Consultation on Homogenization

How to implement a homogenization process in an NMHS?

(Based on WMO-No. 1245 and community expertise)

WMO/SERCOM/SC-CS/ET-DDS

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WORLD METEOROLOGICAL ORGANIZATION

1950-2025 SCIENCE for ACTION

Prerequisites

- Efficient governance of observing network & data flow
- Compliance with **WMO standards (WMO-No. 8)***
- Respect of **GCOS Climate Monitoring Principles****
- Knowledge of datasets: metadata, QC, data rescue, Stewardship maturity matrix***

* Guide to Instrument and Methods of Observation
** https://gcos.global-climate-observing-system-gcos/essential-climate-variables/about-essential-climate-variables
*** Manual on the High-quality Global Data Management Framework for Climate (WMO-No. 1238)

Define Vision & Objectives

- Aligned with national, regional, and global priorities
- Typical objectives:
    - Support climate change research
    - Provide reliable datasets to users
    - Develop climate products and services
    - Benefit key sectors (energy, health, agriculture, …)

Assess Resources

- **Human**: staff, skills, training
- **Technical**: hardware, software, systems
- **Financial**: national and external

Build a Pragmatic Plan

- Define **tasks** and **responsibilities** (who does what?)
- Identify required **workflow** & **tools**
- Ensure **sustainability**: Human Ressource, data security, storage, updates frequency, data exchange

Key Implementation Tasks

- Develop a **strategy** (regions, stations, parameters)
- Homogenize at multiple timescasles (monthly, daily, subdaily)
- **Expand dataset length** (Data Rescue), **complete** datasets, metadata knowledge
- Regularly **update** homogenized datasets
- **Share** datasets nationally, regionally & globally
- **Promote data** and **define quality level** for homogenized datasets
- **Engage users** (webinars, forums, feedback loops)

Key Message

Homogenization = an **ongoing process**, not a one-off project

It requires:

- ✓ Knowledge of your network
- ✓ Clear vision and strategy
- ✓ Adequate resources
- ✓ Sustainable planning

→ A foundation for climate research, services and support

Conclusion

To conclude, homogenization **turns raw observations into reliable, usable data**.

It supports research, enables products and services, and helps sectors like **energy**, **health**, **agriculture**, and **water management** make informed decisions.

It’s a long-term commitment, but absolutely **essential** for understanding and responding to climate change.