

More Cretaceous ‘glacial’ deposits

Michael J. Oard

Conventional scientists postulate five major glacial periods in earth history (table 1). Their latest ice age period is the Pleistocene, assuming the geological column. Within the Pleistocene, they now claim about 50 ice ages of variable intensities, repeating in regular succession during the past 2.6 Myr.¹ Although the surface of the earth mainly shows one ice age,² conventional scientists claim that oscillations in oxygen isotopes from deep-sea cores support many ice ages. All of these ice ages supposedly repeat at 40,000- and 100,000-year Milankovitch frequencies. The Milankovitch theory suffers from many problems,^{3,4} and much of the Pleistocene ice age paradigm is based on circular reasoning.

Pre-Pleistocene ‘ice ages’

Four of the major glacial periods are in the pre-Pleistocene, with dates ranging from over 2 Ga to about 300 Ma ago, according to the uniformitarian timescale. These ice-age claims are based on interpretations of certain features in sedimentary rocks, such as scratched rocks and bedrock, as well as ‘dropstones’ in fine-layered sediments. These pre-Pleistocene ‘ice ages’ are problematic, since much of the evidence comes from marine sediments with supposed paleomagnetism indicating equatorial or tropical latitudes. So, what do uniformitarians do? Add another hypothesis! Conventional scientists are now claiming the earth went through several periods of *global glaciation*, called ‘snowball earth’ episodes.^{6–8} They estimate there were anywhere from two to 4 snowball earth episodes

Table 1. The five main ice age periods within the uniformitarian paradigm and their inferred age range in millions of years ago.⁵ The age ranges for the Precambrian ‘ice ages’ are admittedly rough estimates. The Late Precambrian is composed of periods of global glaciation.

Geological period	Secular approximate age range (Ma ago)
Pleistocene	0.012–2.6
Late Paleozoic	256–338
Late Ordovician	429–445
Late Precambrian	520–950
Mid Precambrian	2,200–2,400

just in the Neoproterozoic, 540 Ma to 1 Ga. But the Russian climatologist Budyko points out that if the earth were ever totally glaciated, the reflection of sunlight off the white surface would cause it to plummet another 100°C!⁹ And to add to the difficulties of snowball earth, conventional scientists need to postulate catastrophic events to melt a global ice sheet. These include huge volcanoes popping through the ice¹⁰ and increasing carbon dioxide hundreds of times today’s values.¹¹ Another idea is striking the earth with a huge meteorite that spread low albedo particles on the ice.¹² All of the features used to support pre-Pleistocene ice ages can be readily explained by bringing Noah’s Flood into earth history. These so called ‘ice age’ features can be duplicated by massive submarine landslides during the Flood.¹³

Cretaceous glaciation?

Besides ice ages, conventional scientists believe the earth has undergone periods of very warm temperatures, especially in the Cretaceous and much of the Cenozoic. These periods are events called ‘supergreenhouses’. A large amount of literature supposedly supports this deduction, one of which is based primarily on warm paleoflora at mid and high latitudes.^{14,15} Also supporting the warm period idea are large trees with growth rings up

to about 10 mm thick, along with subtropical cycad trees, which are found in Antarctica in the Cretaceous and early Cenozoic.¹⁶ Remains of all kinds of subtropical and tropical plants and animals, such as crocodiles, which require above freezing temperatures year around, have been found in the high Arctic and are dated to the Cretaceous.¹⁷ Plate tectonics is no help, since the Arctic and Antarctica were near the poles during the Cretaceous and Cenozoic.

However, the conventional literature is increasingly finding many more indications of glaciation during this warm period.^{18,19} Ladant and Donnadiou inform us:

“The historical view of a uniformly warm Cretaceous is being increasingly challenged by the accumulation of new data hinting at the possibility of glacial events, even during the Cenomanian-Turonian (~95 Myr ago), the warmest interval of the Cretaceous.”²⁰

Much of this evidence comes from dropstones in fine-grained sediments (figure 1).^{21,22} And some dropstones are very large, up to 3 m long.^{18,23} In their thinking it would seem that ice would be the only possible transport mechanism. Sometimes, these dropstones come with features that could be suggestive of glaciation, such as a bullet-nosed shape for boulders or grooves or striations. Dropstones in Iberia, the largest, a 74-cm-long quartzite



