

## Volcanic Cave and Cave Topography

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### 1. Introduction

Jeju is a volcanic island located in the southwest sea of the Korean peninsula in the East Asia. It is an elliptic volcanic island formed long to the east and west on the basis of Mt. Halla which is an aspite. Large and small cinder cones(parasitic volcanoes) running into 370 places are scattered in all whole area there, including about 80 volcanic caves. Thereby Jeju becomes an academic investigation target from volcanologists all over the world.

In particular, Jeju includes large-scale caves such as Manjang Cave, Susna Cave, Micheon Cave, and Socheon Cave, including Villemot Cave which was the most famous cave in the world at one time. Also, lots of world-famous various geographical features of volcanic caves lie scattered there. Jeju has been taken the

full-scale international academic investigation since 1960s. It becomes a complex exhibition hall of the volcanic cave topography which can be thought as the treasure of volcanic caves throughout the world.

### 2. Formation Factor and Distribution Characteristic of Volcanic Caves

Originally, the formation factor and distribution characteristic of volcanic caves are closely related to geological structures. That is to say, the cave shape is directly correlated with the material and efflux state of a lava flow, especially the ground slope and the slope condition. Also, excessive flow of lava, the hardness of lava materials, the efflux speed, and environmental conditions in the ground atmosphere are closely related.

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The outside of a lava flow is cooled and consolidated and then formed the ceiling and wall of a cave. The inside of the lava flow flows down along the ground's slope and then forms a cave. At this time, the shape and geographical features inside the cave gets formed.

In a word, in case of geographical features in a volcanic cave, when lava flows out and is cooled and consolidated at first, vapor gases inside lava are combined and coagulated with lava and then a so-called cavity(empty space) is formed. At this time, lava stalactites, lava stalagmite, striations, or gas balls and so on are also formed.

Namely, in case of a volcanic cave unlikely lime caves, when the cave is formed at first, graphical features are also formed. Then it soon goes into the decline step being collapsed. Caves are densely distributed in a basaltic strata in Pyoseon-ri which is formed by an alkali basalt with weak adhesiveness and high fluidity.

The appearance of Mt.Halla in Jeju has a gentle aspite topography. The gentle slope like this results from a continuous efflux of

lava with high fluidity. Thereby it is identified that many caves are distributed in the foot of a mountain near to the coastline of Jeju.