

The Neodymium-Samarium Dating Method

By Paul Nethercott
October 2012

How reliable is radiometric dating? We are repeatedly told that it proves the Earth to be billions of years old. If radiometric dating is reliable than it should not contradict the evolutionary model. According to the Big Bang theory the age of the Universe is 10 to 15 billion years.¹ Standard evolutionist publications give the age of the universe as 13.75 Billion years.^{2,3}

Standard evolutionist geology views the Earth as being 4.5 billion years old. Here are some quotes from popular text: "The age of the Earth is 4.54 ± 0.05 billion years."⁴ "The Solar System, formed between 4.53 and 4.58 billion years ago."¹ "The age of 4.54 billion years found for the Solar System and Earth."¹ "A valid age for the Earth of 4.55 billion years."^{5,6}

If we run the isotopic ratios give in standard geology magazines through the computer program Isoplot⁷ we find that the Uranium/Thorium/Lead isotopic ratios in the rocks disagree radically with the Rubidium/Strontium ages. The U/Th/Pb ratios give ages older than the evolutionist age of the Earth, Solar System, Galaxy and Universe. How can Earth rocks be dated as being older than the Big Bang?

If we use isotopic formulas⁸⁻¹¹ given in standard geology text we can arrive at ages from the Rubidium/Strontium and Neodymium/Samarium ratios. The formula for Rubidium/Strontium age is given as:

$$t = \frac{2.303}{\lambda} \log \left(\frac{(87Sr/86Sr) - (87Sr/86Sr)_0}{(87Rb/86Sr)} + 1 \right) \quad [1]$$

Where t equals the age in years. λ equals the decay constant. (87Sr/86Sr) = the current isotopic ratio. (87Sr/86Sr)₀ = the initial isotopic ratio. (87Rb/86Sr) = the current isotopic ratio. The same is true for the formula below.

$$t = \frac{2.303}{\lambda} \log \left(\frac{(143Nd/144Nd) - (143Nd/144Nd)_0}{(147Sm/144Nd)} + 1 \right) \quad [2]$$

Here are examples of isotopic ratios taken from several articles in major geology magazines which give absolutely absurd dates.

Rocks of the Central Wyoming Province

These rock samples were dated in 2005 by scientists from the University of Wyoming.¹² If we run the Rubidium/Strontium and Neodymium/Samarium isotope ratios¹³ from the article through Microsoft Excel we get the following values:

1. Ages Dating Summary

Dating	Age	Age	Age	Age	Age
Summary	87Rb/86Sr	147Sm/144Nd	207Pb/206Pb	208Pb/232Th	206Pb/238U
Average	2,863	2,869	5,123	17,899	11,906
Maximum	2,952	2,954	5,294	38,746	18,985
Minimum	2,630	2,631	4,662	6,650	7,294
Std Deviation	38	39	152	9,754	3,298

The Uranium/Lead dates¹⁴ are up to sixteen billion years older than the Rubidium/Strontium and Neodymium/Samarium dates. The Thorium/Lead dates are up to thirty six billion years older. The so called true age is just a guess.

Correlated Nd, Sr And Pb Isotope Variation

According to the article ¹⁵ this specimen [Walvis Ridge, Walvis Bay] was dated in 1982 by scientists from the Massachusetts Institute of Technology, and the Department of Geochemistry, University of Cape Town, South Africa. According to the article ¹⁶ the age of the sample is 70 million years. If we run the various isotope ratios ¹⁶ from the article through Microsoft Excel we get the following values respectively:

2. Age Dating Summary

Summary	Pb207/Pb206	147Sm/144Nd	87Rb/86Sr
Average	5,033	70	64
Maximum	5,061	70	93
Minimum	5,004	69	0
Difference	57	140	93

A Depleted Mantle Source For Kimberlites

According to the article ¹⁷ this specimen [kimberlites from Zaire] was dated in 1984 by scientists from Belgium. According to the article ¹⁸ the age of the samples is 70 million years. If we run the various isotope ratios ¹⁹ from the article through Microsoft Excel we get the following values respectively:

3. Age Dating Summary

Summary	207Pb/206Pb	206Pb/238U	87Rb/86Sr	147Sm/144Nd
Average	4,977	4,810	86	72
Maximum	5,017	10,870	146	80
Minimum	4,909	1,391	50	63
Difference	108	9,478	196	17

The 207Pb/206Pb maximum age is 34 times older than the 87Rb/86Sr maximum age. The 206Pb/238U maximum age is 74 times older than the 147Sm/144Nd maximum age. There is a 10.8 billion year difference between the oldest and youngest age attained.

