

## Natural remanent magnetization of tufa and concrete stalagmites

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Tufa and concrete stalagmites (we call them 'urban stalagmites') are the secondary deposits of calcium carbonate ( $\text{CaCO}_3$ ). Tufa is a rough, thick and rock-like calcium carbonate deposit that forms by precipitation from fast water steam with a highly dissolved calcium. Urban stalagmites form on floors by precipitation from dripping water seeping out from the concrete ceiling. We collected currently growing tufa and urban stalagmite samples at Nagaya in the Oga Limestone Plateau, Okayama and Shyosha campus of University of Hyogo, respectively. Progressive alternating field demagnetization and natural remanent magnetization (NRM) measurement show that both materials have a weak but stable NRM. Tufa samples show the mean NRM direction close to the present geomagnetic field direction in the sampling region. Therefore, tufa is one of useful materials for the paleomagnetic investigation. While, although urban stalagmite samples have the NRM directions roughly close to the field directions in each sampling point, a systematic direction error is recognized. Further investigations on it are needed. However, urban stalagmites are not useful for the paleomagnetic investigation, because the magnetic field in sampling points of urban stalagmites is generally strongly noisy.