

## Appendices, Müller and Knies (2013)

**Table S1.** Trace element concentrations of quartz grains (type A to E) in offshore samples determined by LA-ICP-MS. Concentrations of B, P, and K are below the limits of detection (LOD) of 3.3, 4.6 and 25.4  $\mu\text{g g}^{-1}$ , respectively.

sample	LOD type	Li 0.31	Be 0.06	Mn 0.10	Ge 0.14	Al 8.1	Ti 2.9	Fe 1.5
1244-B-A	A	<0.31	0.08	0.16	1.55	31.9	<2.9	2.2
1244-B-B	A	0.39	0.08	0.84	1.00	89.9	<2.9	190.4
1244-A-C	E	0.54	<0.06	1.33	0.94	33.2	5.7	2.5
1244-B-A	A	0.75	0.09	5.07	<0.14	68.2	<2.9	56.8
1246-A-A	A	<0.31	<0.06	0.31	1.49	<8.1	<2.9	31.5
1246-A-B	A	<0.31	<0.06	0.22	1.26	<8.1	<2.9	1.5
1246-A-C	A	<0.31	<0.06	0.28	1.17	10.5	<2.9	<1.5
1246-B-A	A	0.96	<0.06	0.97	1.02	127.7	<2.9	9.9
1246-B-B	B	<0.31	0.09	0.45	0.85	46.6	3.1	3.8
1246-B-C	A	0.75	<0.06	1.75	1.02	202.6	<2.9	84.6
1246-B-D	B	0.47	0.16	1.02	1.61	42.9	3.3	6.8
1246-B-E	A	0.98	<0.06	1.48	1.09	221.5	<2.9	20.3
1258-A-A	D	0.78	<0.06	0.35	0.95	76.9	81.8	84.4
1258-A-B	A	0.18	0.11	0.06	1.18	<8.1	<2.9	3.7
1258-A-C	D	2.62	<0.06	1.03	1.02	42.5	22.7	17.6
1258-A-D	A	0.50	<0.06	1.04	1.05	16.7	<2.9	<1.5
1258-A-E	A	<0.31	<0.06	0.35	0.96	13.1	<2.9	<1.5
1258-B-F	B	1.44	0.14	0.26	2.40	335.0	<2.9	124.3
1258-B-G	D	13.44	0.08	1.75	1.42	406.5	49.6	90.9
1258-B-H	B	2.60	<0.06	0.27	1.90	285.1	<2.9	38.0
1258-B-I	B	<0.31	<0.06	1.77	1.33	65.7	<2.9	23.2
1258-B-J	B	<0.31	<0.06	0.50	1.42	47.4	<2.9	3.4
1258-B-K	D	3.58	1.22	3.20	0.76	221.0	28.0	4.8
1258-B-L	B	2.80	0.17	0.47	2.71	344.9	<2.9	97.7
1258-B-M	D	0.79	0.15	4.02	0.50	43.8	44.9	15.4
1265-B-A	D	0.47	0.11	0.51	<0.14	257.6	88.5	9.4
1265-B-B	D	0.44	<0.06	0.39	0.73	85.3	64.6	10.8
1265-B-C	D	1.01	0.06	11.98	0.83	306.3	182.9	216.0
1265-B-D	D	0.63	<0.06	4.42	0.89	116.7	111.2	108.2
1265-B-E	D	<0.31	<0.06	7.35	0.68	47.3	179.9	231.6
1268-A-A	A	<0.31	<0.06	0.20	0.24	13.6	<2.9	<1.5
1268-A-B	A	<0.31	<0.06	0.10	0.31	28.9	<2.9	1.4
1268-A-C	A	<0.31	<0.06	0.12	0.22	22.5	<2.9	7.2
1268-A-D	A	<0.31	<0.06	0.18	0.21	15.3	<2.9	<1.5
1268-B-A	C	2.45	0.20	3.04	0.70	166.0	<2.9	27.5
1268-B-B	A	<0.31	0.14	0.15	1.77	78.9	<2.9	<1.5
1268-B-C	C	1.39	<0.06	0.74	2.41	235.7	<2.9	21.7
1268-B-D	A	<0.31	<0.06	0.58	1.94	184.4	<2.9	<1.5
1268-B-E	C	2.55	<0.06	0.79	4.49	344.1	<2.9	57.5
1268-B-F	A	0.79	0.14	0.10	1.76	21.2	<2.9	<1.5
1268-B-G	A	<0.31	0.13	0.20	1.98	125.0	<2.9	1.7
1269-A-A	D	0.62	<0.06	0.43	0.92	70.2	26.8	16.4
1269-A-B	B	0.32	0.27	6.08	0.97	134.0	<2.9	20.7
1269-A-C	B	0.58	0.27	7.15	0.84	51.4	<2.9	15.6
1269-A-D	A	<0.31	<0.06	39.59	1.55	52.6	<2.9	122.0
1269-A-E	A	<0.31	0.19	15.01	1.83	28.1	<2.9	101.5
1269-A-F	B	<0.31	<0.06	2.19	0.96	91.6	<2.9	34.2
1269-A-G	A	<0.31	<0.06	18.35	1.85	32.4	<2.9	38.4
1269-A-H	B	0.33	<0.06	0.20	1.44	33.5	<2.9	6.1
1269-A-I	B	0.52	0.29	1.17	1.02	48.6	<2.9	3.7
1269-A-J	B	<0.31	0.13	0.31	0.98	20.6	<2.9	5.8