Image: Michael C. Rygel, Wikimedia Commons / CC BY-SA 3.0

Figure 1. Claimed Permian dropstone from the late Paleozoic ‘ice age’ from eastern Australia. In this case, it seems more likely the large stone was emplaced laterally with the other layers of rock debris, an interpretation further supported by the fact that there is little disruption of the beds below.

boulder, supposedly was deposited in subtropical latitudes. A Cretaceous ‘cold snap’ is suggested. But to get icebergs with dropstones down to the subtropics would seem to require massive glaciation at higher latitudes.

Other indications of Cretaceous glaciation are also claimed, such as supposed lithified glacial debris (till), called ‘tillite’; glendonites; large sea level fluctuations; and low CO₂ levels. A glendonite is a pseudomorph, an unusual mineral form of ikaite, a hexahydrate of calcium carbonate (CaCO₃·6H₂O). It is believed to only form in cold water. ‘Permafrost features’ in the form of sandstone ice wedge casts have also been claimed in China.²⁴ The first evidence for a real Cretaceous glaciation comes from a supposed lithified glacial debris (till), called ‘tillite’, found in South Australia.^{25,26} Since then, many other claims of Cretaceous glaciation have come forth.²⁷

The Flood can account for evidence of Cretaceous glaciation

The Flood not only accounts for the spreading of warm-climate

plants and animals globally, largely by log mats, but can also account for dropstones in fine-grained sediments.^{28–30} Many claimed glacial interpretations based on dropstones have been re-interpreted as mass flow deposits.²⁸ The logs, vegetation, and kelp ripped up early in the Flood would have commonly carried rocks in their roots and deposited them over much of the earth. The Flood can account for exotic rocks, some claimed to have striations, in the chalk in England,³¹ numerous rocks found in coal,³² and large rocks noted in fine-grained sediments of the present sea floor.³² K.O. Emery even reports a 35-m-tall tree floating upright, weighted down with a 3–4-m-diameter rock stuck in its roots. So, very large dropstones are not a problem for the Flood.

Claimed tillite and other features can be duplicated by gigantic landslides underwater.¹³ Many glendonites are found in sedimentary rocks, which indicate warm temperatures, making the paleoenvironmental interpretation of glendonites equivocal.³³ Claimed sea level changes can be due to tectonic changes, changes in the volume of mid-ocean ridges, more groundwater stored,

and warmer ocean temperatures.¹⁹ Recognizing the biblical Flood as history can account for these supposed glacial features.

