11	59	7	18	06	13	15.3	11.1	76	8.2	1013.1	7	001	05	6	2	7	5	4	3	/	87612									11	/Ac58	
12	86	7	22	11	22	15.7	11.2	74	8.3	1011.6	1	010	02	5	2	7	5	4	/	/	81714	87617									12	
13	65	8	21	10	21	14.0	11.3	84	8.4	1008.8	7	001	50	6	5	8	5	4	/	/	81710	87612	88620						13			
14	67	8	21	09	17	13.7	10.3	80	7.7	1017.7	7	002	01	2	2	7	5	4	2	/	85615	87625	88462						14			
15	83	5	25	12	27	14.5	6.2	57	5.9	1008.2	2	008	03	1	1	5	8	6	0	0	85832									15	1Sc45 Cu med	
16	75	7	21	06	11	14.4	9.2	71	7.2	1013.8	2	006	03	2	2	1	1	5	7	/	81820	87462									16	2Ac60 Cu hum Cld edge N
17	68	8	03	06	11	15.5	11.1	75	8.2	1013.4	7	008	01	6	2	8	0	9	7	/	81357	86358	88467						17			
18	62	8	03	03	10	16.3	11.8	75	8.6	1014.7	2	008	02	2	2	8	5	4	/	/	88615									18		
19	57	3	03	03	07	19.8	15.7	77	11.1	1014.7	0	006	05	1	1	1	1	4	3	1	81818	83364									19	2Ci75 COTRA Cu hum
20	50	7	12	05	12	18.8	14.4	76	10.2	1012.6	6	006	05	2	2	1	6	4	8	1	82715	86362	87275						20	1Ac57 COTRA		
21	35	8	24	06	11	15.7	14.5	92	10.3	1009.9	2	011	05	5	2	8	6	2	/	/	83705	88707									21	
22	84	6	21	12	24	16.1	13.3	83	9.5	1005.3	7	017	21	6	5	6	8	4	3	/	82812	85645									22	1Ac58 Cu med
23	88	7	26	11	22	15.7	9.5	67	7.4	1008.4	2	014	03	2	2	7	8	5	/	1	83825	83650									23	2Sc40 2Ci75 Cu med
24	82	5	33	11	18	14.9	5.6	54	5.6	1022.3	1	012	03	2	2	3	8	6	0	4	81835	83640									24	1Sc50 3Ci72 Cu hum
25	82	3	03	02	06	15.2	7.6	60	6.4	1029.3	1	007	03	1	1	2	8	5	0	1	82828									25	1Sc56 2Ci78 Cu med Elevated hz lyr	
26	75	6	27	03	07	17.7	10.5	63	7.7	1030.8	8	001	02	1	1	1	5	8	0	1	81657	86080									26	COTRA
27	75	7	34	06	13	15.3	7.8	61	6.5	1028.0	8	006	03	2	2	2	1	5	3	1	82828	85363									27	4Ci75 Cu hum
28	65	8	28	04	09	16.1	15.0	93	10.5	1020.7	8	001	61	6	2	8	5	3	/	/	84708	87612	88618						28			
29	80	7	34	10	17	15.3	7.2	58	6.2	1023.8	2	016	03	2	2	2	1	6	3	1	82830	87075									29	2Ac65 COTRA Cu hum
30	70	3	22	05	11	20.2	15.2	73	10.6	1023.0	8	008	01	1	1	1	8	4	0	1	81818	83080									30	1Sc30 COTRA Cu hum

