A famous ice age deposit re-interpreted as a product of mass flow

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There was a period in the late 1900s in which some uniformitarian scientists came to doubt that most claimed ancient ice age deposits (tillites) were really glacial. Of the four ancient ice age periods, ranging from the late Paleozoic to the early Paleoproterozoic, the Neoproterozoic, 1,000–541 Ma, was the most questioned. Schermerhorn led the challenge.[1] In 1996, a 'classic Neoproterozoic 'tillite' in northern Norway, the Bigganjargga 'tillite' with two subparallel striae on bedrock and dropstone varvites, thought to be a diagnostic property of a real glaciation, was reinterpreted as very likely a submarine debris flow.[2,3] Tillite is considered lithified till, debris left over after glaciation, while dropstone varvites are lithified rocks commonly larger than the thickness of the layers.

Several geologists, especially Rampino, have challenged many tillites as being debris flows from impacts.[4–6] It is known, but mostly ignored, that mass flows can duplicate all supposed diagnostic features for supposed pre-Pleistocene ice ages.[7,8]

However, challenges to each of the four main ancient ice ages seem to have been mostly dismissed by uniformitarian geologists.

Snowball Earth

Most of the Neoproterozoic ice age deposits are marine, and, based on paleomagnetism, are thought to come from the equatorial latitudes. Thus, uniformitarian geologists have been forced to claim the outrageous hypothesis that the earth was totally, or almost totally, glaciated in the Neoproterozoic—about three separate times![9–11] Snowball Earth is a radical non-uniformitarian deduction, and the suggested mechanisms for the melting of each global glaciation are even more radical.

The Kingston Peak Formation is reinterpreted as a mass flow deposit

The 3-km–thick Kingston Peak Formation outcrops in numerous small mountain ranges around Death Valley in southeast California. It has been considered a product of one or two ancient Neoproterozoic ice ages,[12] with some of the formation considered glacial while other parts are landslide debris:[13]

> "The Kingston Peak Formation has long been viewed by some as a key repository of palaeoenvironmental information on which to base a palaeoclimatic model for Neoproterozoic ice ages involving global panglacials."[14]

Supposed diagnostic evidence for glaciation included matrix-supported breccia or conglomerate (figure 1), 'lodgement tillites', striated rocks, and dropstone varvites. Lodgement till is mostly considered glacial debris laid down below a glacier. Some debrites, the depositional product of a debris flow, were considered reworked glacial deposits downslope from a partially floating ice sheet.

A new analysis of the messy formation shows that all of it consists of a mixture of various mass flow debris, as well as normal sediments, that are fault controlled, likely by earthquake activity:[15]

> "From the preceding description and interpretations of lithofacies, it is evident that, with the exception of thin limestone horizons and volcanics, all facies of the Kingston Peak Formation are the product of sediment gravity flow [mass movement] processes in deep water well below wave base that were generated relatively proximal to source.

Image: Van Wingerden

Figure 1. Matrix-supported conglomerate from the Kingston Peak Formation is commonly considered a glaciogenic texture but is better interpreted as a mass flow deposit.

> The interbedding of olistoliths [heterogenous mixture of large blocks within sediment], debrites and turbidites all indicate the nearby presence of unstable fault scarps that exposed not only [sic] older pre-Kingston Peak Formation and Pahrump Group strata but also underlying crystalline basement gneisses and granites."[16]

Other Neoproterozoic 'tillites' may be non-glacial

The formation was deposited in a rift basin, similar to other such Neoproterozoic deposits in North America and other continents. This suggests these other diamictites are non-glacial:

> "Already, many classic 'glacial' deposits in similar Neoproterozoic succession have been recently confirmed to be debris flows preserved by rapid subsidence in tectonically-active basins on sedimentological grounds, and may be potential candidates for further application of this method."[17]

Conclusions

Several creation scientists have long studied the Kingston Peak Formation and determined that it was a gigantic mass flow deposit.[18,19] It looks like uniformitarian scientists are catching up.

The new interpretation shows how easily geological misinterpretations are made, especially when one looks at such underwater landslide deposits through the lens of ancient ice ages. It also shows that landslide deposits can duplicate all of the supposed diagnostic properties.

These landslide deposits were very early Flood deposits.[18] It appears many other Neoproterozoic deposits were also deposited as mass flows in rifts. Deep rifting, basin formation, and rapid deposition seems to be characteristic of the very early Flood. I would also include the Belt Supergroup of western Montana, northern Idaho, extreme northeast Washington, and adjacent Canada as deposits formed in a deep basin that two uniformitarian geologists believe was an impact crater.[20] The remarkable North American Midcontinental Rift would also be included in the very early Flood.[21] The very early Flood was indeed extremely catastrophic.

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