33
2014

ZHAN

1
2
1 Nanjing
2 Tianjin

U

Zhang G.L
cal Bu

Abstra
Tarim
mainly
Based o
rock in
a sup per
quen es i
had n ver
Key w ords

[1 - 3]

0⁴km²

5

N

4″

U - Pb

3

3.1

	100~200μm		25	Th	107×
	10^{-6}~4081×10^{-6}	U		154×10^{-6}~2256×10^{-6}	
30%~	Th/U	0.7~1.8	25	1	

%

25%~

1 a 650~615Ma
b c [10]

Fig. 1 Distribution of Precambrian strata in Tarim Basin (a), 650~615Ma basic dykes and granitic intrusive rocks with sampling sites (b) and composite columnar section of Neoproterozoic strata in Quruqtagh area c

2 U - Pb

Fig. 2 U - Pb concordia diagram of zircons from Neoproterozoic K - feldspar granite and granodiorite in Quruqtagh area of Tarim Basin

Bi— Hb— Pl— Mc— Or— Q— Mt—

1

Table 1 U−Th−Pb isotopi
K−feldspar granite ar

	Th /10^{-6}	U /10^{-6}	Th/U	$^{206}Pb/^{238}U$	/%	
009KR015						
1	413	427	0.97	0.1031	0.44	
2	331	418	0.79	0.1016	0.43	
3	127	219	0.58	0.1028	0.48	
4	355	359	0.99	0.1030	0.63	
5	154	168	0.91	0.1029	0.70	
6	377	386	0.98	0.1030	0.72	
7	312	357	0.87	0.1026	0.76	
8	147	169	0.87	0.1025	0.82	
9	167	193	0.87	0.1024	0.85	
10	198	263	0.75	0.1023	0.89	
11	194	208	0.93	0.1028	0.66	
12	388	416	0.93	0.1025	0.54	
13	289	325	0.89	0.1021	0.74	
14	251	309	0.81	0.1024	0.76	
15	136	194	0.70	0.1033	0.57	
16	320	348	0.92	0.1035	0.54	
17	117	168	0.70	0.1032	0.56	
18	242	303	0.80	0.1038	0.59	
19	304	368	0.83	0.1028	0.62	
20	408	428	0.95	0.1030	0.49	
21	995	1404	0.71	0.1022	0.63	
		.94	1.03	0.1029	0.49	0.86

2 Hf

Table 2 Hf isotopic compositon of Neoproterozoic K−feldspar granite and granodiorite in Quruqtagh area

