



Monitoring of water flow inside stalactites of the Rochefort karstic laboratory

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The Royal Observatory has developed the « Dropmeter » which is an original gauge to monitor in real time the diameters of drops produced by the water flowing through stalactites.

After presentation of the technical design, we describe the way to simulate in laboratory the use of the system.

A series of « Dropmeter » was experienced in the karstic cave of « Notre-Dame de Lorette » in Rochefort city (Belgium).

Three stalactites were equipped with this sensor for a permanent monitoring at a sampling rate of one minute.

Analysis of records applies the HiCum stacking to extract geophysical modulations on different periodicities.

Interactions with different Geophysical parameters are confirmed. It concerns variation of signal in the spectral band centered on the diurnal thermal wave S1 (24h), the semi-diurnal atmospheric pressure modulation S2(12h), the lunar main wave M2 and some monthly waves.

In the non harmonic domain, the water flow seems to be modulated by the quantity of water in the vadose zone which is correlated to the precipitation.