Sm-Nd Isotopic Systematics

According to the article ²⁰ this specimen [Enderby Land, East Antarctic] was dated in 1984 by scientists from the Australian National University, Canberra, and the Bureau of Mineral Resources, Canberra. According to the article ²⁰ the age of the sample is 3,000 million years. If we run the Rubidium/Strontium isotope ratios ²¹ from the article through Microsoft Excel we get the following values respectively:

4. Rubidium/Strontium Age Dating Summary

Average	-873
Maximum	3,484
Minimum	-25,121
Difference	28,605

There is almost a 30 billion year difference between the oldest and youngest dates.

Strontium, Neodymium And Lead Compositions

According to the article ²² this specimen [Snake River Plain, Idaho] was dated in 1985 by scientists from the Geology Department, Rice University, Houston, Texas, the Earth Sciences Department, Open University, England and the Geology Department, Ricks College, Idaho. According to the article ²² the age of the sample is 3.4 billion years. If we run the various isotope ratios ²³ from the article through Microsoft Excel we get the following values respectively:

The Neodymium-Samarium Dating Method

5. Age Dating Summary

Summary	Pb207/Pb206	Pb207/Pb206	87Rb/86Sr
Average	5,143	5,138	40,052
Maximum	5,362	5,314	205,093
Minimum	4,698	4,940	1,443
Difference	664	374	203,650

The Lead isotope ratios from two different tables give dates 200 billion years younger than the Rubidium/Strontium isotope ratios. The Average age of the Rubidium/Strontium isotope ratios is 40 billion years. Below we can see some of the maximum ages and how stupid they are.

6. 87Rb/86Sr, Maximum Ages

Age	Age
Million Years	Million Years
205,093	11,974
189,521	11,908
188,777	9,960
95,450	9,101
52,643	7,124
13,119	6,022
12,220	5,089

Sr, Nd, and Os Isotope Geochemistry

According to the article ²⁴ this specimen [Camp Creek area, Arizona] was dated in 1987 by scientists from The University of Tennessee, the University of Michigan, the University of California, Leeds University, and the University of Chicago. According to the article ²⁵ the age of the samples is 120 million years. If we run the various isotope ratios ²⁶ from two different tables in the article through Microsoft Excel we get the following values respectively:

7. Rubidium/Strontium and Sm/Nd Age Dating Summary

Summary	87Rb/86Sr	87Rb/86Sr	147Sm/144Nd	147Sm/144Nd
Average	310	103	120	159
Maximum	1,092	207	123	400
Minimum	0	0	120	119
Difference	1,092	207	3	281

The author's choice of 120 million years is just a guess.

Pb, Nd and Sr Isotopic Geochemistry

According to the article ²⁷ this specimen [Bellsbank kimberlite, South Africa] was dated in 1991 by scientists from the University Of Rochester, New York, Guiyang University in China, and the United States Geological Survey, Colorado. According to the article ⁶⁷ the age of the samples is just 1 million years. If we run the various isotope ratios ⁶⁸ from two different tables in the article through Microsoft Excel we get the following values respectively:

The Neodymium-Samarium Dating Method

8. Age Dating Summary

Table	207Pb/206Pb	206Pb/238U	208Pb/232Th	87Rb/86Sr
Summaries	Age	Age	Age	Age
Average	5,057	5,092	10,182	-1,502
Maximum	5,120	8,584	17,171	0
Minimum	5,002	0	0	-3,593
Difference	118	8,584	17,171	3,593

In tables 9 to 12 we can see some of the astounding spread of dates [million of years]. The oldest date is over 17 billion years old. The youngest is less than negative 3.5 billion years. The difference between the two is over 20 billion years. According to the article the true age of the rock is just one million years old!