	$^{176}Yb/^{177}Hf$	$^{176}Lu/^{177}Hf$	$^{176}Hf/^{177}Hf$	2 σ	$^{176}Hf/^{177}Hf_i$	$\varepsilon_{Hf}(0)$	$\varepsilon_{Hf}(t)$	T_{DM}/Ma	T_{DM}^{C}/Ma	$f_{Lu/Hf}$
2009KR015										
1	0.0815	0.0020	0.282228	0.000021	0.282205	-19.2	-6.2	1484	2509	-0.94
2	0.0501	0.0015	0.282277	0.000020	0.282258	-17.5	-4.3	1398	2340	-0.95
3	0.0418	0.0014	0.282220	0.000016	0.282204	-19.5	-6.2	1470	2511	-0.96
4	0.0381	0.0012	0.282238	0.000016	0.282223	-18.9	-5.5	1440	2450	-0.96
5	0.0468	0.0014	0.282247	0.000017	0.282230	-18.6	-5.3	1436	2430	-0.96
6	0.0542	0.0020	0.282223	0.000014	0.282200	-19.4	-6.4	1490	2524	-0.94
7	0.0696	0.0021	0.282213	0.000022	0.282188	-19.8	-6.8	1511	2561	-0.94
8	0.0350	0.0011	0.282235	0.000018	0.282222	-19.0	-5.6	1439	2454	-0.97
9	0.0502	0.0014	0.282230	0.000019	0.282213	-19.2	-5.9	1460	2484	-0.96
10	0.0342	0.0010	0.282259	0.000020	0.282248	-18.1	-4.7	1402	2374	-0.97
11	0.0555	0.0017	0.282279	0.000020	0.282259	-17.4	-4.3	1400	2337	-0.95
12	0.0378	0.0011	0.282253	0.000020	0.282241	-18.3	-4.9	1413	2396	-0.97
13	0.0647	0.0018	0.282205	0.000021	0.282184	-20.0	-6.9	1509	2574	-0.95
14	0.0265	0.0008	0.282218	0.000018	0.282209	-19.6	-6.0	1450	2494	-0.98
15	0.0787	0.0022	0.282275	0.000020	0.282248	-17.6	-4.7	1427	2372	-0.93
16	0.0442	0.0010	0.282268	0.000019	0.282257	-17.8	-4.4	1389	2345	-0.97
17	0.0661	0.0015	0.282180	0.000023	0.282162	-20.9	-7.7	1533	2643	-0.95
18	0.0402	0.0011	0.282240	0.000025	0.282228	-18.8	-5.4	1430	2436	-0.97
19	0.0614	0.0016	0.282229	0.000024	0.282210	-19.2	-6.0	1468	2492	-0.95
20	0.0453	0.0012	0.282243	0.000022	0.282229	-18.7	-5.3	1431	2432	-0.96
21	0.0610	0.0012	0.282252	0.000020	0.282237	-18.4	-5.0	1421	2407	-0.96
22	0.1971	0.0049	0.282187	0.000023	0.282129	-20.7	-8.9	1674	2746	-0.85
23	0.0505	0.0013	0.282275	0.000021	0.282260	-17.6	-4.2	1389	2334	-0.96
24	0.0531	0.0013	0.282247	0.000020	0.282232	-18.6	-5.2	1429	2422	-0.96
2009KR016										
1	0.1286	0.0031	0.282279	0.000021	0.282242	-17.4	-4.9	1457	2392	-0.91
2	0.0289	0.0008	0.282270	0.000016	0.282260	-17.7	-4.2	1380	2333	-0.97
3	0.0989	0.0027	0.282263	0.000019	0.282231	-18.0	-5.3	1463	2426	-0.92
4	0.0294	0.0008	0.282263	0.000015	0.282253	-18.0	-4.5	1391	2357	-0.97
5	0.0359	0.0010	0.282286	0.000016	0.282274	-17.2	-3.7	1364	2289	-0.97
6	0.0243	0.0007	0.282310	0.000015	0.282302	-16.3	-2.8	1320	2203	-0.98
7	0.0412	0.0012	0.282312	0.000015	0.282299	-16.3	-2.9	1333	2212	-0.97
8	0.0400	0.0010	0.282267	0.000016	0.282254	-17.9	-4.4	1393	2353	-0.97
9	0.0512	0.0013	0.282280	0.000017	0.282265	-17.4	-4.1	1384	2320	-0.96
10	0.0574	0.0016	0.282274	0.000015	0.282255	-17.6	-4.4	1403	2350	-0.95
11	0.0233	0.0007	0.282281	0.000016	0.282273	-17.4	-3.8	1360	2294	-0.98
12	0.0391	0.0011	0.282252	0.000015	0.282239	-18.4	-5.0	1415	2401	-0.97
13	0.0145	0.0004	0.282283	0.000015	0.282278	-17.3	-3.6	1348	2279	-0.99
14	0.0640	0.0016	0.282310	0.000018	0.282291	-16.3	-3.1	1351	2236	-0.95
15	0.0467	0.0012	0.282295	0.000016	0.282282	-16.9	-3.5	1357	2267	-0.97
16	0.0947	0.0024	0.282304	0.000020	0.282276	-16.5	-3.7	1390	2284	-0.93
17	0.0253	0.0007	0.282281	0.000016	0.282273	-17.4	-3.8	1360	2293	-0.98
18	0.0642	0.0017	0.282277	0.000018	0.282257	-17.5	-4.3	1402	2344	-0.95
19	0.0740	0.0019	0.282230	0.000019	0.282207	-19.2	-6.1	1479	2502	-0.94
20	0.1164	0.0032	0.282274	0.000018	0.282236	-17.6	-5.1	1467	2410	-0.90
21	0.0286	0.0008	0.282272	0.000017	0.282263	-17.7	-4.1	1375	2325	-0.98
22	0.0334	0.0008	0.282260	0.000018	0.282250	-18.1	-4.6	1395	2366	-0.97
23	0.0248	0.0007	0.282263	0.000016	0.282255	-18.0	-4.4	1385	2351	-0.98
24	0.0619	0.0015	0.282313	0.000017	0.282295	-16.2	-3.0	1345	2223	-0.95
25	0.0517	0.0014	0.282308	0.000023	0.282291	-16.4	-3.1	1349	2237	-0.96
26	0.0547	0.0016	0.282267	0.000017	0.282249	-17.8	-4.6	1412	2370	-0.95

Hf 2

G – —

TTD – —

Hf

Hf

ε H

~ 82

735Ma 630

ε Hf(t)

