

The Geological Timescale Versus Radiometric Dating

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The Tonian Period
1,000 To 1,200 Million Years Ago

1. Central Asian Orogenic Belt, Lithos, Volume 126, 2011, Pages 233-247

187Os/188Os	187Re/188Os	187Re/188Os	147Sm/144Nd	176Lu/177Hf
1,161	1,610	10,620		760
135	740	-2,490	2,310	-30
-543	160	-20	1,820	690
-760	-30	-40		700
97	710	1,010	1,430	14,650
300	880	-3,830		740
503	1,050	-1,780		
580	1,120	6,520	1,150	-30
1,732	2,090	2,170		
-1,109	-330	10		
564	1,110	-200	1,520	470
1,497	1,890	2,540		
-24	600	-1,170	4,350	-520
929	1,420	2,640	3,470	630
765	1,280	1,380	490	-9,270
1,511	1,910	-640	570	440
-397	280	-620	2,310	390
-271	390	-150	5,910	430
475	1,030	-100	820	540
-76	560	690	1,390	590
693	1,220	1,420	1,280	1,280

2. Sr, Nd And Pb Isotopes In Minor Elements,

Earth and Planetary Science Letters, 76 (1985) Pages 57-70

207Pb/206Pb	207Pb/206Pb
5,163	5,083
5,162	5,082
5,154	5,045
5,154	5,045
5,152	5,041
5,117	5,041
5,112	5,035
5,105	5,030
5,104	5,014
5,095	

3. Behavior of Re and Os,

Geochimica et Cosmochimica Acta, Volume 66, Number 9, Pages 1539–1548, 2002

187Os/188Os	187Os/188Os
-1,683,299	-650,881
-1,674,133	-598,180
-1,605,720	-315,525
-1,562,184	-305,050
-1,537,143	-195,065
-1,513,902	-187,864
-1,440,088	-187,046
-941,228	-179,844
-835,498	-176,407
-738,443	-174,280
-734,352	-158,076
-706,528	-154,967

4. Evaluation Of $^{40}\text{Ar}/^{39}\text{Ar}$ Quartz Ages,
Geochimica et Cosmochimica Acta, 2006, Volume 70, Pages 2562-2576

$^{40}\text{Ar}/^{39}\text{Ar}$	$^{40}\text{Ar}/^{39}\text{Ar}$	$^{40}\text{Ar}/^{39}\text{Ar}$	$^{40}\text{Ar}/^{39}\text{Ar}$
9,969	4,759	2,952	1,818
8,655	4,714	2,863	1,793
7,715	4,594	2,840	1,793
7,412	4,515	2,808	1,768
6,568	4,508	2,775	1,764
6,442	4,506	2,674	1,724
6,393	4,499	2,639	1,644
6,127	4,425	2,628	1,630
6,060	4,343	2,610	1,595
5,871	4,252	2,581	1,511
5,620	4,144	2,530	1,496
5,601	4,128	2,475	1,482
5,511	4,120	2,360	1,406
5,418	4,063	2,261	1,402
5,370	3,799	2,230	1,394
5,238	3,713	2,197	1,304
5,201	3,692	2,180	1,252
5,176	3,523	2,176	1,246
5,049	3,442	2,128	1,188
4,983	3,422	2,076	1,174
4,931	3,329	2,018	1,152
4,883	3,227	2,016	1,127
4,844	3,198	1,926	1,115
4,805	3,188	1,914	1,038
4,804	3,136	1,892	1,014
4,777	3,109	1,866	985
4,760	2,955	1,853	

5. Age of the Yunnan Tethyan Belt,

International Journal Earth Science, 2007, Volume 96, pages 1179 - 1194

Pb206/U238	Pb207/U235	Pb207/Pb206	Maximum	Minimum	Difference
400	408	451	451	400	51
464	466	473	473	464	9
476	476	478	478	476	3
463	465	475	475	463	11
467	469	481	481	467	14
500	503	519	519	500	19
477	477	476	477	476	1
493	491	486	493	486	7
467	472	496	496	467	29
514	628	1,065	1,065	514	551
475	501	622	622	475	147
481	522	709	709	481	228
477	480	491	491	477	14
462	464	473	473	462	12
461	465	484	484	461	23
457	464	496	496	457	38
471	484	546	546	471	76
466	467	470	470	466	4
486	491	515	515	486	30
524	529	553	553	524	29
457	493	662	662	457	205
532	566	707	707	532	175
519	512	477	519	477	42
558	651	988	988	558	430
501	664	1,263	1,263	501	761