9. 208Pb/232Th, Maximum Ages

Age	Age	Age	Age
17,171	13,322	9,737	7,968
15,343	13,202	9,707	7,830
15,299	13,001	9,049	7,250
15,136	11,119	8,420	6,972
15,054	10,873	8,419	6,628
13,476	10,758	8,368	6,577

10. 206Pb/238U, Maximum Ages

Age	Age	Age
8,584	6,656	5,576
7,975	6,654	5,520
7,314	6,518	5,285
7,184	6,448	5,159
6,861	5,758	5,099

11. Pb 207/206, Maximum Ages

Age	Age	Age	Age
5,120	5,067	5,060	5,049
5,109	5,066	5,059	5,045
5,097	5,066	5,051	5,044
5,077	5,065	5,050	5,044
5,067	5,062	5,050	5,033
5,067	5,060	5,050	5,022

12. 87Rb/86Sr, Minimum Ages

Age	Age	Age	Age
-3,593	-2,981	-1,917	-1,323
-3,231	-2,725	-1,611	-1,245
-3,089	-2,050	-1,499	-1,229
-3,067	-1,926	-1,370	-1,194

Sr, Nd, and Pb isotopes

According to the article ³⁰ this specimen [eastern China] was dated in 1992 by scientists from the University Of Rochester, New York, Guiyang University in China, and the United States Geological Survey, Colorado. According to

The Neodymium-Samarium Dating Method

the article: “Observed high Th/U, Rb/Sr, $87\text{Sr}/86\text{Sr}$ and Delta 208, low Sm/Nd ratios, and a large negative Nd in phlogopite pyroxenite with a depleted mantle model age of 2.9 Ga, support our contention that metasomatized continental lower mantle lithosphere is the source for the EMI component.”³⁰ If we run the various isotope ratios³¹ from two different tables in the article through Isoplot we get the following values respectively:

13. Age Dating Summary

Dating	$232\text{Th}/208\text{Pb}$	$206\text{Pb}/238\text{U}$	$207\text{Pb}/206\text{Pb}$
Summaries	Age	Age	Age
Average	14,198	7,366	5,014
Maximum	94,396	22,201	5,077
Minimum	79	1,117	4,945
Difference	94,317	21,083	131

If the true age is 2.9 billion years why so much discordance? In tables 14 and 15 we can see some of the astounding spread of dates [million of years]. The oldest date is over 94 billion years old. The youngest is 79 million years. The difference between the two is over 94 billion years. The oldest date is 1,194 times older than the youngest. According to the article the true age of the rock is 2.9 billion years old!

14. $208\text{Pb}/232\text{Th}$, Maximum Ages

Age	Age	Age	Age
94,396	39,267	10,595	8,171
90,683	26,266	10,284	7,789
74,639	18,334	9,328	7,638
58,153	16,357	8,821	7,375
55,324	14,250	8,771	7,317
45,242	11,215	8,403	5,759

15. $206\text{Pb}/238\text{U}$, Maximum Ages

Age	Age	Age	Age
22,201	9,878	7,348	5,746
21,813	9,656	7,335	5,700
19,320	9,054	7,249	5,218
16,656	8,242	7,202	5,201
16,200	8,044	7,019	5,163
14,748	7,996	6,923	5,159
13,607	7,590	6,848	5,099
11,256	7,422	6,292	4,812

An Extremely Low U/Pb Source

According to the article³² this specimen [lunar meteorite] was dated in 1993 by scientists from the United States Geological Survey, Colorado, the United States Geological Survey, California and The National Institute of Polar Research, Tokyo. According to the article: “The Pb-Pb internal isochron obtained for acid leached residues of separated mineral fractions yields an age of 3940 ± 28 Ma, which is similar to the U-Pb (3850 ± 150 Ma) and Th-Pb (3820 ± 290 Ma) internal isochron ages. The Sm-Nd data for the mineral separates yield an internal isochron age of 3871 ± 57 Ma and an initial $143\text{Nd}/144\text{Nd}$ value of 0.50797 ± 10 . The Rb-Sr data yield an internal isochron age of 3840 ± 32 Ma.”³² If we run the various isotope ratios³³ from two different tables in the article through Isoplot we get the following values respectively:

