

Supersaturated magma may be significant for granite formation

I am writing about the article: Granite formation: Catastrophic in its suddenness.¹ I really liked the article, but was surprised that it did not mention the tendency for supersaturated solutions not to crystallize out even though at their temperature and saturation they would be expected to. They wait, and continue cooling until they have something to crystallize on, then the whole mass crystallizes more or less all at once.

I think this phenomena would be important to many things in geology, and in the case of granite it may explain how radiohalos, formed by the breakdown of short lived isotopes, can be captured in the rock. Even this may not explain the formation of halos caused by isotopes which break down in a fraction of a second, but it seems to me that it would be a plausible explanation for how isotopes that break down quite rapidly can accumulate at the centre of the halo. A few seconds perhaps?

Rapid crystallization of a supersaturated magma would seem to me to be a better explanation for granite formation than the rapid cooling of molten granite by fluids. Crystallization of granite from a supersaturated solution could effect the change from liquid to solid in a much shorter time than by the gradual cooling of the whole magma body.

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References

1. Walker, T., Granite formation: Catastrophic in its suddenness, *Journal of Creation* 21(2):13–15, 2007.

Tas Walker replies:

A good point. It is unlikely that uniformitarian geologists would ever entertain such an idea because, even with what they consider rapid crystallization, they would envisage cooling taking place over months or years. Under

these conditions where temperature changes so slowly, it is unlikely that a magma chamber could achieve a supersaturated condition, let alone maintain a supersaturated state for such a long time. But when we consider the sort of catastrophic changes that occurred during the global Flood, it is likely that changes in the properties of the magma, especially water content and pressure, could occur within minutes. Thus supersaturation would be a significant phenomenon in such a dynamic system.

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Volcanoes during Creation Week

In his paper about Lower Archaean stromatolites in Western Australia, Tas Walker comments on an article by Allwood *et al.*,¹ who describe the occurrence of stromatolites in the Strelly Pool Chert formation, a 23–102 m thick sequence of conglomerate, siliciclastic and tuff layers. Material from volcanic eruptions abounds in the lower and upper parts of the section, with stromatolites in between. Tas Walker argues for a nonbiological origin of the stromatolite structures and states,

‘From a biblical perspective, it is *inconceivable* that volcanoes would be active during Creation Week, depositing volcanoclastics and tuff such as comprise parts of the stratigraphic sections. These sections show abundant signs of catastrophe that point to large-scale watery and volcanic processes, so it is doubtful the material was deposited in the pre-Flood era [emphasis added].’²

Young-earth creationists have assumed that no volcanic activity occurred before the biblical Flood, and therefore, volcanic deposits must have been deposited either during or after the Flood. However, there is no need to assume that volcanic

activity, earthquakes and other geologic processes did not occur *during* the Creation Week. The biblical creation story does not preclude this possibility and we must be careful not to read our own ideas into the Genesis text.

The creation story indicates that during Days 2 and 3 the planet underwent a comprehensive reorganization from an unformed and chaotic state to an appropriate environment for life. In Days 2 and 3 of the Creation Week, God rearranges the water on the surface of the planet, placing some water in the atmosphere, and confining the water below into what we call oceans, leaving dry land suitable for the terrestrial organisms. In Day 3, God must have rearranged the continental rocks in order to provide topographic relief and land surface. We do not know how God carried out this job, and we can only speculate, God might have done it instantaneously without alteration of the earth’s surface, other than the drying up of the land. However, the movement of water entailed a major reorganization of the planet and its physical constituents, which likely involved considerable geologic activity. Whitcomb and Morris assert that ‘on the third day [of creation] was a tremendous amount of geological work accomplished.’³ They also suggest that Proterozoic rocks may have been formed as a result of the geologic activity on Day 3.⁴ Most likely all this geologic work required considerable tectonic activity, although the amount of tectonics that can fit into one single day remains unknown and is debatable.

I suggest that God might have used some of the geological processes that are known to operate today, including earthquakes, volcanoes, flooding and fluvial activity. Volcanoes might have been active during the separation of the water from the dry land on Day 3, so that in some parts thick, multiple layers of volcanoclastic material formed, and became part of the pre-Flood soil or underground. This possibility is not *inconceivable* as Tas Walker states in his article. Following the