



NCAR

# Development and Certification of GRUAN data products

Holger Vömel

NCAR

Michael Sommer

GRUAN Lead Center  
Meteorological Observatory  
Lindenberg

ICM-7

23 February 2015

What distinguishes a GRUAN data product:

- Quantified uncertainties
- Manufacturer independent ground check
- Documentation
- Dedicated data flow
- Certification ?

## Sources of uncertainty:

- Calibration
- Manufacturing
- External (environmental) factors



# Manufacturer independent ground check

Purpose of manufacturer independent ground check:

- Verification of instrumentation
- Verification of long term stability
- Identification of unknown issues

How are data generated:

- How are uncertainties determined
  - Lab studies
  - Theoretical studies
  - Atmospheric comparisons against standard
  - Quantification of corrections
- Interpretation of observations
  - Meta data
  - Vertical resolution
  - Temporal resolution

Data from site to user:

- Coordination of data flow with Lead Center:
  - Site → Lead Center → Processing center → Lead Center → Data portal (NCDC)
- Data formats
  - Raw data
  - Processed data
  - Final product files
- Data versioning

Need of certification:

- Verify that the process is appropriate
  - Verify that the results meet expectations
  - Identify gaps
  - Keep the process honest
- 
- **DISCUSSION: HOW DO WE IMPLEMENT THIS?**



## Risks:

- Highly limited resources → Need to remain pragmatic
- Who are the experts to certify GRUAN products
- Time line for process