

# WOKINGHAM

# METEOROLOGICAL

# DATA

## Wokingham Climatological Station, Emmbrook, Berkshire.

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

### Monthly Means and Totals

### NOVEMBER 2015

Temperature (°C / °F)			Anomaly	Rank in the past 134 years			
Mean maximum	12.9	55.2	+2.0	4 <sup>th</sup> highest			
Mean minimum	7.4	45.3	+3.3	2 <sup>nd</sup> highest			
Daily mean	10.1	50.2	+2.6	2 <sup>nd</sup> highest			
Highest maximum	17.2	63.0	on 6 <sup>th</sup>	Lowest maximum	5.8	42.4	on 21 <sup>st</sup>
Highest minimum	13.2	55.8	on 7 <sup>th</sup>	Lowest minimum	-3.1	26.4	on 22 <sup>nd</sup>
Mean grass minimum	5.1	41.2	+4.0	Lowest grass minimum	-7.8	18.0	on 23 <sup>rd</sup>
Mean earth @30 cm	11.5	52.7	+2.1	Earth @100 cm	12.9	55.2	
Frost duration (hrs)	24.9			Rain duration (hrs)	65.1		
Rainfall total (mm / in)	53.2	2.09	77 %	59 <sup>th</sup> lowest			
Highest daily fall	7.0	0.28	on 7 <sup>th</sup>				
Number of: Dry days (<0.2mm)	6	Wet days (>0.9mm)	16	days ≥5mm	2		
Sunshine total (hrs)	28.5	Daily mean	0.95	40 %	Sunniest day	4.6	on 21 <sup>st</sup>
N° days with: Air frost	3	Ground frost	3	Snow falling	1	Snow lying	0
Thunder	0	Hail ≥5mm	0	Small hail/ice	1	Fog @09	2
Pressure MSL : Mean @09 GMT, mbar	1016.2	+1.8	Highest	1029.8	on 1 <sup>st</sup>	Lowest	999.1
Relative humidity : Mean (%)	84.8	Lowest	51	on 21 <sup>st</sup>	Water vapour (g/kg), mean at 09 and 15 GMT		
Overall mean wind speed (mph)	9.1	Windiest day	15.5	on 29 <sup>th</sup>	Max gust	54	on 17 <sup>th</sup>
Wind direction (days)	N 0	NE 0	E 2	SE 1	S 3	SW 19	W 4
Least windy day (mph)	2.0	on 1 <sup>st</sup>	Calm; less than 0.5 mph (minutes)				241

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

Notes:

#### Exceptionally Mild and Dull with Below Average Rainfall and Strong Winds

**Temperature:** This has been a near record breaking mild month, the mean temperature being joint 2<sup>nd</sup> highest with 2011 since 1882, with 1994 holding the record. Although the mean maximum ranks only 4<sup>th</sup> highest after 1938, 1994 and 2011, the mean minimum is the 2<sup>nd</sup> highest, again after 1994. The cause of this extreme mildness lies in the persistent cloudy and sometimes strong SW'ly airflow, which as well as producing many dull days, also reduced the diurnal cycle of temperature during the many cloudy nights. This can be seen in the figure for the mean daily temperature range of 5.5°, 1.2° below average and lowest since 1994. Another parameter similarly affected is the grass minimum, 4.0° above average and equal highest with 1994 since before 1979. Also, the number of ground frosts is lowest since before 1979. The highest max is 1.6° above the median and the lowest max 1.2° above its median. The highest min is 2.6° above the median while the lowest min is 0.5° above its median. Earth temperatures at both 30 cm and 1m depth are well above average. The month started with 2 cool days, anomaly for daily max near -2°, but from the 3<sup>rd</sup> onwards anomalies for daily max were above normal, exceeding +5° on the 6<sup>th</sup>, 15<sup>th</sup> and 17<sup>th</sup>, with the exception of a short cold spell for the 20<sup>th</sup> to 24<sup>th</sup>, with an anomaly of -3.9° on the 21<sup>st</sup>. Anomalies for daily min were more extreme, exceeding +5° on 12 nights, and exceeding +8° on the 6<sup>th</sup>, 7<sup>th</sup> and 11<sup>th</sup>. During the cold snap anomalies exceeded -6° on the 22<sup>nd</sup> and 23<sup>rd</sup>, but in the whole month only 4 other nights were below normal. **Rainfall:** An fairly unexceptionable month, the total 23 below average. However, despite this low total, there were very few dry days, 9 below average, and fewest since 2009. Also, the rainfall duration is 4.5 hours, or 7%, above average. The rainfall on the month's wettest day is 8.4 mm below average and 8<sup>th</sup> lowest for November since 1904. The dry days were the 2<sup>nd</sup>, 9<sup>th</sup> to 11<sup>th</sup>, 21<sup>st</sup> and 22<sup>nd</sup>. Rainfall accumulation climbed to near normal on the 7<sup>th</sup> but dropped to 9mm below normal by the 13<sup>th</sup>. Despite near normal rainfall up to the 20<sup>th</sup> the relatively low daily totals in the final week saw the accumulation end up 17 mm below normal on the 30<sup>th</sup>. There was no thunder this month, but ice pellets fell on the 13<sup>th</sup>, and snow fell briefly along with the rain on the 21<sup>st</sup>. The highest rainfall rate this month was 21 mm/hr on the 13<sup>th</sup>. **Sunshine:** This November has been remarkable for its lack of sunshine. The daily mean of 0.95 hours is lowest for this month in over a century, and since 1907 there have been only 7 Decembers, 2 Februarys and 1 January to have a lower daily mean. The month's sunniest day, 4.6 hours on the 21<sup>st</sup> is only 54% of the maximum possible, and lowest for November since before 1979. however the number of sunless days, while 5 more than average, is most only since 1994. From the 1<sup>st</sup> to the 11<sup>th</sup> there was only 1.3 hours of sun, and apart from the 21<sup>st</sup> no day reached 50% of the maximum, and 21 days failed to reach even 10%. Overall there were 26 days with <3 hours and 0 with =>6 hours. **Wind:** The mean wind speed is 1.6 mph above average making this the windiest November since before 1988. The month's highest gust of 54 mph is 10 mph above average, but is highest only since 2009. Daily mean wind strength was light up to the 4<sup>th</sup>, moderate or fresh from the 5<sup>th</sup> to the 14<sup>th</sup>, strong on the 15<sup>th</sup> and very strong on the 17<sup>th</sup>, decreasing to moderate by the 19<sup>th</sup> and to light by the 22<sup>nd</sup>, then light or moderate to the 26<sup>th</sup>, increasing fresh on the 27<sup>th</sup> and strong on the 29<sup>th</sup>. Directions were mainly SW'ly, but E'ly until the 3<sup>rd</sup> and W or NW on the 21<sup>st</sup>, 22<sup>nd</sup>, 25<sup>th</sup> and 26<sup>th</sup>.

