
Site metadata for Willand Weather

Compiled on 10 November 2013

<i>Station name, location and geographical coordinates</i>	<p>Willand Weather</p> <p>The site is located in Harpitt Close, Willand, Devon UK</p> <p>Observer – Adrian Hudson</p> <p>Latitude 50.88°N, Longitude 3.37°W</p> <p>Altitude 79 m above MSL</p>
<i>Geographical context</i>	<p>Suburban site located in low-density housing in small village in Devon. Underlying geology Old Red Sandstone.</p>
<i>Site description</i>	<p>Suburban backyard. Reasonably well-exposed to north, east and west, rather sheltered by the observer's house to the south and by trees the north. Nearest buildings are the observer's house, 8.5 m tall at apex and approximately 10 m south of raingauge, and evergreen trees 8 m tall 8 m north of raingauge. Plot is bordered by fence 1.8 m tall to east and west and at north hedging 1.5 m high.</p> <p>The village is situated in relatively flat open countryside in Devon. Dartmoor, an area of raised moorland, highest point 620 m ASL lie roughly 45km to the south-west, the direction of the prevailing winds causing a slight rain-shadow effect.</p>
<i>Date records began at this site</i>	<p>Temperature, rainfall, baometer– 1 Jan 2005</p> <p>Solar radiation – July 2010. For instrumental details, see below.</p>
<i>Date records ended</i>	<p>Records continue at the date of writing.</p>
<i>Observing hours</i>	<p>Rain gauge is read manually once daily at the morning observation, normally at 7:30 GMT (8:30 BST) clock time throughout the year. The AWS, installed May 2006, maintains continuous records (10 minute resolution) of air temperature, relative humidity, wind speed (mean and gust) and wind direction, rainfall and barometric pressure. AWS and all records are maintained on GMT or BST depending on time of year. For instrumental details, see below.</p>
<i>Instruments in use</i> <i>Rainfall</i>	<p>Records began in 2005 with an Oregon Scientific WMR-912 unit with a non-standard catchment funnel. The AWS software was programmed to compensate for the increased area of the funnel. This resulted in roughly 0.2mm per tip.</p> <p>A Davis Instruments Vantage Pro2 AWS was installed on 27 June 2011. 10 minute rainfall totals are available from the AWS 0.2 mm tipping-bucket raingauge (TBR). TBR calibration checked and adjusted annually (last checked in October 2013). The rain gauge is mounted 1.5 m above ground level.</p> <p>Tipping mechanism replaced with Davis tipping spoon (single spoon) 20/04/2020</p> <p>A standard copper 5-inch gauge (Casella) was installed in October 2013 from which standard daily rainfall totals are taken at the station's terminal times.</p>
<i>Air temperature</i>	<p>Temperature records began in 2005 with the Oregon Scientific WMR-912 The temperature sensor was mounted within a dish type baffled screen</p> <p>Since its installation on 27 June 2011, temperature records have been taken from the Davis Instruments Vantage Pro2 AWS. The temperature and humidity sensor is mounted within the AWS passive radiation shield at 5 ft (1.25 m) above short grass/low herbaceous border, logged at 10 minute</p>

resolution. Maximum and minimum temperatures from AWS are logged by default over 00–00 GMT/BST. Calibration of temperature sensor checked and adjusted over 4 week period October-2013 using a portable calibrated reference. Calibration adjustments included in real time by means of software offset/multiplier. Units: °C. Resolution: 0.1 degC.

January 2014 – the radiation shield was converted to 24h aspirated

In March 2014 a Stevenson screen was added with UK Met Office pattern dry, wet, maximum and minimum thermometers. These are read daily at the morning and evening observations and the data logged in a spreadsheet.

Relative humidity and dew point

Humidity measurements made at 5 min resolution using the Davis AWS.

Manufacturer's sensor calibration used without adjustment (not checked). Humidity units: % RH. Resolution: 1%. Dew point calculated by AWS software from observed temperature and relative humidity. Units: °C. Resolution: 1 degC.

Sensor is being calibrated against standard wet/dry thermometers in Stevenson screen.

Barometric pressure

Pressure records began in 2005 with the Oregon Scientific WMR-912. Pressure transducer was within the unit console. Calibration was checked against Exeter Airport (16.5km S) and Dunkeswell Airport (10km E).

Since its installation on 27 June 2011, pressure records have been taken from Davis Instruments Vantage Pro2 AWS. Pressure sensor mounted within the AWS display unit located at ground floor of observer's residence, logged at 10 minute resolution, 'set' to mean sea level. Calibration checked and adjusted annually by comparison with hourly pressure readings from Dunkeswell and Exeter airports as above; most recent check in October 2013. Units: millibars. Resolution: 0.1 mbar.

Wind speed and direction

Wind speed and direction records commenced with installation of the Oregon Scientific WMR-912 in 2005. The anemometer and wind vane were mounted on a mast affixed to the observers house gable end with the post approximately 2.5 metres above the roof ridge.

The anemometer was replaced in 2011 with the installation of the Davis VP2. The mast remained in the same position. Anemometer replaced 2013 and 2016

Both wind speed (mean speeds and highest gust) and wind direction (16 point compass) logged at 10 minute resolution. Manufacturer's calibration of anemometer sensor has been used. Wind direction is in degrees true: units of wind speed are metres per second (m/s) resolution 0.1 m/s.

Sunshine and solar radiation

Solar radiation records are made using a Davis Instruments solar radiation sensor, mounted on a mast 2 metres above ground level. Records commenced on 6 July 2011. Exposure is partially obstructed to south by observer's dwelling in winter. Instrument is a silicon photodiode, logged at 10 min intervals by Vantage Pro2 AWS. Units: W/m².

In 2018 a Campbell Stokes sun record was added adjacent to the Davis solar radiation sensor.