

Appendix 1. Raw point-count data for sandstone from the Turpan-Hami basin

No.	Sample	Age/Fm.*	Lat.(N),Long.(E)	Q m	Q p	Cht.	K	P	Funid	Lvm felsic	Lvm mafic	Lv unid	Lst	carb	Lm	unid L	bt	ms	chl	heav+opaq	cmt+mat
TAIBEI DEPRESSION																					
1	96-LQ-211	K1s	42.50, 89.52	121	21	3	31	55	0	32	51	2	26	0	13	1	1	0	0	9	55
2	96-LQ-212	K1s	42.50, 89.52	148	21	2	14	63	0	17	74	2	52	0	12	4	4	4	2	8	45
3	96-LQ-213	K1s	42.50, 89.52	145	16	0	40	63	1	12	45	3	23	0	10	1	2	1	0	7	58
4	96-LQ-214	K1s	42.50, 89.52	132	13	0	25	58	3	13	43	1	38	0	9	1	0	0	0	0	84
5	97-LQ-1	K1s	42.50, 89.52	116	16	1	21	47	3	14	48	5	26	0	13	2	0	0	0	7	126
6	97-LQ-2	K1s	42.50, 89.52	139	20	4	34	41	2	18	58	2	16	0	5	3	2	0	0	3	133
7	97-LQ-3	K1s	42.50, 89.52	122	26	6	29	61	1	20	62	3	28	0	5	0	2	0	0	3	83
8	97-LQ-5	K1s	42.50, 89.52	146	12	3	43	56	2	17	55	0	27	0	7	1	0	1	0	1	99
9	96-LQ-107	J3k	42.50, 89.52	136	11	4	26	71	3	14	53	1	47	0	9	2	0	0	3	1	101
10	96-LQ-108	J3k	42.50, 89.52	171	28	0	41	47	1	37	54	2	22	0	14	2	4	0	0	5	43
11	96-LQ-109	J3k	42.50, 89.52	214	31	4	36	32	0	28	30	4	6	0	4	0	0	0	0	7	93
12	96-TC2-501	J3k	42.57, 89.54	78	15	13	16	35	1	77	118	10	34	8	7	0	0	1	4	4	72
13	96-LQ-100	J2q	42.50, 89.51	174	24	1	24	39	0	14	28	3	15	0	18	2	8	10	2	5	130
14	96-LQ-210	J2q	42.50, 89.51	181	28	1	24	30	0	19	24	2	9	0	14	3	5	1	0	5	154
15	96-QK-1	J2q	42.57, 90.33	134	18	3	25	16	1	38	55	3	25	0	13	0	1	0	1	1	165
16	96-QK-2	J2q	42.57, 90.33	122	6	0	17	19	2	32	67	3	17	0	7	0	0	0	1	4	198
17	97-MI-100	J2q	43.04, 90.39	137	10	0	30	69	1	35	82	2	15	0	10	0	3	2	3	1	16
18	96-LQ-208	J2s	42.50, 89.51	170	28	1	24	47	0	5	41	1	49	0	23	0	55	9	11	2	33
19	96-LQ-209	J2s	42.50, 89.51	193	23	0	23	45	0	6	29	1	27	0	23	1	26	6	5	1	91
