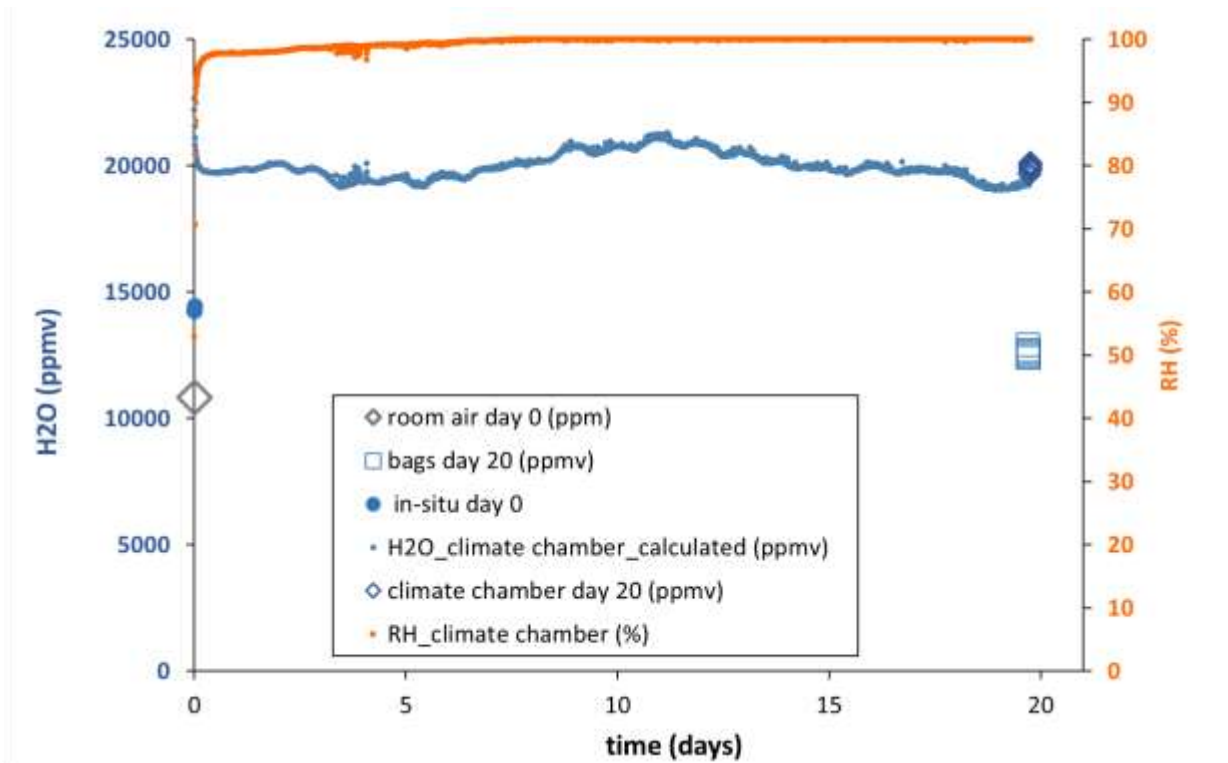
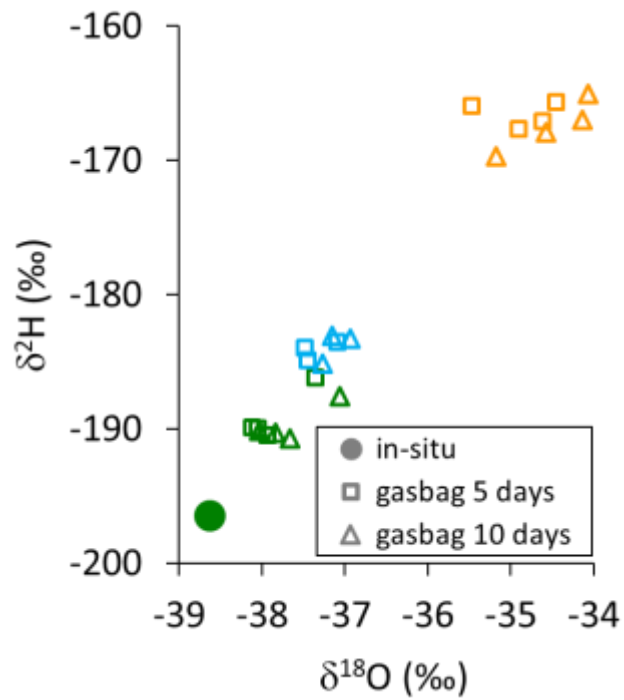


