



Supplement of

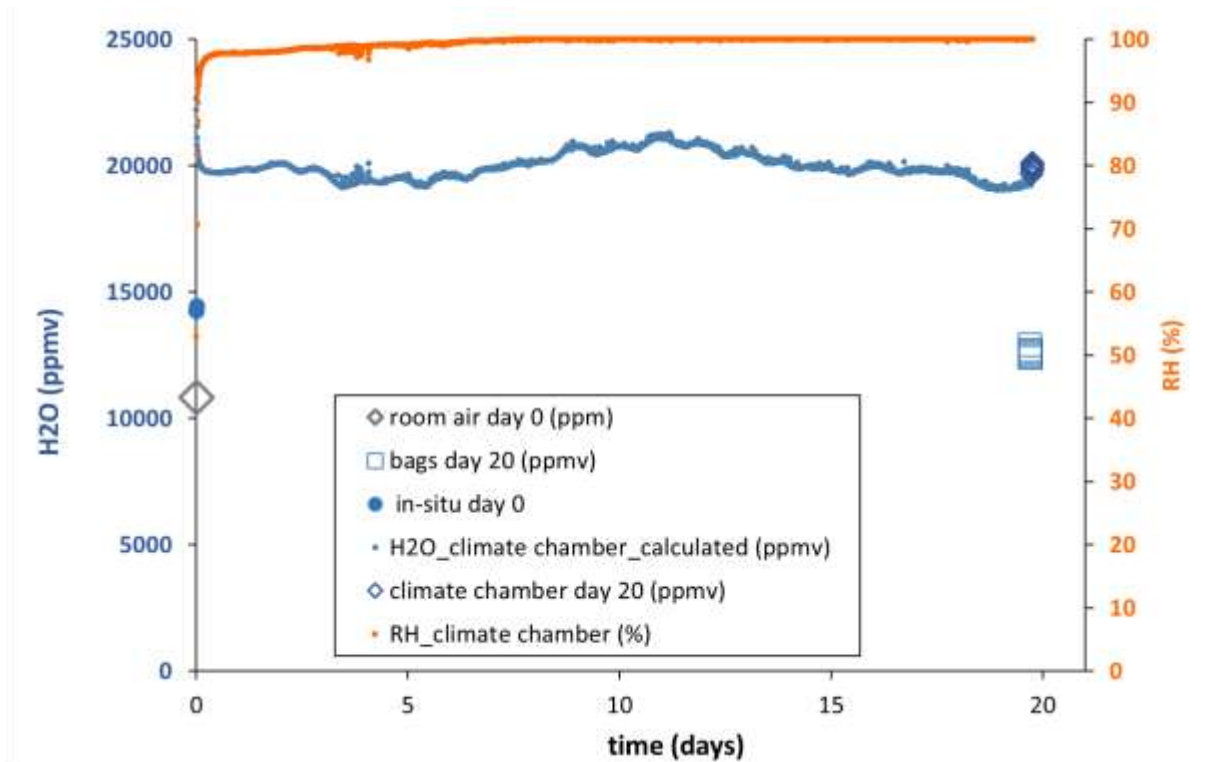
Technical note: Discrete in situ vapor sampling for subsequent lab-based water stable isotope analysis

Barbara Herbstritt et al.

