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**Supplementary to: Determination of the  $\delta^2\text{H}$  values of high molecular weight lipids by high temperature GC coupled to isotope ratio mass spectrometry**

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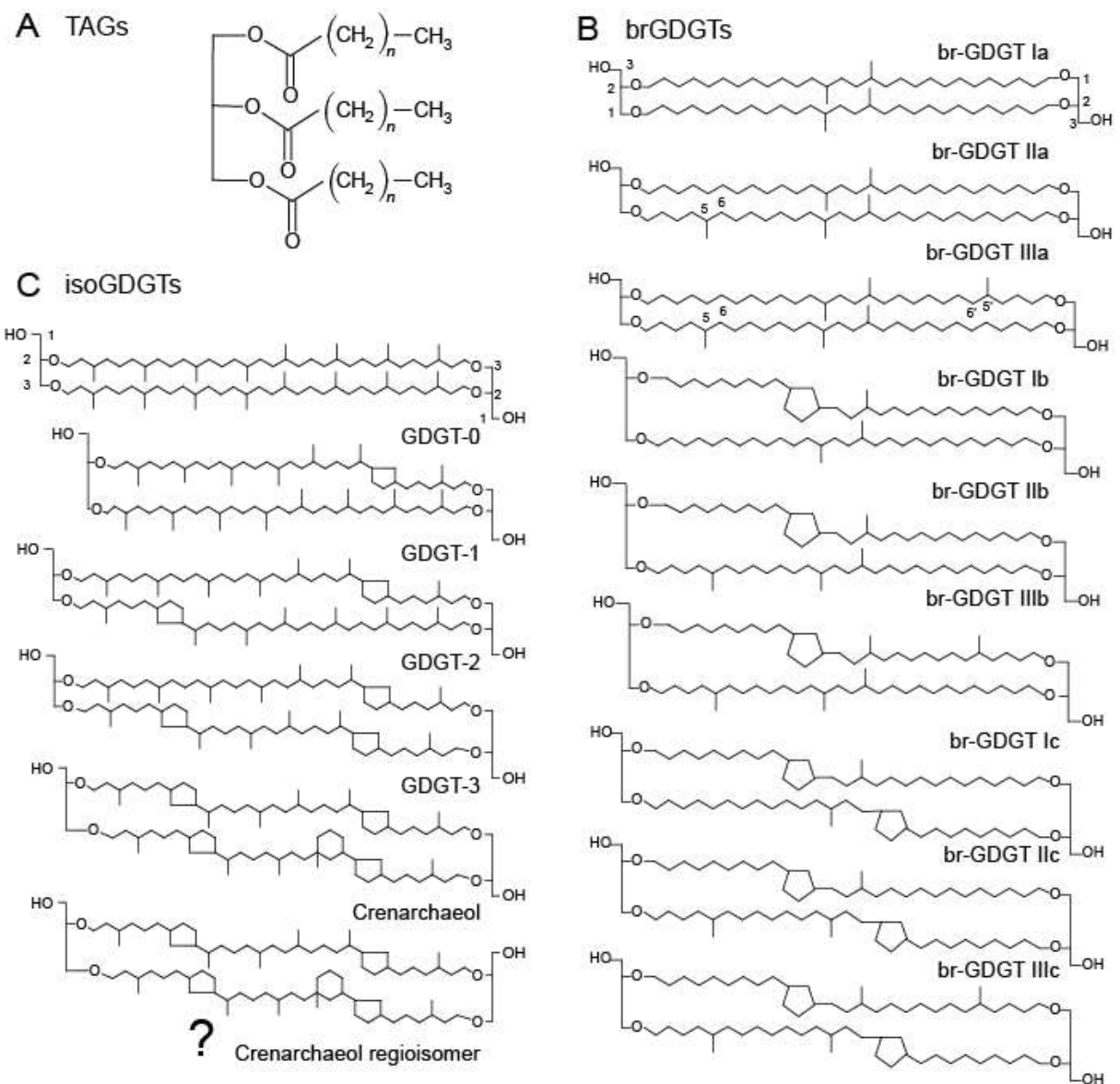
4 Elementar UK Ltd., Earl Road, Cheadle Hulme, Stockport, SK8 6PT, UK