The Neodymium-Samarium Dating Method

16. Rubidium/Strontium Age Dating Summary

Average	3,619
Maximum	5,385
Minimum	721
Difference	4,664

17. Uranium Age Dating Summary

Table	207Pb/206Pb	206Pb/238U	208Pb/232Th	207Pb/235U
Summaries	Age	Age	Age	Age
Average	4,673	8,035	10,148	4,546
Maximum	5,018	56,923	65,286	8,128
Minimum	3,961	1,477	2,542	2,784
Difference	1,057	55,445	62,744	5,344

The article claims that the Rubidium/Strontium age is 3.8 billion years for this meteorite. If that is the true age why are all the Uranium/Thorium/Lead dates ⁷⁶ so stupid? Or are they right and the Rubidium/Strontium is wrong?

18. 208Pb/232Th, Maximum Ages

Age	Age	Age	Age
65,286	14,430	9,094	5,401
33,898	14,410	6,520	5,396
25,013	13,107	6,166	5,365
22,178	12,738	6,121	5,098
21,204	11,641	5,671	5,035
17,611	11,174	5,408	4,678

19. 206Pb/238U, Maximum Ages

Age	Age	Age	Age
56,923	10,895	6,764	5,777
27,313	10,278	6,670	5,625
17,873	9,653	6,449	5,602
13,680	8,009	6,436	5,278
13,623	7,395	6,070	5,147

The 72 Ma Geochemical Evolution

According to the article ³⁴ this specimen [Madeira Archipelago] was dated in 2000 by scientists from Germany. The average Lead date is 705 times older than the average Rubidium date. The true age is claimed to be 430 million years old. ³⁴ If we run the various isotope ratios ³⁵ from two different tables in the article through Isoplot we get the following values respectively:

20. Age Dating Summary

Table	207Pb/206Pb	87Rb/86Sr	147Sm/144Nd
Summaries	Age	Age	Age
Average	4,938	7	10
Maximum	5,199	55	164
Minimum	4,898	-4	0
Difference	302	59	164

The Neodymium-Samarium Dating Method

If the true age is 430 million years than none of the dating methods are even vaguely close. The oldest date is 731 times older than the youngest.

Temporal Evolution of the Lithospheric Mantle

According to the article ³⁶ this specimen from the Eastern North China Craton was dated in 2009 by scientists from China, USA and Australia. Various tables ³⁷ in the essay have either calculated dates or ratios which can be calculated. As we can see below they are all at strong disagreement with each other. There is a spread of dates over a 32 billion year range.

21. Age Dating Summary

Table	147Sm/144Nd	176Lu/176Hf	187Re/188Os	87Rb/86Sr
Summaries	Age	Age	Age	Age
Average	291	-220	1,048	9
Maximum	3,079	4,192	20,710	22
Minimum	-3,742	-9,369	-11,060	0
Difference	6,821	13,561	31,770	22

Geochemistry Of The Jurassic Oceanic Crust

According to the article ³⁸ this specimen from the Canary Islands was dated in 1998 by scientists from Germany. According to the essay: "An Sm-Nd isochron gives an age of 178 ± 17 Ma, which agrees with the age predicted from paleomagnetic data." ³⁸ The article places the age in the late Cretaceous period. Various tables ³⁹ in the essay have isotopic ratios which can be calculated. As we can see below they are all at strong disagreement with each other. There is a spread of dates over a 350 billion year range! None of the Lead or Rubidium based dating methods even come vaguely close to a Jurassic age.

