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*Supplement of*

## **Freshwater discharge controlled deposition of Cenomanian-Turonian black shales on the NW European epicontinental shelf (Wunstorf, North Germany)**

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Supplementary Table 1. TOC, summed iGDGT and brGDGT concentrations in  $\mu\text{g/g}$  organic carbon (OC), BIT-index,  $\text{TEX}_{86}$  values and SSTs reconstructed using the  $\text{TEX}_{86}^{\text{H}}$  calibration by Kim et al. (2010). mbs = meters below surface. n.d. = not determined.

Sample depth (mbs)	TOC (%)	summed iGDGTs ( $\mu\text{g/g}$ OC)	summed brGDGTs ( $\mu\text{g/g}$ OC)	BIT- index	TEX86	SST ( $^{\circ}\text{C}$ )
26.51	1.49	42.34	1.13	0.03	0.955	37.2
27.75	0.15	0.21	0.13	0.48	0.882	n.d.
29.21	0.12	0.56	0.21	0.37	0.796	n.d.
30.21	0.23	5.01	0.25	0.06	0.957	37.3
30.79	0.21	0.67	0.13	0.21	0.918	n.d.
32.47	0.27	1.10	0.16	0.16	0.921	n.d.
32.78	0.45	8.77	0.37	0.05	0.933	36.5
33.21	0.37	2.45	0.17	0.08	0.950	37.1
33.69	0.25	2.51	0.24	0.11	0.941	36.8
34.21	0.24	0.62	0.11	0.19	0.940	n.d.
34.79	0.29	4.64	0.27	0.07	0.921	36.1
35.21	0.21	0.47	0.16	0.31	0.934	n.d.
35.51	0.83	24.04	1.34	0.06	0.949	37.0
35.81	1.43	27.17	1.06	0.05	0.935	36.6
36.21	1.21	25.80	1.09	0.05	0.945	36.9
36.51	2.05	31.94	0.80	0.03	0.937	36.7
36.81	0.30	0.64	0.16	0.26	0.885	n.d.
37.21	0.55	4.59	0.32	0.08	0.947	37.0
37.47	1.62	18.46	0.54	0.04	0.931	36.5
37.68	0.41	6.49	0.25	0.05	0.937	36.7
38.21	0.15	0.18	0.11	0.50	0.829	n.d.
38.53	0.09	0.25	0.12	0.41	0.847	n.d.
38.81	0.12	0.29	0.11	0.37	0.828	n.d.
39.81	1.73	29.75	0.97	0.04	0.896	35.3
40.21	0.14	0.22	0.14	0.53	0.764	n.d.
40.51	2.57	23.09	0.63	0.03	0.899	35.4
41.14	2.58	27.48	1.05	0.05	0.900	35.5
41.15	0.12	-	-	-	-	-
41.8	0.16	0.24	0.11	0.45	0.818	n.d.
42.16	0.90	8.04	0.32	0.05	0.957	37.3
42.34	0.69	2.93	0.13	0.05	0.989	38.3
42.61	0.90	5.61	0.23	0.05	0.948	37.0
42.81	1.86	30.79	1.21	0.05	0.932	36.5
43.21	0.35	0.85	0.14	0.18	0.916	n.d.
43.51	0.66	6.62	0.33	0.06	0.920	36.1
43.81	1.59	36.18	0.67	0.02	0.901	35.5
44.21	0.68	16.23	0.81	0.06	0.861	34.2
44.89	0.15	0.21	0.06	0.30	0.816	n.d.

45.51	0.13	0.10	0.03	0.28	0.812	n.d.
45.81	0.10	0.21	0.09	0.48	0.811	n.d.
46.21	0.08	0.64	0.05	0.12	0.802	32.0
46.51	0.08	0.21	0.04	0.31	0.712	n.d.
47.74	1.01	23.26	0.96	0.05	0.946	36.9
47.91	0.52	6.99	0.38	0.07	0.933	36.5
48.21	0.90	23.59	1.12	0.06	0.964	37.5
48.51	0.47	1.02	0.07	0.09	0.942	36.8
48.82	0.68	1.13	0.05	0.06	0.941	36.8
49.51	0.13	0.10	0.08	0.56	0.941	n.d.

Supplementary Table 2. Total dinocyst concentrations and total peridinioid cysts per gram sediment dry weight (cpg). Pollen and spores and saccate gymnosperm pollen in grains per dry gram of sediment (gpg). Peridinioid vs. gonyaulacoid dinocysts (P/G-ratio). Terrestrial vs. marine palynomorphs (T/M-ratio). Dinocyst species *Spiniferites* spp., *Impagidinium* spp., *Lithosphaeridium siphoniphorum siphoniphorum* and *Cyclonephelium compactum* – *C. membraniphorum* complex (cpg). mbs = meters below surface.

Sample depth (mbs)	Dinocysts (cpg)	Total Peridinioid cysts (cpg)	Pollen and spores (gpg)	Saccate pollen (gpg)	P/G-ratio	T/M-ratio	Impag. spp. (cpg)	Spin. spp. (cpg)	L. siph. siph. (cpg)	C. comp.-C. memb. complex (cpg)
26.51	3755	2158	2342	1022	0.50	0.39	85	767	0	28
28.81	1620	454	95	71	0.25	0.06	123	546	0	55
29.21	24	9	9	4	0.38	0.25	1	0	0	4
29.81	-	-	-	-	-	-	-	-	-	-
30.21	4115	2497	467	230	0.55	0.10	112	767	0	98
31.21	724	521	18	9	0.71	0.02	50	61	0	38
31.81	-	-	-	-	-	-	-	-	-	-
32.21	-	-	-	-	-	-	-	-	-	-
32.47	1893	645	50	36	0.31	0.02	194	531	0	129
33.21	4253	2127	278	103	0.45	0.06	190	1206	0	222
33.81	1759	999	35	16	0.56	0.02	148	387	0	52
34.21	3427	1462	122	73	0.40	0.03	208	1101	0	86
34.81	2902	696	110	37	0.20	0.04	167	1046	0	209
35.21	2755	521	149	74	0.16	0.05	149	1223	0	138
35.51	3774	1505	1540	874	0.36	0.29	180	1041	0	222
35.81	4415	1991	3093	1229	0.42	0.40	237	763	0	339
36.21	7200	2279	3298	1689	0.29	0.31	349	1663	0	215
36.51	4197	2239	2307	774	0.49	0.35	61	926	0	288
36.81	4982	2302	940	405	0.45	0.15	448	1293	0	138
37.21	5606	3064	374	96	0.53	0.06	299	1303	0	64

