

The uniformitarian conundrum of the Mid-Pleistocene Transition

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Uniformitarian scientists are now claiming there were about 50 ice ages of various intensities during the Pleistocene.¹ These are not based on continental glacial debris, which generally show one ice age, but instead are interpreted from deep-sea cores. Uniformitarian scientists measure several variables down the deep-sea cores, including the amount of carbonate and the oxygen isotope ratio that oscillates around an average. When the variables wiggle to one side of the average it is considered a glacial phase, and when it oscillates in the other direction it is considered an interglacial phase. All of these wiggles are in turn interpreted by the astronomical or Milankovitch theory of ice ages.²

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Oscillations older than about 900 ka are believed to follow the 41-ka tilt cycle, while younger oscillations are believed to be caused by the 100-ka eccentricity cycle (figure 1). The transition is called the Mid-Pleistocene Transition (MPT). The cause of MPT has been a long-standing mystery for uniformitarian scientists: “Because orbital forcing did not shift at this time, the ultimate cause of this mid-Pleistocene transition remains enigmatic.”³

Many models have been suggested, but none are able to explain the MPT. Models include internal climate amplifiers or feedbacks, ocean circulation changes, and interactions with Earth’s carbon cycle.

A proposed ‘solution’

A new model suggests that the MPT was caused by enhanced deep ocean carbon storage as a result of a reduced Atlantic Meridional Overturning Circulation (AMOC).⁴ AMOC is the circulation in the Atlantic Ocean where warm, salty water in the upper layers of the North Atlantic moves northward, sink, and moves southward as cold deep water to the South Atlantic, where it upwells. Due to the changing strength of the North Atlantic Deep Water and Antarctic Bottom Water, the deep ocean has variable stability to vertical overturning. The changing strength of the upwelling and sinking determines how much carbon builds up or is released. The North Atlantic Deep Water from AMOC is thought to be related to the strength of the circulation.

Based on deep-sea cores, Farmer *et al.* claim by geochemical measurements that at the Mid Pleistocene Transition, AMOC decreased 20% resulting in 50 gigatons greater carbon storage in the deep ocean. This carbon storage is related to carbon dioxide in the upper layers of the ocean that are in equilibrium with atmospheric carbon dioxide. So, more carbon accumulation in the deep ocean results in less atmospheric carbon dioxide. This is thought to cause cooler temperatures, a greater ice volume during the last 9 ice ages, and to increase the periodicity from 41 ka to 100 ka.

Problems with the new ‘solution’

However, the oceanographic and atmospheric connections for this mechanism are global and complex. They depend upon the complex interplay between the carbon cycle, amount of carbon dioxide uptake in the Southern Hemisphere ocean, the assumed temperature change caused by a change in carbon dioxide, changes in Earth’s ice volume and sea ice, amount of iron availability and its relationship to the

biological pump, erosion of continental sediments, variable ocean circulation, the connection between various variables, and various other complexities. Then there is the question: what mechanism would cause reduced atmospheric carbon dioxide for the past 900 ka to be able to switch from 41 ka climate cycles to 100 ka climate cycles? Supposedly, less carbon dioxide would lead to colder temperatures and more ice buildup, but how significant is this relationship? How could less carbon dioxide cause such a dramatic shift in ice age cyclicity? The deep-sea cores used to determine geochemical variables also have to be accurately dated, which adds another level of assumptions and complexity.

A hint of the complexity of the proposed solution and sketchy relationships between some of the variables is given by Farmer *et al.*:

“The missing glacial [atmospheric carbon dioxide] was most probably sequestered in the deep ocean, as suggested by benthic foraminiferal carbon isotope records ($\delta^{13}\text{C}_b$). However, evidence from $\delta^{13}\text{C}_b$ data reflects a combination of ocean circulation, air-sea gas exchange and ocean carbon content, which complicates quantitative reconstructions of any one parameter. As reliable quantitative records of ocean carbonate chemistry are sparse, how the ocean sequestered additional CO_2 at the MPT is a matter of debate.”³

The glaring problem that the 100-ka cycle has no forcing

Of the many problems with the Milankovitch mechanism, the most significant, currently being ignored, is that the 100-ka cycle changes solar radiation on Earth by extremely little!^{5,6} This periodicity was ‘proven’ by Hays *et al.* in 1976.⁷ However, MIT professor of atmospheric science Carl Wunch equates the eccentricity cycle to chance:

