

# KARST ECOSYSTEMS IN ALBANIA

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## Abstract

Albania is one of the most karst developed countries in Eastern Mediterranean Alpine Chain. Carbonate and evaporate rocks cover of about 23% of total surface of Albania.

The Stages of karst development are divided in two groups:

a- Triassic -Palaeocene-Eocene stage

b- Palaeocene-Eocene up to nowadays karst stage.

Karst is developed mainly during second stage, with which is linked morphology of karst processes.

In Albania there are developed surface and underground karst processes, expressed with different forms such as: Karst holes, depressions, lapieses and up to large forms karst fields and karst caves.

The main factor influencing to the karst development it is tectonics.

Development, extension and dynamics of karst in Albania have conditioned different karst ecosystems.

These ecosystems are expressed in main natural components such as: relief, hydrography, living world, soils, and management of ecosystems by human beings.

In Albania there are widespread large karst fields which cover tenths km<sup>2</sup>. Amongst them we can name:

Mbi Shkodra Karst field, Mali me Gropa ("Mountain with holes"), Bjeshket e Vermoshit, Lepusha, Kurveleshi Plateau, Cajupi, Tomorri et .

In Karst ecosystems there is noted hydrography of specific features expressed on surface and in underground of carbonate massifs. Carbonate massifs represent natural basins for collection of large water reserves. The biggest water springs there are: Blue Eyes artesian springs in Delvina region

Selita springs in Mali me Gropa, east of Tirana

Cold water springs in Tepelena region

Big water springs in Albanian Alps

Bogova springs in Skrapari region.

Kelcyra old water springs.

In Karst springs there are determined high content of bicarbonate ions. Commonly they are cold-water springs of low temperature. On the surface of carbonate rocks there are widespread agricultural soils which cover 30-40% of total agricultural soils. These soils are of good chemical, physical and biological features useful for natural and artificial plants.

Karst ecosystems in Albania are of different biological forms.

Albania is one of the richest countries in biological diversity related to its small surface.

Water springs in ecosystems are of different views. In soils of full profile there are grown high forests such as in Tomorri, Dajti, Albanian Alps, in Morava et .

Water springs are linked with location of karst biotemperature.

In karst location regions there are grown endemic and subendemic plants such as: *Vulfemire balda*, *Leu ojum*, *Valentinium*, *Cropis albani* etc.

Animal world in karst ecosystems is linked not only with climate conditions and foods but with special environments founded due to the karst forms. Amongst them we can determine: *Tiliodroma Muresia*, *Sitta Alumayer*, *Alps melba*, *Columba liria*, *Riparia Siparia*, *Budobudo* etc.

In clean waters, especially in cold water springs there are different species of fishes such as: *Salmo trutia fari*, *salmo trutia merostigma*, *A. trutia peristerius* etc. These are species commonly living in Blue Eyes springs, in Cemi river, in Valbona river etc.

Of special importance there are underground ecosystems in Albania. Underground Karst ecosystems are constituted by karst caves with a lot of natural karst forms just as monuments. There are formed vertical caves, wells and funnels as well.

The study and exploration of caves in Albania was not so easy and it begun last years. Special contribution has done by the Society of Albanian Speleologists.

Amongst the main caves we can name:

**Puci Cave** in western Albanian Alps 1087 m above the sea level. This cave is of five stores, more than 5 km long and 236 m deep. It is one of the most interesting caves in Europe. At its bottom there is placed an underground lake.

**Njerezite Lagur (Wet people) cave** in Western Alps, Shkodra region. It is placed 2050 m above the sea level. Up to now there is explored only 2 km. This cave has vertical development with a lot of wells interrelated with each other. Total depth of this cave is 347 m. It is one of the deepest caves in Europe.

**Black Cave** 27 km to the southeast of Tirana in Pellumbas Village. It is 360 m long. It is placed 650 m above the sea level. It has unique scientific, cultural, archaeological, didactical and tourist values. In this cave there are found skeletons of prehistoric speleans which belong 10 000 till 40 000 years before and remains of human culture since Paleolithic till early Renaissance.

In Albania there are identified only of about 1000 caves.

- The important values of natural, aesthetic lands apes in Albania it is need to be managed for human world in the following manner:

- Development of familiar tourism and white tourism (in winter).
- Building of large tourist camping in mountains.
- Sport development especially winter sports in highlands.
- Karst caves represent unexplored scientific source for geologists, geomorphologists, geographers, hydrogeologists, biologists, archaeologists etc.
- There is need to put in service of human society water resources, mineral deposits etc. We recommend sport development, alpinism, ski sport etc.
- It is the time to remember necessity of good management, preservation and conservation of Albanian nature including karst phenomena.
- We hope that with our paper: "Karst Ecosystems in Albania" are contributing to the IGCP 448 Project Correlation of World Karst Ecosystems".