Seventh Framework Programme
Theme 6 [SPACE]

Project: 607193 UERRA

Full project title:
Uncertainties in **E**nsembles of **R**egional **R**e-**A**nalyses

Deliverable D1.5
Quality controlled time-series of synoptic observations for the post- and pre -1950 periods in Europe and
its borders

WP no:	1
WP leader:	URV
Lead beneficiary for deliverable :	URV
Name of <u>author</u>/contributors:	Linden Ashcroft, Juan Ramon Coll and Manola Brunet
Nature:	Report
Dissemination level:	PU
Deliverable month:	30
Submission date: September 28, 2016	Version nr: 1

Project: 607193 - UERRA

Brief description of the C3/UERRA/QC dataset of quality controlled time-series of synoptic observations developed under UERRA Work Package 1 in pursuance of Deliverable 1.5 (D1.5)

Linden Ashcroft, Joan Ramon Coll and Manola Brunet
September 2016

The first version (v1) of the C3/UERRA/QC dataset is composed of quality-controlled time-series of synoptic observations digitised and quality controlled under the EU-FP7-SPACE-2013-1 project (*Uncertainties in Ensembles of Regional Reanalyses*: UERRA. Grant agreement no.: 607193), Work Package 1 (WP1) in pursuance of D1.5: *Quality-controlled time series of synoptic observations for the post- and pre-1950 periods in Europe and its borders*. It has been developed by the Centre for Climate Change (C3) of the University Rovira i Virgili (URV) and contains about 8.7 million quality-controlled observations for 11 variables recorded at 127 meteorological land stations across 15 countries in the UERRA European domain (namely, the Mediterranean region, Central Europe and the Balkans. See Deliverable D1.2 for details). It spans the period 1877–2012, although larger efforts were placed in the post-1950 period (about 80% of the total data recovered) than for the pre-1950 period (about 20%), as reported in detail in D1.3 and D1.4.

All time-series of sub-daily observations have been subjected to 14 individual tests for a range of logical and relative random biases, looking for calendar dates and observing time inconsistencies, strange data distributions and scattering, pattern repetition, climatic outliers, data jumps and spikes, repeated values, bivariate distribution outliers, logical failures, frequency biases and, when possible, inter-variables comparisons. Additional consistency checks were also applied to daily and sub-daily snow depth, fresh snow and precipitation data.

The output of these tests was then compared to the digitised data and original data source, to correct or verify the flagged values. This step, although very time consuming, is essential to ensure the observations contained in the dataset are reasonably real measurements and are not mistakes introduced either in the data sources used (see D1.1) or during the data digitisation and management processes.

Around 4% of values have so far flagged during the quality control (QC) process. Just under 1% of the original, non-missing data (83762 values) have so far been removed, and a further 87768 (1.0%) corrected due to digitisation or source errors. A number of values (18651, or 0.2% of the total number of values) were flagged as incorrect, but on manual inspection were found to be accurate. These "false positive" results were largely anomalously low-pressure values and repeated relative humidity or wind direction observations. Due to the large amount of data digitised, which exceeds more than twice the committed target of 3.7 million of hourly observations, 1671404 values, with approximately 7000 values flagged by the QC procedure, remain to be checked (around 8% of the total number of flagged values). These final checks will be conducted throughout September and October, and will alter the final quality control results.

The C3/UERRA/QCed.v1 dataset is freely available at ftp://130.206.36.123 (username: C3_UERRA, password: C3uerra17). Version 2 will substitute it once the final quality controlled dataset is ready. The dataset is accompanied by a data readme with documentation to ensure its full traceability. For further details and queries, please email

Project: 607193 - UERRA
Linden Ashcroft (lindenclaire.ashcroft@urv.cat) or Manola Brunet
(manola.brunet@urv.cat).