Mean vis = 31.8 km

Mean cloud = 5.7 71%

Mean wind speed = 7.0 kn

Mean gust = 14 kn

Mean TT = 15.2 °C

Mean TdDd = 9.4 °C

Mean RH = 69.2 %

Mean r = 7.5 g/kg

Mean PPP = 1018.9 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

TdDd = 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 JUNE 2013

Date	VV	N	dd	ff	gg	TT	Td	Td	RH	r	PPP	a	ppp	ww	W1	W2	Nh	Cl	h	Cr	Ci	NCh	shs	NCh	shs	NCh	shs	Date	Remarks
1	82	5	34	08	15	17.5	3.7	40	4.9	1023.8	3	002	02	1	1	1	1	7	0	1	81850	85078					1	COTRA Cu hum	
2	86	6	36	06	14	16.9	3.6	41	4.8	1029.2	2	001	02	1	1	1	4	7	0	1	81850	86078					2	1Sc50 COTRA Cu hum U/a cont	
3	85	2	05	05	16	18.9	7.1	46	6.1	1030.6	7	009	02	0	0	2	1	7	0	1	82850						3	1Ci80 Cu hum	
4	88	5	04	09	21	21.0	7.2	41	6.2	1024.4	7	016	02	1	1	1	1	7	0	1	81850	85080					4	2Ci73 COTRA Cu hum	
5	83	2	03	06	14	20.3	8.4	46	6.8	1019.3	7	014	02	0	0	1	1	6	0	1	81848						5	COTRA Cu hum	
6	73	1	05	06	16	22.1	10.0	46	7.5	1020.2	8	012	02	0	0	1	1	6	0	0	81848						6	Cu hum	
7	80	5	06	08	17	20.9	9.4	48	7.3	1021.9	6	020	15	8	2	4	0	9	8	1	81358	84362					7	2Ci75 COTRA Ac cas jpNE-E	
8	84	1	02	11	19	17.9	8.5	54	6.8	1019.5	7	014	02	0	0	1	5	6	0	2	81635						8	1Ci75	
9	84	6	06	06	14	15.6	7.7	59	6.5	1015.4	8	010	01	2	2	6	5	6	0	0	86630						9		
10	78	7	10	03	10	15.4	5.8	53	5.7	1015.0	7	011	02	2	2	7	8	6	/	/	81835	87638					10	Cu hum	
11	60	7	20	07	16	16.9	14.3	85	10.1	1012.8	7	001	21	6	5	7	8	4	/	/	82710	86815	87625				11	Cu hum jpSE vv18k NW	
12	58	8	20	09	22	16.3	13.9	86	9.9	1010.5	8	016	58	6	5	8	5	4	/	/	83710	86615	88620				12		
13	78	7	25	19	35	15.3	9.0	66	7.1	1011.8	3	018	03	6	2	7	8	6	/	/	86830	87640					13	/Ac58 Cu hum	
14	86	1	20	11	21	18.0	6.7	48	6.1	1014.2	7	018	01	1	1	1	1	6	4	0	81845						14	1Ac64 Cu hum	
15	60	6	24	09	29	12.6	10.4	86	7.8	1009.0	3	004	25	8	2	5	9	5	6	/	84920	82825					15	1Sc50 2Ac57 jpE-SW vv30k ex p	
16	80	7	21	04	10	16.0	8.4	61	6.8	1014.2	0	001	61	6	2	4	8	6	7	/	82830	83650	87358				16	Cu hum	
17	78	7	03	07	18	20.3	11.2	56	8.2	1013.0	7	003	01	2	2	4	0	9	8	8	82365	83468	87275				17	COTRA Ac cas	
18	59	8	19	03	07	19.9	15.1	74	10.6	1014.5	1	008	21	6	2	7	8	5	7	/	83820	85635	88358				18	Cu med	
19	68	7	34	03	05	23.0	12.4	51	8.9	1013.7	7	007	03	1	1	1	1	6	7	/	81840	85361	87363				19	Cu hum	
20	50	8	20	04	07	19.0	15.8	81	11.1	1010.2	6	013	21	6	2	8	8	4	/	/	84812	85625	88630				20	Cu hum	
21	75	7	23	07	15	20.4	13.3	64	9.5	1010.6	2	001	15	2	2	4	8	6	7	/	82830	83650	86358				21	Cu med jp N, NW&S	
22	80	7	23	14	24	15.3	10.7	74	8.0	1005.3	2	002	25	8	2	7	8	5	/	/	81820	83825	87650				22	2Sc40 Cu med jpS vv60k ex p	
23	88	7	27	14	28	15.7	9.1	65	7.2	1012.2	2	019	02	2	2	7	8	5	/	/	86828	87645					23	Cu hum	
24	88	7	27	06	15	16.3	6.0	50	5.7	1023.9	2	005	02	2	2	7	8	6	/	1	82845	87656					24	/Ci75 Cu hum	
25	83	6	26	03	07	18.9	5.0	40	5.3	1029.2	0	000	02	2	2	6	8	7	0	0	81850	85656					25	2Sc50 Cu hum	
26	82	5	28	05	14	19.8	7.4	45	6.3	1029.9	7	004	01	2	2	3	8	7	0	1	81850	83656					26	3Ci75 COTRA Cu hum	
27	78	8	31	06	13	18.4	6.9	47	6.1	1025.3	7	017	03	2	2	1	4	6	7	/	81845	88462					27	1Sc50 2Ac60 Cu hum	
28	82	7	25	06	12	21.2	15.1	68	10.5	1018.6	8	015	03	6	2	5	8	5	7	/	82824	84650	87365				28	Cu med	
29	88	6	30	06	14	21.0	8.2	44	6.7	1023.9	8	002	01	2	2	1	1	7	4	1	81850	83358	85075				29	Cu hum	
30	84	4	26	09	17	23.5	12.2	49	8.7	1020.0	5	014	02	0	0	1	1	6	0	1	81844	84080					30	COTRA Cu hum	

