

Tentative Outline for Best Practice Guidelines 2 (BPG2)

(Copernicus for Climate Change Services) Guidelines on data and metadata quality control, formatting and submission

(in brackets **tentative writers**)

Summary of Contents (Manola, **others?**)

1. Introduction (Manola, **others?...**)

1.1. Scope

Guiding DARE practitioners, either small or big projects, on data and metadata QC, formatting and submission through C3S/CDS to global data centres

1.2. Aims of BPG2: setting the scene

Building upon BPG1, introducing BPG2 as a continuation to address the other elements of the DARE workflow: data and metadata QC, formatting and submission

Focusing on surface stations information, description and application of C3S/ DRS' metadata and data QC tools, its SEF format for data formatting and submission to C3S CDS for data and metadata consolidation

Workflow scheme

2. General Guidelines

2.1. Generating Metadata and their Quality Control (QC) (**Antonia, Manola...**)

2.1.1. What climate metadata are?

2.1.2. Metadata minimum requirements and best practices

2.1.3. Metadata consolidation

2.1.4. Rationale for climate metadata QC

2.1.5. Tools developed by the C3S/DRS for metadata

2.1.5.1. Guiding in the usage of the C3S/DRS metadata inventory for land surface observations (based on the Metadata information for Land Surface Observations Table from the Guidelines for inventory metadata standards and formats?)

2.1.5.2. Describing and applying Metadata QC tools for station location: the Package 'stlocationqc'

2.1.5.3. Submitting metadata to the C3S DRS inventory

2.2. Climate data formatting (Yuri)

2.2.1. Formatting climate data: avoiding bottleneck between the transcription and database-building steps

2.2.2. The C3S/DRS climate data formatting: the Station Exchange Format (SEF)

2.2.2.1. SEF header, data table

- 2.2.2.2. SEF metadata entries, statistics, time period codes, variable names
- 2.2.2.3. SEF examples
- 2.2.2.4. SEF software: R
- 2.2.2.5. SEF software: Python

2.3. Climate data QC (Yuri)

- 2.3.1. What is data QC and why should QC exercises undertaken?
- 2.3.2. QC stages: detection, validation, flagging, documenting QC results
- 2.3.3. The C3S/DRS land-surface climate data QC tools (package “dataresqc”)
 - 2.3.3.1. Requirements and documentation
 - 2.3.3.2. Input data
 - 2.3.3.3. Workflow
 - 2.3.3.4. Overview of the C3S/DRS’ QC tests and software: detecting outliers, values out of range, repeated, impossible, duplicated dates and times, internal consistency, rounding, daily, sub-daily and weekly cycles
 - 2.3.3.5. Guiding and advising the application of QC tests

2.4. Data submission and consolidation (Phil, Antonia,..)

- 2.4.1. The C3S Climate Data Store (CDS)
 - 2.4.1.1. Submitting climate data to CDS
- 2.4.2. Climate data consolidation

3. Practical Guidelines: Two end-to-end application exercises (Philip, Jürg,...)

- 3.1. The Ulysses storm of February 1903 (or the one of 1905): an application example
- 3.2. A major frost event in 1902 destroying Brazilian coffee crop and plants, another application exercise

References

Acronyms List