22. Age Dating Summary

Dating	87Rb/86Sr	207Pb/206Pb
Summary	Age	Age
Average	-149,488	4,974
Maximum	51,967	5,024
Minimum	-299,346	4,845
Difference	351,313	179

Origin Of The Indian Ocean-Type Isotopic Signature

According to the article ⁴⁰ this rock formation in the Philippine Sea plate was dated in 1998 by scientists from Department of Geology, Florida International University in Miami. According to the essay the true age is: "Spreading centers in three basins, the West Philippine Basin (37-60 Ma), the Parece Vela Basin (18-31 Ma), and the Shikoku Basin (17-25 Ma) are extinct, and one, the Mariana Trough (0-6 Ma), is active (Figure 1)." ⁴⁰ Numerous table and charts affirm this as the true age. ⁴¹ Two tables ⁴² in the essay have isotopic ratios which can be calculated. As we can see below they are all at radical disagreement with each other. There is a spread of dates of almost 100 billion years! None of the Uranium/Lead based dating methods even come vaguely close to the so called true age. The oldest date is 3,971 times older than the youngest date.

23. Age Dating Summary

Dating	Age	Age	Age	Age	Age
Summary	87Rb/86Sr	147Sm/144Nd	207Pb/206Pb	206Pb/238U	208Pb/232Th
Average	42	41	4,960	4,260	8,373
Maximum	55	54	4,989	7,093	13,430
Minimum	19	20	4,921	1,904	3,065
Difference	37	33	68	5,188	10,365

Sr, Nd, and Pb isotopes in Proterozoic Intrusives

According to the article ⁴³ this specimen from the Grenville Front in Canadian Labrador was dated in 1986 by scientists from Lunar and Planetary Institute, Texas, the United States Geological Survey, and the Geological Survey of Canada. According to the essay: "We report Sr, Nd, and Pb isotopic compositions of mid-Proterozoic anorthosites and related rocks (1.45-1.65 Ga) and of younger olivine diabase dikes (1.4 Ga) from two complexes on either side of the Grenville Front in Labrador." ⁴³ The article places the age in the pre Cambrian period. Various tables ⁴⁴ in the essay have isotopic ratios which can be calculated. As we can see below they are all at strong disagreement with each other. If the Uranium/Lead dating method is used to test or calibrate the other methods then they are totally wrong.

24. Age Dating Summary

Dating	Age	Age
Summary	87Rb/86Sr	207Pb/206Pb
Average	1,437	5,135
Maximum	1,503	5,218
Minimum	1,395	4,931
Difference	108	287

Age and Isotopic Relationships

According to the article ⁴⁵ this rock formation in Antarctica was dated in 1992 by scientists from California and Germany. According to the essay the true age is: "Nevertheless, concordant Ph-Pb model ages of pyroxene separates were obtained (20'): 4.55784 ± 52 Ga for LEW and 4.55780 ± 42 Ga for ADOR." ⁴⁵ Several tables ⁴⁶ in the essay have isotopic ratios which can be calculated. As we can see below they are all at disagreement with each other. The two on the far right show how discordant the best dating evolutionist can offer.

25. Age Dating Summary

Dating	Age	Age	Age	Age	Age
Summary	87Rb/86Sr	207Pb/206Pb	207Pb/206Pb	147Sm/144Nd	147Sm/144Nd
Average	4,556	4,707	5,007	4,452	902
Maximum	4,610	5,002	5,110	4,497	1,428
Minimum	4,518	4,558	4,960	4,397	536
Difference	92	444	150	101	891

The Beni Bousera Ultramafic Complex of Northern Morocco

According to the article ⁴⁷ this rock formation in Morocco was dated in 1995 by scientists from New York. According to the essay the true age is: "The data are presented in Table 5. Garnet-clinopyroxene two-point Sm-Nd isochrons from samples Ga and Ii yield ages of 23.0 ± 7.3 m.y. and 20.1 ± 6.9 m.y." ⁴⁸ Several tables ⁴⁹ in the essay have isotopic ratios which can be calculated. As we can see below the Rhenium/Osmium gives wildly discordant dates.

