

Triangle Association for the Science of Creation

TEACHING THE CONSISTENCY OF SCIENCE WITH THE BIBLICAL ACCOUNT OF ORIGINS

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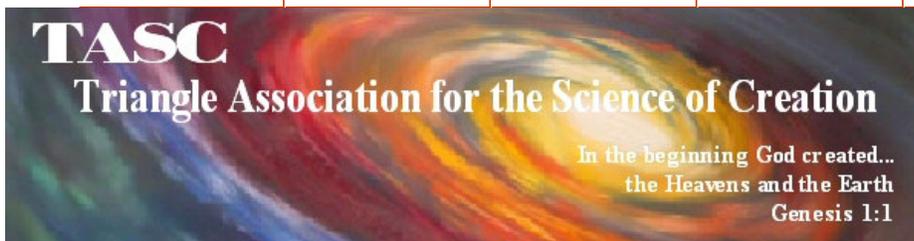
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Newsflash

Talk on Intelligent Design at UNC

SPEAKER: Dr. Andy McIntosh (has debated Richard Dawkins)
LOCATION: 100 Hamilton Hall UNC
 CHAPEL HILL
TIME: 7:30 pm
DATE: March 6, 2008



Feb 08 meeting change!!

TASC will meet in room 649 of Providence the 3rd Thursday Feb 21, 2008 (NOT the 2nd Thursday) for February only - then we're back to the regular schedule!

Need a speaker on Creation? Ask TASC (Click here for list of presentations...)

TASC asks for your heart felt contribution. You can help cover the costs of getting our newsletter out to you and the other activities of our mission. Thanks for your help! You can send contributions to TASC, P.O. BOX 12051, RESEARCH TRIANGLE PARK, NC 27709-2051

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Events Calendar

March 2008

S	M	T	W	T	F	S
24	25	26	27	28	29	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

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RATE Group Finds Strong Evidence for A Young Earth and Accelerated Nuclear Decay!



Written by Dan Reynolds, PhD

Sep 01, 2001 at 11:52 PM

Helium Diffusion in Biotite

The Institute for Creation Research (ICR; www.icr.org) reported in its October 2001 *Acts and Facts* newsletter (Vol. 30, No. 10, October 2001; http://www.icr.org/pubs/af/pdf/af0110.pdf and http://www.icr.org/headlines/ratereport.html) that the RATE (Radioisotopes and the Age of The Earth) group has found strong experimental evidence for a young earth and episodes of rapid nuclear decay in the past. RATE has put forth several research proposals in their book *Radioisotopes and the Age of the Earth* (ICR and CRS, 2000; http://www.icr.org/rate.html), edited by Drs. Larry Vardiman, Andrew A. Snelling, and Eugene F. Chaffin, to examine radiometric dating.



RATE: L to R: Bill Hoesch, Stephen Boyd, Donald DeYoung, Steve Austin, John Baumgardner, D. Russell Humphreys, Andrew Snelling, Eugene Chaffin, John Morris. Front: Larry Vardiman, Chairman

One of RATE's proposals was to examine the rate of diffusion of the gas helium through the mineral biotite. Helium is formed

This month

April 2008

S	M	T	W	T	F	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3

Next month

Latest Events

Thu Feb 14, 2008
 @07:00PM- 8:45pm
MONTHLY TASC MEETING
 Thu Mar 13, 2008
 @07:00PM- 8:45pm
MONTHLY TASC MEETING

in the earth's crust as the result of radioactive decay of elements such as uranium. The uranium related elements are often found in minerals called zircons which themselves are embedded in the mineral biotite. When these elements decay, they emit into the host rock an alpha particle, a bare helium nucleus consisting of 2 protons and 2 neutrons. The alpha particle picks up electrons in the rock and becomes helium. The rate of helium production currently appears to be constant and essentially invariant over a wide range of temperature and pressure. The helium then diffuses through the rock at some rate until it reaches the atmosphere. The amazing fact is that there are large amounts of helium found in zircons today. We know the rate of diffusion of helium through zircons is rapid; what was unknown was the rate at which helium diffused through biotite. This is what RATE set out to measure.

Two other facts need to be considered: the amounts of radiogenic lead and the maturity of radiohalos. Radioactive elements like uranium are often concentrated in rocks as a small point source. When uranium decays, it becomes another element which is itself radioactive. This element then decays into yet another radioactive element. This "decay chain" continues until the non-radioactive and stable isotopes of the element lead (²⁰⁶Pb, ²⁰⁷Pb) are formed. The alpha decay of the various radioactive elements in the decay chain causes the host rock to be damaged and discolored where the alpha particle comes to rest, resulting in concentric rings (the diameter of each ring relates to the energy of the alpha particle which formed it—an energy unique to each element) called radiohalos. For radiohalos to be visible, enough radioactive decay has to occur to discolor the rock. Being able to see a fully developed (mature) radiohalo indicates a large amount of radioactive decay has taken place. This interpretation is also supported by the large amounts of lead found in the centers of the radiohalos. The amount of decay implicated is consistent with billions of years, assuming that decay rates have always been what we measure them to be now. What was potentially inconsistent with this interpretation was the large amounts of helium found in these samples.

There are, of course, two models for radioactive decay and the age of the earth. The evolutionary model says that the rate of decay of radioisotopes has always been the same as it is now (uniformitarianism) and that the earth is billions of years old. The creation model, on the other hand, leaves open the possibility for variable rates of radioactive decay and holds that the earth is less than 10,000 years old. Given the large amounts of helium found in zircons, the evolutionary model predicts that the diffusion rate of helium through biotite must be slow while the creation model would predict a rapid diffusion rate. Careful measurements by RATE on two rocks demonstrated that the **helium diffusion rate through biotite was indeed rapid as the creation model predicted**. The implications are that the helium was formed rapidly in the past, a few thousand years ago, possibly before day 3 of creation week and during the Flood and has not had time to diffuse into the atmosphere. This interpretation also helps explain why there is less than 0.1% of the expected helium in today's atmosphere based on evolutionary assumptions. The predictions of each model are shown in the table below.