**Table S1.** Continued

		<b>Li</b>	<b>Be</b>	<b>Mn</b>	<b>Ge</b>	<b>Al</b>	<b>Ti</b>	<b>Fe</b>
	LOD	0.31	0.06	0.10	0.14	8.1	2.9	1.5
sample	type							
1275-A-A	A	<0.31	0.11	0.46	1.54	56.1	<2.9	1.6
1275-A-B	A	130.44	0.24	0.35	8.17	3555.4	<2.9	9.1
1275-A-C	A	<0.31	<0.06	0.45	1.04	19.9	<2.9	11.3
1275-A-D	A	<0.31	0.17	0.59	<0.14	32.6	<2.9	5.7
1275-A-E	A	171.27	0.38	0.21	5.03	2245.8	<2.9	17.7
1275-A-F	A	29.07	0.19	0.12	5.91	2485.4	<2.9	6.6
1275-B-A	A	0.77	<0.06	0.30	0.57	32.6	4.0	16.7
1275-B-B	B	<0.31	<0.06	3.43	1.01	106.4	<2.9	82.8
1275-B-C	A	3.37	<0.06	0.17	1.66	148.5	<2.9	170.2
1275-B-D	A	1.32	<0.06	0.73	0.68	22.4	4.7	105.9
1275-B-E	A	2.95	0.11	0.21	1.23	190.4	<2.9	17.2
1275-B-F	C	0.44	<0.06	0.56	1.58	72.4	<2.9	11.3
1275-B-G	C	<0.31	<0.06	0.45	1.61	47.3	<2.9	5.2
1275-B-H	A	1.78	<0.06	<0.10	1.24	158.4	<2.9	7.1
1275-B-I	B	<0.31	0.09	0.14	2.12	43.6	<2.9	1.8
1275-B-J	C	1.11	<0.06	0.38	1.55	41.3	<2.9	5.6
1275-B-K	B	<0.31	0.15	0.31	2.08	40.5	<2.9	<1.4
1276-A3-A	D	2.53	0.18	1.04	1.31	178.9	39.33	9.7
1276-A3-B	D	3.34	0.35	1.18	1.04	118.4	46.7	3.1
1276-A3-C	D	17.71	0.83	0.99	0.81	340.6	48.4	4.6
1276-A3-D	A	<0.31	<0.06	1.21	0.37	47.6	<2.9	10.6
1276-A3-E	A	<0.31	0.10	0.48	0.37	98.4	<2.9	104.3
1276-A3-F	D	3.14	0.12	1.56	<0.14	146.1	34.3	7.6
1276-A3-G	A	<0.31	<0.06	0.67	0.29	40.9	<2.9	4.1
1276-A3-H	A	<0.31	0.26	1.07	0.21	62.8	<2.9	9.6
1276-A3-I	A	<0.31	<0.06	0.35	0.83	9.5	<2.9	<1.5
