

***Interactive comment on* “Technical Note: Calibration instrument for the krypton hygrometer KH20” by T. Foken and H. Falke**

Anonymous Referee #2

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This manuscript presents the development of a calibration device with variable path length for the krypton hygrometer KH20. As the authors point out, there are still applications, e.g. at high altitudes or in very cold and/or dry regions of the Earth, where the KH20 is one of the most suitable instruments to measure turbulent fluctuations of humidity. However, the calibration of this instrument is not very stable and apparently also may change with site conditions. Therefore, a frequent in-situ calibration is very important, and this approach using a variably path length allows to do so. This motivation is nicely explained in the manuscript, also with some historical background on hygrometers in general. The paper is clearly structured for the most part. Some grammatical deficits can be found. The tables and figures are relevant and illustrative. Only a number of minor questions and remarks should be clarified before the manuscript

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can be accepted.

Minor comments

Title: The authors may consider, whether "device" or "apparatus" is more suitable than the word "instrument".

p1697,l1: Comma between Boulder and CO

p1697,l8: "light intensity" instead of "current"

p1698,l18: "because" instead of "that"

p1699,l19: ... coefficients of water vapour and oxygen are of the same order of magnitude ...

p1700,l9: "than that" instead of "than those"

p1701,l9: "(from the calibration ...)" instead of "(with the calibration ...)"

p1701,l21-22: How can this be done? Insert Eq. (8) already here together with its explanation as part of the theory.

p1702,l6: which measures temperature and relative humidity

p1702,l12: To what extent does the pathlength inside the sensor before the optical windows affect the calibration?

p1703,l15: Do you mean oxygen instead of ozone?

p1704,l10: Please use consistent spelling of "path length" with or without dash.

p1704,l23: Campbell Scientific

p1705,l5: "much larger" instead of "much more"

p1705,l20: "overcome" better than "ignored"

p1706,l5: less cost intensive than what? Maybe make two sentences: 1) under extreme

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conditions, the KH20 is a useful tool. 2) The application of the proposed calibration instrument is less cost intensive than ...

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 1695, 2012.

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5, C1080–C1082, 2012

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