Mean vis = 37.5 km

Mean cloud = 5.7 71%

Mean wind speed = 7.3 kn

Mean gust = 16 kn

Mean TT = 18.5 °C

Mean Td = 9.4 °C

Mean RH = 57.1 %

Mean r = 7.4 g/kg

Mean PPP = 1018.1 mbar

See appendix 2 below for full code details

VV = Visibility code (Code FM12-4377)

N = Total cloud amount, oktas

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

ff = 10 minute mean wind speed, knots

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

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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-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun	07-Jun	08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun
2013	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	0.51	0.51	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.47	0.00
	5	0.97	1.00	0.44	1.00	0.00	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
	6	1.00	1.00	1.00	1.00	0.00	0.31	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00
	7	1.00	1.00	1.00	1.00	0.42	0.85	0.00	0.96	0.00	0.00	0.00	0.07	0.00	0.00	0.48	0.00
	8	1.00	1.00	1.00	1.00	1.00	0.98	0.31	1.00	0.00	0.00	0.15	0.01	0.00	0.00	0.46	0.00
	9	0.97	0.81	0.99	1.00	1.00	1.00	0.28	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.66	0.00
	10	0.93	0.32	0.64	1.00	1.00	1.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00
	11	0.31	0.42	0.81	1.00	1.00	1.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.07	0.12	0.00
	12	0.32	0.28	0.98	1.00	1.00	1.00	0.00	1.00	0.04	0.00	0.00	0.00	0.00	0.34	0.03	0.00
	13	0.84	0.60	1.00	1.00	1.00	1.00	0.00	1.00	0.02	0.01	0.00	0.00	0.35	0.30	0.07	0.00
	14	1.00	0.73	0.97	1.00	1.00	1.00	0.15	1.00	0.34	0.10	0.00	0.00	0.34	0.96	0.00	0.02
	15	1.00	1.00	0.91	1.00	0.98	1.00	0.99	1.00	0.58	0.00	0.01	0.00	0.29	0.99	0.63	0.49
	16	0.90	0.99	0.99	1.00	0.99	1.00	1.00	1.00	0.56	0.00	0.05	0.00	0.05	0.50	0.23	0.40
	17	0.98	1.00	0.77	1.00	1.00	1.00	1.00	1.00	0.28	0.00	0.05	0.00	0.03	0.19	0.12	0.21
	18	0.82	0.91	0.99	1.00	0.82	1.00	1.00	0.89	0.74	0.00	0.86	0.00	0.62	0.00	0.17	0.00
	19	0.95	0.84	1.00	0.75	0.53	0.89	0.62	0.02	0.80	0.00	0.21	0.00	0.97	0.00	0.00	0.00
	20	0.00	0.00	0.06	0.12	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.02	0.00	0.00	0.00
	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot		<b>13.48</b>	<b>12.41</b>	<b>13.55</b>	<b>15.37</b>	<b>11.75</b>	<b>13.09</b>	<b>5.41</b>	<b>12.23</b>	<b>3.48</b>	<b>0.11</b>	<b>1.33</b>	<b>0.10</b>	<b>2.67</b>	<b>3.49</b>	<b>5.10</b>	<b>1.12</b>

