

Armagh Observatory Atmospheric Temperature Series I The Dunsink Patch

There is a gap in the Armagh Spot temperature series from June 1825 to December 1833 when it appears that meteorological observations were not taken. The book containing the readings during previous years is full and it almost appears that the observations stopped due to lack of paper to record them. This could be taken to imply that observations did in fact continue in another volume which has been subsequently lost. However, no evidence for this hypothesis has been found and, when Robinson submitted observations to the Ordnance Survey for their publication in 1856 - it is evident that no data for the period 1825-1832 was included. This would imply that in fact no data had been taken or it had been lost very soon afterwards.

Fortunately some meteorological data for this period survives in the archives of Dunsink Observatory, near Dublin. However, though observations were often made twice daily as required, they were not taken every day or at any particular time of day. This would normally make them useless for climate studies, however as the observer recorded the time of observation, when combined with the diurnal temperature curves for Armagh, it is possible, with certain assumptions, to calculate mean monthly temperatures for Dunsink over much of the period for which no data exists from Armagh. Unfortunately, even this is not enough to fully patch the Armagh Series I and some additional data from the Phoenix Park in Dublin is required. This too has been converted to the equivalent of the mean at Armagh.

The computation of the equivalent mean monthly temperature at Armagh from the Dunsink data was undertaken in late 2002/early 2003 by Chloe Morrell (CML) a work experience student from the University of Surrey using similar techniques for correction for the time of observation to those outlined for the Armagh Series I. The procedure used the mean diurnal temperature curves determined for Armagh from the Self-Recording Thermograph over the ten-year period period 1874-1883. See the following reports given under **publications** for details: Morrell (2003), Butler et al. (2005).

The following files have been copied from the directory of Chloe Morrell (CML) held in C.J. Butler's PC at the Observatory in 2017.

Directory: /home/cjb/alpha/project7/cml/Project/Dunsink/Info

Daily Data from Dunsink archive with time of recording:
dunsink/daily/1818-1850

Mean daily temperature at Dunsink, equivalent to the mean of maximum and minimum.
dunsink/daily/DUNSINK_INFO(1818-1850)

Computed mean monthly maximum, minimum and mean temperature at Dunsink
dunsink/monthly/Dunsink_Monthly_Max; Dunsink_Monthly_Min, Dunsink_Monthly_Means

Mean monthly temperatures at Dunsink
dunsink/monthly/dun-mon

Dunsink mean monthly temperatures shifted to Armagh
dunsink/monthly/mon-dun-eqarm, dun-patch-mon

Note, some errors were found in the work by Chloe Morrell which are described in folder 7 ARM/MET001066. As a result the computation of the equivalent of the mean of maximum and minimum temperatures determined from the diurnal temperature curves for Armagh were

recomputed by CJB using his own FORTRAN programmes. Further details are contained in the above file. The files listed in the directories **/temperature/spot/daily**, **monthly** and **seas-ann** are from these computations by CJB. However, the Dunsink data were not recomputed.

Publications:

Butler, C.J., Garcia-Suarez, A.M. Coughlin, A.D.S. and Morrell, C. (2005a) Air Temperatures at Armagh Observatory, Northern Ireland from 1796 to 2002. *International Journal of Climatology* 25, 1055-1079.

Butler, C.J., Coughlin, A.D.S., Johnston, D.J., Cardwell, D. and Morrell, C. (2005c) Meteorological Data recorded at Armagh Observatory: Volume 6 – Daily, Monthly, Seasonal and Annual Air Temperatures from Series I (1796-1882) including the Dunsink Patch (1825-1833) and Series III (1844-1964).

Archive References:

ARM/MET/001063, ARM/MET/001065, ARM/MET/001076