Advice on using the European Severe Weather Database (ESWD)

1. Limitation of ESWD data for climatological analyses

ESWD data is not exhaustive. The rate at which events are recorded in the ESWD generally varies for non-meteorological reasons from country to country and between hazard types. Reporting rates can also change over time. In other words, the data are not homogeneous, neither spatially nor temporally. This means that the data cannot be used directly to detect climate trends or to spatially map severe weather probability. To that aim, more sophisticated techniques must be used, that combine the ESWD data with other data. Please inquire with ESSL for tips.

2. Quality control levels

There are three levels indicating the quality of ESWD reports:

- **QC0+** (plausibility check passed): These events are very likely to have occurred, but some details, such as their exact time, precise location, or report characteristics, are unknown or uncertain.
- **QC1** (report confirmed by reliable source): These events and reported contents have been confirmed.
- **QC2** (scientific case study): These events and reported contents are confirmed and have been subject of a scientific case study.

QC1 and QC2 reflect an equal level of validation, but more metadata may be available for QC2 reports.

3. Number of reports per event

For some severe weather phenomena, one report is collected per event, while for others, multiple reports can reflect to what most people will consider one event.

- One report per event is given for tornadoes, avalanches, and damaging lesser whirlwinds. Simultaneously occurring tornadoes that occur in very close proximity are reflected by one report each.
- Multiple reports may be given for all other event types. For, e.g., large hail, every settlement reporting large hail or hail damage may be reported separately, even if it was caused by the same hail-producing storm. It is left to the user of the data to aggregate such reports in the way their use case requires.

4. Time and location accuracy of reports

All timestamps of ESWD reports have an accuracy indicated reflecting the time frame in which the event is thought to have happened. Please note that including cases with large time uncertainty (that may exceed half a day) may affect analyses, so that one should consider carefully which time accuracy is acceptable for any specific use. Mixing reports with wide varying time accuracy may lead to undesired results.

The time of heavy rain events indicate the time at which the heaviest precipitation ended. Reports before 2021 were reported differently. When the exact location of occurrence of a report is unknown or uncertain, their geographical coordinates will often represent the centre of the administrative areas (e.g., a country, district, or province) in which it occurred. As with time accuracy, please consider which place accuracy is acceptable for the analysis before undertaking it.

5. UTC time and date

In the ESWD, the time of all reports is given in UTC (Coordinated Universal Time). If an event occurs soon after local midnight in Europe the date in UTC may still be the previous day.

6. Importing ESWD data into a spreadsheet program, such as Microsoft Excel

To work with ESWD data in Excel or another spreadsheet program, do to the following:

- Make sure you have downloaded the ESWD data in csv format
- Make sure you import the data with the characted encoding UTF-8

To import data to Microsoft Excel follow these steps:

1. Open Excel and open a new blank Workbook
2. Click on "Data -> from Text/CSV" (usually to be found near the left of top of your screen)
3. Browse to the downloaded csv file, select and open it
4. Change "File Origin" to "65001: Unicode UTF-8" and click on "Load"