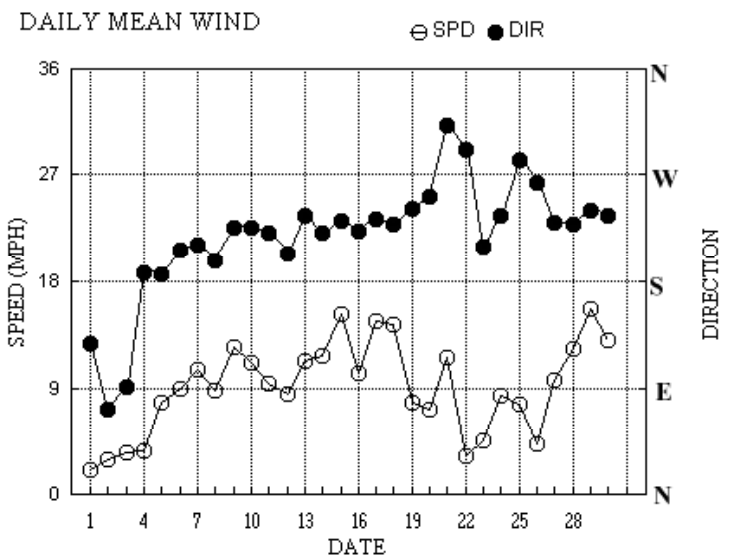
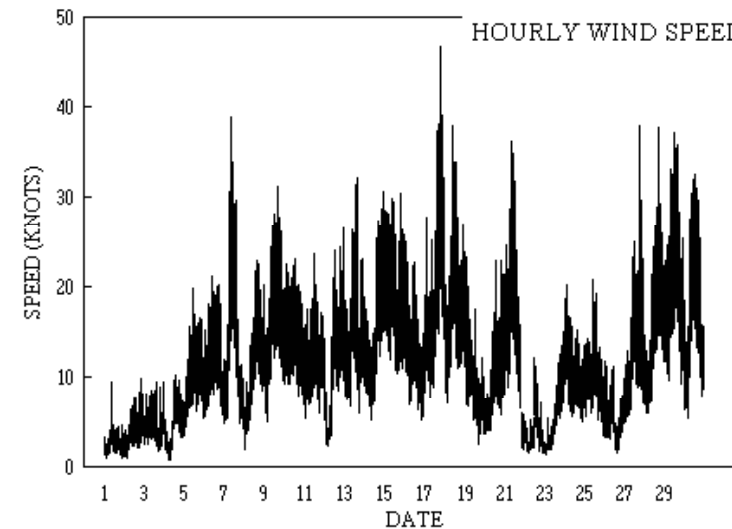
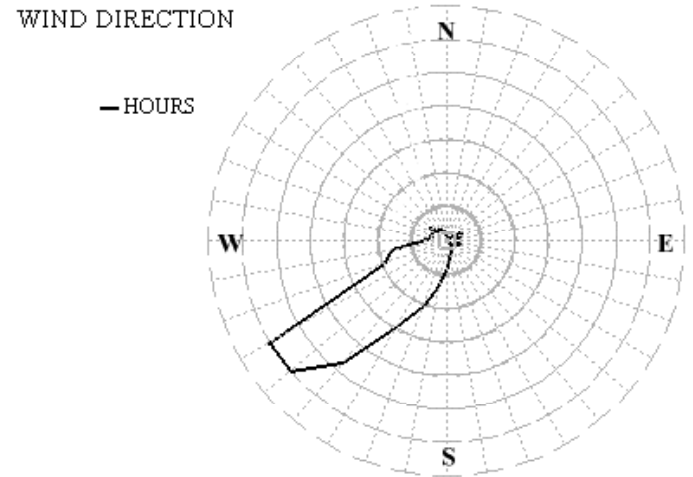
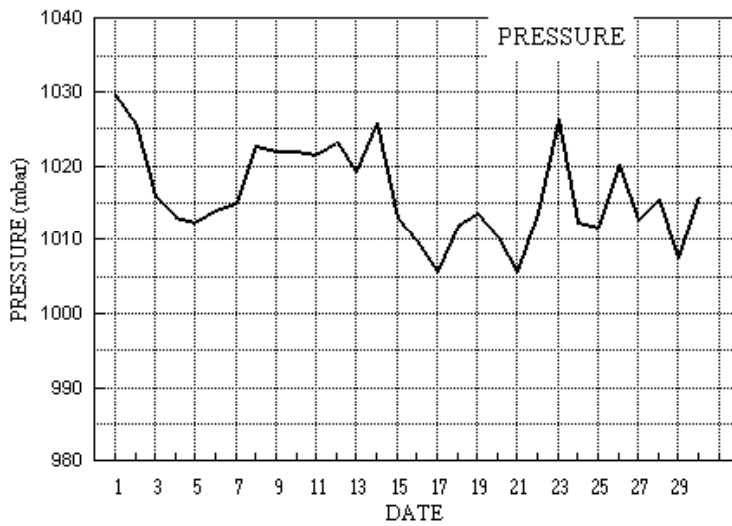
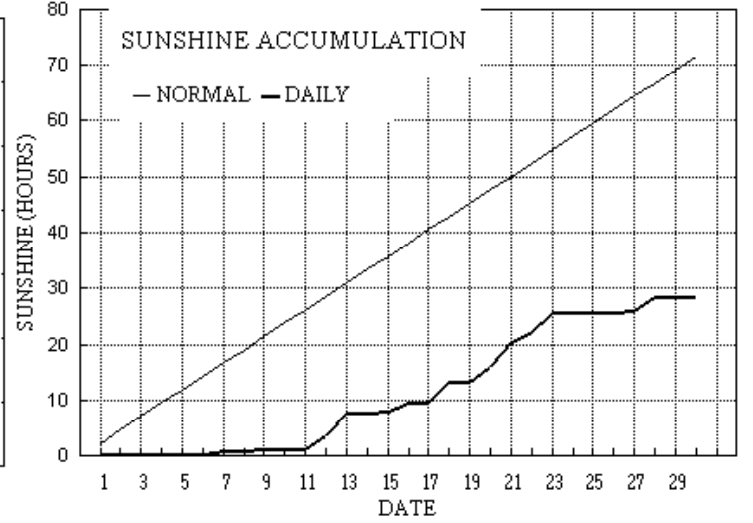
