

Appendix 1.

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

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

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

Thermometer screen, louvered, ordinary pattern; One	Thermometer 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	<i>Thermometer, electronic, with data logger (TinyTag); Four</i>
*Thermograph, bi-metallic, weekly clock; One	Rain gauge, 5 in, Met O Mk2 pattern; Two
Glass rain measure, millimetre graduation: Two	Rain gauge, autographic, tilting siphon, MO Mk2; One

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

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

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

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

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