



MAGY project: MAllorca hydroloGY over the last few centuries. Instrumental validation of speleothem archives

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Geochemical analyses of speleothems and cave monitoring offer a complete framework for cave systems concerning hydrological changes and climate variability at very different timescales. In this regard, one critical target becomes the period when paleoclimatic records overlap with the directly measured instrumental records of climate. In order to improve the interpretation of speleothems as paleoclimatic records and therefore elucidate past climate changes in the western Mediterranean region, the MAGY project intent is the comparison of a new collection of speleothem records from Mallorca Island, which spans the last centuries, with precipitation and temperature data acquired in the weathering station from the Mallorca airport. This information is particularly critical on this island which is likely to face high hydrological stress under the current conditions of climate change. The implementation of this study requires high-resolution trace element profiles obtained by LA-ICP-MS to detect even seasonality variability in the speleothems and parallel well-resolved age models. The combination of U/Th dating, the 14C technique, and the confocal laser scanning microscopy technique, which allows annual layer counting, will provide solid chronologies. Preliminary results show that the Mg/Ca signal corresponds with the precipitation patterns recorded by regional instrumental records.