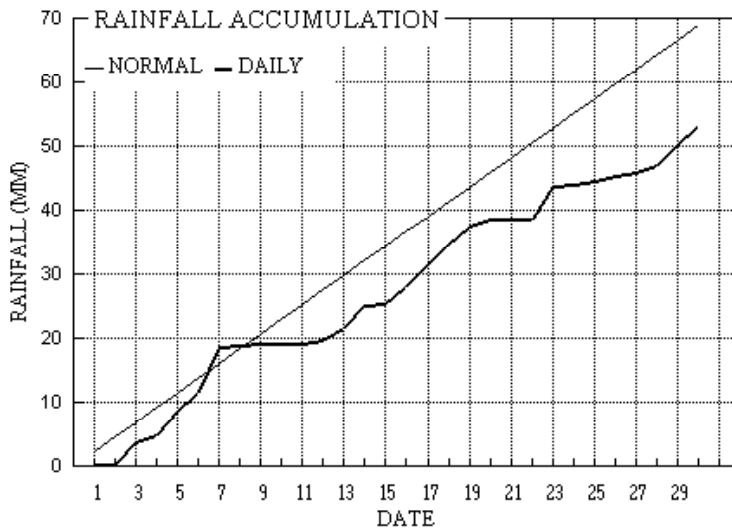
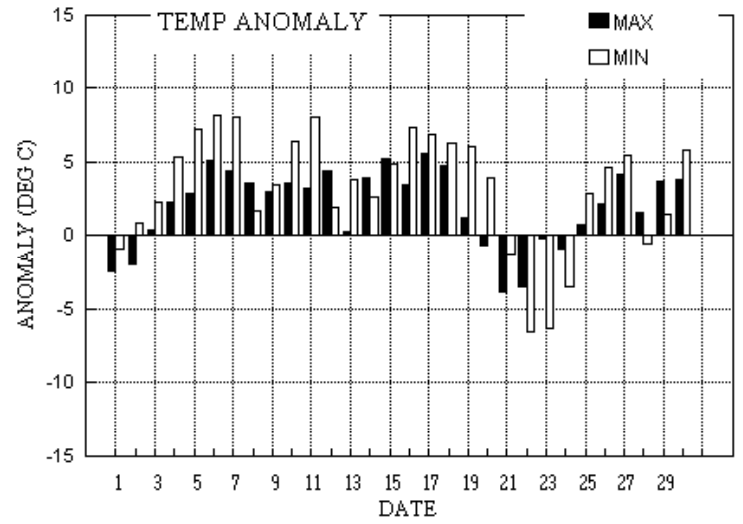
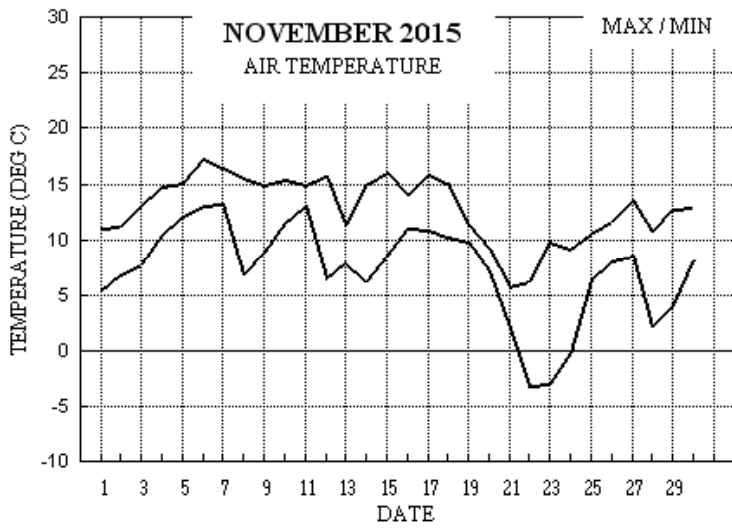
Table 1. Mean anomalies (max, min, rain, sun) for specified periods.