26. Rhenium/Osmium Age Dating Summary

Average	-272,455
Maximum	-124,882
Minimum	-361,842
Difference	236,960

Implications for Banda Arc Magma Genesis

According to the article ⁵⁰ this rock formation in the Banda Arc, East Indonesia was dated in 1995 by scientists from University of Utrecht, the Royal Holloway University of London, the Free University of Amsterdam and Cornell University. According to the essay the true age is: "In summary, the western part of New Guinea is characterised by Phanerozoic rocks (600-0 Ma) in contrast to the northern part of Australia, which is dominated by Proterozoic rocks

The Neodymium-Samarium Dating Method

(2200-1400 Ma)." ⁵¹ Several tables ⁵² in the essay have isotopic ratios which can be calculated. As we can see below the Lead 207/206 dating method gives wildly discordant dates. How can both methods be so at variance with each other?

27. Lead 207/206 Age Dating Summary

Average	4,971
Maximum	4,991
Minimum	4,933
Difference	57

Pb, Sr, and Nd Isotopic Features

According to the article ⁵³ this rock formation in China was dated in 2001 by scientists from China. According to the essay the true age is: "They define a Rb-Sr isochron age of 286 Ma. Pb isotopic compositions for bitumen and crude oil from Karamay, Liaohe, and Tarim all show features of crust-mantle mixing." ⁵³ The Neodymium/Samarium dating method gives the following dates: "Thus, the Nd isotopic compositions strongly show an influence from depleted mantle (286 Ma)." ⁵⁴ A Neodymium/Samarium Isochron gives more dating information "143Nd/144Nd and 147Sm/144Nd ratios vary within 0.51157 to 0.51197 and 0.0778 to 0.153, respectively, and yield old, depleted mantle Nd model ages of 1.5 to 3.2 Ga." ⁵⁵ Several tables ⁵⁶ in the essay [tables one to six] have isotopic ratios which can be calculated. As we can see below the Lead 207/206 dating method gives wildly discordant dates. How can both methods be so at variance with each other?

28. Lead 207/206 Age Dating Summary

Table 1	207Pb/206Pb	87Rb/86Sr
Dating Summary	Age	Age
Average	5,009	3,758
Maximum	5,029	24,661
Minimum	4,982	182
Difference	47	24,479

29. Lead 207/206 Age Dating Summary

Table 2	207Pb/206Pb	87Rb/86Sr
Dating Summary	Age	Age
Average	4,995	646
Maximum	5,097	702
Minimum	4,845	565
Difference	252	138

30. Lead 207/206 Age Dating Summary

207Pb/206Pb	Table 3	Table 4	Table 5	Table 6
Dating Summary	Age	Age	Age	Age
Average	4,151	5,060	5,027	5,079
Maximum	5,018	5,063	5,066	6,471
Minimum	1,776	5,053	4,987	4,978
Difference	3,242	9	79	1,493

Sources of Labrador Sea Sediments

According to the article ⁵⁷ this rock formation in Labrador was dated in 2002 by scientists from Canada. According to the essay the true age is 8,600 years old: "The newly acquired Pb isotopic data allow us to better constrain the different source areas that supplied clay-size material during the last deglaciation, until 8.6 kyr (calendar ages)." ⁵⁷ A table ⁵⁸ in the essay has Carbon-14 dates alongside isotopic ratios which can be calculated. As we can see below the Lead 207/206 dating method gives wildly discordant dates. How can both methods be so at variance with each other?

The Neodymium-Samarium Dating Method

30. Lead 207/206 Versus Carbon-14 Age Dating Summary

Dating	Carbon 14 Age	Calibrated Age	207Pb/206Pb	Carbon 14 Age	Calibrated Age
Summary	Years	Years	Million Years	Dating Ratio	Dating Ratio
Average	11,656	13,114	4,967	456,448	408,945
Maximum	22,190	26,064	4,982	636,961	584,938
Minimum	7,792	8,485	4,944	223,722	190,469
Difference	14,398	17,579	38	413,239	394,469

The Petrogenesis of Martian Meteorites

According to the article ⁵⁹ these two meteorite samples was dated in 2002 by scientists from the University of New Mexico, the Johnson Space Center, Texas and the Lockheed Engineering and Science Company, Texas. According to the essay the true age based on Neodymium/Samarium dating is 173 and 166 million years old. ⁵⁹ A table ⁶⁰ in the essay has Rubidium/Strontium isotopic ratios which can be calculated. As we can see below Rubidium/Strontium dating method gives wildly discordant dates. The Table 1 summary is the rock that is supposed to be 173 million year old. The Table 2 summary is the rock that is supposed to be 166 million year old. How can both methods be so at variance with each other?