20	96-TC2-200	J2s	42.57, 89.54	173	15	1	39	74	4	32	70	2	24	0	10	0	0	0	0	2	20
21	96-TC2-201	J2s	42.57, 89.54	180	13	1	36	81	3	15	67	4	45	0	18	3	3	0	0	5	20
22	97-LG-200	J2s	43.04, 90.19	177	13	3	55	47	1	46	80	1	11	0	10	0	1	0	2	1	17
23	97-MI-102	J2s	43.04, 90.39	185	14	0	57	63	2	33	83	2	13	0	15	0	1	0	1	2	14
24	96-DS1-200	J2x	43.04, 90.50	167	8	8	44	65	3	43	48	6	19	0	36	3	0	1	7	0	36
25	96-HT5-200	J2x	43.10, 91.26	134	14	2	48	51	0	37	47	1	27	0	27	1	1	6	3	1	96
26	96-LE3-201	J2x	43.09, 90.23	189	17	1	43	56	0	18	29	3	43	0	29	2	0	6	2	0	57
27	96-LQ-205	J2x	42.49, 89.51	129	25	1	24	24	0	6	13	1	54	0	17	1	11	21	19	2	152
28	96-LQ-206A	J2x	42.49, 89.51	174	13	2	24	34	1	5	13	2	54	0	10	0	13	9	12	15	119
29	96-LQ-206B	J2x	42.49, 89.51	170	17	3	28	51	2	10	24	2	68	0	34	2	41	11	0	5	31
30	96-LQ-207	J2x	42.49, 89.51	107	34	0	38	28	0	6	42	2	43	0	20	0	20	3	7	2	58
31	96-LS1-201	J2x	43.03, 90.16	248	10	0	41	30	2	20	32	1	24	0	13	0	0	0	0	0	13
32	96-TC2-401	J2x	42.57, 89.54	141	53	4	18	45	4	2	51	0	28	0	60	1	0	9	3	1	79
33	97-MI-301	J2x	43.04, 90.39	144	20	0	48	58	1	38	62	4	21	0	16	2	1	4	1	1	79
34	97-MI-302	J2x	43.04, 90.39	145	26	4	46	74	2	19	56	3	29	0	14	2	1	3	0	0	48
35	96-LS1-200	J1s	43.03, 90.16	221	10	0	44	38	1	29	29	4	44	0	11	0	4	6	0	3	49
36	97-MI-303	J1s	43.04, 90.39	157	21	4	48	61	4	24	35	2	47	0	16	2	1	2	0	0	72
37	96-LE3-200	J1b	43.09, 90.23	206	13	2	37	39	0	12	29	5	75	0	12	1	1	0	0	0	28
38	96-TS-102	J1b	43.15, 88.57	219	9	2	59	29	1	30	20	6	37	0	26	2	11	0	0	2	42
39	96-TS-200	J1b	43.15, 88.57	166	15	4	28	39	3	31	12	1	43	0	24	4	0	3	11	11	97
40	97-KE-5	J1b	43.13, 90.07	146	31	17	28	18	0	77	15	5	81	0	11	2	11	2	1	8	29
41	97-KE-6	J1b	43.13, 90.07	118	22	5	19	23	1	84	40	3	72	0	10	2	8	2	3	5	54

