
Creation Answers

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Who does this newsletter?

This newsletter is produced by Wayne Spencer of Creation Education Materials on a Quarterly basis. Its purpose is to bring creation research within the reach of Christians and provide up-to-date reliable information on creation issues. Wayne Spencer is a creation author and former teacher who has presented papers at the International Conference on Creationism and has published in various creation publications.

This newsletter is meant to help people plug into creation resources and get informed about creation and evolution. It is provided free of charge on request. Using the free Adobe Acrobat Reader is necessary for viewing the newsletter. There are no restrictions in copying this newsletter or passing it on to others. To request to be placed on the e-mail list, send a request to Wayne at wayne@creationanswers.net.

More information on Wayne Spencer's education and publications can be found on the creationanswers.net web site. You'll also find many other resources. <http://creationanswers.net>

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A Personal Note from Wayne Spencer

Greetings and Happy Holidays. I would like to welcome new readers of this newsletter. As I write this newsletter I am thankful that I have been working for about two months for a software company in Dallas known as Calyx Software. This a contract position that could become permanent in a few months.

I hope to resume the DFW Creation Study Group meetings in 2005. I would like to hear from readers of this newsletter who are in the Dallas area. I would like to know whether Saturday afternoon or Sunday afternoon would be a more convenient time slot for the meetings. I am leaning toward one Saturday a month, as it has been in the past. However, it will likely take place at the house where I live in Irving. I would love to get any comments anyone has about these meetings. Let me know any suggestions you have for these meetings and how we could improve them.

A new technical paper has just made it into print which I coauthored with creationist Michael Oard. I am glad to see this. It was sometime in 2002 when Mike Oard and I began working on it. It is about a large impact crater buried under Chesapeake Bay, in Virginia. We argue that this impact occurred during Noah's Flood, as waters were running off the continent. The paper is called "The Chesapeake Bay Impact and Noah's Flood;" it is published in the December 2004 issue of the Creation Research Society Quarterly.

Wayne Spencer, M.S., Physics

Radioactive Decay Rates - New Ideas and Old Controversies

A research project called RATE (for Radioactivity and the Age of the Earth) has generated much interest among creationists in the past few years. This project undertook to do both theoretical and experimental research on radioactive age dating techniques. In particular, the project focused on the question of whether radioactive decay rates have been much higher in the past. The general idea is that there may have been special periods of rapid radioactive decay in the past, such as during the creation week, the period prior to the Noahic Flood, and during the Flood. It is being proposed that radioactive decay rates were hundreds of thousands to billions of times greater during these periods. This is a radical concept. How creationists came to propose this idea is an interesting story. I would like to take some time to explain this story and some of the arguments for it.

The story begins with the research of Robert Gentry. Robert Gentry became well known for his experimental work with what were called pleochroic halos. These are microscopic discolorations in rock that are caused by radioactive decay (primarily alpha decay), today they are usually called radiohalos. Gentry is a young Earth creationist and a Seventh Day Adventist. He is now retired from the position he occupied at Oak Ridge National Laboratories. From 1968 to 1984 he published papers in scientific journals including *Science* and *Nature*. He now has a web site related to his radiohalo work, which is <http://www.halos.com>.

Controversy has surrounded radiohalos from three particular isotopes of the element Polonium (Po). (Recall that isotopes are atoms having the same number of protons but differing numbers of neutrons.) These isotopes generated controversy because they all have very short half-lives (the time for half of the

isotopes to change into another isotope by radioactive decay). Below are the three Polonium isotopes and their half-lives. The half-life is the time for one half of a certain isotope, such as Po-218, to change into another isotope through radioactive decay. Note that in 3 or 4 half-lives most of the radioactive element is gone. The number given next to the "Po" symbol is the total number of particles in the nucleus (protons plus neutrons).