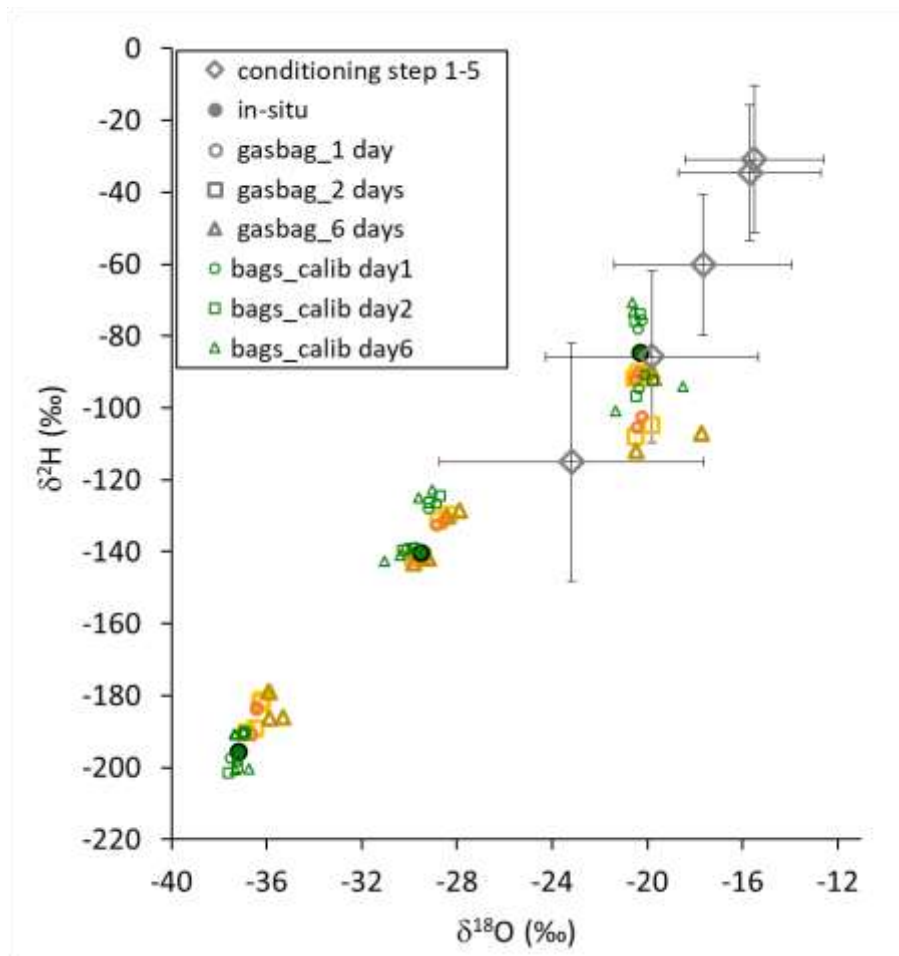
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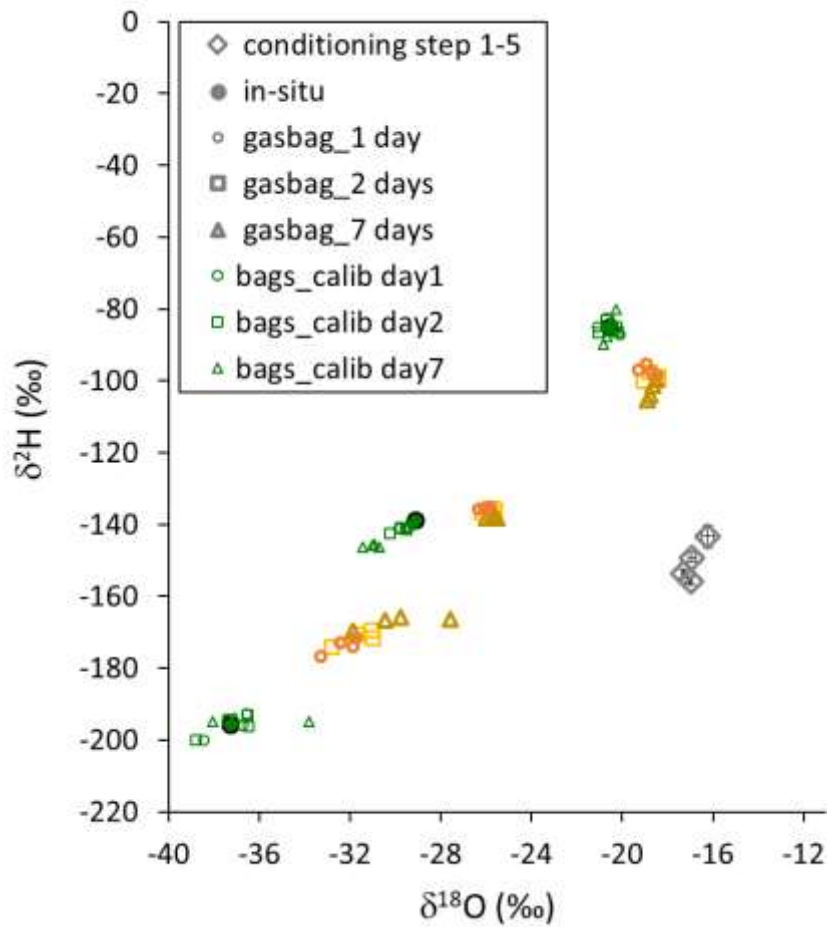
Supplement



5 Figure S1. Storage of sampling bags for 20 days near 100% relative humidity (RH, small orange dots) in a climate chamber under fairly constant temperature conditions. Vapor from a different source (filled dots) was sampled at day 0 directly into the bags. T (°C) and RH (%) were logged every 10 minutes and converted to water vapor content (ppmv) via Magnus' equation (small blue dots). Climate chamber vapor content was additionally analyzed with the isotope analyzer at day 20 (blue open diamond). Bags (blue open squares) were analyzed with the isotope analyzer at day 20.



15 Figure S2. Dual isotope plot of bag measurements after 1, 2 and 6 days, filled with vapor from three isotopically different sources. Isotope measurements could be normalized, but SDs were no better than 0.58 and 6.71 for $\delta^{18}\text{O}$ and $\delta^2\text{H}$, respectively. All bags were previously conditioned five times with dry synthetic air (grey open diamonds). Conditioning with dry synthetic air caused vapor content readings to decrease stepwise down to 324 ppmv (Fig. 5a) while isotope readings became more enriched. Their SDs generally decreased but remained above 2.9‰ for $\delta^{18}\text{O}$ and 18.8‰ for $\delta^2\text{H}$.



20 **Figure S3.** Dual isotope plot of bag measurements after 1, 2 and 7 days (open circles, squares and triangles), filled with vapor from three isotopically different sources. Bags were previously conditioned five times with moist air. Conditioning with moist air resulted in vapor content readings to decrease only slightly to 6740 ppmv which was in the order of the level of conditioning. Isotope signatures of so-conditioned bags clustered around conditioning values (grey open diamond). Note that error bars are smaller than the symbol. SDs ultimately decreased down to 0.05‰ for $\delta^{18}\text{O}$ and 1.07‰ for $\delta^2\text{H}$ (Fig. 5b)