Climate data: Technical documentation

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# Introduction

This document describes the climate data provided with 2020-08 SERL Observatory data release which originates from the Copernicus/ECMWF [ERA5 hourly reanalysis data](https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-single-levels?tab=overview).

More variables will be provided in future releases, but at the moment only temperature at 2 metres is included in the dataset. It can be linked with SERL participants using the ‘gridCell’ variable. The filename of this dataset is *SERL\_climate\_data\_v2020\_08.csv*. This documentation will be expanded in future as more climate variables are provided with SERL datasets.

# Overview

The climate data has 5 columns and 26,966,520 rows. This is reanalysis data based on recorded data from many weather stations across GB, at a horizontal resolution of 0.25 x 0.25 degrees latitute and longitude (approximately 28 sq. km). More information about spacial resolution is available [here](https://confluence.ecmwf.int/display/CKB/ERA5%3A+What+is+the+spatial+reference). ERA5 documentation is available [here](https://confluence.ecmwf.int/display/CKB/ERA5%3A+data+documentation).

The fields provided in the current SERL climate dataset are described in Table 1.

Table 1: Climate data fields.

| *Field* | *Description* | *Units* | *Class* | *Example value* |
| --- | --- | --- | --- | --- |
| gridCell | Grid cell for linking to participant data | NA | character | 38\_31 |
| analysisDate | Date the data refers to | NA | Date | 2018-08-01 |
| utcDateTime | Time and date of the data in UTC | %Y-%m-%d %H:%M:%S | POSIXct, POSIXt | 2018-08-01 00:00:00 |
| temperature\_2\_metres\_K | Temperature at 2 metres from the surface | deg K | numeric | 285.12 |
| temperature\_2\_metres\_C | Temperature at 2 metres from the surface converted into Celsius | deg C | numeric | 12.12 |

Table 2 provides some basic information and statistics about the data. More recent data will be provided with future SERL Observatory data releases.

Table 2: Data statistics

| *Statistic* | *Value* |
| --- | --- |
| Number of grid cells | 1845 |
| Earliest read date | 2018-08-01 |
| Latest read date | 2020-03-31 |
| Lowest temperature (deg C) | -12.69 |
| Highest temperature (deg C) | 39.29 |
| Mean temperature (deg C) | 9.83 |