1276-A3-J	A	<0.31	<0.06	0.23	1.06	10.6	<2.9	<1.5
1276-A3-K	D	23.92	0.48	1.02	0.69	327.0	53.8	4.0
1276-A3-L	D	2.70	<0.06	0.56	1.21	181.1	33.7	5.8
1276-A3-M	D	21.14	0.29	0.74	0.63	205.6	45.8	1.7
1276-A3-N	D	12.94	1.00	1.27	0.73	414.5	57.3	8.0
1276-B-A	B	1.37	<0.06	0.23	1.85	75.0	<2.9	12.9
1276-B-B	B	0.81	<0.06	0.57	1.60	127.2	<2.9	220.2
1276-B-C	B	<0.31	<0.06	0.52	0.28	<8.1	<2.9	<1.5
1276-B-D	E	<0.31	<0.06	0.40	0.69	151.0	18.5	15.8
1276-B-E	B	<0.31	<0.06	0.77	0.15	26.0	<2.9	5.3
1276-B-F	A	0.33	<0.06	0.30	0.94	104.9	<2.9	28.9
1276-B-G	A	0.49	<0.06	0.26	1.15	41.5	<2.9	2.6
1276-B-H	E	0.47	<0.06	0.50	0.79	124.9	11.7	7.4
1276-B-I	D	0.64	<0.06	0.58	0.99	101.5	9.1	<1.5
1276-B-J	B	0.34	<0.06	7.11	0.14	8.5	<2.9	43.0
1276-B-K	A	<0.31	<0.06	0.86	2.38	100.4	<2.9	5.8
1276-B-L	D	<0.31	<0.06	0.34	0.57	183.4	17.4	128.7
1276-B-M	B	<0.31	<0.06	0.34	0.55	22.9	<2.9	2.4
1286-A1-A	B	1.79	<0.06	0.44	1.13	30.6	<2.9	<1.5
1286-A1-B	B	1.80	0.64	0.27	1.07	21.9	<2.9	2.4
1286-A1-C	B	0.32	<0.06	0.21	0.88	59.3	<2.9	14.0
1286-A1-D	B	0.37	<0.06	0.21	1.04	23.4	3.2	1.7
1286-A2-A	A	<0.31	<0.06	0.26	0.78	27.5	<2.9	13.7
1286-A2-B	A	<0.31	<0.06	0.31	0.85	28.8	<2.9	<1.5
1286-A2-C	B	<0.31	<0.06	0.20	0.79	24.0	10.4	17.5
1286-A2-D	B	0.52	0.07	1.54	0.81	111.8	12.3	98.4
1286-A2-E	A	<0.31	0.22	0.22	1.39	21.8	<2.9	5.9
1286-A2-F	A	<0.31	0.13	0.25	1.40	11.9	<2.9	2.2
1286-A2-G	B	<0.31	<0.06	10.79	1.08	136.3	<2.9	<32.5
1286-A2-H	A	0.31	0.54	<0.10	1.48	21.1	<2.9	2.0

