4.) Aktuelle ICR Projekte

Leitung – Univ. Prof. Dr. Werner Bergholz

- Änderung der Temperaturmessverfahren durch meteorologische Institute -
Eine kritische Analyse basierend auf **Qualitätsmanagementprinzipien**

- Die Hypothese: Vom Menschen verursachte Klimaänderungen hängen mit dem Anstieg der globalen Durchschnittstemperatur zusammen **-> Schlüsselfrage: Haben die meteorologischen Institute ein angemessenes Änderungsmanagement durchgeführt, um sicherzustellen, dass die Temperaturzeitreihen durch diese Änderung nicht verfälscht werden?**

Ergebnisse für Australien: Brisbane Airport:
- Kein systematischer Vergleich der alten (LIG) manuellen und neuen (AWS) automatischen Messung
- Ergebnis: inakzeptable Genauigkeit (Abweichung von wahrem T), Präzision (Standardabweichung) ebenfalls nicht OK

- Nächste Maßnahme: Anfrage an den DWD (Deutscher Wetterdienst) – bis jetzt keine Antwort

Changing the Temperature Measurement Method by Meteorology Institutes

- A critical Analysis based on Quality Management Principles -

I. The significance of the temperature measurements

- The hypothesis man – made climate changes hinges on the increase of the global average temperature
- The detected temperature increase since the 1970 is about 1°C

II. QM – based requirement for the Accuracy and Precision of the T - measurements

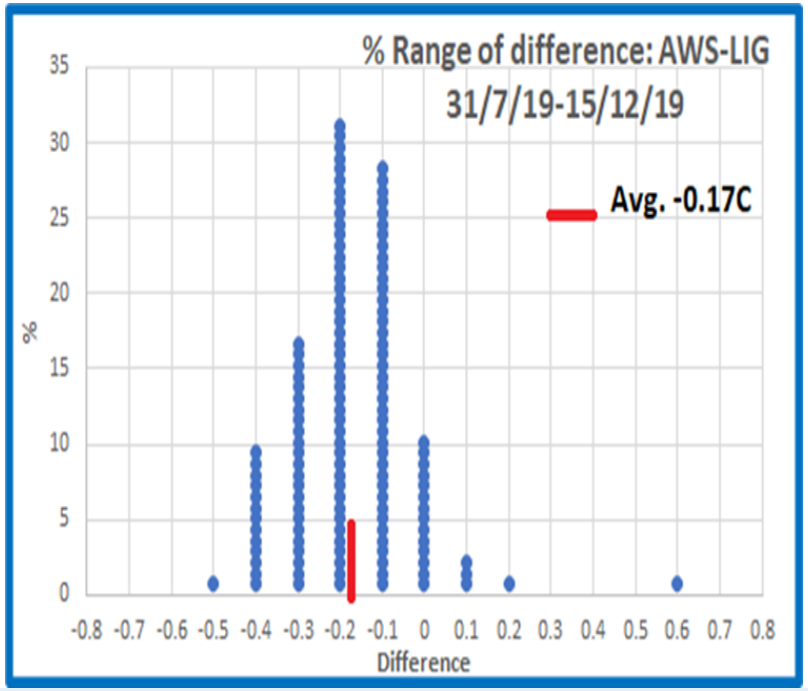
- The QM standards ISO 9001, IATF 16949 and ISO 17025 require that a measurement method has a sufficient capability in relation to the context of the measurement
- In connection with the climate change hypothesis the requirement 0.1°C 3sigma measurement capability is a modest demand

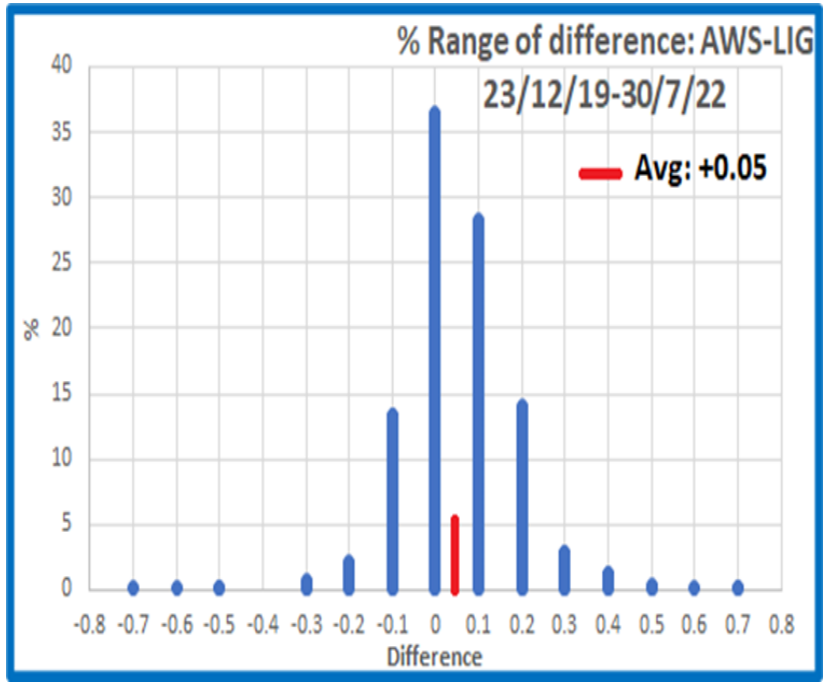
III. Change from manual to automatic weather stations

- Key Question: **Did Metrology Institutes do appropriate change management to ensure that the temperature time series for T are not distorted by this change?**

IV. Results from Ausstralia for Brisbane Airport

- ❑ No systematic comparison of old (LIG) manual and new (AWS) automatic measurement)
- ❑ The „fix of a fault“ in the AWS system was without any information and kind of arbitrary
- ❑ **Result**: unaccaptable accuracy (deviation from true T), precision (standard dev.) also not OK





Source: https://kenskingdom.wordpress.com/2023/05/30/analysis-of-parallel-tmax-data-from-brisbane-aero/

V. Next Action: Inquiry to DWD (Deutscher Wetterdienst)

a) How was the change from LIG (mercury Liquid In Glass thermometer) to AWS (Automatic weather station) managed to conform to quality management rules regarding changes in measurement systems?

b) What are the key results regarding accuracy and precision?