

Cold comfort for long-agers

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Long-ager Hugh Ross believes that ice cores demonstrate that the earth is old. However, the arguments he presents to support this belief are faulty. Dating by volcanic signatures becomes nearly impossible after 2,000 years and applying 'climate cycles' is an exercise in circular reasoning and assumes the astronomical theory of the ice age. The annual layer dating of the GISP2 Greenland core is good near the top but becomes more problematic at depth where old-age assumptions are used. The supposed annual layers in the bottom two-thirds of the core can be interpreted as subannual layers caused by storms and other variables. Antarctic cores are simply dated by curve matching to the assumed Milankovitch climate cycles. The criticisms that Ross presents against our previous work are easily refuted. It is unfortunate that Ross accepts, as fact, the speculations of fallen men about the prehistoric past over the clear historical record in the Bible. This is the foundational error of his work.

The well known proponent of 'progressive creation' and 'millions of years', Hugh Ross, claims that the 'old age' of the earth derived from ice cores is a scientific argument that 'may be simple enough for everyone to understand, regardless of science background—as simple as counting tree rings.'¹ He goes on to state:

'The ice cores reveal hundreds of thousands of ice layers laid down on top of one another year by year, just as a tree adds one new growth ring per year.'¹

He lists the three new deep ice cores from on top of the Greenland Ice Sheet—the NorthGRIP, GISP2 and GRIP cores—and the three deep ice cores from the top of the Antarctic Ice Sheet—Dome Fuji, Vostok and Dome C. The Dome C core is said to have reached 740,000 years (740 kyr), but just recently it has been drilled down to the 900 kyr age level. You can read more about the issue of ice cores in the new book *The Frozen Record: Examining the Ice Core History of the Greenland and Antarctic Ice Sheets*.²

Ross makes it seem that annual layers were counted to many hundreds of thousands of years in these ice cores. It is actually the GISP2 core, only, where annual layers have been 'counted', and they were counted to only '110,000' years, near the bottom of the core. It is very important to understand that most of these alleged annual layers are

concentrated in the bottom few metres of the core, and that their interpretation as 'annual' is very questionable. Glaciologists expected to see several glacial/interglacial 100,000-year cycles in the Greenland core, but the evidence points to one Ice Age. (Antarctic ice cores are a different situation, as explained below.)

Ross goes on to point out that glaciologists 'know' that the layers are annual because of volcanic ash signatures, climatic cycles, radiometric dating of minerals embedded in the ice and a 3.9 million year deep-sea core off New Zealand's Southern Alps. He emphasizes that the Milankovitch climatic cycles, as well as the deep-sea core off New Zealand, 'match perfectly' with the dates from the ice cores. Ross summarizes with what he thinks is irrefutable, simple evidence that anyone can understand:

'Such a calibration builds confidence that these cores yield a continuous climatic, geological and astronomical record for the past few million years at least.'¹

Problems

There are a host of problems with this simplistic understanding of ice cores. First, volcanic ash signatures beyond about 200 years are equivocal for a number of reasons, especially because the historical record older than 200 years becomes more sketchy the older the eruption. 2,000 years seems to be the maximum for which any volcanic ash signal and the historical record can be correlated.³ Hammer, who was the first scientist to use volcanic signatures, states:

'The use of volcanic reference horizons in ice cores, however, has not been widely used. The reason is twofold: First, before volcanic horizons could be used for dating purposes it was necessary to establish a time scale independent of any subjective interpretations of the volcanic signals (by seasonal variables). Second, the information on past volcanic eruptions is limited and the dating of the eruptions is not very precise, apart from certain well-documented historical eruptions.'⁴

Second, the use of climatic cycles from the astronomical or Milankovitch theory of ice ages (Ross's second and fourth indicator above) is an exercise in circular reasoning.⁵ Both the Greenland and Antarctic ice cores are *tuned* to the deep-sea cores, which are dated *assuming* the astronomical or Milankovitch theory:

'Taking advantage of the fact that the Vostok deuterium (δD) record now covers almost two entire climate cycles, we have applied the orbital tuning approach to derive an age-depth relation for the Vostok ice core, which is consistent with the SPECMAP marine time scale [from deep-sea cores] ... The deep-sea core chronology developed using the concept of 'orbital tuning' or SPECMAP chronology ... is now generally accepted in the ocean sediment scientific community.'⁶

‘Orbital tuning’ refers to the cycles in the astronomical theory. This quote is referring to the first two cycles in the Vostok core, but since then, glaciologists have drilled deeper at Vostok and added more cycles from Dome Fuji and Dome C—clear to the ninth cycle in Dome C. This is how the Antarctic ice cores are dated—simply by curve matching with deep-sea cores! Annual layers cannot be derived from ice cores drilled on top of the Antarctic Ice Sheet, as implied by Ross, since the snowfall rate (less than 5 cm of water equivalent per year) is too light for annual layer dating. As far as the strong oscillations in δD , presumably correlated to temperature, in these Antarctic cores are concerned, Oard suggests that they are similar to the large oscillations in the Greenland Ice Age portion of the cores but with higher amplitude.⁷

