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A survey of show caves in Greece

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About 30 show caves exist in Greece, which are scattered in both the mainland and the islands. Some of them are temporarily closed to the public due to maintenance reducing their number to 25. Show caves are the most important geotouristic feature according to Cigna and Forti (2013). They exist for at least 400 years and provide an income to more than 100 million people around the world (Cigna and Forti, 2013). In any case a viable development is crucial for any show cave and their environments.

This study investigates the status and the conditions of show cave development in Greece from the perspective of a geologist.

Methods

In order to collect data a survey has been created with questions based on the UIS Management Guidelines for Show Caves (see Cigna and Forti, 2013) about the suggested prerequisites of show cave development. In addition to that form, a second one has been added with information about the cave visitors per year and a number of fields related to the dimensions and geology of each cave.

The questions were of varied content about the cave visitors, the materials that have been used, the ideal lighting that have no effect in the biology and climate of the cave, the cave monitoring of parameters such as temperature, humidity or carbon dioxide, and how these data are treated and interpreted.

Results

In total 25 completed forms provided information about the conditions of cave development in Greece.

Regarding the entrance to the caves, the natural entrance is used in 56%, in which it has been opened and modified in 43%. Independently of whether an artificial entrance is used or not, a double set of doors it is used in only 28%.

The materials used in the caves are commonly compatible with the cave environment. However, at least in 21% non-compatible materials have been used and in other cases compatible materials have been used in a way that has a negative effect on the cave environment.

The pathway is only in less than 21% a continuous route, which means that visitors use another exit and do not repeat parts of the route. This results in twice the time spend in cave that has a negative impact on the cave environment. The group size varies from 8 to unlimited persons and depends only to the cave size. Furthermore, the breaks between groups vary from 5 minutes to unlimited, and depends on the visitors per day.

The lights along the pathways is a parameter that show improvement of the Greek show caves. Many of them have already installed proper lighting and others have included such changes in their plans. However, in 52% of the caves the lights are on during the working hours, independently of the visitors' presence.

The cave environment is monitored in only 40% of the Greek show caves for the parameters of temperature and humidity (unknown instrument precision) and only 28% report a carbon dioxide monitoring system. However, none of them reported a use of these records or scientific staff responsible for the data evaluation. Furthermore, only occasional collaboration with geologists has been reported and mainly with the Ephorate of Paleoanthropoloy and Speleology (Ministry of Culture and Sports) and with some Universities. The guides are part-time staff and they are mainly shelf-educated on speleological subjects (this may include also the attendance of seminars in speleological clubs). The aim in cave management are in most cases the advertisement of the cave (76%), the protection and conservation of each environment (20%) and new employment (4%). The visitor volume ranges for about 40% with data available, from 2.500 to 200.000 providing more than half a million euros income.

Concluding remarks

On the basis of this survey, the Greek show caves are important geotouristic destinations. However, it seems that Greek show caves do not conform perfectly to the standards of UIS Management Guidelines for Show Caves and the related literature (Cigna and Burri, 2000; Gillieson, 2009; 2011; Cigna and Forti, 2013; Cigna 2016). Entrance-related problems may be a closed natural entrance or an artificial one without an efficient air lock system. Pathways that doubles the visitors' stay inside the cave, combined with group size and frequency based on demand instead of environmental studies, is also a potential hazard. In addition, the absence of monitoring systems and scientific staff makes difficult the evaluation of the conditions in each cave.

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