References

1. Walker, M. and Lowe, J., Quaternary science 2007: a 50-year retrospective, *J. Geological Society London* **164**:1073–1092, 2007.
2. Oard, M.J., *How Noah’s Flood Caused a Single Ice Age*, Creation Book Publishers, Powder Springs, GA (in press).
3. Oard, M.J. and Reed, J.K., Cyclostratigraphy, part III: Critique of the Milankovitch mechanism, *CRSQ* **56**(3):132–142, 2020.
4. Oard, M.J. and Reed, J.K., Cyclostratigraphy and astrochronology, part IV: is the pre-Pleistocene sedimentary record defined by orbitally-forced cycles? *CRSQ* **56**(4):234–242, 2020.
5. Crowell, J.C., Pre-Mesozoic ice ages: their bearing on understanding the climate system, *GSA Memoir 192*, Geological Society of America, Boulder, CO, 1999.
6. Oard, M.J., Another tropical ice age? *J. Creation* **11**(3):259–261, 1997.
7. Oard, M.J., ‘Snowball earth’—a problem for the supposed origin of multicellular animals, *J. Creation* **16**(1):6–9, 2002.
8. Oard, M.J., Uniformitarian scientists claim ‘Snowball earth’ caused the Great Unconformity, *J. Creation* **34**(3):12–14, 2020.
9. Budyko, M.I., The heat balance of the earth; in: Gribbin, J. (Ed.), *Climatic Change*, Cambridge University Press, London, UK, p. 95, 1978.
10. Hoffman, P.E. and Schrag, D.P., Snowball Earth, *Scientific American* **282**(1):68–75, 2000.
11. Crowley, T.J., Hyde, W.T., and Peltier, W.R., CO₂ levels required for deglaciation of a ‘near-snowball’ Earth, *Geophysical Research Letters* **28**(2):283–286, 2001.
12. Isaacs, E., ‘Snowball Earth’ out with a big bang? *J. Creation* **34**(3):5–7, 2020.
13. Oard, M.J., *Ancient Ice Ages or Gigantic Submarine Landslides?* Creation Research Society Books, Glendale, AZ, 1997.
14. Oard, M.J., Mid and high latitude flora deposited in the Genesis Flood—part I: uniformitarian paradox, *CRSQ* **32**:107–115, 1995.
15. Oard, M.J., Mid and high latitude flora deposited in the Genesis Flood—part II: a creationist hypothesis, *CRSQ* **32**:138–141, 1995.
16. Francis, J.E., Growth rings in Cretaceous and Tertiary wood from Antarctica and their palaeoclimatic implications, *Palaeontology* **29**(4):665–684, 1986.
17. Huber, B.T., Tropical paradise at the Cretaceous poles? *Science* **282**:2199–2200, 1998.
18. Frakes, L.A. and Alley, N.F., Earthly Cretaceous ice rafting and climate zonation in Australia, *International Geology Review* **37**:567–583, 1995.
19. Price, G.D., The evidence and implications of polar ice during the Mesozoic, *Earth-Science Reviews* **48**:183–210, 1999.
20. Ladant, J.-B. and Donnadieu, Y., Palaeogeographic regulation of glacial events during the Cretaceous supergreenhouse, *Nature Communications* **7**(1277):1, 2016.

21. Rodríguez-López, J.P., Liesa, C.L., Pardo, G., Meléndez, N., Soria, A.R., and Skilling, I., Glacial dropstones in the western Tethys during the late Aptian-early Albian cold snap: palaeoclimate and palaeogeographic implications for the mid-Cretaceous, *Palaeogeography, Palaeoclimatology, Palaeoecology* **452**:11–17, 2016.
22. Rodríguez-López, J.P., Liesa, C.L., Luzón, A., Muñoz, A., Mayayo, M.J., Murton, J.B., and Soria, A.R., Ice-rafted dropstones at midlatitudes in the Cretaceous of continental Iberia, *Geology* **52**(1):33–38, 2024.
23. Frakes, L.A. and Francis, J.E., A guide to Phanerozoic cold polar climates from high-latitude ice-rafting in the Cretaceous, *Nature* **333**:547–549, 1988.
24. Rodríguez-López, J.P., Wu, C., Vishnivetskaya, T.A., Murton, J.B., Tang, W., and Ma, C., Permafrost in the Cretaceous supergreenhouse, *Nature Communications* **13**(7946):1–15, 2022.
25. Alley, N.F. and Frakes, L.A., First known Cretaceous glaciation: Livingston tillite member of the Cadnaowie Formation, South Australia, *Australian J. Earth Sciences* **50**:139–144, 2003.
26. Oard, M.J., [The first discovered Cretaceous glacial deposit](#), *J. Creation* **17**(3):10–11, 2003.
27. Ladant, J.-B. and Donnadieu, Y., Palaeogeographic regulation of glacial events during the Cretaceous supergreenhouse, *Nature Communications* **7**(1277):1–9, 2016.
28. Oard, M.J., [What is the meaning of dropstones in the rock record?](#) *J. Creation* **22**(3):3–5, 2008.
29. Oard, M.J., [Kelp could have produced abundant dropstones during the Flood](#), *J. Creation* **26**(2):3, 2012.
30. Oard, M.J., [‘Ice rafted’ dropstones from warm-climate cap carbonates](#), *J. Creation* **36**(3):9–10, 2022.
31. Price, ref. 19, p. 187.
32. Emory, K.O., Transportation of rocks by driftwood, *J. Sedimentary Petrology* **25**(1):51–57, 1955.
33. Oard, M.J., Ice age ‘indicators’ can form in warmer environments, *J. Creation* **29**(2):6–7, 2015.