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>			
+2.1°	+4.2°	83%	4%	+3.1°	+5.2°	83%	63%	+0.8°	+2.3°	65%	55%

B J Burton FRMetS.

Hon. Met. Officer to Wokingham Town Council.

# Wokingham climatological graphs for November 2015



Month: NOVEMBER 2015

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	Rain HH hrs				
1	11.0	5.5	0.3	1.4	12.5	13.4	0.4	0.0	1029.5	0 0 0 0	0 0 0 0	0 0 0 1	127	0.8	1.7	145	10 1011	151	3	08	2.2
2	11.2	6.8	tr	7.3	12.5	13.4	0.0	0.0	1025.6	0 0 0 0	0 0 0 0	0 0 0 1	72	2.2	2.5	131	10 2125	117	4	23	0.0
3	13.1	7.7	3.4	9.0	12.6	13.3	0.0	0.0	1015.9	0 0 0 0	0 0 0 0	0 0 0 0	91	2.8	3.1	106	10 1523	142	4	23	6.2
4	14.7	10.4	1.2	6.1	12.7	13.3	0.1	0.0	1013.2	0 0 0 0	0 0 0 0	0 0 0 0	188	2.7	3.2	196	10 1333	207	5	18	1.2
5	15.1	12.2	3.8	10.8	13.0	13.3	0.0	0.0	1012.5	0 0 0 0	0 0 0 0	0 0 0 0	186	6.4	6.7	164	20 1054	192	9	11	3.1
6	17.2	13.0	2.9	11.4	13.2	13.3	0.0	0.0	1014.1	0 0 0 0	0 0 0 0	0 0 0 0	206	7.7	7.8	181	21 0917	213	11	13	3.7
7	16.5	13.2	7.0	9.4	13.4	13.4	0.6	0.0	1014.9	0 0 0 0	0 0 0 0	0 0 0 0	211	8.8	9.1	202	39 0959	208	16	10	3.5
8	15.6	6.9	0.4	1.1	13.2	13.4	0.0	0.0	1022.6	0 0 0 0	0 0 0 0	0 0 0 0	197	7.0	7.6	196	23 1615	206	12	15	0.4
9	14.9	8.8	0.1	2.8	13.0	13.5	0.2	0.0	1022.0	0 0 0 0	0 0 0 0	0 0 0 0	226	10.7	10.8	226	31 1758	226	14	18	0.3
10	15.4	11.5	tr	12.8	13.0	13.5	0.0	0.0	1022.0	0 0 0 0	0 0 0 0	0 0 0 0	225	9.6	9.7	235	23 1308	224	12	14	0.0
11	14.9	13.1	tr	11.3	13.3	13.4	0.0	0.0	1021.6	0 0 0 0	0 0 0 0	0 0 0 0	221	8.1	8.2	233	24 1316	224	10	15	0.0
12	15.7	6.5	0.7	0.9	13.2	13.4	2.6	0.0	1023.1	0 0 0 0	0 0 0 0	0 0 0 0	203	7.2	7.4	222	25 2010	200	12	12	0.6
13	11.3	7.9	1.7	4.4	13.0	13.5	3.8	0.0	1019.2	0 0 0 0	0 0 1 0	0 0 0 0	235	9.6	9.8	255	32 1616	239	14	10	1.4
14	14.9	6.2	3.6	1.9	12.1	13.4	0.0	0.0	1025.8	0 0 0 0	0 0 0 0	0 0 0 0	221	10.0	10.1	234	29 2159	233	15	23	5.1
15	16.0	8.5	0.3	10.4	12.1	13.4	0.5	0.0	1012.9	0 0 0 0	0 0 0 0	0 0 0 0	231	13.2	13.3	244	31 0057	238	16	10	1.0
16	14.0	11.1	2.7	8.9	12.5	13.3	1.4	0.0	1009.8	0 0 0 0	0 0 0 0	0 0 0 0	223	8.7	8.9	226	26 0034	214	14	01	3.9
17	15.9	10.9	3.5	9.9	12.5	13.2	0.1	0.0	1005.7	0 0 0 0	0 0 0 0	0 0 0 0	232	12.3	12.7	241	47 1922	246	20	20	1.8
18	15.1	10.3	3.3	7.8	12.4	13.2	3.6	0.0	1012.0	0 0 0 0	0 0 0 0	0 0 0 0	229	12.2	12.5	231	38 1156	223	18	12	2.0
19	11.4	9.8	2.5	6.5	12.1	13.2	0.0	0.0	1013.5	0 0 0 0	0 0 0 0	0 0 0 0	241	6.6	6.7	253	24 0142	251	11	01	3.3
20	9.2	7.2	1.1	5.6	11.8	13.1	2.7	0.0	1010.2	0 0 0 0	0 0 0 0	0 0 0 0	252	6.0	6.2	271	23 2030	275	10	23	1.5
21	5.8	2.0	0.0	0.1	10.8	13.1	4.6	2.8	1005.6	0 0 1 0	0 0 0 0	0 0 0 0	311	9.0	10.0	333	36 0819	329	16	10	0.0
22	6.2	-3.1	0.0	-7.0	9.4	12.9	1.6	12.5	1013.6	1 1 0 0	0 0 0 0	0 0 0 0	291	1.2	2.8	329	12 1338	334	6	13	0.0
23	9.8	-3.0	5.3	-7.8	8.5	12.7	3.5	9.6	1026.1	1 1 0 0	0 0 0 0	0 0 0 0	209	3.9	3.9	195	14 2249	213	7	22	7.3
24	9.1	-0.1	0.2	3.6	8.3	12.4	0.0	0.0	1012.5	1 0 0 0	0 0 0 0	0 0 0 0	235	6.7	7.2	206	20 0314	207	10	03	0.5
25	10.6	6.3	0.4	1.0	8.6	12.1	0.1	0.0	1011.6	0 0 0 0	0 0 0 0	0 0 0 0	282	6.2	6.7	314	21 1143	310	9	14	0.7
26	11.7	8.1	0.8	6.1	8.9	11.9	0.0	0.0	1020.1	0 0 0 0	0 0 0 0	0 0 0 0	263	2.7	3.7	299	12 0127	288	6	11	2.4
27	13.5	8.6	0.7	8.2	9.5	11.7	0.2	0.0	1012.6	0 0 0 0	0 0 0 0	0 0 0 0	230	7.1	8.3	266	38 1903	295	14	21	1.6
28	10.8	2.2	1.0	-2.1	9.6	11.6	2.5	0.0	1015.4	0 1 0 0	0 0 0 0	0 0 0 0	229	10.5	10.7	224	38 1754	234	15	20	1.2
29	12.8	4.1	3.3	6.7	9.2	11.6	0.0	0.0	1007.4	0 0 0 0	0 0 0 0	0 0 0 0	240	13.4	13.5	245	37 1350	243	19	16	2.7
30	12.9	8.3	3.0	5.1	9.5	11.5	0.0	0.0	1015.8	0 0 0 0	0 0 0 0	0 0 0 0	235	11.3	11.4	229	33 1308	238	17	12	7.5
Total			53.2				28.5	24.9						229	6.5	7.9					65.1

Mean 12.9 7.4 5.1 11.5 12.9 0.95 0.8 1016.2  
 Anom +2.0 +3.3 77% +4.0 +2.1 +1.1 40% +1.8

Daily mean 10.1 Pressure, abs highest = 1029.8 on 1  
 Anom +2.6 Pressure, abs lowest = 999.1 on 17

Number of days with:

Air frost = 3 Ground frost = 3 Nil sun = 13  
 Snow falling = 1 Snow lying = 0 Thunder = 0  
 Hail=>5mm = 0 Hail<5mm or ice = 1 Fog at 09GMT = 2

