

## Morphologic features and surface moisture content of sandstone tafoni developed in 1972 Amakusa disaster area

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Tafoni are well developed in the sandstone cliffs in Amakusa, Kyushu, Japan. They are found not only in the coastal area, but also mountain area with altitude of about 500 m. Especially, they are remarkable along some Paleogene sandstone ridges where numerous slope failures and debris flows were recorded at the 1972 Amakusa heavy rainfall disaster. A pile up of sandstone blocks also characterized foot of such cliffs, which is the result of rock fall from the cliff. Development of tafoni may bring about numerous rock fall and production of sandstone debris in there.

Size of tafoni observed in such cliff is variable, and ranges 0.1 to 5 meter in diameters. Upper roof of tafoni is usually concave, whereas lower floor is flat. Consequently, profile of them are similar one another in this area. And also they tend to develop on steep slopes characterized by massive coarse-grained sandstones and plunging structure.

Tafoni is generally known as one of micro topography formed due to salt weathering, and its evolution may be closely related to frequent change of moisture condition on rock surface. Therefore, surface moisture contents have been measured on inside walls and roofs of tafoni using a handy infrared moisture meters (KJT-100). Distribution of moisture content on rock surface shows that it takes highest value on concave roof surface, and this may be almost independent of weather condition and time. This supports that characteristic concave roofs have been formed due to high rate of salt weathering in high humid condition. More detail process of tafoni evolution and change of moisture contents on inside walls will be necessary to estimate the production rate of sandstone debris from unstable sandstone cliffs in those area.