Atmos. Meas. Tech. Discuss., 7, C3218–C3219, 2014
www.atmos-meas-tech-discuss.net/7/C3218/2014/

Atmospheric Measurement Techniques Discussions

Interactive comment on "Dual channel photoacoustic hygrometer for airborne measurements: background, calibration, laboratory and in-flight inter-comparison tests" *by* D. Tátrai et al.

Anonymous Referee #3

Received and published: 17 October 2014

David Tátrai et al. submitted a manuscript describing an accurate dual-channel psychoacoustic hygrometer, called WaSul-Hygro, designed for airborne measurements. The principle of operation and design of he sensing system is described to a satisfactory level of detail. Calibration of WaSul-Hygro is presented and discussed. Performance of the system is compared to other airborne hygrometers in both: laboratory and in-flight tests. The value of the paper extends behind the description of a new sensor, detailed performanve comparison allows to understand advantages and disadvantages of various airborne instruments used to measure humidity in tropopause

and lower stratosphere. The paper is clearly structured and of good scientific quality and can be accepted for publication in AMT after minor revision accounting for comments/suggestions below.

General remark.

In the abstract and introduction the authors claim that the upper detection limit of the system is about is and is limited by the temperature of the psychoacoustic cells and tubing. The calibration of the system, and performance tests presented in the manuscript are limited to 20000 ppmV (Figs 3 and 5B). I suggest that the authors adjust abstract and introduction clearly writing that 85000 ppmV is a theoretical limit of performance and properties of the system are experimentally verified up to 20000 ppmV.

Specific comments 1. The Introduction is almost a copy-paste of the abstract. In the present form it can be omitted. Please, either rewrite the introduction adding information or just skip the whole section. 2. p.6364 l.6 and p.6368 l.1 PT100 is not a thermistor, it is a classical standatd platinum resistance thermometer.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 6359, 2014.