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The Gypsum Karst of Sorbas

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Old habits are as binding as a suit of armour, as the English saying goes. Conservation of the natural environment has tended to center on its living components – flora, fauna, habitats and ecosystems. Since the last decade, the value of geological resources has been recognized, as assets that form an inseparable part of the natural and cultural heritage of the countryside, in other words, of the history of the Earth and the evolution of life. The Geo-diversity Conservation Strategy of the government consolidated and integrated the conservation of the geological heritage into general environmental policy.

The geological heritage helps to discover, study, and interpret the geological evolution of the Earth and should be considered as an additional natural and cultural asset in the socio-economic development, as in archeological and ethnographic heritage.

The book's full title is *The Gypsum Karst of Sorbas – A Subterranean Journey through the Interior of Gypsum, Almeria, Spain*. The “Gypsum Karst of Sorbas” and the numerous caves and sinkholes are most unique and distinctive geological settings. Nearly one thousand caves are concentrated in only 12 kilometers, forming one of the most important evaporitic karsts in the world. The subterranean network, extending for tens of kilometers beneath the arid, gypsiferous desert, contains the largest karstic complex and the longest cave in Spain with more than 8 km of galleries.

Karstification in gypsum: The process of karstification – the

formation of caves and related surface features – arises from the gradual dissolution and erosion of gypsum rock; the rates of which on the ground surface, were several times greater than the rate within the caves. The average lowering of the gypsum ground surface is 30 cm. Every 1000 years the galleries of the cavities “grow” by about 10 cm in width.

The gypsum karst landscape: The word, “exokarstis”, is used to refer to all the surface relief features generated by karstification. The Sorbas Karst is characterized by an enormous number of dolines, variety of karren, the tumuli and the scarp along the edge of the gypsum outcrop. A doline is a closed depression of karstic origin that collects the rainwater running off the ground surface and allows its infiltration. Karren or lapies are the surface solutional features, formed on the surface of the rock due to karstification. Tumuli, formed under extremely arid conditions and caused by the upward-doming of the uppermost layer of the gypsum into a hemispherical form, are one of the most unusual and least-commonly described surface features, frequently associated with a gypsum karstic landscape. The gypsum scarp, a cliff along the edge of the gypsum, is associated with strong contrasts in lithology and structure between the gypsum and the surrounding rocks of marls and clays. Karstic springs are the arteries or the true heart of the karst of the Sorbas Gypsum Karst complex. Some examples of springs, the “underground rivers”, are photographed and explained in the book: Los Molinos Spring, Las Vinicas, El Tesora, El-Peral, Los Apas, El Infierno, and El Fortuna. Also, some caves were photographed and explained, such as La Cueva del Agua and Covadura Cave. The gypsum strata area also formed out of large crystals between which water can slowly infiltrate and even along the intercrystalline planes

(exfoliation planes) to dissolve the gypsum. This reaches the caves and tends to evaporate, leaving behind mineral salts in the form of gypsum speleothems. Stalactites, “gypsum drop by drop”, gypsum balls, “cave perspiration”, and sand hollow stalagmites are well known in the Sorbas Gypsum Karst.

The karstic environment is a fragile one and needs systematic protection to defend it against actions that might have repercussions for the stability of the complex.

The expansion that the Sorbas Karst has undergone in recent years has drawn a great many people to visit it, motivated both by its speleological value as well as by its value as natural space. The book is very useful for karst scientists, speleologists, environmental geologists, and artists all over the world and may be ordered through the publisher or via e-mail: cm@callemayor.es

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