

Interactive comment on “Continual in-situ monitoring of pore water stable isotopes in the subsurface” by T. H. M. Volkmann and M. Weiler

Anonymous Referee #1

Received and published: 27 November 2013

This manuscript describes a new setup for using laser-based measurements to measure water vapor isotope ratios in soil pore vapor. The authors' focus on an inexpensive and robust sampling system is applauded, as is their careful use of calibration. I do have several specific concerns about the system:

1) The authors state repeatedly that the system can be used unattended for a long period of time and yet report data from only a single day. Where is the data to support the claims of long-term, unattended field use? 2) The question of whether collection of pore water changes the isotopic ratios of the soil water has not been adequately addressed. I appreciate the analysis, but as this is perhaps the most serious concern with this type of measurement, experimental data is warranted. 3) Similarly, the lifetime of the calibration setup has not been determined or discussed. After how many measure-

C6459

ments have the isotope ratios of the calibration boxes changed to a degree that new boxes must be prepared? How significant, in time and cost, is this box preparation? 4) It would be helpful to see a comparison between the exponential fits used in the manuscript to determine the asymptote and the use of an average value recorded after the sample value has leveled off. The authors have not quantified the improvements gained by using the exponential fits, nor proven the robustness of the fitted numbers (ie, how sensitive is the final value to changes in the sampling period).

This reviewer would also recommend in general revising the manuscript to eliminate run-on sentences and reviewing for readability.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 13293, 2013.