31. Rubidium/Strontium Age Dating Summary

Dating	87Rb/86Sr	87Rb/86Sr
Summary	Table 1	Table 2
Average	579	240
Maximum	3,233	697
Minimum	170	74
Difference	3,063	624

Conclusion

Brent Dalrymple states in his anti creationist book *The Age of the Earth*: “Several events in the formation of the Solar System can be dated with considerable precision.” ⁶¹

Looking at some of the dating it is obvious that precision is much lacking. He then goes on: “Biblical chronologies are historically important, but their credibility began to erode in the eighteenth and nineteenth centuries when it became apparent to some that it would be more profitable to seek a realistic age for the Earth through observation of nature than through a literal interpretation of parables.” ⁶²

In his book he gives a table ⁶³ with radiometric dates of twenty meteorites. If you run the figures through Microsoft Excel, you will find that they are 98.7% in agreement. There is only a seven percent difference between the ratio of the smallest and oldest dates. As we have seen in this essay, such a perfect fit is attained by selecting data and ignoring other data. A careful study of the latest research shows that such perfection is illusory at best. The Bible believer who accepts the creation account literally has no problem with such unreliable dating methods. Much of the data in Dalrymple’s book is selectively taken to suit and ignores data to the contrary.

References

- 1 <http://web.archive.org/web/20051223072700/http://pubs.usgs.gov/gip/geotime/age.html>
The age of 10 to 15 billion years for the age of the Universe.
- 2 http://en.wikipedia.org/wiki/Age_of_the_universe
- 3 <http://arxiv.org/pdf/1001.4744v1.pdf>
Microwave Anisotropy Probe Observations, Page 39, By N. Jarosik

- 4 http://en.wikipedia.org/wiki/Age_of_the_Earth
- 5 <http://sp.jvellingcollection.org/content/190/1/205>
The age of the Earth, G. Brent Dalrymple
Geological Society, London, Special Publications, January 1, 2001, Volume 190, Pages 205-221
- 6 The age of the earth, Gérard Manhes
Earth and Planetary Science Letters, Volume 47, Issue 3, May 1980, Pages 370–382
- 7 http://www.bgc.org/isoplot_etc/isoplot.html
- 8 Radioactive and Stable Isotope Geology, By H.G. Attendon, Chapman And Hall Publishers, 1997. Page 73
[Rb/Sr], 195 [K/Ar], 295 [Re/OS], 305 [Nd/Nd].
- 9 Principles of Isotope Geology, Second Edition, By Gunter Faure, Published By John Wiley And Sons,
New York, 1986. Pages 120 [Rb/Sr], 205 [Nd/Sm], 252 [Lu/Hf], 266 [Re/OS], 269 [Os/OS].
- 10 Absolute Age Determination, Mebus A. Geyh, Springer-Verlag Publishers, Berlin, 1990.
Pages 80 [Rb/Sr], 98 [Nd/Sm], 108 [Lu/Hf], 112 [Re/OS].
- 11 Radiogenic Isotope Geology, Second Edition, By Alan P. Dickin, Cambridge University Press, 2005. Pages
43 [Rb/Sr], 70 [Nd/Sm], 205 [Re/OS], 208 [Pt/OS], 232 [Lu/Hf].
- 12 Rocks of the Central Wyoming Province, Canadian Journal Of Earth Science, 2006, Volume 43,
Pages 1419
- 13 Reference 27, Page 1436-1437
- 14 Reference 27, Page 1439
- 15 Correlated N D, Sr And Pb Isotope Variation, Earth and Planetary Science Letters, Volume 59, 1982,
Pages 327
- 16 Reference 45, Pages 330, 331
- 17 A Depleted Mantle Source For Kimberlites, Earth and Planetary Science Letters, Volume 73, 1985,
Pages 269
- 18 Reference 47, Pages 270
- 19 Reference 47, Pages 271, 273
- 20 Sm-Nd Isotopic Systematics, Earth and Planetary Science Letters, Volume 71, 1984, Pages 46
- 21 Reference 50, Pages 49
- 22 Strontium, Neodymium And Lead Compositions, Earth and Planetary Science Letters,
Volume 75, 1985, Pages 354-368
- 23 Reference 52, Pages 356, 363
- 24 Sr, Nd, and Os isotope geochemistry, Earth and Planetary Science Letters, Volume 99, 1990, Pages 362
- 25 Reference 63, Pages 364
- 26 Reference 63, Pages 365, 368
- 27 Pb, Nd and Sr isotopic geochemistry, Earth and Planetary Science Letters, Volume 105, 1991, Pages 149