Model	Assumptions	Predictions	Facts
Creation	1. Earth is <10,000 years old. 2. Radioisotope decay rates may have been greater in the past.	Rate of helium diffusion through biotite is rapid, but not enough time has elapsed for the helium to diffuse into the atmosphere.	1. Amount of nuclear decay, based on lead content and radiohalo maturity, is consistent with an old earth if the decay rate is constant and is the same as today. 2. Helium in biotite samples is too large for the earth to be 4.6 billion years old because of the large measured rate of diffusion in biotite. 3. There is less than 0.1% of the predicted by the evolutionary model helium in the atmosphere.
Evolution	1. Earth is 4.6 billion years old. 2. Radioisotope decay rates are the same in the past as today.	Rate of helium diffusion through biotite is slow. Otherwise the amount of helium in rocks would be small, contrary to the evidence.	

CONCLUSION: Creation Model most consistent with all the facts

Radiohalo Distribution

In another RATE initiative, the distribution of radiohalos in rocks from all over the world is being examined. One of the potentially best yet controversial (even among creationists) evidences for a young earth has been the observance of apparently parentless polonium (Po) radiohalos in granites (*Creation's Tiny Mystery*, Third Edition, by Dr. Robert V. Gentry; Earth Science Associates, 1992; www.halos.org). Halos of three polonium isotopes have been studied in detail by Dr. Robert Gentry. These three isotopes are found in the decay chain of ²³⁸U (238 is the atom mass of the element equal to the sum of the protons and neutrons in the nucleus). The part of the decay chain involving polonium is ²²²Rn (half life = 3.8 days), which alpha decays to form ²¹⁸Po (3.1 minutes), which in three steps is converted into ²¹⁴Po (0.0002 seconds), which in three more steps is converted into ²¹⁰Po (138 days). Dr. Gentry has reported radiohalos of ²¹⁴Po which show no evidence of the presence of any of the expected precursors and are hence deemed "parentless" or "orphans." When radioactive elements which undergo alpha decay move through rock in aqueous solutions under pressure, they leave "alpha recoil tracks" which can be detected-even if only one alpha decay has occurred during the transport. As the elements pass through the rock, they tend to concentrate and stay in point like positions called inclusions. The radioactive elements in the inclusion then decay, giving rise to the radiohalos, the diameters of which depend on which elements were there initially and then formed in the decay chain.

Larry Vardiman, ed., et al., *Radioisotopes and the Age of the Earth*

(ICR, 2000), p.408

Hence, inclusions are often found connected by alpha recoil tracks showing the pattern of transport which occurred in the rock. What is amazing is that Dr. Gentry found ^{214}Po halos which have no alpha recoil tracks associated with them, have only halos associated with ^{214}Po and its decay products, and have only the decay products expected from ^{214}Po found in the inclusions. Since the half-life of ^{214}Po is only a fraction of a second, the implication is that the ^{214}Po was **created in place** (was primordial) and was not derived from the ^{238}U decay chain. Moreover, since radiohalos are known to disappear at high temperatures, the presence of the halos implies that the host rock was cold when the halos formed. Dr. Gentry has interpreted these results to mean that nucleosynthesis (the formation of the elements, thought by evolutionists to have occurred in stars by nuclear fusion over billions of years before the earth was formed) and the formation of the basement granite rocks in the earth's crust occurred simultaneously.

Skeptics have suggested that ^{222}Rn (a radioactive gas which would presumably move rapidly through rock without leaving alpha recoil tracks and which gives a radiohalo with a diameter very close to that obtained from ^{210}Po), is the real source of the ^{214}Po halos. But there are ^{214}Po halos which have no trace of ^{218}Po , the polonium isotope which would be derived directly from radon. Others have said that polonium halos are always in rock formations also associated with uranium and must therefore somehow be derived from it. Still others have pointed out that parentless polonium halos are observed in igneous rock which apparently intrudes into other rock, the implication being that these intrusive rocks must have come into existence after the creation week. This scenario would suggest that the polonium halos were not primordial. More research is needed to determine which polonium halos are in these rocks and if the rocks are truly intrusive.

The RATE group has examined the distribution of radiohalos to address some of these concerns. Preliminary results of their investigations were reported in the October *Acts and Facts*:

A total of 1,144 halos were counted and distributed as follows: $^{210}\text{Po}=428$, $^{214}\text{Po}=292$, $^{218}\text{Po}=0$, $^{238}\text{U}=402$, and $^{232}\text{Th}=22$. **One important finding from this distribution of halos is that the isotope of polonium with the shortest half life of only a fraction of a second, ^{214}Po , has produced a great number of halos while no halos were found from the polonium isotope preceding it, ^{218}Po , with a longer half life.** [emphasis added].

Although uranium halos were found in these samples, the complete absence of the ^{218}Po radiohalos would seem to rule out ^{238}U and ^{222}Rn as the source of the ^{214}Po halos. This supports the parentless and primordial status of the ^{214}Po halos. Hence, so far, Dr. Gentry's assertion that parentless polonium radiohalos are evidence for the simultaneous occurrence of nucleosynthesis, and creation of the earth's crust is still supported by the evidence.

Last Updated (Jan 28, 2005 at 12:07 AM)

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