

What cause columnar joint changes?

*Yugo Sakurai¹, *Yuki Enomoto¹, *Kanta Hayashibe¹

1. Yashiro High School

“Columnar joint” mean a hexagonal prism made from lava. When lava touch ground and is rapidly cooled causing volume contraction, they change into columnar joint. Even though scientists are making progress, there is no exact answer why there are difference in size and length between each columnar joint. We thought we may prove the environment of old period by discovering the answer, so we conducted experiments to clarify the causes.

It's hard to do experiment using lava, so we used cornstarch as a model of columnar joint. It's said most of their features are common with columnar joint because both them relate to volume contraction.

We named each container A~H and put cornstarch mixed with water, and dried.

A water:70g starch:30g container's depth : shallow way : Incubator 40°

B water:70g starch:50g container's depth : shallow way : Incubator 40°

C water:100g starch:140g container's depth : deep way : Incubator 70°

D water:50g starch:70g container's depth : shallow way : Incubator 70°

E water:50g starch:70g container's depth : deep way : Incubator 70°

F water:50g starch:70g container's depth : shallow way : Incubator 70°

G water:50g starch:70g container's depth : deep way : light bulb

H water:50g starch:70g container's depth : shallow way : light bulb

Comparing C with E, we found that the form of crack don't depend on the depth of container.

Comparing D and E and F, there are few differences between drying incubator and light bulb. However, comparing F and H, there are obvious differences between them.

Comparing A with B, we found that the more it contains cornstarch, the more crock become complex.

Therefore, we supposed the gap of ease of warming caused these differences. the more it's hard to warm, the more crows become complex.

In conclusion, we made a hypothesis that “whether lave become columnar jointing is depend on the gap of ease of warming between inside and outside” . It's still debatable, but it will contribute the development of geoscience.