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 NOVEMBER 2015

Date	VV	N	dd	ff	gg	TT	TdTd	RH	r	PPP	a	ppp	ww	W1	W2	Nh	Cl	h	Cr	Ci	NChs	hshs	NChs	Date	Remarks	
1	03	8	28	02	07	6.9	6.8	99	6.1	1029.5	2	017	46	4	4	8	6	0	/	/	88701			1		
2	02	9	07	03	07	7.8	7.7	99	6.5	1025.6	7	004	45	5	4	9	/	/	/	/				2		
3	35	8	06	05	09	10.4	9.8	96	7.5	1015.9	8	003	10	2	2	8	6	2	/	/	85705	88708		3		
4	56	7	17	01	02	12.1	11.8	98	8.6	1013.2	3	006	21	6	2	6	5	2	7	/	81705	83645	87358	4	4Sc45	
5	50	8	17	08	15	14.4	13.4	94	9.6	1012.5	7	004	50	5	2	8	5	3	/	/	85706	87712	88650	5		
6	65	8	19	10	18	13.7	12.6	93	9.1	1014.1	5	003	61	6	2	7	5	3	2	/	83708	87611	88540	6		
7	59	8	20	15	28	15.8	14.5	92	10.3	1014.9	7	010	62	6	2	6	5	4	2	/	82615	83625	88550	7		
8	59	8	19	04	12	11.8	11.0	95	8.2	1022.6	6	016	10	2	2	8	6	3	/	/	88707			8		
9	75	7	22	11	25	11.5	7.2	75	6.3	1022.0	1	010	03	2	2	6	0	9	7	8	81363	86468	87272	9		
10	75	8	21	10	18	14.8	13.0	89	9.3	1022.0	2	007	20	6	5	8	6	3	/	/	85706	88710		10		
11	80	7	21	07	13	13.8	9.2	74	7.2	1021.6	3	004	02	2	2	7	5	5	/	/	81625	87635		11		
12	30	4	18	05	08	10.5	10.0	97	7.6	1023.1	2	003	28	4	1	2	5	1	0	1	81702	83078		12	2Sc12 vv400 at 0800	
13	70	6	22	11	19	10.7	4.2	64	5.1	1019.2	0	001	80	8	1	5	5	4	7	0	81715	85656		13	1Sc30 3Ac60 Rainbow	
14	62	8	21	05	11	8.5	6.1	85	5.9	1025.8	7	006	60	6	2	2	5	6	2	/	81635	88550		14	2Sc40	
15	80	7	24	14	27	14.7	10.3	75	7.8	1012.9	1	004	02	2	2	7	5	5	/	/	87622			15		
16	65	7	22	07	14	11.5	8.0	79	6.7	1009.8	0	009	03	2	2	1	5	6	7	2	81635	83365	87070	16		
17	70	8	23	10	20	12.8	9.3	79	7.3	1005.7	1	010	02	5	2	8	5	5	/	/	88620			17		
18	62	1	21	11	22	12.3	8.6	78	6.9	1012.0	8	017	01	1	1	1	8	4	3	0	81818			18	1Sc30 1Ac65 Cu fra	
19	63	8	24	08	16	11.3	8.5	83	6.9	1013.5	8	002	60	6	2	2	7	4	2	/	82715	88462		19	1Sc56	
20	82	7	24	05	09	7.3	4.9	85	5.4	1010.2	5	011	02	2	2	1	5	6	2	/	81645	87463		20	Cld edge N	
21	68	6	34	15	36	4.9	1.6	79	4.2	1005.6	3	026	21	6	7	5	8	4	3	0	83818	84625		21	2Ac58	
22	70	6	21	02	05	0.2	-0.6	94	3.6	1013.6	2	016	02	1	1	1	5	6	3	0	81635	86366		22	Ac str vir. Hoar mod. Irisation	
23	30	6	21	02	03	-0.1	-0.7	96	3.6	1026.1	1	014	10	2	2	2	4	0	9	7	1	84365	83075		23	COTRA Ac str vir Hoar thk
24	75	7	28	06	17	8.7	6.0	83	5.8	1012.5	1	004	01	6	2	1	8	5	7	2	81820	85363	87465	24	1Sc35 /Ci72 Cu hum	
25	78	8	25	07	12	8.1	5.0	81	5.4	1011.6	2	009	02	2	2	7	8	5	1	/	82825	83635	87645	25	8As65 Cu med	
26	60	6	28	05	09	8.6	6.9	89	6.2	1020.1	0	013	05	6	2	6	5	3	/	1	82708	85645		26	1Sc35 1Ci80 COTRA	
27	58	8	20	07	13	11.7	11.1	96	8.2	1012.6	7	020	20	5	2	8	7	2	/	/	86704	88706		27		
28	80	3	21	05	14	4.1	1.3	82	4.2	1015.4	0	001	02	0	0	1	5	7	4	1	81656	83078		28	1Ac60 COTRA Hoar slt	
29	60	8	24	17	33	10.7	7.6	81	6.5	1007.4	5	005	21	6	2	7	5	4	1	/	82715	86625	88465	29		
30	61	8	23	12	25	11.3	8.7	84	7.0	1015.8	7	006	60	6	2	7	5	4	2	/	82713	86618	87635	30	/As65	

Mean vis = 15.2 km

Mean cloud = 6.9 86%

Mean wind speed = 7.7 kn

Mean gust = 16 kn

Mean TT = 10.0 °C

Mean TdTd = 7.8 °C

Mean RH = 86.5 %

Mean r = 6.8 g/kg

Mean PPP = 1016.2 mbar

See appendix 2 below for full code details

VV = Visibility code (Code FM12-4377)

N = Total cloud amount, oktas

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

ff = 10 minute mean wind speed, knots

gg = Highest gust in past hour, knots

TT = Air temperature at 1.2 m, deg Celsius

TdTd = Dew point temperature at 1.2 m, deg Celsius

RH = Relative humidity at 1.2 m

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

PPP = Air pressure reduced to sea level, mbar

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

ppp = 3 hr pressure tendency, tenths of mbar

ww = Present weather code (Code FM12-4677)

W1, W2 = Past weather code (Code FM12-4561)-

covers past 3 hours.

Nh = Amount of low cloud present, oktas

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

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

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

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

8 groups. 8 = indicator for cloud detail

N = Amount of cloud, oktas

C = Type of cloud (FM12-0500)

hshs = Height of cloud (FM12-1677)

Remarks : COTRA = persistent condensation

trails present.

Weather observations. Emmbrook, Wokingham, Berkshire.

