

Supplement:

Table S1: Material layers of the gas sample bags used (<https://www.samplebags.eu/product/multi-layer-foil-bags-single-stainless-steel-fitting/>).

Layer	Material
1.	60 gauge nylon (outer layer)
2.	Metalized aluminum
3.	Polyethylene
4.	0.0003" aluminum foil
5.	0.002" polyethylene (inner layer)

Table S2: Differences during the storage experiment for M22 and L22 for each depth and storage duration (Overall differences: M22: -0.5 ± 0.5 ‰ for $\delta^{18}\text{O}$ and 0 ± 1.6 ‰ for $\delta^2\text{H}$; L22: -0.1 ± 1.1 ‰ for $\delta^{18}\text{O}$ and 2.8 ± 4.9 ‰ for $\delta^2\text{H}$).

Storage duration [d]	M22		L22	
	$\delta^{18}\text{O}$ [‰]	$\delta^2\text{H}$ [‰]	$\delta^{18}\text{O}$ [‰]	$\delta^2\text{H}$ [‰]
1	-0.5 ± 0.7	-0.7 ± 1.3	-0.9 ± 0.4	0.4 ± 2.6
3	-0.7 ± 0.3	-0.4 ± 1.6	0.1 ± 0.5	8.9 ± 2
7	-0.3 ± 0.2	1 ± 1.7	1.1 ± 1.1	-0.9 ± 1.9

Table S3: Z-scores during the storage experiment for M22 and L22 for each depth and storage duration (Overall differences: M22: -1.2 ± 1.2 ‰ for $\delta^{18}\text{O}$ and 0 ± 0.6 ‰ for $\delta^2\text{H}$; L22: 0.3 ± 2.7 for $\delta^{18}\text{O}$ and 1.4 ± 2.5 for $\delta^2\text{H}$).

Storage duration [d]	M22		L22	
	z-score $\delta^{18}\text{O}$	z-score $\delta^2\text{H}$	z-score $\delta^{18}\text{O}$	z-score $\delta^2\text{H}$
1	-1.2 ± 1.8	-0.3 ± 0.6	-2.2 ± 0.9	0.2 ± 1.3
3	-1.8 ± 0.7	-0.2 ± 0.8	0.4 ± 1.3	4.4 ± 1
7	-0.7 ± 0.5	-0.5 ± 0.8	2.6 ± 2.8	-0.5 ± 0.9