

Standardized frequencies Fn-method of RAO Lindenberg (GUAN/GEWEX reference site)

1. Details - Leiterer, U. et al.; 2004: A Correction Method for RS80-A Humicap Profiles and their Validation by Lidar Backscattering Profiles in Tropical Cirrus Clouds. JAOT, Vol. 22, No. 1, 18-29.
2. Independent from manufacturer calibration method with alternative ideology.
3. Uses slightly modernized RS90 (in the nearest future – RS92). Specific option– raw humidity frequencies are available.
4. Key point – frequency during heating represents 0 %RH. Difference between frequencies during measuring and heating phase divided by difference between frequencies at 100% and 0% at normal condition is proportional to relative humidity.
5. Individual basic calibration is performed against saturated salt solutions, 0 and 100 %RH. Temperature dependent correction (so called Fn-matrix) is developed from simulation chamber experience as universal function.
6. Pre-flight procedure – 100%RH calibration point.
7. Since July 1999 – weakly twin flight with operational sonde (RS80A and later RS92)
8. Method was proved to be reasonable enough to derive realistic temperature-dependent correction and validate time-lag correction for RS80A as well as to identify different problems of RS90/RS92 routine humidity measurements to give valuable feedback to the manufacturer.