Site update: Lindenberg

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Outline

Ground-check of radiosondes

Redundant measurements: comparison RS92/CFH/lidar

RS92-GRAW comparison: first results
Standard Humidity Chamber
• Reference thermometer
• Ventilator
• Adaptable mounts RS92, CFH, GRAW, …
• Various humidities (saline solutions)

Radiosondes & CFH
Ground-check SHC

Standard Humidity Chamber

- Reference thermometer
- Ventilator
- Adaptable mounts RS92, CFH, GRAW, ...
- Various humidities (saline solutions)

Radiosondes & CFH
RS92 additional ground-check

After re-calibration additional quality check in SHC (100%)

Well-defined environment

Reject sondes >105%

100% readings input for measurement uncertainty

Future: use in processing (GPD)
RS92: recalibrated T vs $T_{ref}$ in SHC

Difference typically 0-0.2K

RS92 temperature recalibration: OK

$\Delta T$ used in the estimation of measurement uncertainty
23/11/2011 0h00 UTC

RS92, CFH, Raman lidar (1h30-4h00)

Clear sky conditions

Lidar calibration using 18:00 launch
Validation/redundant measurements

23/11/2011 0h00 UTC

RS92, CFH, Raman lidar (1h30-4h00)

Clear sky conditions

Lidar calibration using 18:00 launch

Discrepancy due to time mismatch between CFH and lidar calibration (18h00)
Comparison 10-18km

RS92 GDP

CFH

lidar

Altitude [km]

Water vapor mixing ratio [ppmv]

4 ppmv

$\delta_{\text{vol}}$

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Lindenberg Meteorological Observatory
Richard Aßmann Observatory

Lead Centre
R. Dirksen – 2012-03-07 – Tokyo, Japan
All instruments converge to stratospheric background level (4ppmv)

In stratosphere: results within mutual measurement uncertainties
GRAW sonde

Testing GRAW since end of Jan/2012
1 dual launch/week
- GRAW+RS92
- CFH+O$_3$+COBALD+

T: Good agreement
RH: bias w.r.t. RS92

Work in progress!

Comparison GRAW vs RS92
Launch 26/01/2012 (12h UTC)
Summary

SHC during ground check

Comparison redundant techniques

Testing GRAW system
Summary

SHC during ground check

Comparison redundant techniques

Testing GRAW system

RS92 GRUAN Data Product paper