

Soil Temperatures at Armagh Observatory, 1904-2003

Daily soil temperature measurements have been made at two depths from 1904. Initially, readings were made in degrees Fahrenheit at depths of 1 foot and four foot., but from 1 January, 1971, readings were made at depths of 30 cm and 1 metre in degrees Celsius. No overlap, was considered necessary though one could have expected some small systematic differences to occur. Later, as part of the study by Ana Garcia-Suarez and C.J. Butler, further measurements of the variation of temperature with depth were made which have allowed us to standardise the long soil temperature series.

There have been some changes in the location of the soil thermometers during the period covered by the data. Whilst they have remained within the South Lawn at Armagh Observatory, generally in close proximity to the Stevenson Screen and the rain gauges, it is possible that some small systematic differences were introduced by the proximity of paths. A study by Garcia-Suarez was able to use readings from the 1960s that allowed corrections for location to be applied to the data which may have been affected in this way.

Publications by Garcia Suarez et. al. give details of the corrections made to standardise these data and comparison with similar data from Birr, County Offaly and Valentia, County Kerry kindly supplied by staff at Met Eireann.

References:

Garcia-Suarez, A.M. and Butler, C.J. (2006) Soil Temperatures at Armagh Observatory, Northern Ireland, from 1904 to 2002. *International Journal of Climatology* 26, 1075-1089.

Garcia-Suarez, A.M., Butler, C.J. and Morrow, B. (2005) Meteorological Data recorded at Armagh Observatory: Volume 4 - Daily, Monthly and Annual Soil Temperatures 1904-2002

Archive Reference

ARM/MET/001075

Files:

/temperature/soil/daily/soil-temp-F/1904, 1906 etc Soil temperatures at 1 foot and 4 foot (later 30cm and 100 cm), degs F

/temperature/soil/daily/corrected-C/daily_30cm_1904-2003, daily_100cm_1904_2003 Daily soil temperature in degs C, corrected for instrumental error and location.

/temperature/soil/monthly/mmean_30cm_1904_2003, mmean_100cm_1904_2003 Monthly mean soil temperatures at 30cm and 100 cm

/temperature/soil/seas-ann/seas_ann_30cm_1904_2003, seas_ann_100cm_1904_2003 Seasonal and Annual mean soil temperatures at 30cm and 100cm

/temperature/soil/publications/SoilTemp-AMGS+CJB-IJC2006 Paper in Int. J. Climatology

/temperature/soil/publications/SoilTemp-AMGSetalMetDataArmVol4-2005-text-tabs1-5 Paper in Observatory in house Met Series (yellow cover), excluding table 6 etc.

/temperature/soil/publications/SoilTemp-AMGSetalMetDataArmVol4-2005-tabs6-11 Tables 6-11 of above paper