Hour	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	Mean
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
5	0.00	0.48	0.00	0.00	0.00	0.00	0.36	0.28	0.78	0.00	0.17	0.00	0.00	0.00	0.22
6	0.00	0.17	0.07	0.00	0.00	0.00	0.32	0.03	1.00	0.13	0.50	0.00	0.77	0.00	0.27
7	0.00	0.00	0.69	0.00	0.00	0.00	0.30	0.47	1.00	1.00	0.04	0.00	0.25	0.48	0.37
8	0.00	0.00	0.76	0.00	0.00	0.24	0.09	0.69	0.93	1.00	0.84	0.00	0.58	1.00	0.47
9	0.03	0.00	0.36	0.00	0.00	0.23	0.00	0.25	0.88	0.94	0.01	0.00	0.34	1.00	0.39
10	0.00	0.00	0.01	0.00	0.00	0.21	0.06	0.00	0.53	0.21	0.01	0.00	0.43	1.00	0.28
11	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.04	0.24	0.12	0.06	0.00	0.76	0.98	0.29
12	0.00	0.00	0.89	0.00	0.04	0.00	0.01	0.01	0.06	0.00	0.21	0.00	0.69	0.95	0.29
13	0.00	0.00	0.17	0.00	0.41	0.02	0.01	0.02	0.01	0.00	0.00	0.00	0.10	0.98	0.30
14	0.05	0.00	0.00	0.00	0.04	0.07	0.00	0.03	0.36	0.01	0.00	0.00	0.60	1.00	0.36
15	0.08	0.00	0.00	0.00	0.13	0.02	0.00	0.01	0.16	0.28	0.00	0.00	1.00	1.00	0.45
16	0.04	0.00	0.00	0.48	0.27	0.00	0.02	0.00	0.13	0.39	0.00	0.00	1.00	1.00	0.43
17	0.00	0.00	0.00	0.00	0.49	0.01	0.00	0.07	0.16	0.39	0.00	0.00	0.14	1.00	0.36
18	0.00	0.24	0.00	0.22	1.00	0.09	0.16	0.05	0.20	0.24	0.00	0.00	0.01	0.95	0.43
19	0.00	0.30	0.02	0.68	0.95	0.10	0.00	0.00	0.72	0.12	0.00	0.00	0.00	0.23	0.36
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	0.11	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
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	<b>0.20</b>	<b>1.26</b>	<b>3.67</b>	<b>1.38</b>	<b>3.34</b>	<b>0.99</b>	<b>1.34</b>	<b>1.95</b>	<b>7.14</b>	<b>4.80</b>	<b>1.84</b>	<b>0.00</b>	<b>6.67</b>	<b>11.68</b>	<b>160.99</b>