**Table S1.** Continued

		<b>Li</b>	<b>Be</b>	<b>Mn</b>	<b>Ge</b>	<b>Al</b>	<b>Ti</b>	<b>Fe</b>
sample	LOD type	0.31	0.06	0.10	0.14	8.1	2.9	1.5
1286-B-A	C	1.48	<0.06	0.37	1.40	136.5	<2.9	5.7
1286-B-A	D	0.41	<0.06	0.13	0.57	28.2	28.5	<1.5
1286-B-B	B	<0.31	0.10	0.21	1.26	43.0	<2.9	2.5
1286-B-C	B	<0.31	<0.06	0.21	1.28	59.6	<2.9	<1.5
1286-B-D	B	<0.31	<0.06	<0.10	1.33	47.1	<2.9	1.5
1286-B-E	B	<0.31	<0.06	<0.10	1.42	35.5	<2.9	4.2
1286-B-F	A	<0.31	<0.06	0.24	1.03	63.9	<2.9	46.0
1286-B-G	A	<0.31	0.11	0.27	0.99	51.8	<2.9	24.2
1286-B-H	A	<0.31	<0.06	0.35	0.40	45.6	<2.9	35.7
1286B-I	B	<0.31	0.10	0.20	1.15	48.3	<2.9	18.6
1286B-J	B	<0.31	<0.06	0.16	1.13	42.7	<2.9	1.8
1286-B-K	A	0.38	<0.06	0.42	<0.14	29.1	<2.9	<1.5
1286-B-L	A	1.36	<0.06	0.36	0.20	36.1	<2.9	<1.5
1286-B-M	A	1.14	<0.06	0.50	<0.14	48.6	<2.9	<1.5
1286-B-N	A	<0.31	<0.06	0.39	1.13	45.7	<2.9	4.4
1286-B-O	A	<0.31	<0.06	0.41	1.03	29.4	<2.9	13.5
1286-B-P	A	<0.31	<0.06	0.14	1.29	14.3	<2.9	<1.5
1286-B-Q	A	0.49	<0.06	0.15	1.38	9.1	<2.9	<1.5
1286-B-R	A	<0.31	<0.06	0.21	1.13	<8.1	<2.9	<1.5
1286-B-S	A	<0.31	<0.06	0.30	1.16	13.0	<2.9	1.8
1286-B-T	A	0.36	<0.06	0.40	1.42	<8.1	<2.9	<1.5
1286-B-U	A	<0.31	<0.06	<0.10	1.87	31.6	<2.9	1.9
1286-B-V	A	<0.31	<0.06	0.20	1.81	34.5	<2.9	3.7
1286-B-W	A	<0.31	0.10	0.22	1.90	34.6	<2.9	3.6
1286-B-X	A	<0.31	0.21	0.24	1.25	10.2	<2.9	1.5
1286-B-Y	A	<0.31	<0.06	0.37	1.17	11.5	<2.9	1.5

**Table S2.** Trace element concentrations of quartz in onshore samples determined by LA-ICP-MS. Concentrations of B, P, and K are below the limits of detection (LOD) of 3.3, 4.6 and 25.4  $\mu\text{gg}^{-1}$ , respectively. Type A, B, C, and D correspond to quartz grain types found in offshore sediments (see text for explanation). Type X quartz was not found in offshore sediments.

