

This is a rather detailed and well written report of a thorough series of tests assessing the performance of a commercial laser spectrometer (LGR) providing isotope ratio measurement of atmospheric water vapor without chemical sample manipulations and within short averaging times. As a result of these tests, the authors propose that accounting for ambient temperature and injected water vapor concentration dependencies of the spectrometer response, allows for a significant enhancement in the accuracy of the measurements, down to levels comparable to IRMS (for water). Unfortunately, the observed variations in the instrument response as a function of these factors are not understood or accounted for by a model, which however would be outside of the scope of this work. The empirical corrections to be implemented to account for these variations appear also to change on the long term, e.g. when mirror reflectivity is modified by contamination. Interestingly, it is reported that contamination is reversible when switching back to a 'cleaner' sample... Finally, it appears that this type of laser spectrometer is very promising, but some development is still needed (hopefully from the manufacturer side) to insure temperature stability and possibly a correction of the non linear response problem.

This work needs some revision. I mostly agree with comments from the other referees, and have only a couple of comments as follows.

Even if it appears that the present implementation of the piezo injector is very close to that of Iannone et al. (notably, the same injector technology by Microdrop Tech. GMBH), the authors should more clearly underline the differences in their setup with respect to that of Iannone et al. Notably their different choice of droplet size and the introduction of a heated surface to insure full droplet evaporation in a static sample chamber before injection to the spectrometer. Indeed, the Iannone setup used the droplet injector directly in a continuous flow of dry air... I fully agree with previous referee's comments, the discussion should address the problem of how long does it take to flow a new calibration sample to the tip of the droplet generator. In other words, is it practical to change from a standard sample to another, what about memory effects in the capillary carrying the liquid samples to the injector...?

Another point which I think is missing, is a mention about the effect of pressure gradient present between the high accuracy pressure controller and the cell. Such a gradient may be not negligible and it would be a function of the flow rate, affecting the true pressure of the sample in the absorption cell... Was there any observed trend with sample flow rate?

Finally I should make a minor criticism about the conveyed (initial) impression that the calibration system is really based on direct exploitation of simple inkjet technology. As results from details in the experimental description, the piezoelectric droplet generator is not quite a cheap multi-nozzle ink-jet printer head (which is actually a more complex device made easily available through mass production). Instead, it is an expensive scientific-grade single-nozzle device commercialized by a German company, which also presents some problems of reliability as pointed out by the authors (formation of cavitation bubbles which interrupt the droplet generation...). Thus, even if there are examples, in the scientific literature, of droplet generation using real inkjet devices, this is not the solution which was exploited in the present work (nor by Iannone et al.). It would be very interesting to demonstrate one day the use of a real ink-jet head for delivery of calibration water samples, possibly exploiting the available different ink reservoirs to produce droplets from different standards without memory effects...

At any rate, these remarks should not diminish the interest and the value of the results which are reported in this careful work.

Typos and other minor comments:

- First line P.2060: “assess” rather than “access” ?

- Page 2060, line 18 : “..., where the dispenser head is attached on top of it.” Is not really good english.

- Page 2070, line 17 : “...and an according linearity correction was applied...” should also be fixed.

- Beginning of section 3.2: please specify what type of Teflon tubing was used.

- bottom page 2063: it is not clear if reported precision (or accuracy?) of IRMS for water includes scattering due to sample preparation and handling...