

Monthly mean air temperature dataset

Period of record

Monthly, annual and seasonal mean maximum and minimum temperatures are available from August 1843 to date; estimates have been made to cover minor periods of missing data. Until September 1851 the records were from unscreened thermometers exposed on a north wall; between October 1851 and December 1859 the north wall thermometers were exposed in a louvred screen structure. These exposures differ substantially from modern standards, and for this reason records from these years should be used with care. Between January 1860 and October 1899, the thermometers were exposed in a Glaisher stand on the lawned area in front of the observatory building. Corrections have been applied to the Glaisher stand maximum and minimum temperature records (but not the daily 0900/2100 manual thermometer readings) to provide at least approximate statistical equivalents to a Stevenson screen exposure, as set out in Appendix 3 in *Durham Weather and Climate since 1841*. Since November 1899, air temperature records have been made in a Stevenson screen exposed on the on the lawned area in front of the observatory building, the thermometry read manually until October 1999 and thereafter logged by an automatic weather station in the same location.

The monthly record has been extended back to January 1795 using a variety of contemporary local observations, full details of which are set out in Chapter 2 in *Durham Weather and Climate since 1841*.

Units

All values are in degrees Celsius, to a precision of one decimal place (two decimal places for annual means); until November 1971 readings were noted in degrees Fahrenheit, and these have been converted to degrees Celsius during dataset preparation.

Content

Monthly mean air temperature is defined as the average of the monthly mean maximum and monthly mean minimum temperatures, themselves the average of all daily values available within the month. There are occasional estimates where there are known errors or minor gaps in the record; full details are given in Appendix 3 in *Durham Weather and Climate since 1841*. Seasonal means are the average of all daily maximum and minimum temperatures within each three-month period, where winter consists of December, January and February (DJF, dated by the January year), spring is March, April and May (MAM), and so forth. Calendar year means represent the average of all daily maximum and minimum temperatures within 12 months January to December; minor rounding errors may result in slight differences between the mean of individual months and the calendar year mean.

Note that these records of monthly mean air temperature may differ slightly from the mean of the daily values, or previously published data, owing to the inclusion of minor corrections for exposure and terminal hour variations prior to that date. Full details on the source and derivation of the records, thermometer exposures, times of observations etc are given in *Durham Weather and Climate since 1841*.

Record format

Excel (xlsx) record format: monthly mean air temperatures in °C are set out for each month, season and calendar year, starting in 1795. Missing data are shown blank (empty cells).

If you use this dataset in any publication or published work, please include the following citation:

Burt, Stephen and Burt, Tim, 2022. *Durham Weather and Climate since 1841*. Oxford University Press, 580 pp.