5 Department of Geological Sciences, University of Colorado Boulder, Boulder, CO, USA

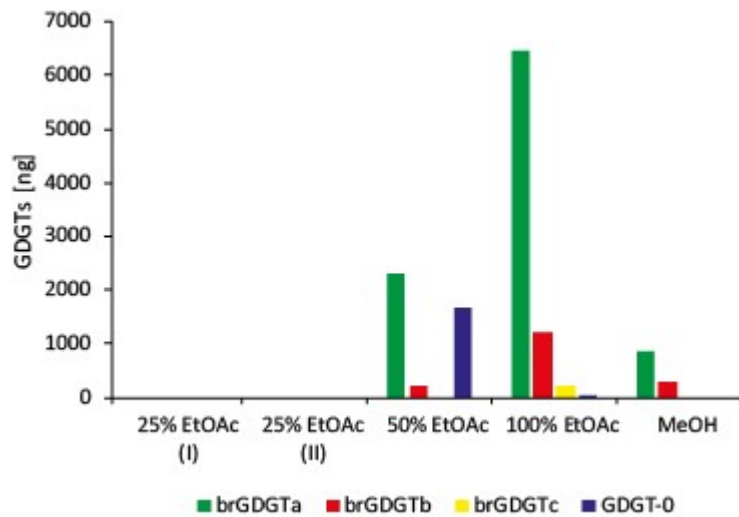
6 Department of Earth Science, Department of Chemistry, Department of Biological Sciences, Dartmouth College, Hanover, NH, USA

