**Question and Answer (Q&A) Guide — Homogenization Presentation**

**ET-DDS November 2025**

# Challenging / “Tough” Questions

**Q1: Does homogenization methods consider the rapid climate change?**

**A:** ?

**Q2: Is Artificial Intelligence (AI) is used for homogenization?**

**A: ?**

**Q3: Can homogenization introduce bias?**  
**A:** When done incorrectly, yes. That’s why strict methodology, transparency, and documentation are crucial. Using multiple statistical methods and reference series reduces risk.

**Q4: How do you justify adjusting historical data to skeptical audiences?**  
**A:** Explain that adjustments remove **artifacts**, not real climate signals. Show examples where unadjusted data would misrepresent trends, and demonstrate validation against reference series.

**Q5: How do you handle stations with very short or inconsistent records?**  
**A:** Short or inconsistent records can still be useful in regional analyses. We document uncertainty clearly and use them cautiously in homogenization, often cross-checking with neighboring stations.

**Q6: What is the WMO Data Policy for homogenized data?**

**A: ?**

**Q7: Do we need the same homogenized process (method) for a regional approach? That means for a RCC to ask each RCC’s Members the same homogenized method to be able to gather all datasets together?**

**A: ?**

# General / Conceptual Questions

**Q1: What exactly is homogenization?**  
**A:** Homogenization is the process of adjusting climate data to remove errors caused by changes in instruments, station locations, or observation practices. It ensures that observed trends reflect **true climate variations**, not artificial shifts.

**Q2: Why is it necessary?**  
**A:** Without homogenization, we risk misinterpreting climate trends. It’s essential for research, climate services, and decision-making in sectors like energy, health, and agriculture.

**Q3: How often should homogenization be done?**  
**A:** Homogenization is an ongoing process. Datasets should be updated regularly as new observations come in or as old data are rescued or re-evaluated.

# Technical / Implementation Questions

**Q1: What timescales are typically homogenized?**  
**A:** Monthly, daily, and sub-daily timescales. The choice depends on data availability and the intended applications.

**Q2: How do you handle gaps in historical data?**  
**A:** Through **data rescue**, interpolation, statistical methods, models. Metadata and documentation are crucial to ensure transparency.

**Q3: Are there standard software tools for homogenization?**  
**A:** Yes. For example, ACMANT, Climatol, MASH, RHTEST and other WMO-recommended packages. The choice depends on national capacity and dataset specifics.

**Q4: How do you assess the quality of homogenized datasets?**  
**A:** By assigning **quality levels**, validating against reference series, and documenting all adjustments made. Continuous feedback from users is also important.

# Organizational / Strategic Questions

**Q1: What are the key prerequisites before starting homogenization?**  
**A:** Strong governance, compliance with **WMO standards**, knowledge of datasets (metadata, QC, rescued data), and a clear vision aligned with national and global priorities.

**Q2: How much resources are typically needed?**  
**A:** It depends on the dataset size and scope. You need trained staff, technical infrastructure (hardware/software), and sustainable funding. Even small teams can start and gradually scale up.

**Q3: How do you ensure the process is sustainable?**  
**A:** Through a structured plan, clear responsibilities, staff training, secure data storage, and regular updates. Collaboration at regional and global levels also helps.

# User / Impact Questions

**Q1: How does homogenization benefit sectors like agriculture or energy?**  
**A:** Homogenized data provide reliable long-term climate records, enabling **better planning** — for example, irrigation schedules, crop selection, energy demand forecasting, or flood risk assessment.

**Q2: How do you communicate with users?**  
**A:** Through webinars, workshops, forums, or direct feedback channels. This ensures datasets meet users’ needs and builds trust.