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Discussions



# *Interactive comment on* "In-situ unsaturated zone stable water isotope ($^{2}$H and $^{18}$O) measurements in semi-arid environments using tunable off-axis integrated cavity output spectroscopy" *by* M. Gaj et al.

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In the paper by Gaj et al. and modified in-situ system is presented to measure stable water isotopes in the unsaturated zone in an arid environment. In my opinion the paper misses to clarify the limitation of the proposed system, as it focuses too much on the potential. The system is a modification of the Volkmann and Weiler (2013), which included a mixing chamber and a dilution line to reduce the saturated vapor concentration in the sampling line after passing through the gas permeable PE (or PP)



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material. Gaj et al. decided to remove this part of the system to simplify their system, which was successful for application in the extreme environment, since the soils are very dry and the temperature is usually hot outside. Hence, there is a low probability of condensation of the vapor in their sampling line. However, it would anyhow be helpful for the user if they would provide any information about the measured vapor concentration at its variability during the measurement in the sampling line.

If they would use this system in a more humid environment, they would probably run into the problem of condensation in the sampling line, which may produce insufficient data and produce a long time until the sampling line is liquid water free again. I think it would be helpful, if the authors would not only mention the potential of their system, but also clearly highlight the potential limitations in order to have potential users running into problems when using this set-up within their environment.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 6115, 2015.