The following supplement accompanies the article

Differing utilization of glucose and algal particulate organic matter by the deep-sea benthic organisms of Sagami Bay, Japan

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Supplement. Raw data of carbon contents and carbon isotopic compositions of sediments, benthic foraminifera, metazoans, and dissolved inorganic carbon in the present experiment. Chemical structures of measured archaeal membrane lipid biomarkers are also shown in Fig. S1

Table S1. Carbon content (weight %) and isotopic compositions of incubated sediments. ND: no data due to sample leak from the tin cup

Core	Depth (cm)	C content (%)	$\delta^{13}C$ (‰)
C-2	0–1	2.19	212.3
	1–2	2.52	12.0
	2–3	2.51	7.0
	3–4	ND	–6.2
	4–5	2.53	–13.4
	5–7	ND	–20.5
	7–10	2.47	–21.1
	10–15	2.37	–19.0
C-9	0–1	2.23	388.6
	1–2	2.24	79.4
	2–3	2.01	49.6
	3–4	2.19	5.9
	4–5	ND	–11.4
	5–7	2.50	–18.1
	7–10	2.46	–22.1
	10–15	2.30	–21.3
G-0	0–1	2.10	98.3
	1–2	ND	37.0
	2–3	2.16	50.0
	3–4	2.46	–4.0
	4–5	2.39	–17.4
	5–7	2.24	–21.3
	7–10	2.06	–21.3
	10–15	2.38	–21.1
G-1	0–1	2.32	73.0
	1–2	2.48	27.2
	2–3	2.55	11.3
	3–4	2.62	–13.6
	4–5	2.55	–19.4
G-9	0–1	2.30	269.0
	1–2	2.17	34.2
	2–3	ND	3.9
	3–4	ND	–0.8
	4–5	2.07	–7.7
	5–7	ND	–16.7
	7–10	2.43	–19.0
	10–15	ND	–13.3

Table S2. Carbon isotopic compositions of organisms collected from glucose cores

Core	Depth (cm)	Sample name	No. of individuals	$\delta^{13}C$ (‰)	N (μg)	C (μg)	Biomass (μg N cell^{-1})	Biomass (μg C cell^{-1})	C/N (wt ratio)
G-1	0–2	*Uvigerina akitaensis*	5	47.5	1.44	4.8	0.289	0.968	3.4
		U.akitaensis	5	83.7	1.52	4.8	0.304	0.958	3.1
		Bolivina spissa	10	126.3	1.84	5.3	0.184	0.531	2.9
		B. spissa	10	146.5	1.92	5.0	0.192	0.497	2.6
		Globobulimina affinis	6	26.7	3.75	15.8	0.625	2.625	4.2
		G. affinis	5	66.9	1.73	7.5	0.346	1.510	4.4
		Chilostomella ovoidea	20	78.4	2.70	8.6	0.135	0.431	3.2
		C. ovoidea	25	67.6	2.32	8.1	0.093	0.325	3.5
		Cyclammina cancellata	1	–10.5	5.22	29.7	5.22	29.7	5.7
		Copepods	2	13.0	0.34	1.6	0.171	0.806	4.7
	2–5	*G. affinis*	7	–10.8	2.30	11.2	0.329	1.605	4.9
		C. ovoidea	25	–10.8	1.95	7.0	0.078	0.280	3.6
		C. cancellata	1	–16.8	6.41	34.7	6.41	34.7	5.4
		Copepod	1	–18.3	1.20	7.0	1.20	6.98	5.8
G-9	0–2	*U.akitaensis*	5	177.5	0.86	3.1	0.173	0.621	3.6
		U.akitaensis	5	193.2	1.07	3.1	0.214	0.617	2.9
		B. spissa	10	120.1	0.86	3.0	0.086	0.299	3.5
		B. spissa	10	292.3	0.90	2.7	0.090	0.266	2.9
		G. affinis	6	165.9	3.67	13.6	0.611	2.271	3.7
		G. affinis	7	338.3	5.98	14.4	0.855	2.054	2.4
		C. ovoidea	25	232.6	2.31	6.9	0.092	0.276	3.0
		C. ovoidea	20	274.3	1.69	5.8	0.085	0.289	3.4
		C. cancellata	1	107.6	1.95	7.9	1.95	7.93	4.1
		Bivalve	1	234.6	5.15	16.1	5.15	16.1	3.1
	2–5	*G. affinis*	10	47.0	2.16	7.2	0.216	0.724	3.4
		C. ovoidea	25	4.0	2.30	6.9	0.092	0.276	3.0
		C. cancellata	1	4.1	1.74	6.6	1.74	6.60	3.8
		Copepod	1	-11.8	4.39	20.4	4.39	20.4	4.7

Table S3. Carbon isotopic compositions of organisms collected from *Chlorella* cores

Core	Depth (cm)	Sample name	No. of individuals	C (mg)	Biomass (mg C cell^{-1})	^{13}C atom%
C-2	0–2	Mudball	1	131.8	131.8	1.0901
		Bathysiphon	1	149.1	149.1	1.0839
		Cyclammina cancellata	1	10.5	10.5	1.0962
		C. cancellata	1	37.4	37.4	2.2715
		C. cancellata	3	11.7	3.90	2.3315
		Chilostomella ovoidea	70	19.4	0.277	1.1102
		Globobulimina affinis	24	18.5	0.771	1.1059
		Bolivina spissa	58	15.9	0.274	1.1061
		U. akitaensis	50	33.0	0.660	2.611
	2–5	Copepods	10	26.8	2.68	1.2909
		C. cancellata	1	48.6	48.6	1.0919
		C. cancellata	3	15.7	5.23	2.6919
		C. ovoidea	163	39.2	0.240	1.1115
		G. affinis	60	66.5	1.11	1.0946
		G. affinis	50	55.6	1.11	1.1115
C-9	0–2	Polychaete	1	58.8	58.8	1.0908
		Polychaete	1	45.9	45.9	1.0894
		Copepods	6	25.3	4.22	1.1109
		Cumacean	1	129.9	129.9	1.1129
		C. cancellata	1	40.3	40.3	3.0448
		C. cancellata	1	8.00	8.00	1.1649
		C. cancellata	3	12.0	4.0	4.7443
		C. ovoidea	51	21.8	0.427	1.1288
		G. affinis	9	27.4	3.04	1.2864
		B. spissa	80	22.5	0.281	3.5233

