
Creation Answers

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Who does this newsletter?

This newsletter is produced by Wayne Spencer 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, such as the Creation Research Society Quarterly, Creation Ex Nihilo, TJ, and Origins (from the Biblical Creation Society, UK).

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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. This newsletter is coming to you a bit late but I hope you will find it informative and interesting. In this issue I address the topic of ice ages. This is an important topic because of the many questions people ask that relate to the issue. It is also important for understanding many aspects of creationist geology. It also gives insight into what life was like for Noah and his family living in the post-Flood world. There is so much material published on this subject. It has been challenging to summarize it in a brief form. I have waded through a lot of material to write this article. I can provide references for anyone who would like to pursue study of these issues in more detail. At a number of points I have had to skip details. I am very indebted to the work of creationist Michael Oard on this topic and I heartily recommend his articles and books.

Also do not miss the article on the ice worm. I found this little creature absolutely fascinating.

Before my next newsletter in December, on November 17th, I plan to travel to Houston, Texas to speak at the meeting of the Greater Houston Creation Association. I would appreciate prayers for this trip. My topic will be "Tidal Heating and the Age of Io." This is about the hot volcanic moon of Jupiter called Io.

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The Flood and the Ice Age

In the evolutionary view of Earth history, scientists claim there have been many "ice ages." An ice age is essentially understood to be a time when glaciers covered much more area on the Earth's surface than they do currently. A young-age creationist view that has become widely accepted in the creationist community is that there was just one ice age period following the global Noahic Flood. I find this view much more plausible and reasonable than accepted ideas from evolutionary science about multiple ice ages.

Creationists who have researched the issue of the ice age include primarily Dr. Larry Vardiman, an atmospheric scientist, from the Institute for Creation Research and Michael Oard, a retired meteorologist. Though other creationists have addressed ice age topics some, these two (especially Michael Oard) have done the most significant research on the subject and have published their work in technical creationist publications.

There are definitely clear indications, especially in northern regions, that glaciers were once present in areas where no glaciers are present today. Glaciers have left striation marks on rocks, they have left certain special types of sedimentary deposits, they have moved large boulders long distances, and have determined a lot about the topography in some areas. But though there is undeniable evidence for glaciation in the past, the arguments for many ice ages is questionable.

Old Age Theories

The evolutionary view of Earth history is committed to believing the Earth is billions of years old. Thus geological features on the Earth are interpreted using "old age glasses" you could say. There have been many theories proposed over the years to explain the evidence left by glaciers in the past. Though long considered a

mystery, the cause of the "ice ages" is now considered a mystery solved.

Today's accepted explanation is a combination of ideas. Part of it relates to Earth's orbit and tilt in space and how variations in Earth's motion affects how much sunlight reaches Earth's surface. Another part of it relies on interpretation of data in sea floor sediment cores, where scientists drill into the ocean floor and study a radioactive isotope of oxygen, oxygen-18. Why do scientists study oxygen-18 in sea sediments to figure out ice ages? Because there are many microscopic fossils of bottom-dwelling creatures in sea sediments. Many of these microfossils are creatures with tiny shells made of calcium carbonate (CaCO_3). The oxygen in these shells is believed to tell something about the temperature and climate at the time these organisms lived. One organism studied from these microfossils is Foraminifera. A third part of the argument for many ice ages comes from studies of ice cores, in which scientists drill into glaciers to study the layers of ice.

In the early 1940's a Yugoslavian meteorologist named Milutin Milankovitch proposed that long-term variations in Earth's motion caused ice ages. Some astronomers before this had suggested the idea as well, but Milankovich is normally the one credited with the idea. There are three types of variations in Earth's motions that can affect climate and temperature at the Earth's surface. First, the eccentricity of Earth's orbit varies because of the combined pulls of the various planets in our solar system. This causes the shape of Earth's orbit to vary, so that some years the orbit around the sun is slightly more elongated than in other years. Earth's orbit is pretty close to being a circle but it is not a perfect circle. All the variations in the orbit are periodic effects, so they repeat themselves over a certain time period. There are two variations in the eccentricity of Earth's orbit. They vary over periods of 413,000 years and 100,000 years. This 100,000 year variation is believed to correlate with ice ages.