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No.	Sample	Age/Fm.*	Lat.(N),Long.(E)	Q m	Q p	Cht.	K	P	Funid	Lvm felsic	Lvm mafic	Lv unid	Lst	carb	Lm	unid L	bt	ms	chl	heav+opaq	cmt+mat
42	97-KE-7	J1b	43.13, 90.07	150	14	4	24	30	1	54	11	5	87	0	14	2	1	1	0	13	55
43	97-KE-8	J1b	43.13, 90.07	138	30	23	20	18	0	73	31	1	52	0	9	2	0	0	0	0	54
44	97-TS-501	J1b	43.15, 88.57	283	18	3	33	23	2	16	10	0	35	0	10	0	7	0	0	0	21
45	97-TS-500	T3h	43.15, 88.58	131	19	6	23	38		35	55	7	1	0	11	10	10	6	0	8	137
46	97-SH-100	T2-3k	43.25, 92.00	218	21	6	17	46	0	41	37	3	0	0	4	0	7	0	1	3	83
47	97-SH-101	T2-3k	43.25, 92.00	124	25	22	24	33	1	56	42	5	0	0	5	2	7	0	0	3	126
48	97-SH-4	T2-3k	43.25, 92.00	205	22	12	22	14	3	49	49	2	1	0	7	1	0	0	0	6	92
49	97-TS-400	T2-3k	43.15, 88.58	141	28	1	12	89	2	34	67	1	20	0	3	1	8	1	3	7	81
50	97-TS-401	T2-3k	43.15, 88.58	102	16	24	37	39	0	64	75	4	0	0	6	0	1	1	1	4	111
51	97-TS-402	T2-3k	43.15, 88.58	94	24	30	28	40	0	60	54	11	1	0	4	0	8	0	1	4	148
52	97-TS-403	T2-3k	43.15, 88.58	134	30	28	18	19	0	42	105	10	0	0	10	0	8	0	0	4	90
53	97-ZB-500	T2-3k	43.17, 90.26	148	11	12	14	66	0	33	74	7	0	0	7	0	11	9	3	3	99
54	97-ZB-503	T2-3k	43.17, 90.26	166	17	5	26	24	1	58	26	9	1	8	3	1	1	0	1	3	139
55	96-ZB-300	T1cfg	43.13, 90.26	60	13	24	17	59	5	60	101	8	8	0	2	0	2	0	3	5	119
56	96-ZB-404	T1s	43.15, 90.25	162	8	5	50	42	2	31	18	6	0	7	3	0	1	2	1	14	148
57	97-ZB-300	T1s	43.15, 90.25	164	17	19	3	31	1	10	83	17	0	1	3	0	0	0	0	1	149
58	97-ZB-301	T1s	43.15, 90.25	61	10	15	12	106	7	21	52	13	1	1	3	0	1	2	1	9	185
59	97-ZB-302	T1s	43.15, 90.25	117	11	14	17	64	6	20	41	6	0	10	4	2	1	0	0	8	179
60	97-ZB-400	T1s	43.15, 90.25	129	20	8	11	76	4	20	46	11	0	4	8	3	0	1	0	6	152
61	97-ZB-401	T1s	43.15, 90.25	90	8	24	6	67	0	34	70	7	15	0	2	2	1	0	1	27	126
62	97-TS-205	P2t	43.16, 88.58	9	2	15	9	58	0	40	148	12	3	0	5	3	0	0	0	23	142
63	97-ZB-1	P2t	43.15, 90.26	118	8	21	3	44	0	25	131	34	3	0	3	1	4	0	0	0	105
64	97-ZB-13	P2t	43.15, 90.26	77	7	5	5	59	3	41	88	13	1	32	4	1	5	0	1	22	144
65	97-ZB-15	P2t	43.15, 90.26	136	5	14	8	37	1	73	71	17	4	0	7	4	2	0	3	5	113
66	97-ZB-9	P2t	43.15, 90.26	99	4	6	3	46	2	34	68	28	7	2	4	1	7	0	1	4	179
67	97-ZB-200	P2d	43.14, 90.25	135	21	16	13	63	0	51	63	14	8	0	4	0	3	0	0	4	99
68	97-ZB-201	P2d	43.14, 90.25	131	11	16	17	45	2	57	111	5	2	0	7	2	4	0	0	1	89
69	97-TG-2	P1t	43.19, 88.54	14	6	30	18	17	0	199	58	31	1	27	2	0	4	0	0	0	91
70	97-TG-4	P1t	43.19, 88.54	19	5	6	27	39	0	182	104	7	30	0	4	0	1	0	0	2	63
71	97-TG-5	P1t	43.19, 88.54	62	3	3	16	100	1	118	65	29	5	5	3	5	3	0	0	25	81
72	97-TG-6	P1t	43.19, 88.54	37	1	20	29	24	0	128	52	123	5	13	0	0	0	0	0	7	59
73	96-ZB-7	P1y	43.14, 90.25	31	14	23	5	123	0	152	63	1	2	0	12	0	0	0	0	15	59
TAINAN DEPRESSION																					
74	96-AN1-21	T3hs	42.42, 89.57	211	19	3	32	18	1	31	59	3	4	0	7	0	1	0	8	3	90
75	96-AN1-22	T3hs	42.42, 89.57	184	12	4	47	24	2	47	38	1	1	0	5	0	1	0	2	3	83
76	96-AN1-20	T2-3k	42.42, 89.57	159	15	9	43	46	4	34	64	5	1	0	2	0	0	1	12	12	91
77	97-YD-203	T3h-T2k	42.44, 89.56	169	21	3	20	23	0	55	47	6	4	2	1	0	2	0	0	1	141
78	97-YD-204	T2k	42.44, 89.56	166	11	9	16	37	0	31	39	9	5	2	2	3	1	0	1	14	151
79	97-YD-205	T2k	42.44, 89.56	139	13	10	37	65	0	56	82	6	5	0	0	0	0	0	1	15	59
80	97-YD-206	T2k	42.44, 89.56	190	12	8	37	45	0	55	76	3	8	0	0	0	1	0	0	4	59
81	97-YD-500	T2k	42.44, 89.56	146	8	5	28	12	8	34	44	18	0	0	4	0	0	3	2	5	166
82	97-SC-300	T1	42.44, 90.37	207	7	6	31	40	1	56	39	2	0	0	0	4	0	3	3	2	98

