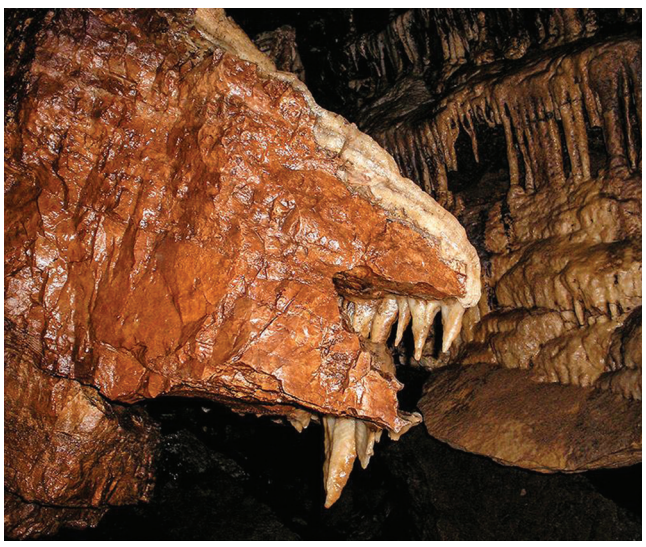
Karst

The karst strip of Georgia is a world–class example of karstification, with a variety of surface and underground karst landscapes. Karst and pseudo–karst phenomena and the landforms created by them occupy 17.9% of the total territory of Georgia, or 12,454 km^2. In Georgia, all regions of Upper Jurassic rock, as well as those of the Cretaceous system and Lower Paleogene, are karstified. Because of ideal conditions for karst formation, karstification in Georgia extends down 4000 meters, a phenomenon unmatched elsewhere in the world.

The limestones are represented by rocks of Upper Jurassic, Cretaceous and Lower Paleogenic age, and by fragmented rocks incorporating a limestone cement (conglomerates, sandstones and breccias), which host the Neogene and Quaternary age clastokarst. There are significant areas of pseudokarst in the Miocene–Pliocene clays and clay stones (0.8% of Georgia, or 523 km^2) and in the Upper Eocene gypsum suite (1% of Georgia, or 694 km^2). Natural cavities can also be found in the effusive rocks (5.9% of Georgia, or 4117 km^2), occupying a wide area in southern Georgia.



Melouri Cave (Photo: Roman Tolordava)

The karst landscape is well expressed in western Georgia, where it is found in a continuous strip 325 km long, the width varying from 2–3 km to 30–35 km, stretching from the Psou River to the region surrounding Ertso Lake. This limestone strip receives abundant atmospheric precipitation all year round, which leads not only to an intensive, but also a continuous, karstification process, especially in the medium– and low–mountain limestone massifs. Karst processes also occur in other regions of Georgia; however, due to unfavorable geological and climatic conditions these are weakly reflected in the karst landscape.

The medium– and especially the high–mountain massifs of the karst strip of Georgia (Arabika and Bzipi) contain classic examples of deep abysses. In this zone the Earth's deepest karst abysses are found (Krubera at 2197 m; Sarma at 1830 m; Illyuzia–Snezhnaya–Mezennogo at 1753 m; and Pantjukhina at 1508 m) as well as its deepest karst–hosted water systems (Napra–Mchishta at 2345 m; and Illjukhin–Reprua at 2307 m).

The low mountain and foothill karsts are distinguished by the considerable density, frequency and large size of their sub–horizontal and horizontal caves. The capacity of Akhali Atoni, one of the largest caves of Georgia, formed in the sub–horizontal layers, exceeds 1.5 million m^3, and more than 130 caves have been discovered in sub–horizontal layered limestones of the Zemo Imereti plateau.

The medium– and high–mountain limestone massifs of the karst strip of Georgia are also distinguished by an abundance of snow and ice caves. In particular, the upper section of the Illyuzia– Snezhnaya–Mezennogocave system is occupied by a centuries–old firn–glacial cone at a depth of 200 m.

Large high–debit underground river systems (Mchishta, Rechkhi, Tschkhura, Tsivtskala and Deidzakhi) tens of kilometers long are situated in Georgia. The Mchishta vaucluse is a natural wonder of Georgia and one of the unique wonders of the world. Its water discharge is 1.5 m^3/s during low water, but the multi–year mean water discharge is 9.5 m^3/s and the maximum water discharge 200 m^3/s.

Within an individual massif, there are both hanging springs (streams) of the aeration zone and springs related to the full saturation and depth circulation zones. The outlets of the hanging springs are related to the aeration zones, particularly to their lower parts, and are represented by amazing episodic and permanent waterfalls.

Within the karst strip of Georgia, there are many clastokarst caves. They are mainly found in the Central Odishi (Samegrelo) and Duripshi Plateaus. They are also found in other places in Apkhazeti and Samegrelo. Nazodelavo (length 600 m) and Kalichona (830 m) caves, occurring in conglomerates and sandstones, are the longest caves in the Caucasus.

Zakariasklde Cave (Photo: Lado Mumladze)

Ghliana Cave (Photo: Kukuri Tsikarishvili)

The pseudo–karst (suffusive) phenomena are related to clays with gypsum composition and sandstones, and occur occasionally as small wells, caves and hollows in Kvemo Kartli, Trialeti Range, Guria Hill, Samegrelo and other regions. Clay karst is found in relatively smaller forms in Kartli and Kakheti.

At present, the number of detected karst caves exceeds 1500; their total length is 275 km.

Muradi cave (Photo: Archil Gegenava)

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Karst

Caves

1. Krubera Cave – the deepest vertical cave in the world.
2. Mchishta Vaucluse – the biggest karst vaucluse in the Caucasus region.
3. Akhali Atoni Cave – the first show cave in the Caucasus region.
4. Kortskheli Cave – the longest cave in sandstones in the Caucasus region.
5. Kalichona Cave – the longest cave in conglomerates in the Caucasus region.
6. Chochkhati Cave – one of the rare horizontal caves in pseudokarst features.
7. Ghliana Cave – the biggest bat's colony in Georgia.
8. Prometheus Cave – the most visited show cave in the Caucasus region. Also, it is the longest cave in Georgia.
9. Tetra Cave – first speleotherapy cave in the Caucasus region.
10. Sataplia Cave – the show cave with historical interest (footprints of dinosaurs).
11. Tsutskhvati Cave – the cave with 13 levels.
12. Tskhrajvari Cave – important paleontological cave (ursus spelaeus).
13. Muradi Cave – interesting cave with beautiful examples of pool speleothems.
14. Nikortsminda Cave – the cave with ice in carbonate rocks.
15. Shaori Polje – the biggest karst polje in the Caucasus region.
16. Dzudzuana Cave – the ancient linen fiber (thread) place in the world.
17. Tsona Cave – important paleontological cave (human's former dwelling).
18. Khorkhebi Cave – the cave with ice in volcanic rocks.
19. Lisi Cave – one of the rare vertical caves in pseudokarst features.
20. Vejini Cave – small beautiful horizontal cave in pseudokarst features.

Carbonate Rocks
- Limestones and dolostones
- Conglomerates and sandstones

Pseudokarst
- Clays
- Clays and sandstones with gypsum content
- Volcanic rocks

Karst objects

BLACK SEA

RUSSIAN FEDERATION

TURKEY ARMENIA AZERBAIJAN

0 15 km
0 15 mi