Another variation in Earth's orbit is called the precession of the equinoxes. This is also referred to as the change in the longitude of the perihelion. This is basically about how the Earth's orbit itself rotates in space. This causes the closest distance to the Sun to vary from year to year. This effect has only a trivial effect on Earth's climate. However, scientists sometimes base their arguments on the combination of the various orbital variations acting together. Thus this effect can be used in conjunction with the other orbital effects.

Another variation in climate can come from how the Earth's tilt changes over time. Earth is now tilted about 23.5°. Earth's tilt is known to vary in two different ways over periods of 26,000 and 41,000 years. Earth's tilt will vary from 22.1° to 24.5°. Earth's tilt is an important factor for determining Earth's climate. The reason is that the tilt affects the angle that the Sun's radiation strikes the Earth's surface with. When the Sun is more directly overhead, the Sun's radiation is more concentrated and is spread out over a smaller area on the surface. Thus the tilt has an effect on ice sheets in northern latitudes as well as affecting our weather in other ways.

Scientists have tried to correlate the oxygen-18 measurements from the sea floor with Earth's orbital variations. This assumes that the temperature of the ancient ocean and atmosphere can be determined from the oxygen-18 measurements and that those variations can be accurately dated. It is claimed that they do correlate with the 100,000 year variation in Earth's eccentricity. Both these assumptions are just unrealistic. Quantitatively relating the oxygen-18 values to atmospheric temperatures is extremely complex at best and probably impossible in my opinion. There are too many questionable procedures in the process and there are too many natural processes that interfere with such a calculation. Secondly, once the variations in temperature are determined from the oxygen-18 analysis, they must be

dated in order to compare the variations in temperature to the orbital variation effects. These two effects are claimed to match up quite well statistically. Both the analysis of the oxygen in the Foraminifera fossils and the dating of them involve several evolutionary assumptions. Thus, when scientists claim that they have done a statistical analysis that matches Earth's orbital variations with the deep sea cores, it simply carries no weight in my opinion. There are too many uncertainties and complex interactions that go against the assumptions involved. The details of this aspect of the issue is too much to address here and too technical.

The evolutionary time scale is widely accepted and if a scientist happens to find something that doesn't fit the standard evolutionary time scale, their work is ridiculed and not usually accepted. The complexities of the analysis allows many ways that the results could be unconsciously fudged or biased toward the desired results. The biases affect not only the analysis of the data but also even the measurements of the data. With modern live measurements of atmospheric quantities and satellite data weathermen have difficulty forecasting weather patterns even today. But when scientists try to determine past temperatures and climate from oxygen-18 data in sea sediments they have far far less to go on that weathermen do when predicting a week's forecast. Thus the connection between the sea sediment data and ice ages is very questionable, at best. To see an explanation of the evolutionary view of ice ages with some helpful graphics, I would recommend this web site from the National Climatic Data Center:

<http://www.ncdc.noaa.gov/paleo/glaciation.html>

Even if we assume the statistical arguments tying oxygen-18 data with orbital variations is valid, this does not explain the physics of how ice ages happen. The variation in Earth's eccentricity would only make a minute difference in the radiation from the Sun reaching the surface. There is

no way that single effect in and of itself could cause an ice age. The variation in Earth's tilt would have a larger effect on climate and snowfall than the Earth's eccentricity but scientists do not usually say variations in the tilt correlate with ice ages. Even if the change in the solar radiation from the eccentricity were enough to generate more snow and less melting of the snow and ice, there are many other processes that tend to be temperature and climate buffers. In other words, God has designed into Earth's processes effects that counter balance and tend to prevent extreme climate swings. Thus for a number of reasons, normal processes just do not work as adequate driving forces for many ice ages. It requires a catastrophic event of the scale of Noah's Flood to explain how an ice age could happen.

Requirements for an Ice Age

For an ice age to occur in a way that fits the evidence regarding glaciation, what must happen? Ice at one time covered almost all of Canada and dipped into what is now the Northern United States, including covering the entire Great Lakes region. For this to be possible, something must prevent the snows from melting summer after summer. This requires a large drop in the summer temperatures. Also, something must cause heavy precipitation, so that there will be much more snow than is possible in "normal" winter variations. There were also some areas of the Earth that actually were not covered by glaciers in the past, even though they were very cold, such as Siberia for example. Geologists have had some difficulty explaining some of these cases. For instance, there were some lower altitude regions of Alaska that were never covered with glaciers. Extremely cold regions can sometimes actually be too cold to allow for snow. This is because with colder temperatures comes dryer air. Many ice age theories have failed because they either cannot generate enough precipitation of snow or they are not cold enough over a

wide enough region. Without lots of snow and much cooler summers, the ice cannot build up into glaciers. Thus the problems with evolutionary ice age theories are problems of magnitude. Evolutionary scientists may propose valid effects but those effects are not significant enough to do the job. This is why even today there are occasionally new ideas put forward to enhance cooling effects and better explain ice ages.