Sample	LOD type	Li 0.31	Be 0.06	Mn 0.10	Ge 0.14	Al 8.1	Ti 2.9	Fe 1.5
84-132-A	X	3.22	<0.06	0.22	1.03	26.6	4.0	<1.5
84-132-B	X	3.87	<0.06	0.06	1.48	7.7	<2.9	<1.5
31-50-A	X	1.81	0.09	0.37	1.02	19.1	<2.9	<1.5
31-50-B	X	0.55	0.28	<0.10	0.64	26.0	<2.9	<1.5
YO85-269-A	X	3.12	0.13	0.33	0.85	56.4	<2.9	5.3
YO85-269-B	X	0.46	0.16	0.42	1.14	14.3	<2.9	<1.5
YO85-193	X	0.36	0.25	0.15	2.11	12.2	<2.9	<1.5
YO85-Árat	X	0.61	0.18	0.46	0.16	77.0	5.2	20.2
WS79-8-A	X	0.58	<0.06	0.15	0.81	16.8	<2.9	<1.5
WS79-8-B	X	0.87	<0.06	0.25	1.06	25.5	3.5	<1.5
WS87-4-A	A	1.44	<0.06	<0.10	1.02	126.0	<2.9	2.2
WS87-4-B	D	11.68	0.11	0.60	1.73	272.1	144.0	42.6
WS87-25-A	D	2.25	0.15	0.33	0.66	359.4	19.3	20.7
WS87-25-B	D	<0.31	<0.06	<0.10	0.45	382.5	23.4	53.3
MJ2-A	X	0.32	0.06	0.74	0.70	77.1	<2.9	36.2
MJ2-B	X	<0.31	<0.06	0.30	0.88	20.0	<2.9	22.7
MJ2-C	X	<0.31	0.28	0.42	1.05	145.4	<2.9	25.2
AB12-4-A	A	<0.31	<0.06	0.12	0.24	23.1	<2.9	4.5
AB12-4-B	A	0.66	<0.06	0.24	0.22	42.5	<2.9	<1.5
AB12-4-C	D	0.47	0.11	0.21	<0.14	188.1	68.1	<1.5
AB12-4-D	D	0.44	<0.06	0.42	0.73	97.1	74.0	6.4
AB12-4-E	D	1.01	0.06	1.97	0.63	196.2	112.2	16.1
AB12-4-F	B	<0.31	<0.06	0.69	1.85	65.0	<2.9	2.7
AB12-4-G	D	0.63	<0.06	0.42	1.09	95.5	82.1	18.0
AB12-4-H	D	<0.31	<0.06	4.38	0.78	87.1	122.9	1.6
AB12-4-I	A	<0.31	<0.06	0.12	0.31	18.2	<2.9	1.4
AB12-4-J	A	<0.31	<0.06	0.31	0.21	35.1	<2.9	<1.5
AB12-4-K	C	<0.31	<0.06	0.37	1.26	45.0	<2.9	3.7
AB12-4-L	B	0.61	<0.06	0.17	0.15	36.0	<2.9	2.5
DH4-A	D	1.85	0.21	0.48	1.20	23.0	12.9	<1.5
DH4-B	D	0.88	<0.06	0.59	0.64	99.7	108.1	7.2
DH4-C	A	<0.31	<0.06	0.20	0.80	10.1	<2.9	<1.5
DH4-D	A	0.75	<0.06	<0.10	0.51	<8.1	<2.9	2.2
DH4-E	A	<0.31	0.09	0.78	0.54	10.7	<2.9	1.6
DH7A-1-A	D	0.86	<0.06	0.32	0.61	43.6	14.92	5.2
DH7A-1-B	D	2.67	0.30	0.90	1.52	302.9	35.70	6.7
DH7A-1-C	D	1.29	<0.06	0.48	0.96	15.4	14.86	<1.5
DH7A-1-D	D	1.41	<0.06	0.20	0.58	66.2	221.07	42.2
DH7A-1-E	D	3.06	<0.06	0.37	0.82	58.6	47.99	2.2
DH7A-1-F	D	2.03	<0.06	0.54	0.91	179.9	40.94	12.4
DH7A-1-G	D	<0.31	<0.06	0.30	0.41	<8.1	8.66	<1.5
DH7A-1-H	D	2.18	<0.06	0.27	0.60	35.2	47.75	1.8
DH7A-1-I	D	1.38	0.08	0.76	0.83	57.2	25.24	3.2
DH7A-1-J	D	1.49	<0.06	0.26	0.73	87.3	35.47	3.9
DH7A-1-K	D	4.28	0.07	1.43	0.63	213.4	287.84	78.5
DH7A-2-A	D	1.48	<0.06	0.71	0.62	125.3	144.07	91.4
DH7A-2-B	D	1.36	<0.06	0.88	1.84	159.5	24.47	44.2
DH7A-3-A	D	0.65	<0.06	0.47	0.70	112.6	145.39	66.2
DH7A-3-B	D	2.75	0.96	<0.10	0.73	46.0	68.93	7.8

**Table S2.** Continued.

		<b>Li</b>	<b>Be</b>	<b>Mn</b>	<b>Ge</b>	<b>Al</b>	<b>Ti</b>	<b>Fe</b>
Sample	LOD type	0.31	0.06	0.10	0.14	8.1	2.9	1.5
MJ1-A	A	0.95	<0.06	0.19	0.97	13.4	<2.9	<1.5
MJ1-B	A	1.92	<0.06	0.29	0.80	<8.1	<2.9	<1.5
MJ1-C	D	3.93	<0.06	0.43	2.11	42.2	13.8	<1.5
MJ1-D	D	2.95	0.26	0.18	1.95	32.4	12.1	<1.5