- 28 Reference 66, Pages 154, 160
- 29 Reference 66, Pages 156, 157
- 30 Sr, Nd, and Pb isotopes, *Earth and Planetary Science Letters*, Volume 113, 1992, Pages 107
- 31 Reference 68, Pages 110
- 32 An extremely low U/Pb source, *Geochimica et Cosmochimica Acta*, 1993, Volume 57, Pages 4687-4702
- 33 Reference 75, Pages 4690, 4691
- 34 The 72 Ma Geochemical Evolution, *Earth and Planetary Science Letters*, Volume 183, 2000, Pages 73
- 35 Reference 77, Pages 76-79
- 36 Temporal Evolution of the Lithospheric Mantle, *Journal Of Petrology*, 2009, Volume 50, Number 10, Pages 1857
- 37 Reference 108, Pages 1873, 1874, 1877, 1879, 1880
- 38 Geochemistry of Jurassic Oceanic Crust, *Journal Of Petrology*, 1998, Volume 39, Number 5, Pages 859-880
- 39 Reference 115, Pages 867, 868
- 40 Origin of the Indian Ocean-type isotopic signature, *Journal Of Geophysical Research*, 1998, Volume 103, Number B9, Pages 20,963
- 41 Reference 134, Pages 20965, 20969
- 42 Reference 134, Pages 20968, 20969
- 43 Sr, Nd, and Pb isotopes in Proterozoic Intrusives, *Geochimica et Cosmochimica Acta*, 1986, Volume 50, Pages 2571-2585
- 44 Reference 43, Pages 2575, 2577
- 45 Age and Isotopic Relationships, *Geochimica et Cosmochimica Acta*, 1992, Volume 56, Pages 1673-1694
- 46 Reference 43, Pages 1676, 1678, 1684, 1686, 1687
- 47 The Beni Bousera Ultramafic Complex of Northern Morocco, *Geochimica et Cosmochimica Acta*, 1996, Volume 60, Number 8, Pages 1429
- 48 Reference 47, Pages 1434
- 49 Reference 47, Pages 1442
- 50 Implications for Banda Arc Magma Genesis, *Geochimica et Cosmochimica Acta*, 1995, Volume 59, Number 12, Pages 2573-2598
- 51 Reference 50, Pages 2588
- 52 Reference 50, Pages 2580-2581
- 53 Pb, Sr, and Nd Isotopic Features, *Geochimica et Cosmochimica Acta*, 2001, Volume 65, Number 15,

Pages 2555–2570

- 54 Reference 53, Pages 2559
- 55 Reference 53, Pages 2560
- 56 Reference 53, Pages 2558, 2561-2566
- 57 Sources of Labrador Sea Sediments, *Geochimica et Cosmochimica Acta*, 2002, Volume 66, Number 14, Pages 2569
- 58 Reference 57, Pages 2572-2573
- 59 The Petrogenesis of Martian Meteorites, *Geochimica et Cosmochimica Acta*, 2002, Volume 66, Number 11, Pages 2037–2053
- 60 Reference 59, Pages 2040-2041
- 61 The Age Of The Earth, By G. Brent Dalrymple, 1991, Stanford University Press, Stanford, California, Page 10.
- 62 Reference 61, Page 23
- 63 Reference 61, Page 287

www.creation.com