What about Noah's Flood? How would a global Flood cause an ice age? First of all we can assume that there were powerful volcanic eruptions occurring during and possibly after the Flood. We have abundant evidence of this in various volcanic rock layers. Volcanic eruptions put large amounts of gases into the atmosphere, especially Sulfur Dioxide. These gases produce what is known as aerosols or "haze." There would also be dust and ash that was ejected into the atmosphere in eruptions. Dust and ash will fall out of the atmosphere in a few months, but the aerosols can stay in the atmosphere for up to a few years for a large eruption. The aerosols also reflect some of the Sun's radiation back into space, thereby cooling the atmosphere near the surface. We know very well that volcanoes can lower the temperature because we have measured it in historical times. Thus, the volcanism associated with Noah's Flood would cause the temperature in the lower atmosphere to drop. (Note that evolutionists do not believe volcanism led to the cooler temperatures of their ice ages. This is because it would require too many volcanic eruptions for too long a period of time to be plausible.)

This means Noah and his family would probably have experienced years of very severe winters. However, in Southern latitudes the effects of the ice age would be mainly more precipitation, though with cooler temperatures than today. There is evidence that large land mammals were able to live in some regions in which they are no longer found in today. There were also species of

mammals now extinct, such as the woolly rhinosceros and mammoths. So, Noah may have been able to find a good place to live. Europe was affected a couple of different ways by the ice age. Most of the ice age probably made a warmer wetter climate in Europe than at present (hippopotamus fossils are found in Europe for example). However as the glaciers advanced, they eventually covered part of England, France, and Germany. This led to some groups of humans choosing to live in caves, such as "Neaderthal Man." These were not primitive less evolved ape-man intermediates, but intelligent human beings who found a way to survive in harsh conditions.

What made so much precipitation and snow during the ice age? This is a natural after effect of Noah's Flood. There are a variety of ideas on details of how the Flood took place, but it is clear that the ocean would have been warmer than today as a result of the Flood. This is because of volcanism and tectonic Earth movements that affected the ocean floor. I believe there were also impacts from space into the ocean during the Flood and the larger ones may have heated the ocean some. After Flood waters ran off the continents sea level would have been somewhat higher than present. But, the warm ocean waters would cause greater evaporation. This evaporation would generate more precipitation in certain regions around the margins of the continents and other areas where major wind currents would move. As evaporated waters from the ocean were carried over the continents in Northern regions, there would be large snowfalls. As the snow built up, compacted, and froze the glaciers would grow. Thus water was effectively transported from the ocean to the glaciers, and this lowered sea level for a time.

This lowering of sea level was a significant thing for life in the post-Flood Earth. It undoubtedly exposed land bridges in some areas, such as the Bering land bridge from Alaska to Eastern Siberia.

There were also land bridges in Europe across what is now the English Channel and the Irish Channel. In his excellent book, "*An Ice Age Caused by the Genesis Flood*" Michael Oard explains many aspects of how the ice age took place on the basis of Noah's Flood. In short, if you acknowledge a global Flood and a young Earth you can explain many details of the ice age. If you reject the Genesis Flood, you cannot explain ice ages.

Ice Cores

Another issue comes up in discussion of ice ages that is worth mentioning. There have been many studies of ice cores from glaciers. Scientists claim that they can actually count 160,000 years worth of annual layers in the glaciers. This is believed to confirm evolutionary concepts about the age of the Earth and ice age theories. Oxygen-18 analysis has been done from ice in these ice cores. Glacier ice also has other gases and materials trapped in it. Sometimes volcanic dust can be extracted from the ice and even tracked to the volcano that it came from. Thus for up to several thousand years (by accepted dating techniques) there are some legitimate correlations with historical volcanic eruptions. So, there are some valid conclusions from oxygen-18 data from ice cores, though only for several thousand years at the most. Beyond several thousand years in the ice layers, techniques become less direct and more uncertain regarding dating the layers and correlating them with other events. Old age assumptions enter into the analysis of the deeper ice cores and scientists tend to assume that present processes are the key to the past.

