

**Table S2.** Molybdenite Re-Os isochron ages for Mesozoic molybdenum deposits in NE China.

Order	Sample No.	Deposit	Age (Ma)	References
Mesozoic molybdenum deposits in the northern and central Great Xing'an Range				
1	BDG	Badaguan	228.76 ± 3.1	[46]
2	14BDG	Badaguan	225.1 ± 2.1	[48]
3	12-BDG	Badaguan	226.7 ± 2.4	[154]
4	TPC	Taipingchuan	200 ± 5	[164]
5	09SL	Taipingchuan	200.1 ± 2.5	[164]
6	W	Wunugetushan	180.5 ± 2.0	[49]
7	W3	Wunugetushan	177.6 ± 4.5	[163]
8	CLK	Chalukou	150 ± 2	[65]
9	HD	Chalukou	148 ± 1	[67]
10	TPG	Taipinggou	130.1 ± 1.3	[165]
11	ZK004	Taipinggou	129.4 ± 3.9	[72]
12	J022	Jiazishan	147.4 ± 1.4	[73]
13	ZK2107	Diyanqinamu	156.2 ± 0.7	[167]
Mesozoic molybdenum deposits in the southern Great Xing'an Range				
14	Chg	Chehugou	245 ± 5	[43]
15	L	Laojiagou	234.9 ± 3.1	[41]
16	07KLT5	Kulitu	236 ± 3.3	[153]
17	10HST	Hashitu	150 ± 4	[75]
18	OLH	Aolunhua	129.4 ± 3.4	[168]
19	ALH	Aolunhua	132 ± 1	[79]
20	ZA	Aolunhua	131.2 ± 1.9	[169]
21	SBT	Shabutai	135.3 ± 2.6	[26]
22	HSG	Haisugou	136.4 ± 0.8	[26]
23	ZK108	Banlashan	136.1 ± 6.6	[26]
24	ZB-1	Banlashan	140.5 ± 2.4	[81]
25	ZB-2	Banlashan	143 ± 2.2	[81]
26	Y	Yangchang	138.5 ± 4.5	[169]
27	HSZ-2	Hongshanzi	137.2 ± 3.2	[83]
28	HSZ-3	Hongshanzi	138.2 ± 2.1	[83]
29	XDG	Xiaodonggou	135.5 ± 1.5	[170]
30	XDG	Xiaodonggou	138.1 ± 2.8	[84]
31	N	Nianzigou	154.3 ± 1.7	[86]
32	07NZG	Nianzigou	153 ± 5	[153]
33	N	Nianzigou	154.3 ± 3.6	[85]
34	JGS5	Jiguanshan	155.4 ± 1.3	[143]
35	JGS9	Jiguanshan	154.2 ± 3.1	[143]
36	J	Jiguanshan	151.1 ± 1.3	[171]
Mesozoic molybdenum deposits in the Lesser Xing'an-Zhangguangcai Range				
37	DHS	Daheishan	169.2 ± 1.2	[52]
38	DHS	Daheishan	168.0 ± 4.4	[155]
39	DHS	Daheishan	168.2 ± 3.2	[156]
40	XS	Xingshan	167.3 ± 2.5	[53]
41	JDT	Jidetun	168 ± 2.5	[159]
42	G	Jidetun	168.9 ± 1.9	[54]
43	JDT	Jidetun	168.6 ± 2.1	[54]
44	FAP	Fu'anpu	168.2 ± 0.9	[57]
45	FAP	Fu'anpu	166.9 ± 6.7	[158]
46	HDM	Houdaomu	167.5 ± 1.2	[159]

47	Jxhm	Shuangshan	$171.6 \pm 1.6$	[160]
48	JJP3	Jiapigou	$196 \pm 4$	[160]
49	JSC2	Sancha	$183.1 \pm 1.8$	[160]
50	YB061	Dashihe	$186.7 \pm 5.0$	[161]
51	YB065	Liushengdian	$169.3 \pm 0.9$	[162]
52	Jlsm	Liushengdian	$168.7 \pm 1.4$	[159]
53	SDZ	Sifangdianzi	$176.6 \pm 4.2$	[59]
54	LM	Luming	$176.7 \pm 4.4$	[62]
55	LM	Luming	$177.9 \pm 2.6$	[61]
56	HJH	Huojihe	$181.3 \pm 1.8$	[64]
57	XHL	Xinhualong	$171.3 \pm 1.3$	[159]