Wet-Bulb temperatures from Armagh Observatory

Wet and Dry bulb temperatures have been recorded at Armagh Observatory since 1838, initially in the morning only, but later (from 1844 until 8 Mar 1965) supplemented by evening observations. Early data was recorded in degrees Fahrenheit. Note the large number of missing values (-888) in January in early years, probably due to the wet bulb being frozen. In fact, with modified equations for a frozen wet bulb, it is still possible to determine the Relative Humidity, however it is possible that the observer at that time was unaware of this and consequently neglected take the reading – see the subdirectory /humidity for further details on how to compute RH from a frozen wet-bulb.

Corrections for instrumental error have first been made by AMGS using the following table, based on checks from time to time by Observatory staff or UKMO inspectors. Ref. ARM/MET 001061; Butler et al. (2011)

From Jan to Sept 1882, Wet and Dry bulb thermometers by Jones. No calibrations found but Dreyer suggests comparison with Self-Recording Thermograph of AWS. However, the exposure would have been different.

From Jan 1885 till 2 Aug 1909, Wet and Dry bulb thermometers, Dry BT 3256, Wet BT 3254, (ref. Back of Met. Record Book 1880-1889) Degs F

Temp	32	42	52	62	72	82	92
Dry	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1
Wet	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1

From 3 Aug 1909 to 29 Feb 1972, Dry No. 8087, Wet No. 8088 (ref. NPL cert 1909, corresp. UKMO, 12/02/1964) Degs. F

Dry	0.0	0.0	-0.1	-0.1	+0.1	+0.1	0.0
Wet	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1

From 1 Mar 1972, Dry No. 76825, Wet No. 77111 Celsius UKMO
errors small and apparently not significant

Exposure

From its first installation in 1838 the hygrometer is believed to have been placed in the light metal box outside the north window of the 1827 Tower. Following the installation of the Stevenson Screen in 1883, the hygrometer was placed there where it has continued to lie ever since.

Relative Humidity and Specific Humidity

Calculations to determine the Relative Humidity from wet and dry bulb readings have been carried out in the late 1990s and the first decade of the 21st century. Details are given in the subdirectory /humidity and were published in the International Journal of Climatology by Butler and Garcia-Suarez (2011).

References:

Butler, C.J. and Garcia-Suarez, A.M. (2011) Relative Humidity at Armagh Observatory, 1838-2008, International Journal of Climatology DOI. 10.1002/joc.2302

Sub-directories:

/temperature/wet/daily/raw-wet-F-C/ wet bulb temperatures as recorded in degrees F or C
/temperature/wet/daily/cor-wet-C/ wet bulb temperatures in degrees C, corrected for thermometer error

Archive References:

ARM/MET/001061, ARM/MET/001062, ARM/MET/001069, ARM/MET/001106, ARM/MET/001107, ARM/MET/001108, ARM/MET/001109, ARM/MET/001110