

## ***Interactive comment on “Technical note: comparison of water vapor sampling techniques for stable isotope analysis” by César Dionisio Jiménez-Rodríguez et al.***

### **Anonymous Referee #1**

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With the development of water isotopes measurements using the laser spectrometer, real-time measurements of water vapor isotopes can be realized. However, the real-time measurements of water vapor isotopes need a constant power supply and the deployment of the laser spectrometer in the field is not cheap. Instead, it is more convenient and cheaper to collect air samples in the field for later analysis in the laboratory with a mass or laser spectroscopy. However, the applicability of the sample storage unit needs to be tested. This study aims to test the applicability of different sampling techniques, which can give a guide for scientists who'll collect air samples for isotopic measurements. The paper is well written and has a good readability. It deserves to be published and I have a few suggestions for improving this paper.

C1

Line 20-21 in page 3, why to modify the laboratory air to a concentration lower than 4000 ppm? To my knowledge, the laser spectroscopy generally has lower measurement accuracy for low vapor concentration (for example, <2000 ppm).

Line 1-13 in page 5, how do you establish the relationship (equation 2 or 3) between isotopic ratio and vapor concentration? Because you mentioned in line 12-13 of page 3 'The WVSS was set to run the automatic pump with the following voltages 3.0V, 2.0V, 1.5V and 1.0V to provide a controlled water vapor concentration (ppm) during the calibration of each set of samples.', did you establish the relationship using four data points? If yes, the number of data points for establish the relationship between isotopic ratio and vapor concentration is not enough. The authors should add a plot in the manuscript for manifesting the relationship between isotopic ratio and vapor concentration. In addition, how did you correct the drift effect of the laser spectrometer? which was not mentioned in the text.

In addition to the Water Vapor Transmission Rate (WVTR) of sample bag, other factors such as air tightness of valve or fitting of the sample bag may also have an important influence on the isotopic measurements. Other potential influences should be discussed in the text.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-344>, 2019.

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