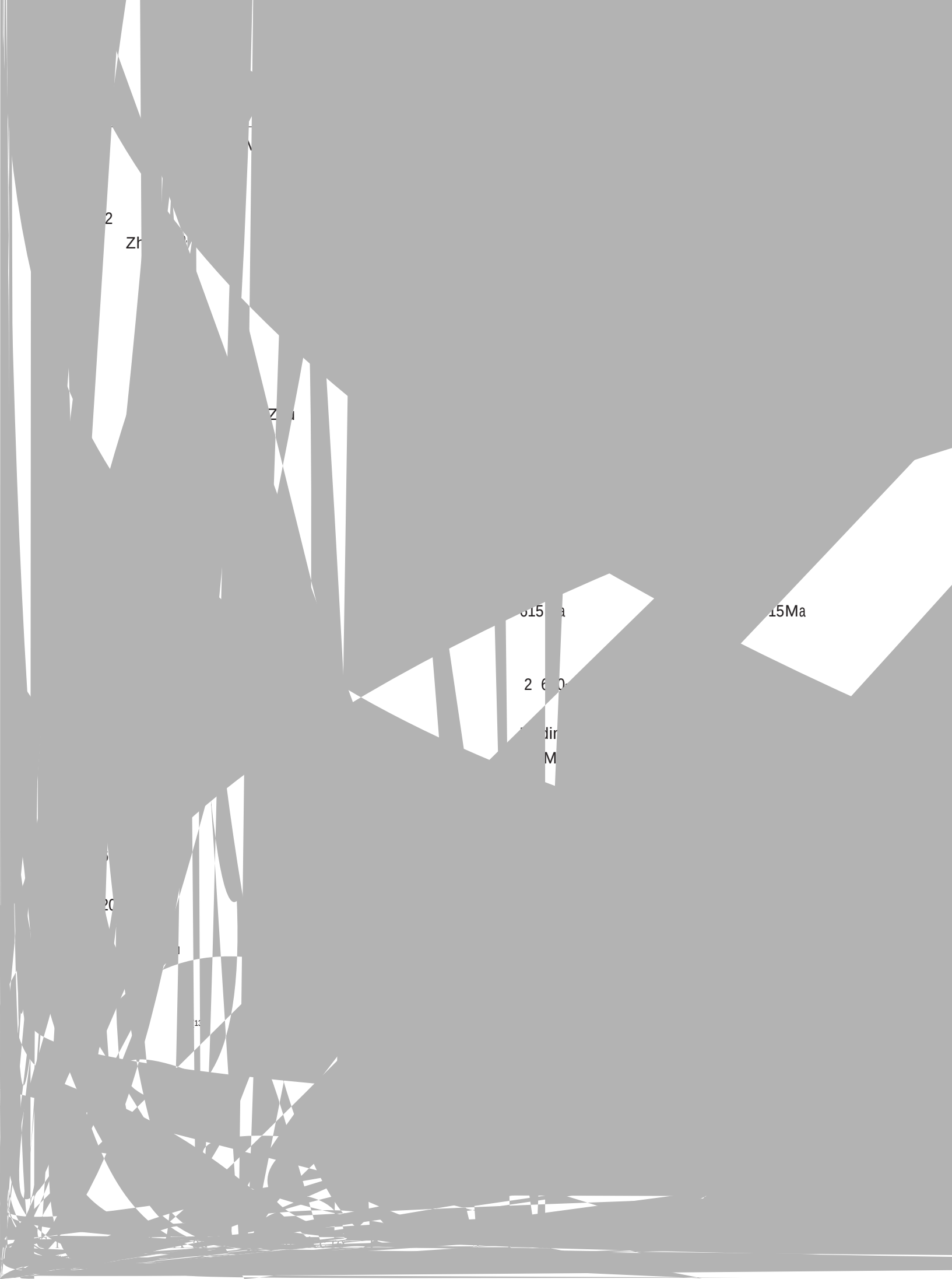
3 - ε Hf(t)

3.0~2.2Ga [17]

[14] 820~800M

35Ma —

am of ges of P



cratonization of t
try, Nd - isotopes
gabbro - TTG - p
phic belt[J]. Journ
[6]Shu L S, Deng X
of the Tarim Bl
from the Quruqt
2011, 42: 77 - 79
[7]Zhang C L, Zou H
tion of the Tarim
23:1306 - 1315.
[8]Zhang C L, Li Z
swarm in north ma
try, petrogenesis an
Sciences, 2009, 35:
]Zhang C L, Zou H
terozoic igneous ac
Block, NW China:
plume?[J]. Precambr
. LA - MC - ICPMS Hf
[J]. , 2007, 23: 2595 - 2504.
. Lu - Hf
. 2007 23 185 - 220.
Hu A Q, Jahn B M, Zhang G X, et al. Crustal evolution and Pha
nerozoic crustal growth in northern Xinjiang: Nd isotopic evi
dence. Part I. Isotopic characterization of basement rocks[J]. Tecno
physics, 2000, 328: 15 - 51.
[19]Long X P, Yuan C, Sun M, et al. Reworking of the Tarim Craton
by underplating of mantle plume - derived magmas: Evidence from
Neoproterozoic granitoids in the Kuluketage area, NW China[J].
Precambrian Research, 2011, 187: 1 - 14.
[20]Zhang C L, Li X H, Li Z X, et al. Neoproterozoic ultramfic -
ic - carbonatite complex and granitoids in Quruqtagh of no
ern Tarim Block, western China: geochronology, geoche
tectonic implications[J]. Precambrian Research, 2007,
[21]Zhu W B, Zheng B H, Shu L S, et al. Neopr
evolution of the Precambrian Aksu blueschist
Tarim, China: Insights from LA - ICP - M
geochemical data[J]. Precambrian Resea