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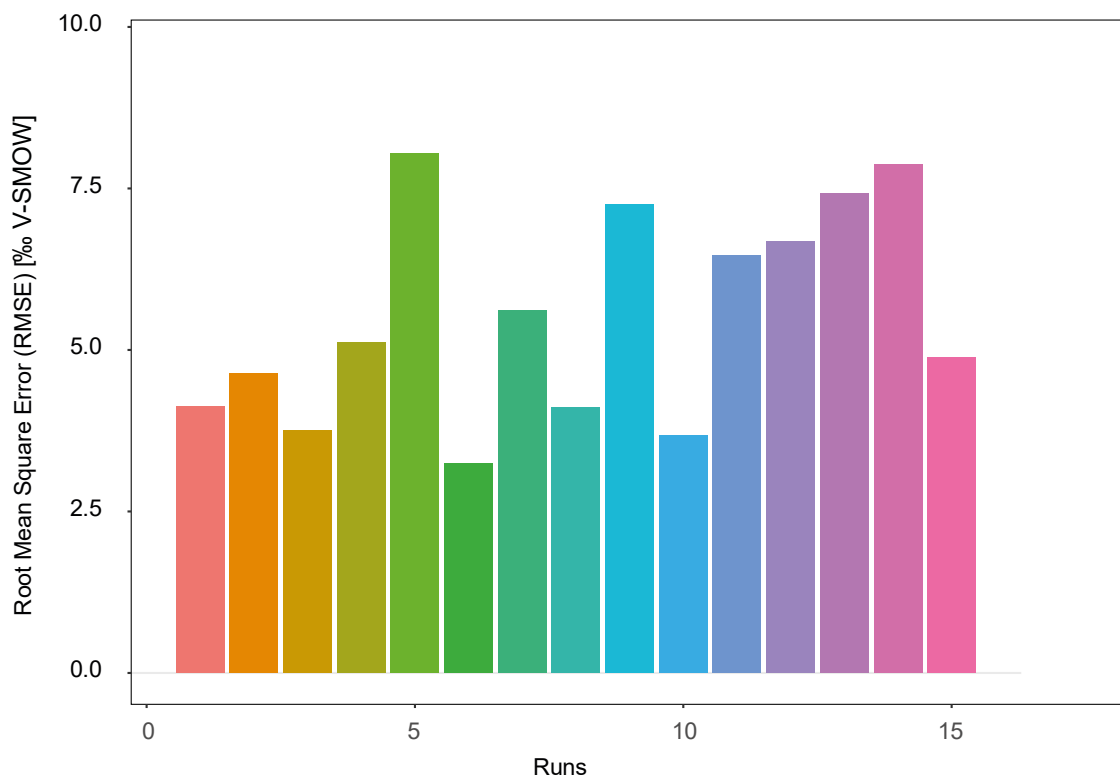
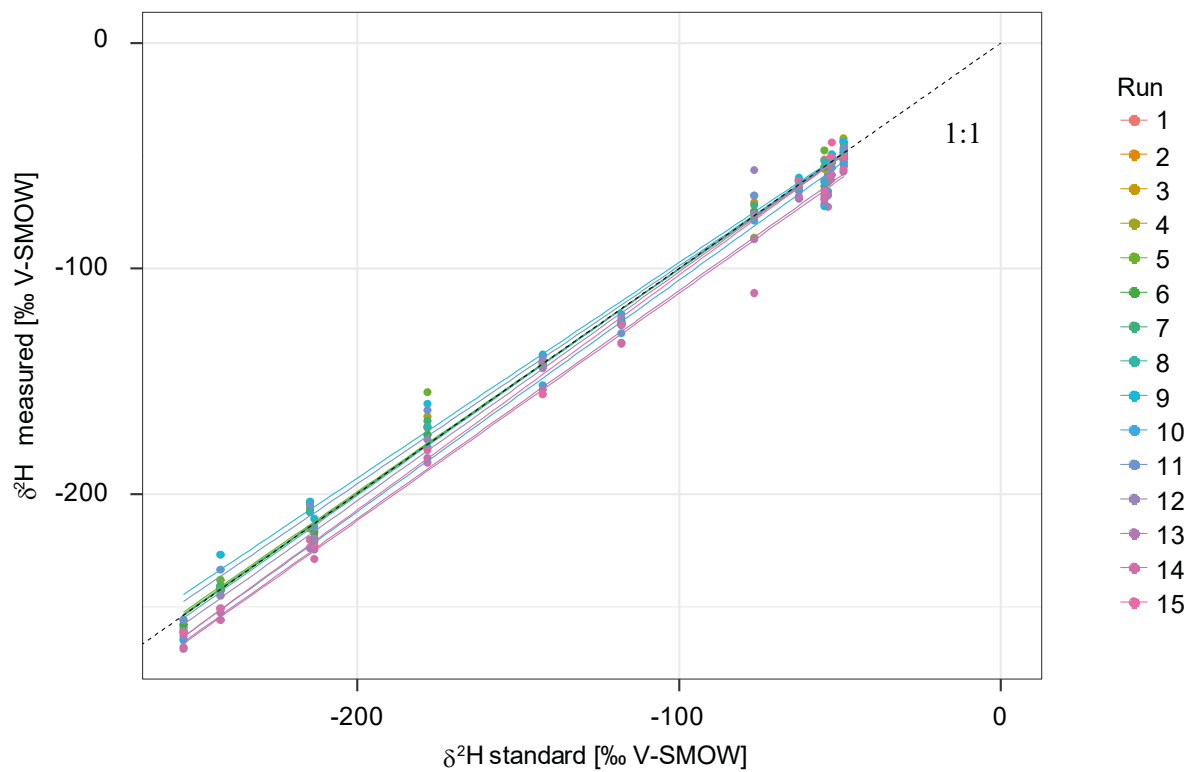
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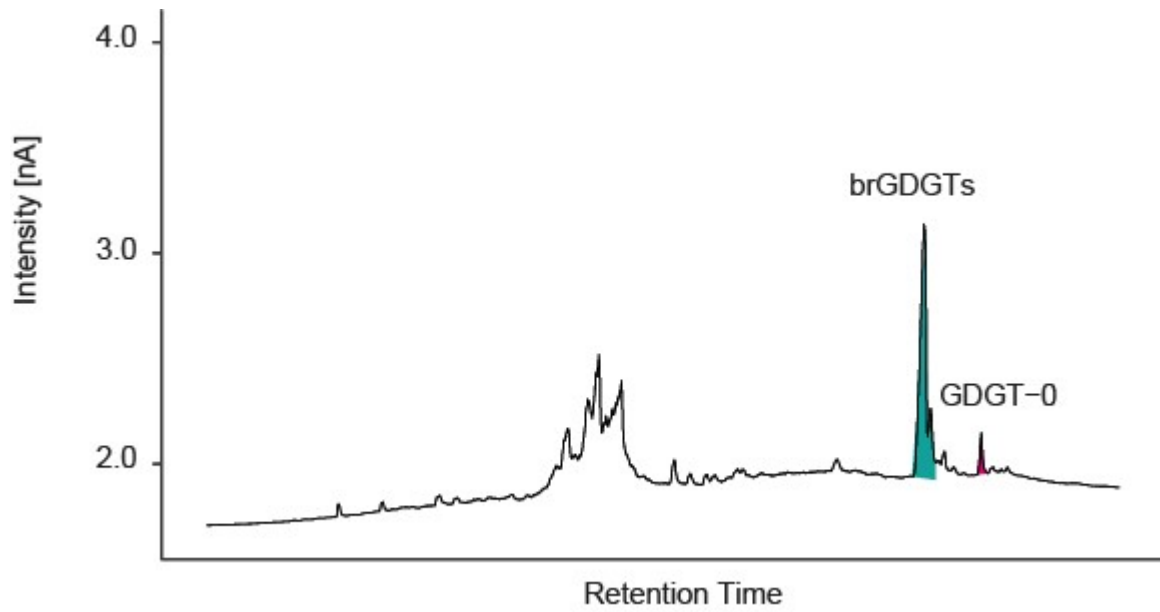
Supplementary Figure 1. Structures of analysed compounds.  $n = 14$  (Trimyristate, TG 42:0); 16 (Tripalmitate, TG 48:0); 18 (Tristearate TG 54:0). Note that ? in panel denotes that structural assignment is tentative.