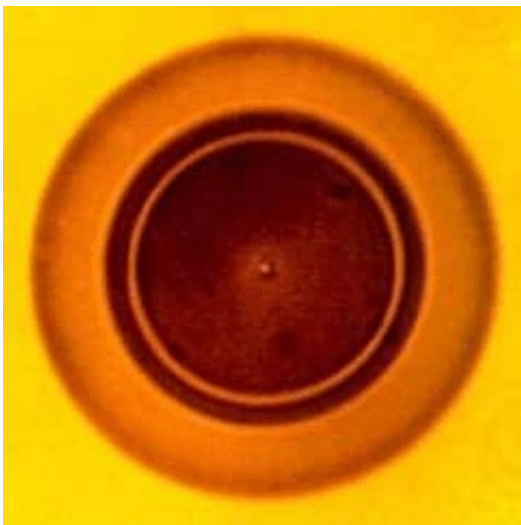
Po-210	138 days
Po-218	3 minutes
Po-214	164 microseconds (μ s)

Uranium, an element used in nuclear power plants and some nuclear weapons, is also used in radioactive dating techniques. When Uranium isotopes decay, a long series of other radioactive isotopes are produced that includes isotopes of elements such as Thorium, Radon, Lead, Bismuth, as well as the three Polonium isotopes listed above. A radiohalo looks like a dark circle, or sometimes just a ring or multiple rings. Such halos have diameters that are tens of microns (millionths of a meter) in size. Seeing halos requires use of a microscope.

The controversy surrounds certain radiohalos that Gentry claims do not come from the decay of Uranium. Gentry argues that these halos formed from primordial Polonium, which was placed in the mineral grains of the rock when the rock was supernaturally created. The short-lived Polonium isotopes studied by Gentry are found in granite rock and certain minerals (such as especially biotite) that would be classified as Precambrian in age by evolutionary geologists.

The question is how could there be halos from a short-lived isotope like Po-214 in a rock that is said to be over 600 million years old? Granite is generally believed by geologists to have formed by a slow crystallization process from molten magma from Earth's interior. If Polonium halos were present with halos from the Uranium decay

series, then there would be no mystery. There can be multiple halos, making multiple concentric rings, present in one location. Thus Uranium and Polonium halos together means the Uranium decay process occurred. The Uranium decay series often leaves a number of identifiable isotopes behind as evidence that the decay happened. Scientists can identify which isotope created each ring by techniques that determine what isotopes are in the center of the rings (called the radiocenter), and by measuring the sizes of the rings. Below is a picture of a radiohalo from Robert Gentry's web site.



Robert Gentry may have done more first hand experimental study of radiohalos than anyone else in the world. His experimental work is not controversial but the scientific community and even some other young-age creation scientists have questioned some of his interpretations of the data. Gentry argues that when the Polonium halos are found alone (without Uranium halos also present) they must have formed from Polonium that was created there supernaturally when the rock was supernaturally created during the Creation week described in Genesis. The Po-218 and Po-214 isotopes especially suggest

instantaneous creation to Gentry because of their very short half-lives.

New Ideas

Some creationists have argued against this view, instead arguing that fluids could transport radioactive elements through the mineral crystal structures and leave Polonium stuck there to make a halo as it decayed. Halos can only form in a certain temperature range because if the rock mineral is heated above a certain temperature the halo discoloration is erased (this is known as annealing). So, halos form as the mineral cools below a certain temperature (approximately 250 degrees Celcius).

To a believer in an old Earth, there is a problem explaining the Polonium halos. First, if the mineral cools slowly over many many years, there should be other halos present besides the three Polonium isotopes listed above. Secondly, if a rock such as granite requires a long time to cool from a molten material, the short lived isotopes like Po-218 and Po-214 should have disappeared before there was a chance for them to form halos. This is because the molten mixture would be hot longer than it would take for the Polonium to decay away.

I personally have tended to go along with Gentry's view of the halos for years, but I am now leaning toward the second view. In recent years there has been much progress in creationist geology. It is now known that some rocks and minerals (that are not sedimentary in nature) can form rapidly under the right conditions. Hydrothermal fluids (which would be abundant during Noah's Flood) have a key role in causing the rapid formation of various minerals. The heat from magma and hot hydrothermal fluids in some cases melted and metamorphosed sedimentary rock that formed in the Flood, turning sedimentary rock into other minerals. While God carried out His judgement on men and land animals (at the surface), dramatic things were happening under Earth's surface as well.

At the International Creation Conference (ICC) in 2003, Dr. Andrew Snelling, from the Institute for Creation Research presented a paper proposing a new mechanism for the formation of the Polonium halos. The mechanism involves hot hydrothermal fluids (water with lots of dissolved minerals and metals in it). Dr. Snelling also brings to bear recent research of other creationists that shows some rocks containing halos must have formed in Noah's Flood, not at creation. This puts the radiohalos in a different context than that considered by Gentry. The facts about why some halos are found in certain places and other halos aren't seem to be explainable from considering several factors. These include things such as the sizes of the isotopes, how easily the isotopes could move through the minerals involved, the temperatures that allow the halos to form, and the time that the radioactive elements will exist before they are gone.