	U. akitaensis green[a]	51	30.2	0.592	41.5411
	U. akitaensis green[a]	45	23.5	0.522	43.4778
	U. akitaensis brown[a]	68	29.3	0.431	5.6462
	U. akitaensis brown[a]	61	34.6	0.567	5.8149
2–5	Copepods	6	17.6	2.93	1.4021
	Copepod	1	28.1	28.1	1.2956
	C. cancellata	1	8.60	8.60	1.0998
	C. cancellata	1	10.4	10.4	1.0989
	C. cancellata	2	14.5	7.25	1.8179
	C. ovoidea	110	38.1	0.346	1.1029
	C. ovoidea	125	38.2	0.306	1.0929
	G. affinis	50	49.4	0.988	1.4742
	G. affinis	50	60.7	1.21	1.7066
	B. spissa	16	6.0	0.375	3.4862
	U. akitaensis	27	16.7	0.619	16.7326

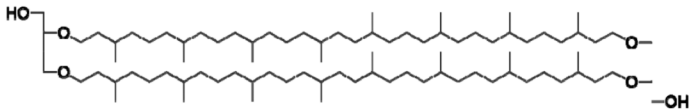
[a]*Uvigerina akitaensis* specimens from the 0 to 2 cm depth of C-9 core were separated into 4 samples based on the cytoplasmic color. See ‘Materials and methods: Sample processing’ for more detail

Table S4. Carbon isotopic compositions of dissolved inorganic carbon in the overlying water. Std SW: Standard seawater used for the dilution of sample seawater which had high ^{13}C concentrations. See 'Materials and methods: Determination of organic and inorganic carbon isotope ratios' for further explanations

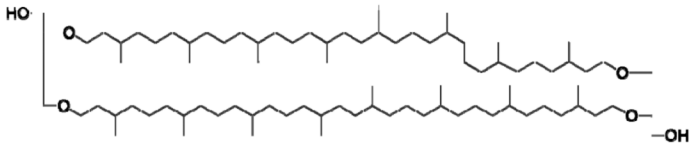
Sample name	$\delta^{13}C$ (‰)	Sample (ml)	Std SW (ml)	Dilution ratio (sample/sample + std SW)
Background	0.12			1.00000
Background	0.21			1.00000
G-0	3.1			1.00000
G-1	7.3			1.00000
G-9	4184.4	1.1807	123.3578	0.00948
G-9	4273.9	1.1807	123.3578	0.00948
G-9	4185.5	8.4394	119.1763	0.06613
C-2	125.4	8.4924	125.3498	0.06345
C-9	949.1	9.0125	116.5411	0.07178
C-9	968.1	9.0125	116.5411	0.07178

Fig. S1. Structures of archaeal membrane lipid biomarkers

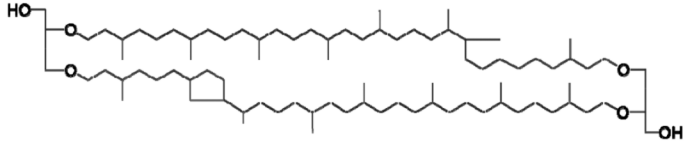
a. Caldarchaeol or GDGT(0)



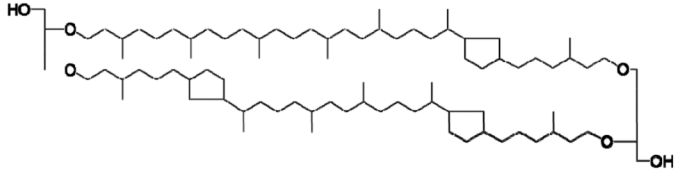
b. GDGT 1



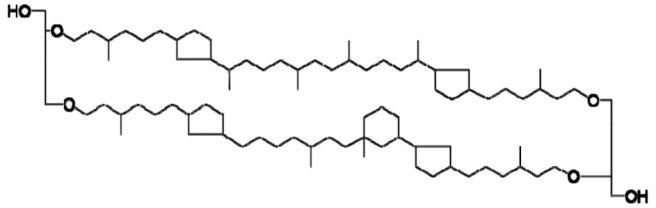
c. GDGT 2



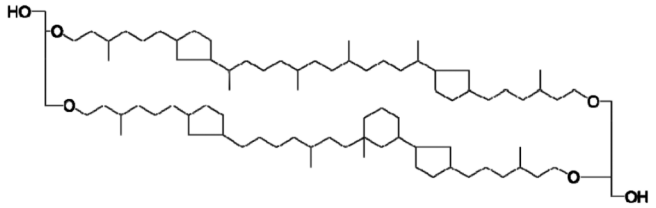
d. GDGT 3



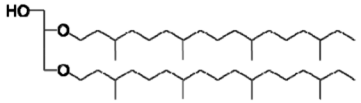
e. Crenarchaeol or GDGT(5)



e'. Crenarchaeol regio-isomer



f. Archaeol



g. C46 GDGT (internal standard)