JUNE 2013	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	13.13	18.3	1545	7.4	2331	60.6	89.5	2351	37.4	1447	5.29	5.47	7.0	0	4.6	1455	1023.81	1027.2	2331	1021.3	7	0.0
2	12.04	18.1	1442	5.1	419	65.2	95.9	511	36.7	1430	4.87	5.29	6.5	606	4.4	1430	1029.13	1031.4	2337	1027.1	0	0.0
3	12.85	19.8	1611	4.6	333	65.8	96.2	507	35.7	1403	5.75	5.61	7.2	706	4.7	1404	1031.24	1032.8	612	1029.3	1754	0.0
4	13.30	21.5	1437	3.9	358	65.4	95.3	504	34.9	1619	6.03	5.76	7.6	1414	4.6	358	1026.54	1030.7	4	1023.0	1737	0.0
5	13.72	21.3	1559	7.3	223	71.2	94.1	239	42.9	1528	8.16	6.69	8.6	1347	5.6	544	1021.16	1024.0	2	1018.5	1756	0.0
6	14.60	22.5	1421	6.7	333	68.8	94.0	336	43.1	1623	8.46	6.83	9.4	1349	5.6	333	1021.41	1023.1	2359	1019.7	1656	0.0
7	14.55	21.8	1520	8.9	250	63.6	78.3	403	44.5	1636	7.52	6.41	9.0	1456	5.3	249	1022.86	1024.1	1123	1021.3	1700	0.0
8	13.50	18.7	1503	7.9	326	67.6	88.6	335	45.8	1549	7.14	6.23	7.8	958	5.6	1549	1020.98	1023.7	1	1018.0	1740	0.0
9	12.20	17.6	1556	6.5	2355	69.9	89.8	2359	50.8	1556	6.76	6.09	7.5	1447	5.3	2354	1016.45	1018.6	0	1014.5	1759	0.0
10	11.05	16.0	1444	4.6	257	72.2	94.6	317	47.9	1444	5.92	5.76	6.5	644	4.9	257	1015.47	1016.4	1025	1014.1	1809	0.0
11	13.54	18.1	1612	7.6	39	81.4	90.0	215	65.9	1851	10.38	7.90	10.5	1505	5.5	37	1013.06	1014.9	7	1012.0	2331	0.1
12	15.02	16.6	1604	13.3	2358	86.0	92.9	2228	72.1	1041	12.68	9.13	10.4	1636	7.9	2	1010.64	1012.5	1144	1009.0	1921	2.4
13	13.74	17.8	1400	8.9	2345	75.3	89.9	709	51.1	1840	9.32	7.33	9.2	1310	5.6	1842	1011.57	1018.4	2347	1008.1	507	0.1
14	13.59	19.2	1436	7.4	325	70.6	90.4	516	40.1	1531	8.00	6.66	7.9	816	5.1	1534	1015.11	1018.4	8	1007.5	2359	0.0
15	13.34	16.7	1100	9.4	417	74.7	91.6	141	48.5	939	8.79	7.07	9.0	1546	5.4	942	1008.67	1012.4	2357	1005.6	232	6.3
16	13.63	17.6	1541	10.7	356	72.3	85.2	528	54.9	1715	8.60	6.93	8.0	908	6.1	1918	1013.66	1015.0	2348	1012.1	17	0.4
17	15.63	21.1	1431	9.9	41	70.3	91.6	503	47.9	1630	9.94	7.59	9.1	1055	6.6	38	1013.69	1014.9	7	1012.6	1733	0.5
18	16.73	20.6	1656	11.5	406	77.3	90.4	2319	65.0	1117	12.69	9.15	11.2	1651	7.2	212	1014.18	1015.6	2347	1012.7	227	0.0
19	19.41	24.4	1259	14.5	245	73.2	92.8	250	44.7	1333	14.13	9.99	12.1	909	8.2	1333	1014.53	1015.4	700	1013.1	1621	0.0
20	17.53	20.2	1631	13.3	2345	81.9	92.4	2157	70.6	1634	14.40	10.19	11.7	1525	8.4	2345	1011.47	1014.7	13	1009.0	2257	0.0
21	16.72	22.3	1551	12.9	11	78.1	93.5	740	48.8	1750	12.65	9.11	11.3	1300	7.6	1750	1010.14	1012.1	2200	1008.4	503	0.0
22	14.08	17.7	1040	11.6	349	81.4	94.2	632	66.5	1041	10.89	8.15	10.4	852	7.1	123	1006.21	1010.9	8	1004.3	1923	3.7
23	14.27	17.2	1349	11.0	2354	75.3	90.8	2106	59.5	1426	9.80	7.54	8.5	716	6.8	1911	1010.60	1018.1	2359	1004.5	149	1.7
24	13.25	16.9	1453	8.8	412	65.0	87.8	325	43.5	1448	6.45	5.94	7.1	4	4.9	1448	1022.84	1026.8	2331	1017.9	8	0.0
25	13.74	19.8	1454	7.9	432	68.2	94.5	519	35.7	1456	7.29	6.26	7.5	845	4.7	1559	1029.10	1030.9	2350	1026.4	9	0.0
26	15.09	21.1	1635	6.7	324	66.0	96.2	431	39.8	1706	8.06	6.58	8.1	805	5.7	1314	1030.02	1031.3	646	1028.2	1902	0.0
27	14.26	19.3	1314	11.1	311	70.0	95.1	2340	41.6	1607	8.47	6.82	8.6	1820	5.2	1614	1026.42	1029.6	1	1022.1	2359	1.6
28	16.67	22.2	1520	12.5	8	83.6	95.1	127	62.2	1544	13.77	9.71	11.5	1425	8.4	8	1019.82	1022.3	0	1017.9	1534	0.4
29	17.13	21.7	1620	12.5	552	61.9	87.2	333	35.2	1648	9.24	7.24	9.5	2347	5.4	1648	1023.06	1024.9	2214	1019.2	33	0.0
30	18.48	25.3	1347	12.9	2315	70.4	95.2	445	41.9	1409	12.51	8.95	11.4	917	7.3	2251	1021.51	1024.8	10	1018.7	2358	0.0

