

Steps needed for a GRUAN data product

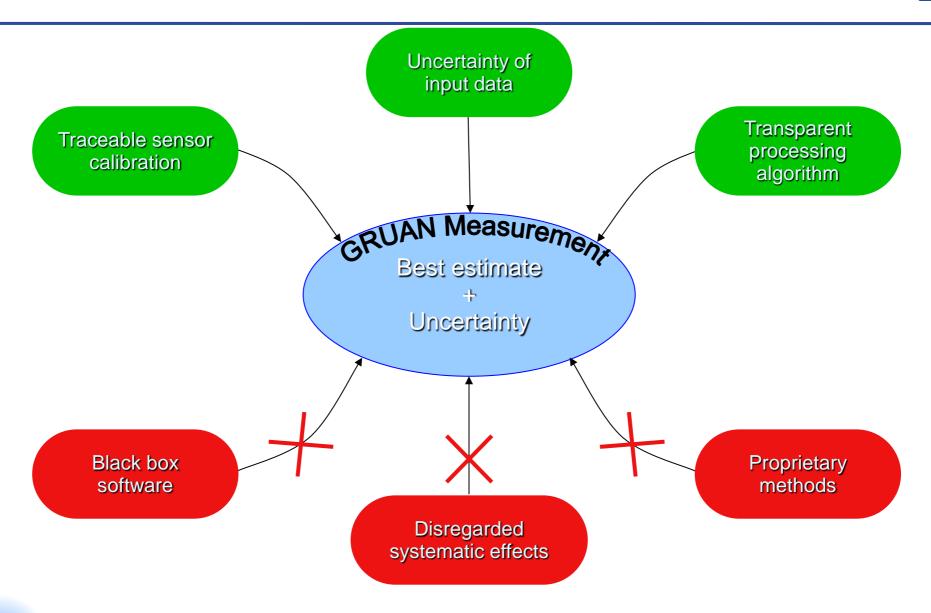
Ruud Dirksen GRUAN Lead Centre, DWD

11th GRUAN Implementation and Coordination Meeting (ICM-11)
Singapore
May 2019





Reference data product - recap









GCOS Reference Upper-Air Network

GRUAN Technical Note 4

Guidelines on requirements for the initial development of a GRUAN data product

PETER THORNE





Requirements



- A GRUAN Technical Document describing
 - measurement principles
 - measurement technique specifications
 - uncertainty quantification
 - correction algorithms
 - metadata
- A peer reviewed paper (submitted/published) that describes the scientific foundation for the data product
 - o emphasis on the uncertainty quantification
- A central data processing facility
 - At LC or external



Requirements cont'd

- Measurement system (ready to be) adopted at one GRUAN site, and potentially deployed at other sites.
- > Data stream (beta release) for a limited period
 - Verify & validate data product





Characterisation - Laboratory measurements



PTU

Climate chamber

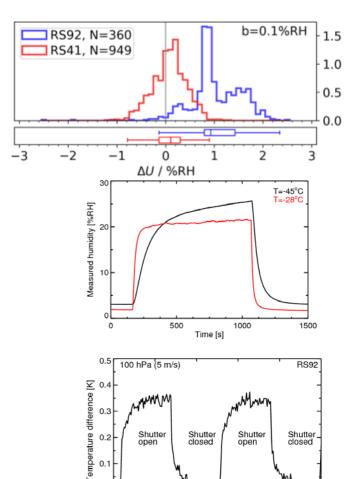














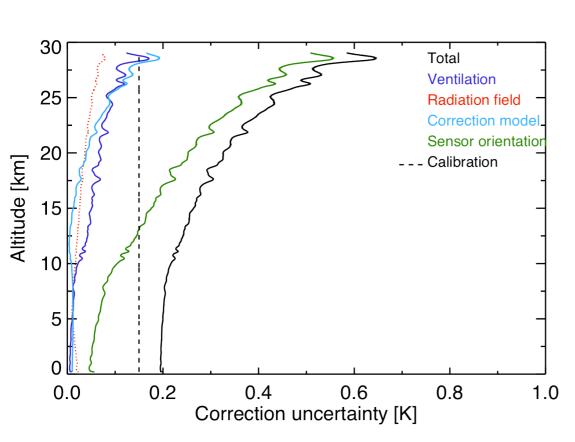
4350

4400

4200

Lead Centre - ICM-11 - Singapore

Uncertainty estimate



Relative Humidity[%] 20 60 80 100 20000 Total ---Temperature TUD 18000 TL corr — RH Cal. Ts/Ta corr 16000 Hys. Contami 14000 12000 ALTITUDE[m]
0000 6000 4000 2000 -100 -50 50 Uncertainty[%RH] TEMPERATURE[C]

RS92; from Dirksen AMT2014

RS-11G; from GRUAN-TD-5



Deutscher Wetterdienst Wetter und Klima aus einer Hand

