

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

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David Tátrai et al. submitted a manuscript describing an accurate dual-channel photoacoustic hygrometer, called WaSul-Hygro, designed for airborne measurements. The principle of operation and design of the 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 performance comparison allows to understand advantages and disadvantages of various airborne instruments used to measure humidity in tropopause

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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 85000 ppmV and is limited by the temperature of the photoacoustic 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 standard platinum resistance thermometer.

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