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83	97-SC-501	T	42.44, 90.37	149	15	13	18	34	6	19	70	3	3	3	5	0	1	0	10	12	139
84	97-SC-600	T	42.44, 90.37	162	15	12	22	33	3	52	66	6	3	0	6	0	2	0	5	0	101
85	96-AN1-101	P2q	42.42, 89.57	65	2	6	27	44	0	105	178	0	5	0	0	0	1	0	0	2	53
86	96-AN1-102	P2t	42.42, 89.57	74	2	0	26	52	0	65	106	1	10	0	0	0	3	0	1	5	152
TOKESUN DEPRESSION																					
87	97-ER-102	J1b	43.01, 87.33	197	24	10	14	36	1	21	33	6	34	0	26	4	0	13	7	6	64
88	97-ER-104	J1b	43.01, 87.33	186	13	7	14	39	1	15	51	5	45	0	13	6	0	6	0	8	83
89	97-ER-106	J1b	43.01, 87.33	189	9	1	20	31	1	10	37	6	20	0	21	3	4	3	4	1	88
90	97-WS-200	J1b	42.35, 88.27	217	16	5	48	19	2	22	8	0	37	23	3	93	1	0	0	0	55
91	97-YI-2	J1b	42.53, 88.30	150	15	10	39	32	2	53	12	4	23	0	9	2	1	3	0	0	102
92	97-YI-6	J1b	42.53, 88.30	188	18	16	30	5	0	41	12	5	45	0	8	1	4	1	1	2	88
93	97-YI-100	T3h	42.53, 88.30	124	18	11	37	43	1	60	58	3	0	0	0	3	5	0	0	3	113
94	96-TU-10	T3h-hs	42.54, 88.47	172	22	13	24	46	2	42	66	5	0	0	5	2	7	2	9	13	70
95	97-WS-501	T3h-hs	42.35, 88.27	182	16	20	47	43	1	44	69	13	2	0	6	0	0	1	5	0	49
96	97-WS-600	T3h-hs	42.35, 88.27	241	11	8	31	45	2	48	47	5	0	0	3	0	3	1	1	1	53
97	97-YI-201	T3k	42.53, 88.30	224	17	10	22	47	2	30	47	5	0	0	3	1	4	1	7	1	68
98	97-YI-300	T3k	42.53, 88.30	211	10	11	37	34	0	44	57	5	1	0	4	0	0	0	3	5	44
99	97-ER-1	P2t	43.01, 87.33	58	4	9	35	58	7	53	54	30	2	46	1	1	0	0	0	12	142
100	97-ER-11	P2t	43.01, 87.33	10	12	3	4	44	0	47	195	43	3	4	2	0	2	0	0	0	67
101	97-ER-14A	P2t	43.01, 87.33	57	3	0	7	23	0	49	173	12	1	18	3	0	2	0	0	2	150
102	97-ER-3	P2t	43.01, 87.33	86	9	1	30	61	0	46	177	34	0	8	2	0	0	0	0	4	38
103	97-ER-7	P2t	43.01, 87.33	39	4	5	15	43	0	70	158	23	4	8	0	0	0	0	0	2	127
104	97-YI-302	P	42.53, 88.30	158	10	8	24	35	0	62	118	4	0	0	3	2	1	0	2	7	66
105	97-YI-303	P	42.53, 88.30	148	5	3	29	47	1	62	97	2	2	0	2	0	1	9	1	4	87
HAMI DEPRESSION																					
106	96-HA3-200	J2x	43.11, 93.19	97	21	0	29	50	3	50	73	6	52	0	9	2	0	3	7	1	97
107	96-SA-108	J2x	43.08, 92.40	82	10	3	45	68	1	39	83	5	53	0	12	1	10	6	21	1	51
108	96-SA-25	J2x	43.08, 92.40	79	16	9	21	22	1	70	44	2	61	1	7	1	2	0	0	3	154
109	96-SA-38	J2x	43.08, 92.40	75	15	5	16	53	1	56	78	6	68	0	2	1	6	2	17	2	97
110	96-HA3-11	T3h	43.11, 93.19	84	16	27	6	35	4	3	147	10	10	0	0	1	0	0	0	2	127
111	96-HA3-12	T3h	43.11, 93.19	143	14	6	24	33	8	32	76	13	11	0	4	3	3	2	0	3	125
112	96-HA3-13	T3h	43.11, 93.19	129	14	13	19	69	4	33	105	4	4	0	4	0	1	0	5	3	93
113	96-HA3-10	T3hs	43.11, 93.19	108	27	25	18	46	6	27	118	5	23	0	7	2	1	0	3	2	82

Note: see Table 2 for definitions of parameters. Sample localities are abbreviated within sample names and are located in Figure 2. Appendix 2 contains the recalculated detrital modes for these data. See text for point-counting methods.

\*Formation name abbreviations are as follows: P1 = Lower Permian, P1z = Zaobishan Formation, P2 = Upper Permian, P2d = Dahayen Formation, P2t = Tarlong Formation, P2q = Quanzijie Formation, P2w = Wutongou Formation, P2g = Guodikeng Formation; T1 = Lower Triassic, T1j = Jiuciyuan Formation, T1s = Shaofangou Formation, T2-3 = Middle-Upper Triassic, T2-3k = Karamay Formation, T3 = Upper Triassic, T3hs = Huangshanjie Formation, T3h = Haojiagou

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\*Upper Triassic, T2-SK = Karamay Formation, T3 = Upper Triassic, T3NS = Niangshanjie Formation, T3N = Naojagou Formation, J1 = Lower Jurassic, J1b = Badaowan Formation, J1s = Sangonghe Formation, J2 = Middle Jurassic, J2x =