

WMO Survey on Climate Data Homogenization Practices

Expert Team on Data Development and Stewardship September 2025

Introduction (for respondents)

Dear colleague,

The World Meteorological Organization (WMO) is conducting this survey to better understand how National Meteorological and Hydrological Services (NMHSs) and related institutions apply **climate data homogenization techniques**.

Your answers will help WMO identify common practices, challenges, and needs, in order to provide targeted support, training, and guidance.

Quick Definition: Homogenization in climate data means the removal of non-climatic changes. Next to changes in the climate itself, raw climate records also contain non-climatic jumps and changes, for example due to relocations or changes in instrumentation.

Estimated time to complete: **10–15 minutes**.
Responses will be used for WMO internal analysis only.

Thank you for your contribution!

 **Next**

1. General Information

1.1. Name of your organization

(Drop-down list of National Meteorological and Hydrological Services of WMO (around 200) and possibility to add other organizations in free text)

1.2. Country

(Drop-down list of WMO Members countries)

1.3. Contact email (institutional)

(Open text)

1.4. Name, mail and position of respondent

(Open text)

 **Next**

2. Use of Climate Data Homogenization

2.1. Does your organization currently perform homogenization of climate data?

- Yes
- No

 Next

If YES → go to Section 3A

If NO → skip to Section 3B

3A. Details for organizations that perform homogenization

3A.1. For which climate parameters do you apply homogenization?

(Multiple choice, tick all that apply)

- Temperature
- Precipitation
- Pressure
- Wind
- Sunshine / radiation
- Other (please specify)

3A.2. On which time resolution(s) is homogenization applied?

(Multiple choice)

- Monthly
- Daily
- Sub-daily (e.g., hourly)
- Seasonal / annual
- Other (please specify)
- Optional comment if using several time resolutions to explain why (e.g. depending of the climate parameter)

3A.3. For which purposes are homogenized datasets used?

(Multiple choice)

- Operational climate monitoring
- Development of climate indices

- Climate services for stakeholders (agriculture, water, health, etc.)
- Climate change analysis / research
- Model evaluation / reanalysis support
- Other (please specify)
- Optional comment if needed

3A.4. At which scale are homogenized datasets available?

(Multiple choice)

- National station level only (not gridded data)
- National gridded dataset
- Regional station level only (multi-country not gridded data)
- Regional Gridded dataset
- Other (please specify)
- Optional comment if needed

3A.5. Is your homogenized data easily available (E.g. through Internet) to: (Multiple choice)

- Users of your organization
- Specific users inside and outside your organization
- All national users
- Global users
- Other (please specify)
- Optional comment if needed

3A.6. What is the update cycle of your homogenized series (e.g. every 5 years, 10 years, unknown, other (please specify) ...)? (Multiple choice and explanation if different answers)

3A.7. Do you provide the measured series alongside the homogenized series? Why/Why not? (paragraph)

3A.8. Do you use homogenized or measured series for defining record values, e.g. all time temperature record values, heat- and cold waves? Multiple choice: Homogenized / Measured / Both / Other (please specify)

3A.9. Which software or methods are used?

(Multiple choice + free text option)

- ACMANT
- Climatol
- HOMER
- MASH
- PHA
- RHtests
- Other (please specify)

3A.10. Is your homogenized data free of charge? (Yes, No, Explanation)


3A.11. What are the main challenges you face in homogenization?

(Open text – optional)

3A.12. What type of support would you find most useful?

(Multiple choice)

- Training (workshops, online courses)
- Technical documentation / good practices
- Access to recommended software
- Peer-to-peer exchange / expert network
- Other (please specify)

 End of this section → Go to **Section 4 (Final Comments)**

3B. For organizations that do not perform homogenization

3B.1. What are the reasons for not applying homogenization?

(Multiple choice)

- Lack of expertise / training
- Lack of resources (financial, staff)
- Lack of software/tools
- Not a priority for the organization
- Other (please specify)


3B.2. Do you have plans to implement homogenization in the future?

- Yes, within 1–2 years
- Yes, but in the longer term
- Not planned
- Don't know
- Comment if needed

3B.3. What support would help you start homogenization?

(Multiple choice)

- Training (workshops, online courses)
- Technical documentation / good practices
- Access to recommended software
- Peer-to-peer exchange / expert network
- Other (please specify)

 End of this section → Go to **Section 4 (Final Comments)**

4. Final Comments

4.1. Please share any additional comments or suggestions regarding climate data homogenization and WMO support.

(Open text – optional)

☐ End of questionnaire