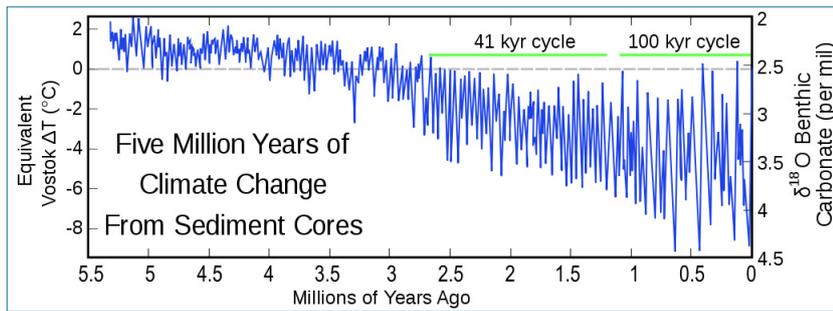


Figure 1. Five million years of climate change history based on the LR04 Benthic Stack (Robert A. Rohde, Wikipedia commons CC-BY-SA-3.0 mitigated). The curve represents oxygen isotope measurements from benthic foraminifera, taken from 57 deep sea cores that were dated by orbital tuning (the Milankovitch theory) and aligned by an automate graphic correlation algorithm. It also shows the oscillations extending back into the early Pliocene. The 50 or so wiggle cycles younger than 2.6 million years old are the basis for the claim of 50 Pleistocene ice ages.

“Evidence cited to support the hypothesis that the 100 Ka glacial/interglacial cycles are controlled by the quasi-periodic insolation [solar] forcing is likely indistinguishable from chance.”⁸

Another problem with the 100-ka cycle is that spectrum analysis of climate gives a sharp 100-ka peak, but the eccentricity follows cycles of 400-ka, 125 ka, and 95 ka.⁹ These frequencies almost never show up.

The Milankovitch bandwagon effect

Ever since 1976, thousands of research papers have been published assuming the Milankovitch mechanism, producing a powerful reinforcement syndrome or bandwagon effect.¹⁰ The Milankovitch mechanism was not only applied to supposed ice age cycles, but also to Cenozoic cycles in sedimentary rocks and even some sedimentary cycles in the Paleozoic.¹¹

The Milankovitch mechanism has become the *ruling paradigm* in climate research and is rapidly assuming that role in ‘high-precision stratigraphic dating’. All climate-related data, as well as dating methods, are made to fit the theory.¹² Scientists even ‘tune’ data sets, such as deep-sea cores, to the cycles by adjusting the sedimentation rate.¹³ This is circular reasoning:

“However, interpreting results based on orbital tuning can lead to circular reasoning, because the presence of an orbital signal is commonly assumed before it is tested. Furthermore, the outcome depends on choosing an appropriate target curve and/or frequency for tuning. As a result, astrochronology may provide multiple unconstrained orbital interpretations for a given stratigraphy.”¹⁴

Jake Hebert of the Institute for Creation Research has recalculated the data and the periodicity of the cycles in the Hays *et al.* paper⁷ by using the new uniformitarian date of the last Earth magnetic polarity change from the Matuyama reversed chron to the Bruhnes normal chron.^{15,16} He discovered that the Milankovitch cycles were *not* produced, and therefore concludes the entire Milankovitch enterprise is a house of cards. Uniformitarian paleo-oceanographers quietly provided an ‘alternate’ justification for the Milankovitch theory in 1997, apparently in response to the charge that they were engaging in circular reasoning.^{16,17} This ‘backup’ confirmation demonstrated inconsistent handling of seafloor sediment data and arguably depended on a biased selection of seafloor sediment cores.¹⁸ That they have apparently never candidly acknowledged this problem with the Brunhes-Matuyama magnetic

reversal to either the larger scientific community or the general public suggests that this alternate ‘proof’ is not entirely convincing, even in their own minds.

To make matters worse, the Milankovitch theory, despite its many weaknesses, is one of the main arguments for catastrophic climate change!¹⁹

Conclusion

The new proposal to explain the cause of the MPT is like so many others: speculative with too many interacting, poorly known variables. All of the precision implied by dating with the Milankovitch mechanism is really based on a flawed ‘proof’. It demonstrates the circular reasoning inherent in much uniformitarian dating and thinking.

The cause of the oscillations in the deep-sea core variables still needs explaining, as does so much other data that comes from the ocean bottom sediments. For the core tops, I believe the oscillations in the variables can be explained by variable dust loading sequences during the gradual decrease in Ice Age volcanicity.²

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