1 Supplement



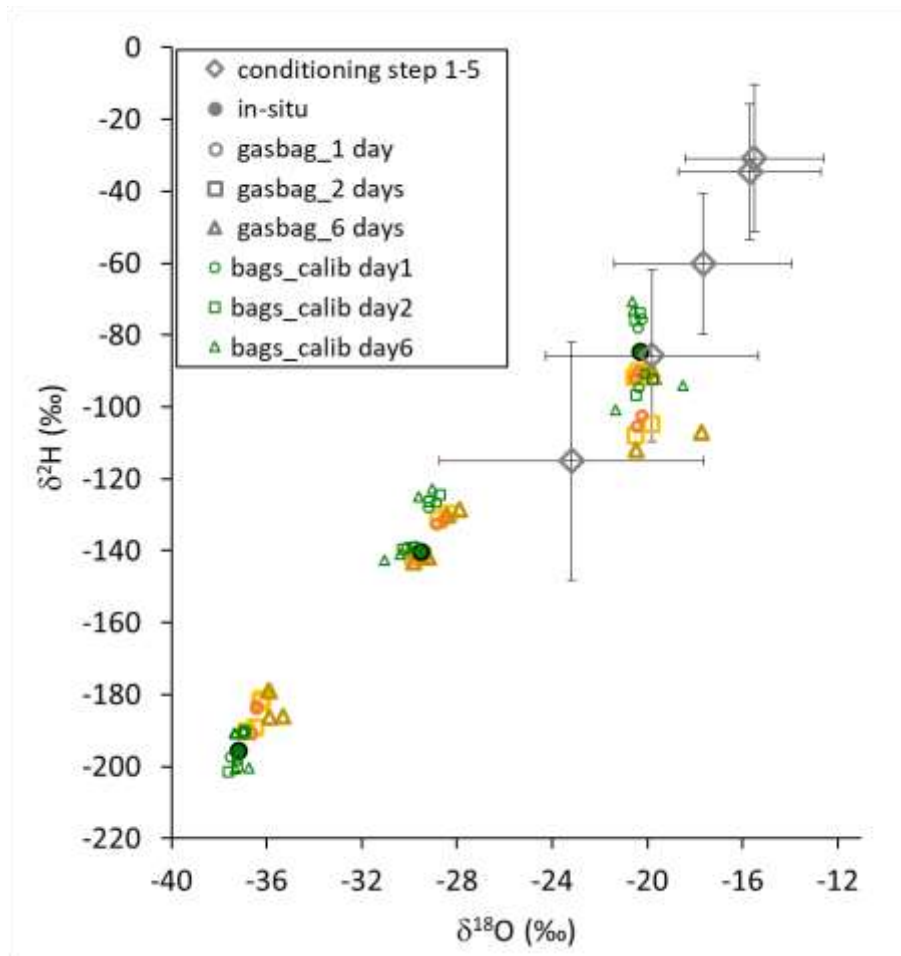
2

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



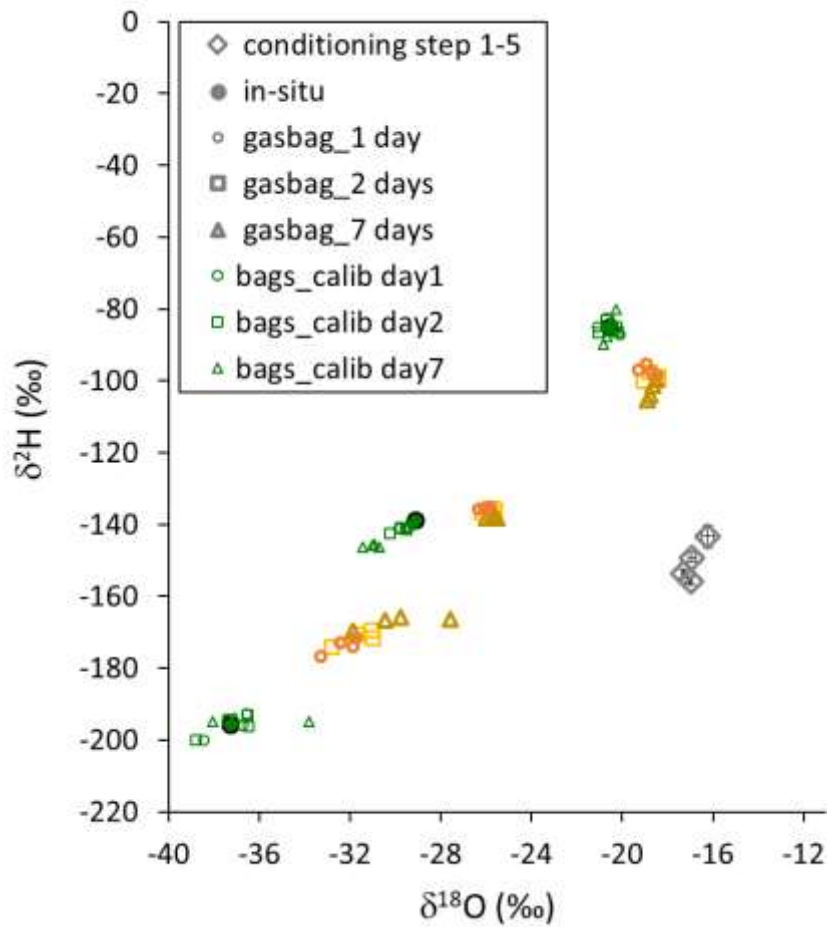
1

2 Figure S2. Dual isotope plot of gasbag measurements of re-used bags 5 days (open squares) and 10
 3 days (open triangles) after all of them being filled via a WIP (filled dot) from one single isotopic
 4 reservoir. The different colors indicate the differing isotopic levels of the previous samples, stored in
 5 the respective bags.



1

2 Figure S3. Dual isotope plot of bag measurements after 1, 2 and 6 days, filled with vapor from three
 3 isotopically different sources. Isotope measurements could be normalized, but SDs were no better than
 4 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
 5 synthetic air (grey open diamonds). Conditioning with dry synthetic air caused vapor content readings
 6 to decrease stepwise down to 324 ppmv (Fig. 5a) while isotope readings became more enriched. Their
 7 SDs generally decreased but remained above 2.9‰ for $\delta^{18}\text{O}$ and 18.8‰ for $\delta^2\text{H}$.



1

2 Figure S4. Dual isotope plot of bag measurements after 1, 2 and 7 days (open circles, squares and
 3 triangles), filled with vapor from three isotopically different sources. Bags were previously
 4 conditioned five times with moist air. Conditioning with moist air resulted in vapor content readings to
 5 decrease only slightly to 6740 ppmv which was in the order of the level of conditioning. Isotope
 6 signatures of so-conditioned bags clustered around conditioning values (grey open diamond). Note
 7 that error bars are smaller than the symbol. SDs ultimately decreased down to 0.05‰ for $\delta^{18}\text{O}$ and
 8 1.07‰ for $\delta^2\text{H}$ (Fig. 5b)