

The RS92 radiosonde Appendix

Ruud Dirksen,
GRUAN Lead Center

ICM-8
26 April 2016



- Hardware
- Software & dataformat
- Ground station
- Operational procedure/handling

- Correction algorithms & uncertainty estimates covered by e.g. Dirksen et al. 2014

PTU sensors

2 Humicaps, alterate heating

Capacitive T sensor wire

Subtypes

w or w/o p-sensor

GPS vs Loran

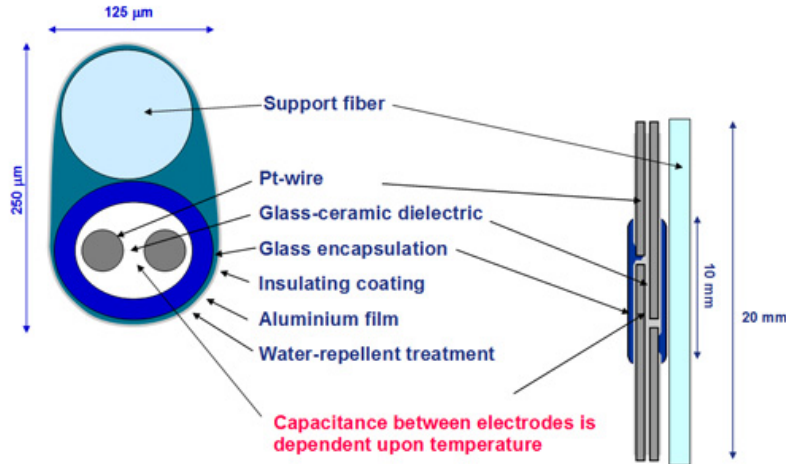
Changes (Vaisala RS92 data continuity site)

Coating sensor boom

T-sensor



Temperature Sensor Construction

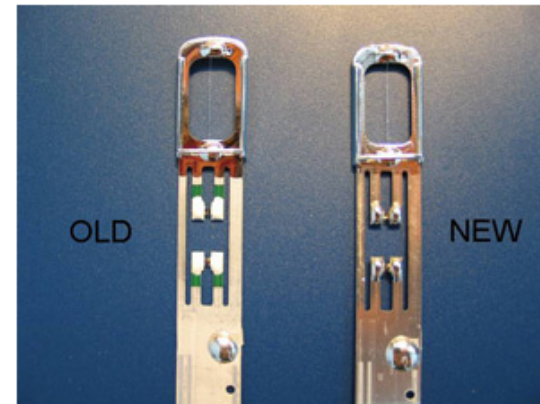
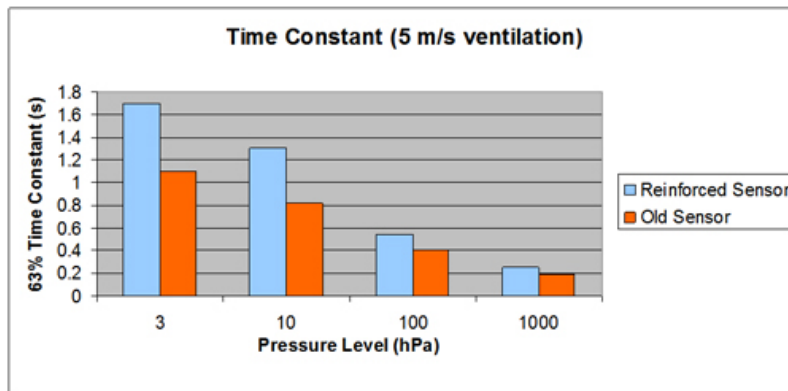


Improved Coating of Humidity Sensor Contacts

Improved attachment decreases warming caused by solar radiation.

- Relative humidity is a function of humidity and temperature
- In daytime soundings, the humidity sensors and their contacts are warmer than the surrounding air they are measuring. This results in too low relative humidity values.
- The effect is noticeable in the upper troposphere and lower stratosphere, especially at high humidity conditions. There the radiosondes with the improved coating measure up to 5-6 %RH higher humidity values compared to those with the old coating.
- The new coating was used in the WMO Intercomparison of High Quality Radiosonde Systems in Mauritius, 2005

Time Constants of Old and Reinforced Sensors



<http://www.vaisala.com/en/products/soundingsystemsandradiosondes/soundingdatacontinuity/RS92DataContinuity/Pages/default.aspx>

- Digicora 3 & MW41
- Datafile format raw data (dc3db & mwx)
- Configuration
- Meta data
- Software versions (radiation correction, time lag correction)

- Decontamination & Ground check
- Recalibration PT100 T-reference sensor
- Regular replacement desiccant

GRUAN-specific: SHC groundcheck



Use of Standard Humidity Chamber at 100% (2006-2014)



Questions

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