Total																						17.2
Mean	14.55	19.71		9.23		71.8	91.77		48.50		9.13	7.28	9.01		5.99		1018.51	1021.19		1015.87		
Max	19.41	25.26		14.47		86.0	96.20		72.10		14.40	10.19	12.13		8.42		1031.24	1032.84		1029.26		
Min	11.05	15.96		3.92		60.6	78.30		34.89		4.87	5.29	6.54		4.42		1006.21	1010.93		1004.26		

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  
 Rtot = 00-24 GMT rainfall total from AWS tipping bucket raingauge, mm  
 Time = hours and minutes in GMT of extreme values

Temperature and humidity are from an aspirated Vaisala HMP45 unit  
 Pressure is from a Setra CS100 sensor  
 Data is logged on a Campbell Scientific CR10X measurement and control system

## Appendix 1.

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

**Average:** Generally refers to the 30 year climatological average, currently 1981 to 2010. This will be next updated in 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 instrument used to detect sunshine amount in July 1999, and the data produced by the new instrument is not strictly comparable with that obtained prior to July 1999, 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 of instrument, due to a combination of faster reaction and higher sensitivity than the old type. Thus the average used in this case is for a theoretical equivalent average for the 1981 to 2010 climatological period for this new instrument, based on comparisons with Met Office published tables of departure from the 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 the 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 "half (max+min)". A true daily 24 hour (00 to 24 GMT) mean temperature is available from the AWS, and is currently published on page 7 of the Wokingham Monthly Weather Report on the Wokingham Weather Web Site, page1. <http://www.woksat.info/wwp1.html>

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

a): The departure of a mean from the current climatological average.

b): The departure of a value from the a long-term average for a particular day.

When the word anomaly is used in respect to temperature, any values given are in degrees C. In respect to rainfall, percent. In respect of sunshine, percent. In respect to wind, mph. In respect to 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 mild/cold are used in the winter half year, and warm/cool in the summer half.

The term normal is defined as being 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 for sunshine follow the same rules as for temperature.