There are assumptions that snowfall occurs at a constant average rate for long periods of time for example. This makes much of the dating incorrect from the analysis of the ice cores. If a global Flood occurred, we would expect much higher than normal precipitation rates during the ice age years. Thus instead of the ice layers representing annual deposits, they could actually be storm deposits during rapid

fluctuations in climate after the Flood. Thus, from one year with a number of storms and major snowfall, many ice layers could form. Dr. Larry Vardiman from the Institute for Creation Research (ICR) has done some promising research on this. It seems this approach has promise for explaining ice core data. A technical monograph was published on this by ICR in 1996 called "*Ice Cores and the Age of the Earth.*"

Conclusions

In many ways it has been shown by creationists that a global Flood could do things that geologists tend to assume would take a much longer time. When a Biblical view of history is rejected, this makes it impossible to come to correct answers about how the Earth got to be the way it is. There is much research still needing to be done but creationists like Michael Oard have done some excellent work in reexamining the data and making sense of it from a Biblical perspective.

Strange but Real: The Ice Worm

Once while in a restaurant in Alaska with his father, Daniel Shain, now a biologist at Rutgers University, read something on the placemat about something called the ice worm. He thought it was a joke until he later actually was shown some of them. Shain (an evolutionist) now studies plant and animal life in Alaska and takes students on field trips there. Though ice worms were discovered in Alaska in 1887 apparently they were not seriously studied until recent years. The ice worm has got to be one of the most unusual creatures on God's Earth. There are at least two varieties of ice worms.

Alaskan ice worms are healthiest with the temperature right around the freezing point of water (32° F). They live in the ice and if the temperature even gets to 5° F they start to disintegrate. So if you were to hold one in your hand, it would

literally melt. They are only about 1 to 2 cm long, less than an inch and look almost like a miniature earthworm. They eat red algae that they find in the ice. They burrow down into the ice during the day and come up to the surface at night. They live in large colonies under the ice. Estimates of the numbers in these colonies goes up to 20 million. It is not known how long they live. It is said that the ice worms have a rather large mouth, for a little worm, and they have a large pore on the back of their head that scientists have not figured out the purpose of.

Scientists have also found one of the unique and amazing things about these worms is that as the temperature drops they produce more ATP. ATP is like the energy source in cells. So, unlike most other living things that produce less energy as it gets colder, ice worms produce more energy as it gets colder. There is a limit however. At around 21° F they begin to freeze.

There is also another kind of ice worm, known as the methane ice worm. On the sea floor in some areas methane gas (which has one carbon and three hydrogen atoms) comes up through the sediments and can freeze in the ocean floor. The Gulf of Mexico is one place where there is methane ice on the ocean floor and there are ice worms that live in this ice.

What is the significance of these little worms? Bear in mind that there are many types of worms, some are able to survive in very extreme conditions. There are even giant worms in Australia that can be several feet long! In the Earth as God first created it there were not such extreme environments as are present now. Many of the extremely hot and cold areas of the Earth became as they are due to after-effects of Noah's Flood. Since fossils of tropical plants and animals are sometimes found even in arctic and antarctic regions, it may be there was limited or no ice at the poles in the pre-flood world.

So how do you get worms that can only survive in ice at freezing and also some that can survive around hot hydrothermal

vents on the ocean floor? God created some living things so that great variability was possible. This allowed organisms to adapt as the environment changed. The world-wide Flood judgement caused great changes in climate. As living things adapt to unusual environments they become more specialized and sometimes more fragile. That is, they adapt to the point where they can only live in very particular conditions because they have lost the genetic information to adapt to other environments. So we can praise God for his design of the ice worm, but God's design is a design that planned for adaptability. Of course, worms never evolved into something more complex. Worms have always been worms and worms will always be worms. But even a little worm can demonstrate God's greatness. Though God allowed for variation, there are limits to how much living things can change over time. This is what the Bible teaches from Genesis chapter 1 where it says animals multiplied "according to their kind."

The "Thousands not Billions" Conference

An important conference is coming up November 5, 2005. The RATE research project at ICR has produced some important new ideas regarding radioactive dating techniques and the age of the Earth. Previous newsletters have summarized some of this research. At this conference the goal seems to be to allow the researchers of the RATE project to make nontechnical presentations about the results of this project. The conference takes place in El Cajon, CA on a Saturday. For more information go to this web page:

<http://www.icr.org/index.php?module=events&action=view&ID=84>