Further evidence of circular reasoning, via tuning the ice core chronology to the Milankovitch astronomical theory, is shown in the Greenland ice cores. This was demonstrated when Deborah Meese and colleagues first dated the GISP2 core by ‘annual layers’ down to the 2,800 metre level at 85,000 years BP (before present).⁸ However, the date at this level disagreed with the deep-sea cores and the astronomical theory, so the layer between 2,300 and 2,800 metres was ‘remeasured’ to a finer resolution. They found 25,000 more annual layers in that 500-metre interval to arrive at 110,000 years at 2,800 metres, just as expected from the chronology from deep-sea cores!⁹ Glaciologists do measure annual layers near the top of the Greenland ice cores, but deeper down the cores, they are picking up subannual layers (storm layers and other variations). The uniformitarian scientists are simply assuming the ice sheets are old, and so ‘old age’ is what they find. Creationists have an alternative interpretation in which the post-Flood rapid Ice Age causes very thick annual layers during the Ice Age followed by a decrease to the current annual snowfall of today.^{2,10–14}

The third indicator according to Ross is radiometric dating of minerals embedded in the ice. Ross does not provide a reference, and we do not know to what he is referring. Since Ross mentions that the dating is on radioactive minerals in the ice, *in situ* carbon-14 measurements on gas bubbles in the ice and beryllium-10 measurements on ice are eliminated. The minerals in the ice are likely from dust blown onto the ice sheet after erosion from some other area. There is no theoretical reason why the dates of the dust particles should agree with the age of the ice determined by other uniformitarian methods. But Ross, always exaggerating, says that in each case when they compare dates, the dates ‘agree’!

Ross’s criticisms are baseless

He goes on to chastise young-earth creationists who have written on the subject by citing only a sample of the creationist literature,^{15–17} claiming that we have done an incomplete analysis on the ice cores. He claims that Vardiman and Oard have shown problems at the top and

bottom of the cores that we claim invalidate the whole dating analysis. Vardiman presented another variable, besides temperature change, to account for the general trend of the oxygen isotope ratios in the Ice Age portion of the Greenland cores. This work was based on the well-known continental effect applied to gradually increasing sea ice.¹⁸ Oard presented problems of simply assuming that uniformitarian scientists have counted 110,000 annual layers down the GISP2 ice core. These two studies relate to more than the top and bottom of the Greenland ice cores. Ross never analyzed the merits of the two studies nor refuted any of the conclusion or suggestions. Furthermore, he has not included several of Oard’s latest challenges to the conventional ice core interpretation.^{19–21} Ross’s challenge is a very incomplete analysis of the literature available before he wrote his article. Furthermore, he misinterprets the little he deals with.

Ross also mentions the possible disturbance at the bottom of the GISP2 core, which was not even mentioned by Vardiman or Oard. The disturbance in the bottom 200 metres of the GISP2 cores was used to invalidate an interpretation from the nearby GRIP core of huge abrupt climate changes during the last supposed interglacial. This disturbance does not look too significant, and previous conclusions of wild fluctuations at the bottom of the GRIP core seem more correct.²²

Ross then claims that Wieland’s analysis of the lost squadron of planes buried below 250 feet of ice in 50 years was offered as proof against the uniformitarian dating of the Greenland ice cores.²³ Wieland was using this example to show that it does not take a vast amount of time to lay down thick layers of ice.²⁴ Ross correctly points out that the south-east corner of the Greenland Ice Sheet is a relatively warm area with very high snowfall. However, this situation shows that with a different climate regime during the Ice Age with no sea ice and a warm ocean, the rapid development of the Greenland Ice Sheet could occur.²⁵ Of course, the snowfall rate is much less at the top of the high ice sheet today. However, even at the current average snowfall for the whole Greenland Ice Sheet, it still would take only 5,000 years to deposit all the ice.²⁶

Just believe the journals?

Such superficial research and interpretation seems to be typical of Ross’s style: just go to the journals and believe all the uniformitarians say—hook, line and sinker. Based on his demonstrated total reliance on uniformitarian *interpretations and speculations* (his so-called 67th book of the Bible), he shows that he has read little of both the uniformitarian and creationist literature on the subject of ice cores.

Ross makes a case at the end that God also speaks to us from nature and that both special and general revelation should agree. We do believe that God indeed does speak to us through general revelation, but nature is subservient to God’s Word; the Bible comes first. And besides, Ross believes more in the *speculations* of sinful men that were

not there and who are antagonistic towards God's Word.²⁷ He also downgrades God's clear word in Genesis 1 when he says such things as:

‘The ice and sediment cores provide compelling extra-biblical evidence that the earth is indeed ancient. This evidence supports the *literal* interpretation of creation days in Genesis 1 as six long epochs [emphasis added].’²⁸

We believe that the raw data of nature agrees with the Bible and young-earth creationism—i.e. with a straightforward reading of Genesis as history, just as the Lord Jesus Christ took it to be.²⁹ Furthermore, both the Bible and the data of science refute Ross's ideas.^{30–33}

Acknowledgements

We thank Russ Humphreys for pointing out and providing a copy of Ross's article.

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