Supplementary Figure 2. GDGTs in column chromatography fractions of sample from a Cors Caron peat (depth 100-200 mm below water table) as determined by HTGC-FID and comparison to triacylglyceride standards as described by Lengger et al. (2018)<sup>1</sup>, with a, b and c denoting acyclic, mono-, and bi-cyclic brGDGTs, respectively.



Supplementary Figure 3. Performance monitoring results of *n*-alkane mixture B3 and Root Mean Square Error (RMSE) values of linearisations used for the measurements. Linear regression results and RMSE are shown in table 1.



Supplementary Figure 4. Chromatogram of a combined GDGT-fraction from a Welsh peat analysed by HTGC-P-IRMS.

Table S1. Linearisation coefficients and RMSE of B3 standard runs.

<b>Run nr</b>	<b>Intercept</b> [‰ V-SMOW]	<b>Coefficient</b>	<b>RMSE</b> [‰ V-SMOW]
1	-18.3	0.9615	4.1
2	-16.4	0.9629	4.6
3	-20.2	0.9759	3.8
4	-19.4	0.9152	5.1
5	-21.0	0.9120	8.0
6	-18.6	0.9924	3.2
7	-20.1	0.9597	5.6
8	-19.0	0.9703	4.1
9	-21.1	0.9225	7.3
10	-21.9	0.9905	3.7
11	-21.7	0.9319	6.5
12	-19.4	0.9799	6.7
13	-27.7	0.9762	3.0
14	-29.2	0.9730	7.9
15	-18.2	1.0048	4.9

## References

1. Lengger SK, Sutton PA, Rowland SJ, et al. Archaeal and bacterial glycerol dialkyl glycerol tetraether (GDGT) lipids in environmental samples by high temperature-gas chromatography with flame ionisation and time-of-flight mass spectrometry detection. *Org Geochem.* 2018;121:10-21. doi:10.1016/j.orggeochem.2018.03.012