Observations at 1500 GMT for NOVEMBER 2015

Date	VV	N	dd	ff	gg	TT	Td	Td	RH	r	PPP	a	ppp	ww	W1	W2	Nh	Cl	h	Cr	Ch	NCh	shs	NCh	shs	NCh	shs	Date	Remarks
1	15	8	18	02	04	11.0	10.5	97	7.9	1028.5	6	008	28	4	2	8	6	0	/	/	83701	88702					1		
2	18	8	03	04	08	10.9	10.4	97	7.9	1021.8	7	025	10	4	2	8	6	1	/	/	83702	88703					2		
3	57	7	09	04	08	13.1	11.5	90	8.4	1013.6	6	013	05	6	2	5	5	4	7	2	81710	85645	87363			3	/Ci75 COTRA		
4	80	7	19	05	09	13.9	11.9	88	8.7	1013.0	7	003	15	8	2	7	8	4	/	/	83815	84625	88656			4	Cu hum jpW		
5	58	8	17	07	13	14.1	13.1	94	9.4	1010.5	8	011	61	6	2	7	5	4	2	/	85710	88620	88557			5			
6	60	8	20	09	19	16.4	15.6	95	11.0	1012.9	1	003	58	6	5	8	5	2	/	/	83705	87708	88615			6			
7	84	5	24	10	26	16.3	14.5	89	10.2	1016.3	3	018	80	8	6	4	8	5	0	1	83820					7	2Sc35 1Sc50 1Ci75 Cu med		
8	65	8	20	10	22	15.3	14.0	92	9.9	1015.6	6	035	02	5	2	8	5	3	/	/	82708	87612	88620			8			
9	68	8	23	15	26	13.9	9.5	75	7.4	1021.0	7	005	02	2	2	8	5	4	/	/	88618					9			
10	62	8	22	10	22	14.3	12.2	87	8.8	1021.6	8	001	02	5	2	8	6	3	/	/	86708	88710				10			
11	70	7	22	09	20	14.3	9.5	73	7.4	1020.3	7	010	15	8	2	7	8	5	/	/	82820	87640				11	Cu med jpN		
12	82	7	20	09	17	14.1	10.7	80	8.0	1018.8	7	014	02	1	1	7	8	4	/	/	82818	87630				12	Cu hum		
13	80	1	25	11	32	7.7	3.7	76	5.0	1022.0	2	016	25	8	1	1	8	6	6	0	81835					13	1Sc56 1Ac59 Cu med jpS vv50k ex S		
14	40	8	21	12	22	10.8	9.6	92	7.4	1018.0	7	056	63	6	6	7	7	3	2	/	83706	87708	88518			14			
15	84	7	22	10	21	14.7	10.9	78	8.1	1012.9	4	000	02	2	2	7	5	5	/	/	87620					15			
16	82	7	23	08	18	11.9	5.8	66	5.7	1010.5	7	001	03	8	2	5	8	6	7	2	81830	85645				16	1Ac65 4As68 /Ci72 Cu hum		
17	62	7	22	16	26	15.8	13.6	88	9.7	999.6	5	038	21	6	2	7	8	4	/	/	86815	83630				17	Cu med jpNW vv 20k ex p		
18	30	7	23	16	34	13.3	10.7	84	8.0	1009.0	5	012	62	6	2	7	8	4	/	/	81715	83820	85640			18	7Sc50 Clearance NW vv15k NW		
19	65	8	30	06	18	9.7	8.3	91	6.8	1012.1	5	006	21	6	2	8	5	3	/	/	84708	87620	88650			19	CF 1435		
20	86	2	26	09	19	8.3	1.9	64	4.4	1005.9	7	022	25	8	1	1	8	6	0	8	81833					20	1Sc40 1Cs72 Cu hum		
21	82	7	32	14	32	4.0	-3.7	57	2.9	1011.6	2	016	01	1	1	1	5	6	0	1	81635	87078				21	COTRA		
22	80	8	34	06	11	5.4	1.7	77	4.3	1016.9	3	017	02	2	2	8	8	4	/	/	82815	88625				22	Cu hum		
23	80	7	24	06	09	5.9	0.7	73	4.0	1024.3	7	010	03	2	2	7	0	9	7	/	85362	87466				23			
24	68	8	23	06	13	8.4	6.0	85	5.8	1010.3	7	019	02	6	2	8	8	5	/	/	81820	88635				24	Cu hum		
25	80	6	31	08	20	10.2	5.2	71	5.5	1012.4	3	005	14	2	2	6	8	5	0	0	81825	86656				25	Cu med jpNW		
26	58	7	23	03	05	9.8	8.6	92	6.9	1020.5	7	003	51	5	2	7	7	3	/	/	87706	86615				26			
27	65	7	22	11	20	11.4	9.0	85	7.1	1006.7	7	026	25	8	2	7	8	3	/	/	82707	85810	86630			27	Cu med jpW		
28	80	7	22	13	26	8.8	4.4	74	5.2	1009.1	7	038	21	6	2	2	8	5	7	8	81825	86359				28	1Sc35 2Sc56 /Cs75 Cu hum		
29	62	8	24	19	36	12.6	8.5	76	6.9	1007.9	7	003	02	6	2	8	5	4	/	/	81718	87622	88635			29			
30	60	8	23	15	32	12.2	9.6	84	7.4	1012.7	6	010	50	5	2	8	5	4	/	/	82713	87618	88630			30			

Mean vis = 21.7 km

Mean cloud = 7.0 87%

Mean wind speed = 9.4 kn

Mean gust = 20 kn

Mean TT = 11.6 °C

Mean TdTd = 8.6 °C

Mean RH = 82.3 %

Mean r = 7.2 g/kg

Mean PPP = 1014.5 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

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covers past 3 hours.

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

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

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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  2015	Hour	01-Nov	02-Nov	03-Nov	04-Nov	05-Nov	06-Nov	07-Nov	08-Nov	09-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	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	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	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	0.00	0.00	0.28	0.00	0.00	0.00
8	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.75	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.08	0.00	0.02	0.04
10	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.95	0.03	0.00	0.36	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.40	0.00	0.10	0.00
12	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.58	0.00	0.00	0.75
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.76	0.00	0.00	0.55
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.09
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	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	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	0.00
<b>Tot</b>	<b>0.44</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.63</b>	<b>0.00</b>	<b>0.15</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>2.62</b>	<b>3.79</b>	<b>0.00</b>	<b>0.49</b>	<b>1.42</b>

	Hour	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	Mean
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
8	0.00	1.00	0.00	0.00	0.00	0.00	0.76	0.09	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.14
9	0.00	0.75	0.00	0.00	0.00	0.00	0.78	0.39	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.12
10	0.00	0.71	0.00	0.00	0.61	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.15
11	0.00	0.89	0.00	0.00	1.00	0.00	0.97	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.12
12	0.00	0.22	0.00	0.30	1.00	0.00	0.33	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.12
13	0.00	0.00	0.00	0.94	1.00	0.05	0.68	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.15
14	0.00	0.00	0.00	0.69	0.67	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
15	0.05	0.00	0.00	0.77	0.36	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.08
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Tot</b>	<b>0.05</b>	<b>3.58</b>	<b>0.00</b>	<b>2.70</b>	<b>4.64</b>	<b>1.59</b>	<b>3.47</b>	<b>0.00</b>	<b>0.07</b>	<b>0.00</b>	<b>0.20</b>	<b>2.45</b>	<b>0.00</b>	<b>0.00</b>	<b>28.33</b>	