Polonium is not the only radioactive element that forms halos in rock. Uranium and Thorium halos have also been documented. Researchers from the RATE project, including Dr. Snelling, say that about 100 million years worth of radioactive decay (of Uranium and Thorium) has occurred in some rocks. The more radioactivity has occurred in the halo, the darker the halo gets in color. Also, though halos may be more prevalent in Precambrian rock, they have sometimes been found in other rocks. Gentry also documented some interesting cases of radiohalos in coalified wood. These halos in coalified wood are an interesting evidence for Noah's Flood.

In the previous newsletter, I addressed some questionable assumptions that can cause the age results from radioactive dating techniques to be inaccurate: 1) a constant decay rate, 2) a closed system {no nonradioactive processes interfering}, and 3) known initial concentrations. For years young age creationists have focused more on

assumptions 2) and 3) in many critiques of radiometric dating techniques. But even considering those problems, there is inescapable evidence that more radioactive decay has occurred than could ever be explained by current rates of decay. There are not many short-lived radioisotopes (like Polonium), so other isotopes with short half-lives cannot explain the facts. The particles emitted by decaying isotopes can leave observable tracks, there are many isotopes left after a radioactive decay process, and there are effects of the heat generated from the radioactive decay. All these facts are in need of an explanation, from a young age viewpoint. However, the presence of halos from short-lived isotopes like Polonium implies that the granitic and metamorphic rock must have formed and cooled over a period of days. This is consistent with a year long Flood, as Genesis describes.

Why Suggest Accelerated Decay?

On the one hand, much radioactive decay has occurred. On the other hand, there is much evidence that has been put forward from creationist science for a young Earth and rapid formation of many geologic structures. There is also the fact that the Bible does not really provide a plausible option for inserting long periods of time. Long periods of time were not part of God's creative work in the creation week because as it says, "For he spoke and it came to be" in Psalm 33:9. Inserting long periods of time would make nonsense of the genealogies in the Old Testament as well. We cannot ignore the many arguments for a young Earth. Thus, if there was a lot of radioactive decay, it had to occur in a period or periods much shorter than billions of years, as evolutionists suggest.

If radioactive decay were accelerated during the first two or three days of creation, it might not have adverse effects on living things. Radioactive decay after the creation week until the time of Noah's Flood (1,656 years) could have adverse effects on life. However, if most of it were deep in the Earth

the dangers to living things might be insignificant, as long as the intensities of the radiation were not too great. During the Flood, the water covering the Earth would have provided some “shielding” against radiation coming from Earth’s interior. Accelerated nuclear decay in the past is still a controversial new idea, but it seems to be promising for answering a number of technical questions in the Earth and planetary sciences. There is also significant new evidence of accelerated decay in the past from the presence of radiogenic Helium in zircon crystals. This will be addressed in a future newsletter.

Andrew Snelling, and coauthor Mark Armitage, claim in their 2003 ICC paper that the hypothesis that the Polonium and the rocks their halos were found in were from creation and not from natural processes has been falsified. They go on to say this should not be disappointing:

“Rather than disappointment and dismay at the failure of the hypothesis regarding the Po radiohalos as evidence for fiat creation, we have powerful far-reaching implications for the rapid formation of granitic and other plutonic rocks, regional metamorphic complexes, and metallic ore deposits on a global scale within the Flood year.”

Tsunami in Indonesia - What does it mean?

Recently we have all seen the headlines about the powerful tsunami that has devastated Sumatra and surrounding areas. Tsunamis are very long waves that are produced by disturbances in the ocean, such as earthquakes, volcanic eruptions, and other events. Tsunami waves travel very rapidly in the deep ocean but they slow down as the ocean becomes shallower near to shorelines. Tsunamis cannot be felt in the open ocean by a boat because their

effect on a boat would be very gradual. Yet as the wave reaches the coastline of an island or continent the wave has dramatic effects.