6. Osmium Isotopes,

Chemical Geology, Volume 130, 1996, Pages 55-64

BENI BOUSERA	LANZO	LHERZ
6,900	1,600	1,200
2,300	1,200	130
1,100	340	
990	340	
540	30	
510		
220		
90		

7. Canadian Cordillera Lithosphere,
 Chemical Geology, Volume 166, 2000, Pages 85-101

Location	187Os/188Os	187Re/188Os	187Re/188Os
West Kettle River	251	836	749
West Kettle River	37		
West Kettle River	485		
West Kettle River	-562		56
Lightning Peak	-459	Negative	144
Big Timothy	-939	Negative	Negative
Big Timothy	-973		
Big Timothy	-2,084		
Big Timothy	-251	966	322
Big Timothy	-202	624	364
Rayfield River	-374		217
Rayfield River	164		675
Fort Selkirk	-808	807	Negative
Fort Selkirk	-220		348
Clinton	7		542
Clinton	-422		176

8. Re-Os Isotopes of Sulfides,

Lithos, Volume 102, 2008, Pages 43-64

187Re/188Os	187Re/188Os	187Re/188Os	187Re/188Os	187Re/188Os	187Re/188Os	187Re/188Os	187Re/188Os
-47,693	-1,098	74	223	564	921	1,623	2,681
-16,952	-1,001	79	225	572	938	1,629	2,715
-15,940	-840	82	243	574	949	1,692	2,798
-12,854	-712	91	248	583	961	1,698	2,868
-10,838	-595	95	252	604	964	1,739	2,965
-10,501	-515	104	260	607	975	1,744	2,987
-7,384	-497	110	267	613	982	1,768	2,994
-7,124	-453	111	276	624	986	1,780	3,028
-6,558	-407	114	280	630	987	1,841	3,030
-6,398	-316	116	289	642	990	1,858	3,059
-6,138	-315	117	292	655	1,033	1,866	3,113
-5,956	-310	119	294	657	1,105	1,879	3,203
-5,892	-286	120	297	659	1,126	1,886	3,406
-5,000	-231	124	308	668	1,127	1,905	3,469
-4,010	-183	127	329	670	1,130	1,909	3,645
-3,773	-181	131	340	680	1,163	1,912	3,777
-3,503	-168	134	346	681	1,189	1,929	4,102
-3,031	-154	141	371	691	1,197	1,966	4,147
-3,011	-142	142	377	692	1,206	1,973	4,180
-2,924	-118	146	378	694	1,229	1,990	4,461
-2,902	-114	147	383	695	1,235	1,998	4,631
-2,882	-110	148	392	701	1,241	2,006	5,318
-2,830	-98	149	403	704	1,251	2,034	5,700
-2,814	-97	150	404	708	1,255	2,057	6,001
-2,741	-49	152	416	715	1,284	2,067	6,106
-2,552	-42	154	425	719	1,297	2,081	6,736
-2,386	-31	155	434	727	1,341	2,087	7,441
-2,121	-30	158	444	729	1,342	2,091	8,044
-2,004	-19	159	460	759	1,348	2,093	8,862
-1,979	-18	161	464	763	1,352	2,118	9,449
-1,917	-15	168	465	765	1,358	2,124	9,569
-1,916	-10	170	477	801	1,440	2,178	10,382
-1,867	-7	172	478	804	1,462	2,230	10,701
-1,860	6	173	510	841	1,513	2,280	18,606
-1,841	32	178	519	875	1,539	2,287	20,073
-1,835	65	181	520	882	1,554	2,376	22,664
-1,798	67	186	523	897	1,557	2,412	24,677
-1,644	68	209	544	901	1,562	2,454	31,482
-1,567	70	210	545	905	1,567	2,467	34,329
-1,432	71	216	551	912	1,622	2,489	39,229

9. $^{40}\text{Ar}/^{39}\text{Ar}$ Analysis Of Perthite,

Earth and Planetary Science Letters, 1992, Volume 109, Pages 147 – 167

$^{40}\text{Ar}/^{39}\text{Ar}$	$^{40}\text{Ar}/^{39}\text{Ar}$
3,076	1,696
2,991	1,687
2,888	1,630
2,851	1,620
2,809	1,454
2,740	1,445
2,589	1,421
2,501	1,395
2,283	1,387
2,261	1,376
2,213	1,337
2,150	1,332
2,095	1,300
2,082	1,290
2,066	1,281
2,028	1,281
2,000	1,277
1,993	1,273
1,906	1,250
1,891	1,244

References

1. Central Asian Orogenic Belt, *Lithos*, Volume 126, 2011, Pages 233-247
2. Sr, Nd And Pb Isotopes In Minor Elements, *Earth and Planetary Science Letters*, 76 (1985) Pages 57-70
3. Behavior of Re and Os, *Geochimica et Cosmochimica Acta*, Volume 66, Number 9, Pages 1539–1548, 2002
4. Evaluation Of ^{40}Ar - ^{39}Ar Quartz Ages, *Geochimica et Cosmochimica Acta*, 2006, Volume 70, Pages 2562-2576
5. Age of the Yunnan Tethyan belt, *International Journal Earth Science*, 2007, Volume 96, pages 1179 - 1194
6. Osmium Isotopes , *Chemical Geology*, Volume 130, 1996, Pages 55-64
7. Canadian Cordillera Lithosphere, *Chemical Geology*, Volume 166, 2000, Pages 85-101
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