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

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

The term wet is used for values lying between 10% and 30% below the highest value in the ranked series.

the term very wet is used for values lying within 10% of the highest value in the ranked series.

The term dry is used for values lying between 10% and 30% of the lowest value in the ranked series.

The term very dry is used for values lying 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 the records of various station in the Wokingham area in the years prior to the establishment of a weather station at Emmbrook in 1976.

In the case of monthly max, min and mean temperature and of rainfall total the 'long-term' goes from the present back to 1882. For extremes of temperature, highest max and lowest min are back to 1904, and for 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 values of the entire series. The central value in the ranked series is known as the median. This value may be different from the 'average' if the population of values is skewed. Also, as the median considers all values in the series, and the average refers to a 30 year climatological period, during periods of climatic change, the median will also be expected to differ from the average.

**Month:** Calendar month.

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

Summer, June to August

Autumn, September to November

Winter, December to February.

The year number given when discussing 'winter' is usually the year in which the majority of the period lies, i.e. January/February

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

**The climatological day :** runs from 09 to 09 GMT. The max temperature and rainfall read at 0900 are attributed to the previous day, as is the duration of measurable rain calculated up to 0900 GMT. The min temperature and grass min read at 0900 are attributed to the day of reading. Pressure is read at 0900 GMT, and the monthly mean pressure is the mean of the 0900 readings. Sunshine data, wind data, rainfall rates and 24 hour data from the AWS use the normal 00 to 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 % cover of snow at the 0900 GMT observation.

**Hail :** A day of hail is recorded if hailstones of 5 mm diameter or more are observed or recorded on the hail pad on 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. Note, various types of other ice meteors such as ice pellets, snow grains, and some types of snow pellets are included in this category.

**Fog:** A day of 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.

**Rainfall :** Rainfall is given in mm and tenths. "tr" ( trace) is entered when: a) precipitation has occurred but there is no water in the gauge. b) There is water in the gauge but it is less than 0.05 mm.

**Dry Spell :** A dry spell, for the purposes of the Wokingham climatological data and reports, is defined as a period of 5 or more consecutive dry days. A dry day is defined as one where the 24 hour precipitation measured at 09 GMT is not greater than 0.1 mm.

**Wind:** The following abbreviations may be used to denote wind directions :

Degrees are from true north

N = North =  $360^{\circ}$  and  $22.5^{\circ}$  either side.

NE = NorthEast =  $045^{\circ}$  and  $22.5^{\circ}$  either side.

E = East =  $090^{\circ}$  and  $22.5^{\circ}$  either side.

SE = SouthEast =  $135^{\circ}$  and  $22.5^{\circ}$  either side.

S = South =  $180^{\circ}$  and  $22.5^{\circ}$  either side.

SW = SouthWest =  $225^{\circ}$  and  $22.5^{\circ}$  either side.

W = West =  $270^{\circ}$  and  $22.5^{\circ}$  either side.

NW = NorthWest =  $315^{\circ}$  and  $22.5^{\circ}$  either side.

**Wind – terms for speed used in monthly reports:** When the following terms are used in the monthly reports, they will be based on the following unofficial criteria, (the day runs from 00 to 24 GMT) :

Term	Daily mean speed, knots		Highest hourly mean speed, knots		24 hour maximum gust, knots
Very light	3 or less	and	4 or less	and	8 or less
Light	3 to 6	or	4 to 8	or	8 to 16
Moderate	6 to 9	or	8 to 12	or	16 to 24
Fresh	9 to 12	or	12 to 16	or	24 to 32
Strong	12 to 15	or	16 to 20	or	32 to 40
Very strong	15 to 18	or	20 to 24	or	40 to 48
Near gale	18 to 21	or	24 to 28	or	48 to 56
Gale	21 to 24	or	28 to 32	or	56 to 64
Severe gale	24 to 27	or	32 to 36	or	64 to 72

B.J.Burton. 3 August 2009  
 Updated 8 Sept 2009,  
 4 Nov 2011

## 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.