On Christmas day in the Indian Ocean near the island of Sumatra there was an undersea earthquake, which was later measured as magnitude 9. This is the strongest earthquake in the world in the past 40 years, according to the National Oceanic and Atmospheric Administration (NOAA). The wave devastated many islands in Indonesia and also traveled across the Indian Ocean to strike Sri Lanka, the southeastern coast of India, and even caused a few deaths in some African countries. As of December 31st, CNN reported that the death toll for all 11 countries affected by the tsunami had reached 135,000! This has of course created great needs for aid for the survivors.

Some may ask “if there is a good God why does he allow this to happen?” Though we probably cannot know all the reasons for such events, we should remember that the way God first created Earth, such things would not have happened. Natural disasters occur because God judged the world at the time of Noah. That was a judgement on mankind. Because mankind sinned against God, the virtually ideal environment God first created was lost. Now we live on an Earth that is still a good home for us, but it is a downgraded version of the original.

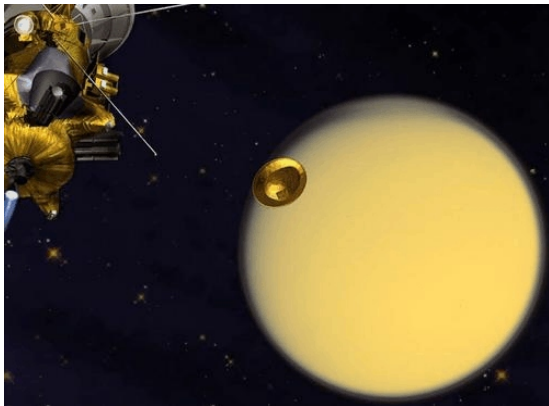
I would not think of an event like what happened in Indonesia as a judgement on any specific group of people. There are people of virtually every belief system in the world in the countries that were affected by this tsunami. Thus Christians as well as nonchristians were killed in this event. This has made me recall a college student I once met who was from Sri Lanka. He was a Christian and I remember him telling me there were a lot of Christians there. It is sad that there has been so much loss of life, and yet heartening to see how so many nations and organizations are working to provide aid.

If you would like more information about tsunamis you can visit these sites:

<http://www.noaanews.noaa.gov/stories2004/s2357.htm>
<http://www.prh.noaa.gov/itic>
<http://www.noaa.gov/tsunamis.html>
<http://www.sthjourn.org>

If you are interested in donating to help in the aid effort, there are many ways to do so. I would recommend the Red Cross or Samaritan's Purse:

<http://www.redcross.org/donate/donate.html>
<http://www.samaritanaspurse.org>



The Cassini-Huygens Mission to Saturn

The graphic above is an artists rendering of the Huygens probe leaving the Cassini orbiter to begin its descent to Saturn's moon Titan. This actually happened on December 24, 2004. The Huygens probe will slowly descend toward Titan until its instruments "wake-up" on January 14, when it will be ready for action.

Titan was discovered by Christiaan Huygens in 1655, in the years when telescopes were a fairly new invention. The Cassini spacecraft gets its name from another astronomer of the 1600's who discovered four of Saturn's moons and made some important discoveries about Saturn's rings. Giovanni Domenico Cassini was born in Italy but he moved to France at the request of King Louis XIV. He then

changed his name to Jean-Dominique Cassini. Other famous astronomers that have studied Titan include William Herschel, Jose Comas Sola (of Spain, 1907), Sir James Jeans (1925), Gerard Kuiper (1943), and Carl Sagan. Comas Sola of Spain was the first to suggest Titan might have an atmosphere. But at that time with the limited capabilities of telescopes, he was not taken seriously by other astronomers. Later in 1943-44, at McDonald observatory in Texas, Gerard Kuiper did the first analysis of the spectra from Titan. These spectra proved that Titan did have an atmosphere. The spectra showed that methane was present. There is no other example like Titan in our solar system, where there is a significant atmosphere around a moon. Titan is larger than our Moon and at its surface the atmospheric pressure is about 50% greater than we experience on Earth.

Titan's atmosphere is made up of Nitrogen and a mixture of a variety of gaseous hydrocarbons. Evolutionists believe it is somewhat similar to the alleged atmosphere of the early Earth. This is one reason for the great scientific interest in Titan. On the other hand, the origin of Titan has been a mystery to Planetary scientists.

The picture below shows a great close up of the rings of Saturn from the Cassini spacecraft. This shows the effects made by waves that travel through the rings.