NOVEMBER 2015	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
1	8.27	11.4	1502	5.6	151	98.9	99.7	943	95.9	1512	8.51	6.82	8.2	1458	5.6	151	1028.41	1029.8	1122	1026.9	0
2	9.63	11.6	1422	7.2	729	98.7	99.7	936	94.9	2311	9.84	7.47	8.4	1320	6.4	729	1023.62	1027.9	0	1019.0	2320
3	11.41	13.4	1459	9.4	41	95.2	99.4	2251	87.6	1542	10.93	8.09	9.3	2359	7.2	1	1015.13	1019.3	6	1013.1	1637
4	13.01	15.1	1303	10.8	624	94.0	99.4	746	81.9	1112	12.28	8.85	9.4	954	8.2	625	1013.48	1015.1	2203	1012.3	553
5	14.28	15.4	1135	13.2	58	94.1	97.5	100	84.2	1201	13.58	9.65	10.5	2028	8.9	1251	1011.97	1014.8	6	1009.4	1707
6	15.11	17.5	1326	13.1	542	93.3	96.0	545	89.2	427	14.22	10.06	11.6	1321	8.7	422	1014.51	1018.8	2333	1012.2	1231
7	14.46	16.8	1420	9.6	2341	91.3	96.6	543	80.3	1529	13.18	9.42	11.0	1317	6.9	2228	1018.24	1026.1	2354	1014.0	1032
8	12.72	15.9	1538	7.0	355	91.8	99.4	630	82.6	1735	11.52	8.40	10.0	1430	6.2	400	1019.79	1026.5	31	1014.2	1727
9	12.43	14.5	2358	8.6	350	78.9	88.1	442	68.1	1157	8.86	7.04	8.6	2358	5.7	346	1021.00	1022.3	821	1018.2	0
10	14.41	15.5	1235	13.3	2349	87.1	91.8	634	83.8	2310	12.30	8.79	9.4	1147	8.0	2357	1021.80	1022.5	2225	1020.9	455
11	13.49	15.0	1242	12.2	1808	78.5	85.7	1813	68.2	1120	9.81	7.45	8.1	0	6.9	1002	1021.09	1022.3	902	1019.8	1816
12	12.41	15.8	1311	6.4	609	85.9	97.1	647	70.8	1312	10.05	7.61	8.8	1203	5.6	609	1019.98	1023.2	729	1015.0	2215
13	8.82	13.3	0	6.1	1859	72.1	87.1	7	57.2	1358	4.04	5.05	8.2	1	4.1	1626	1021.25	1026.7	2351	1015.8	20
14	10.08	14.2	2340	6.7	26	86.5	92.4	1521	77.0	0	7.94	6.70	8.8	2252	4.7	7	1021.21	1026.9	202	1013.1	2303
15	14.34	16.1	1116	12.7	2122	76.3	86.9	0	68.2	1113	10.23	7.74	8.7	0	6.9	2241	1012.50	1013.7	14	1009.8	2359
16	12.10	13.6	1259	10.7	2028	79.0	92.9	2359	63.6	1421	8.50	6.95	8.7	500	5.5	1521	1009.14	1010.9	1311	1004.1	2358
17	13.28	15.5	1518	11.4	0	79.5	94.3	57	61.5	2024	9.70	7.59	9.7	1438	5.7	2209	1003.90	1010.8	2352	999.1	1445
18	12.29	15.3	1206	9.8	540	73.7	86.4	443	64.0	1151	7.69	6.54	8.1	1508	5.8	2324	1011.10	1013.7	559	1008.2	1409
19	9.83	12.4	41	8.1	2031	86.7	93.8	1309	67.1	40	7.69	6.52	7.5	1421	5.9	2108	1013.25	1014.4	2150	1011.2	1346
20	7.12	9.2	1407	3.5	2357	76.9	89.3	42	55.8	1533	3.25	4.86	6.1	6	3.2	2326	1008.40	1014.4	18	1003.3	2354
21	2.55	5.9	1201	-2.8	2312	67.8	90.4	734	50.8	1847	-3.01	3.10	4.3	831	2.2	1931	1008.23	1013.1	2132	1002.1	327
22	0.63	6.1	1316	-3.6	659	87.6	96.6	2244	73.8	1625	-1.25	3.48	4.5	1256	2.7	5	1016.00	1023.4	2356	1011.6	504
23	2.27	7.2	2249	-3.2	317	84.4	96.6	823	68.4	1457	-0.24	3.72	4.9	2356	2.8	317	1023.63	1026.3	924	1018.5	2359
24	7.74	9.5	743	5.5	2217	87.2	95.3	728	78.9	0	5.73	5.72	7.0	737	4.8	1	1012.03	1018.6	0	1009.8	2230
25	8.57	10.7	1341	6.9	318	80.5	88.4	0	67.6	1339	5.38	5.56	6.0	2346	5.2	651	1012.70	1017.1	2359	1010.0	16
26	8.83	9.7	1224	7.6	802	91.1	95.3	1840	83.3	1153	7.46	6.37	6.8	1710	5.8	0	1019.73	1021.3	1924	1016.9	6
27	9.86	12.9	1246	4.5	2354	88.3	95.6	824	74.3	2322	8.00	6.74	8.1	1019	4.1	2341	1010.98	1019.4	1	1003.7	1830
28	6.58	10.4	1822	1.7	641	75.5	83.7	706	68.6	1040	2.53	4.62	5.9	2145	3.5	634	1011.16	1015.8	840	1005.7	2214
29	10.62	12.8	1441	8.5	619	78.8	90.0	741	69.5	1014	7.06	6.27	7.2	1820	5.3	2358	1009.30	1017.0	2358	1006.8	44
30	10.92	13.0	1309	7.8	449	83.2	93.7	2355	69.1	1233	8.13	6.75	8.1	2328	4.9	228	1015.79	1018.7	2359	1012.4	1351
Total																					
Mean	10.27	12.85		7.28		84.8	93.30		73.54		7.80	6.80	8.05		5.58		1015.64	1019.69		1011.90	
Max	15.11	17.47		13.27		98.9	99.73		95.93		14.22	10.06	11.57		8.92		1028.41	1029.81		1026.94	
Min	0.63	5.91		-3.56		67.8	83.70		50.77		-3.01	3.10	4.31		2.20		1003.90	1010.79		999.15	

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

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

Tmn = 00 to 24 GMT mean air temperature at 1.2 m, deg C  
 RHmn = 00-24 GMT mean relative humidity at 1.2 m, percent  
 TDmn = 00-24 GMT mean dew point at 1.2 m, deg C  
 rmn = 00-24 GMT mean humidity mixing ratio, g/kg  
 pmn = 00-24 GMT mean air pressure reduced to mean sea level, mbar  
 Time = hours and minutes in GMT of extreme values

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

# WOKINGHAM METEOROLOGICAL DATA

Wokingham Climatological Station, Emmbrook, Berkshire.

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

## Seasonal Means and Totals

## AUTUMN 2015

Temperature (°C)		Rank in the past 134 years	
Mean maximum	15.5 (+0.3)	25 <sup>th</sup> highest	
Mean minimum	7.5 (+0.4)	16 <sup>th</sup> highest	
Daily mean	11.5 (+0.4)	15 <sup>th</sup> highest	
Rainfall total (mm)	146.6 (75%)	39 <sup>th</sup> lowest	
Sunshine total (hours)	279.9 (86%)		
N° of:	Dry days 48 (-2)	Wet days	30 (0)
Days with:	Air frost 3 (-5)	Ground frost 15 (-7)	Snow falling 1 (0) Snow lying 0 (0)
Thunder 1 (-2)	Hail ≥5mm 0 (0)	Small hail/ice 1 (0)	Fog @09 GMT 3 (-1) Nil sun 20 (+5)
Air pressure MSL : Mean @09 GMT (mbar)		1017.3 (+2.2)	

Departure from 1981 to 2010 average shown in brackets.

