

Annual Report and Introduction, 2005.

Appendix 1.

The Wokingham Climatological Site: is located in the grounds of The Emmbrook School, Emmbrook Road, Wokingham. The National Grid Reference is (SU) 4,8003 1,6987. The Latitude is 51 degrees 25 minutes 19 seconds North, Longitude 0 degrees 50 minutes 56 seconds west. The surveyed altitude of the station is 43.6 metres above mean sea level, (County surveyor, 9 /5/78). The site is positioned on a level grassed area within a few metres of the Emm, a normally shallow stream about 5 metres wide. The Emm drains northwards through a shallow valley, with the land rising by about 40 metres within 1 km to both the east and west. The site is enclosed by an open chain link fence. The soil at the site is basically a heavy clay, overlain by a shallow mixed topsoil, probably put there at the time the school was built. During wet periods the water table rises close to the surface and the ground becomes squelchy, but it is rare to see water standing on the surface, except when the Emm overtops its banks, which it has done on 6 occasions since the site was established in 1976. During prolonged dry periods the ground contracts markedly, and quite deep cracks open in places. The general character of the site is urban, although it is on the outskirts of the town. Residential housing borders the site from northeast around to southeast, with the school buildings from south around to west, and further housing from west to northwest. The segment from north to east is least urbanised, with extensive lightly wooded farmland. The maximum local urban fetch is to the southeast, and is about 3.5 km. The urban conurbation of Reading is centred 9 km to the northwest. The exposure of the site was determined in a survey undertaken in 1985 as part of a Weather Station Exposure Project, by Dr S J Harrison at the University of Stirling, and was found to be between 'average' and 'slightly sheltered'. The site conforms to the requirements laid down for climatological stations by the Meteorological Office (Observer's Handbook, Met O 805, HMSO). During 1992, the site was accepted as fully suitable to provide rainfall returns to the Environmental Agency (formerly the National Rivers Authority) and the Met. Office. From the data accumulated since 1976, the temperatures recorded can be considered as representative of those expected in a semi-urban environment.

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

Thermometer screen, louvered, ordinary pattern; One	Thermometer screen, louvered, large pattern: One
Thermometer, minimum, alcohol in glass, index, sheathed; Four	Thermometer, maximum, mercury in glass, restriction, sheathed; Two
Thermometer, ordinary, mercury in glass, sheathed; Three	Thermometer, earth, mercury in glass, encased; Two
*Thermometer, electronic, max/min, c/w external probe; One	*Thermograph, bi-metallic, weekly clock; One
Thermometer, electronic, with data logger (TinyTag); One	
Raingauge, 5 in, Met O Mk2 pattern; Two	Glass rain measure, millimetre graduation: Two
Raingauge, autographic, tilting siphon, MO Mk2; One	Steel tube and fittings for 30cm earth temperature; One
Steel tube and fittings for 100cm earth temp.; One	Electronic anemograph, (2 sets), comprising: Anemometer cup generator
Mk4, (2), Wind vane, Mk 4g (2); Power supply unit, 240V input, 110V and 55V output; Power supply unit, 240V input, 240V and 50V output; 7 core armoured cable, 100 metres; 8 metre mast, fittings and fixtures; Anemograph. Recorder, (2), plus assorted spares.	
Other instruments, deployed at Cantley Crescent:	

Barometer, mercury, Kew pattern; One. *Microbarograph, weekly clock, Casella; One. Hail Pad, aluminium foil; One. Aspirated recording psychrometer, experimental design; One. Electronic sunshine recorder, R&D, with Pico AD converter and software; One. Data logging PC, type 286; One. WindSonic anemometer; One* * Instruments marked thus have ceased use during 2005

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

The Readings: are taken each day at 0900 GMT during both summer and winter. From the thermometers exposed in the louvered screen, exposed at a height of 1.2 metres above ground, values of dry bulb and wet bulb temperature, and maximum and minimum temperature since 0900 GMT the previous day, are obtained. Also read is the overnight minimum temperature at grass tip level, the earth temperature at 30cm and 1 metre depth, and the total precipitation since 0900 GMT the previous day. The thermograph, electronic thermometer, anemograph, microbarograph, autographic raingauge, psychrometer, and sunshine recorder maintain a continuous record of temperature, wind, pressure, precipitation duration and intensity, humidity and sunshine amount respectively. Readings are entered in a written log as well as on the home PC. Hourly mean values of wind direction and speed and maximum gust are read from the anemogram before transfer to the PC. Data logged on the 286 PC is transferred to the home PC on floppy disc, where it is analysed and processed. Monthly, seasonal and annual archives of the data is kept on the PC, with backup on a linked PC or recorded on floppy disc or CD.

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

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