

Non-destructive field measurement for investigation of deteriorated parts of an artificial cave

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Non-destructive measurements are useful methods for evaluating weathering degree without any damage on geoarchaeological sites. The present study aims to extract the deteriorated parts by using Silver Schmidt hammer and ultrasonic measurement on the Taya cave in Yokohama city. It is a manmade cave excavated from Kamakura to late Edo periods. Many sculptures and reliefs were carved on the surface of the cave wall made of soft rock. The cave has a complex three-layer structure with a total length of 570 m. Firstly, distribution maps showing cracks and exfoliation parts were created. Then, the points showing low rebound values and slow ultrasonic rates were plotted on the same map. After these on-site measurements, many dangerous parts were turned out within the worship route.

Keywords: Taya Cave, Silver Schmidt Test, Ultrasonic Rate