



## **Direction of the grow axis in stalagmite and their linkage to the past seismic events.**

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The past seismic event investigation using cave deposits could be based on the broken stalagmite, stalactites and soda straws that can furnish indirect evidences of large earthquake. Nevertheless, the interpretation of the hypothesis is tricky and must be tested with morpho-structural and mechanical resistance analysis. Logically, not all stalagmites in many regions have the same response to the earthquake event. For example, in Indonesia, which the magnitude of earthquake is generally higher than that of in Europe, the cave almost has no rupture. Based on this fact, in this research we hypothesize that how the cave deposits recorded the seismic evidences, depend on host rock formation of the cave. The signal of the seismic events may leave in cave deposits pattern of growth axis due to changes of base, wall or roof of the cave. By this hypothesis, the stalagmite growth axis deflection should be linkage to the past seismic event and can be examined.

We try to examine the direction of the growth axis of the cross section of the two stalagmite sample from Njirak Cave, in Trenggalek sub-district of East Java Indonesia. The sample has about 300 m distance and has similar pattern in growth axis direction. We estimate that the high deflection of the growth axis correspond to the high magnitude of the seismic event. Although the data do not justify yet with the historical and other record because their lacking in that region, the similarity of the two patterns has been proved good enough information of their response to the seismic event.