Notes: **Dull with Temperature Above and Rainfall Below Average.**

**Temperature:** The overall mean temperature this autumn is a little above the current climatological average, but is 0.9° above the long-term median. In this millennium it is almost level pegging, with 7 autumns milder, 7 cooler and 1 the same as this year's. Despite the normal seasonal fall in temperature, the monthly mean minimum for September to November shows only a 0.4° drop, whereas the mean maximum fell by 5.3°. Similarly, the trend in mean grass minimum was reversed, rising from 3.9° in September to 5.1° in November. Compared with average, September was the coolest month, anomaly -1.7°, and November the mildest, anomaly +2.6°. The season's highest temperature was 21.9° on the 10<sup>th</sup> September, 2.6° below the long-term median and 3.2° below the average for the past 40 years, also lowest for autumn since 1986. The lowest max was 5.8° on the 21<sup>st</sup> November, 1.2° above the median while the highest min, 14.2° on the 12<sup>th</sup> September, is 1.1° below the median and lowest since 1992. The lowest min was -3.1° on the 22<sup>nd</sup> November, 0.7° above the median. The mean grass min is 4.4°, 0.4° above average, and the lowest grass min was -7.8° on the 23<sup>rd</sup> November, 0.3° above average. The mean earth temperature at 30 cm depth was 13.5°, 0.5° above average, and at 1 m depth was 14.4°, close to normal. The first ground frost of the winter half year was on the 6<sup>th</sup> September after 93 frost free days. The first air frost was on the 22<sup>nd</sup> November after 215 frost free days. The duration of air frost was 24.9 hours, about half the average. **Rainfall:** This has been a drier than normal autumn, with only 75% of average, and 34 mm less than the long-term median. Since 2000 there have been only 2 drier autumns, in 2010 and 2011. The wettest day was the 16<sup>th</sup> September when 17.6 mm fell, 7.1 mm below the median. The duration of measurable rain was 134.3 hours, about 90 % of average. The longest duration in a rainfall day was 12.5 hours on the 5<sup>th</sup> October. The highest rainfall rate was 45 mm/hr on the 6<sup>th</sup> October. September was the driest month with 46.3 mm, and November the wettest with 53.2 mm, with rainfall in none of the months reaching the average. There were 3 dry spells, 10 days ending on the 10<sup>th</sup> September, 10 days ending on the 4<sup>th</sup> October and 12 days ending on the 19<sup>th</sup> October. Thunder occurred on the 6<sup>th</sup> October, and ice pellets on the 13<sup>th</sup> November. Some snowflakes fell during a spell of rain on the 21<sup>st</sup> November. **Sunshine:** The sunshine total this autumn is 14% below average, and is lowest since 2000. Compared with average, September fared the best with 110%, while November produced one of the dullest months for a century with just 40%. The 10<sup>th</sup> of September was the sunniest day with 11.9 hours. The 8 day period to the 2<sup>nd</sup> October was the best sunny period, giving a total of 79.5 hours, or 9.94 hours per day. At the other end of the scale, the 11 day period ending on the 11<sup>th</sup> November had a total of just 1.3 hours, a mean of 0.12 hours per day. Overall there were 57 days with <3 hours, 16 with =>6 hours and 8 with =>9 hours. **Wind:** The mean wind speed of 6.3 mph is 0.2 mph above average. The windiest day was the 29<sup>th</sup> November, mean 15.5 mph, and is the windiest autumn day since 2002. The season's highest gust of 54 mph was on the 17<sup>th</sup> November, although slightly above average it is only highest since 2013. The least windy day was the 9<sup>th</sup> October, mean 1.6 mph, and there were 2445 minutes of calm, (speed =< 0.5 mph). Daily mean direction/number of days; N,10 NE,14 E,6 SE,5 S,8 SW,30 W,13 NW,5. Compared with average, winds from N and NE combined were 8.1% more frequent, at the expense of winds from the S, 7.3% less frequent. **Pressure:** The season's pressure extremes were 1037.5 mbar on the 28<sup>th</sup> September and 984.8 mbar on the 16<sup>th</sup> September, a span of 52.7 mbar, compared with the average of 55.5 mbar. **Humidity:** The mean relative humidity was 84.1 %, and the lowest value was 35 % on the 30<sup>th</sup> September. The mean water vapour content per kg of air was 7.4 g at 0900 GMT and 7.2 g at 1500 GMT.

**September:** Cool with rainfall below and sunshine above average. The mean min lowest since 1986. Daily mean temp lowest since 1993. Highest min equal lowest with 2013 since 1992. Mean grass min lowest since 1986. Earth temp at 30 cm equal lowest since 1994.

**October:** Temperature near average, rainfall and sunshine below average. Driest since 2011 and most dry days since 2007. Highest wind gust lowest for the month since before 1988. N and NE winds were 25% more frequent than average.

**November:** Exceptionally mild and dull with below average rainfall and strong winds. Mean temperature joint 2<sup>nd</sup> highest with 2011 since 1882. Mean min 2<sup>nd</sup> highest after 1994 in the past 134 years. Mean daily temp range lowest since 1994. Mean grass min equal highest with 1994 since before 1979. Rainfall 23% below average yet the number of dry days is 9 fewer than average. Remarkable lack of sunshine, daily mean 0.95 hours lowest for over a century. The sunniest day had only 4.6 hours of sun, and 21 days failed to reach even 10% of the maximum. Windiest November since before 1988.

Month	Mean	Anom	Mean	Anom	Rain	Anom	Sun	Anom	Wind	Max	Mean	Anom
	Max		Min		mm		hrs		Mn mph	gust	pressure	
Sep	18.2°	-1.2°	7.8°	-2.2°	46.3	86%	157.3	110%	5.1	32	1017.4	+0.7
Oct	15.4°	+0.2°	7.5°	+0.3°	47.1	66%	94.1	85%	5.0	29	1018.3	+4.0
Nov	12.9°	+2.0°	7.4°	+3.3°	53.2	77%	28.5	40%	9.1	54	1016.2	+1.8

B J Burton FRMetS.

Hon. Met. Officer to Wokingham Town Council.



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Month:** Calendar month.

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

Summer, June to August

Autumn, September to November

Winter, December to February.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## Appendix 2.

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

**VV** : Visibility.

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

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

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

Code figure 89 = visibility above 70 km.

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

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

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

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

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

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

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

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

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

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

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

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

1 = Increasing then steady or increasing more slowly

2 = Increasing steadily or unsteadily

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

4 = Steady, pressure the same as 3 hours ago

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

6 = Decreasing then steady or decreasing more slowly

7 = Decreasing steadily or unsteadily

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

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

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

Present weather decode:

00 = Cloud development not observed or not observable

01 = Clouds generally dissolving or becoming less developed

02 = State of sky on the whole unchanged

03 = Clouds generally increasing or becoming more developed

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Hail includes large hail, small hail and snow pellets.

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

Code figures:

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

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

**Cl :** Type of low cloud

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

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

**Cm :** Type of medium cloud.

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

**Ch :** Type of high cloud

0 = No high cloud

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

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

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

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

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

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

7 = Veil of Cirrostratus covering the celestial dome.

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

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

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

**8 Groups**

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

**C** = Type of cloud

0 = Cirrus (Ci)

1 = Cirrocumulus (Cc)

2 = Cirrostratus (Cs)

3 = Altocumulus (Ac)

4 = Altostratus (As)

5 = Nimbostratus (Ns)

6 = Stratocumulus (Sc)

7 = Stratus (St)

8 = Cumulus (Cu)

9 = Cumulonimbus (Cb)

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

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

00 to 50 = Height in hundreds of feet

51 to 55 Not used

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

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