

Geology: How was Crete created?



Dense vegetation and hard rocks dominate the mainland of Crete. Geological loss, cracks, and folds are evident almost everywhere. Gray limestone on top of mountain peaks, vertical cliffs, deep and narrow dark canyons, shining greenish shale, pale foliage, off-white limestone eroded by rain and wind, fertile yellowish marls - are all here. It is not to wonder why Crete is a color island.

AND A LITTLE HISTORY.....

More than 500 million years ago, the area of Crete was immersed in the vast sea of Tethys. The sediments that the rivers and the winds passed along the coast of Pangea were gathered and mixed with the shells of marine organisms, forming layers of rock. About 200 million years ago, Pangea began to break into pieces, forming the continental plates. 70 to 55 million years ago, the plaques of Africa, India, and Eurasia violently collided, lifting the bottom of Tethys and forming a chain of mountain ridges from the Atlas and the Pyrenees to the Alps and then the Caucasus and the Himalayas.

Part of this chain was the area of the Balkans and Asia Minor. That was when it started to create what a Dinarotauric arc. This mountain arc starts from the Dalmatian Alps, extends along the Aimos area, crosses the Greek territory and ends in the mountain range of the Taurus in Asia Minor. Crete was originally submerged in the center of the arc.

About 20 million years ago, the northeastern edge of the African plate began to collide with the Asian. 5 million years later, the Arabian Peninsula and Asia merged and the remaining part of Tethys was trapped between the three continents and formed the Mediterranean. At the same time, Crete, the Cyclades and the rest of the Aegean islands were elevated and constituted a common land linking the Greek continent with Asia Minor. Two large lakes in the present North Aegean and the current southern Crete were formed.

Crete was very close to the collision of the plaques of Africa and Eurasia, with the African moving under Eurasian. A bit further an arc of active volcanoes was created that ejected the magma from the melting of the sunken part of the African plate. About 12 million years ago, this single coast began to break and in 4 million years Crete was split. The bridges with the Peloponnese broke down forever 5 million years ago and Crete was an archipelago with low islands and shallow seas. After lifting it for about 3 million years, it took its present unified form.

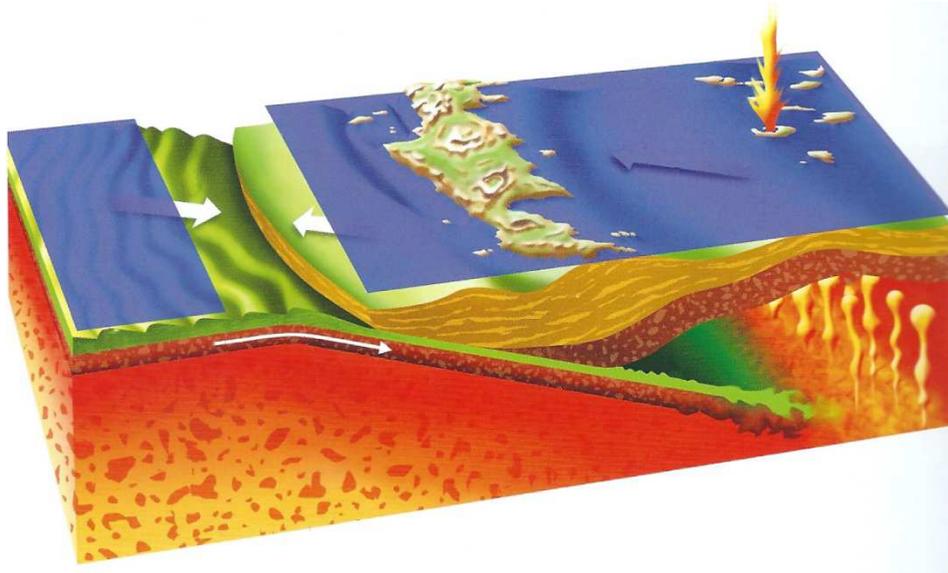


Image source : Crete, a continent on an island (2015), Demos Tsantilis, Natural History Museum of Crete

ROCKS

All these geological redevelopments formed a wide variety of rocks. The Cretan land hosts rocks formed during the “Tethys Sea”, sea phase and layers created during the elevation of the soil. There are at least 7 species of these layers in Crete, which is the largest number in Greece, with three of them dominating. These three, starting from the lower ones, have squamous limestone, the formation of Tripolis (limestone as well) and the phyllitic quartzite. Other formations, rarer, are the formation of Asterousia and the ophiolites (volcanic rocks).

GORGES IN CRETE

Most gorges of Crete start from a rift. From that rift, the rocks have been broken and the mountains have risen. The gorges are created because the mountains are lifted, which causes the water to dig even deeper into the rocks. Particularly rocks that have carbonate composition witch covering 70% of the area of Crete.

Sources: <https://www.pancreta.gr> / <https://www.cretanbeaches.com> /

GORGES AREA OF SITIA

Pefki gorge

The Pefki Gorge (less known as the Anagyron Gorge) is one of the most beautiful gorges of Eastern Crete, with amazing formations of its rocks from the influence of natural forces and intense vegetation. Its length is approximately 4.5 km and the altitude difference between inlet / outlet reaches 300m. It starts south of the village of Pefki Sitia and ends at the settlement Aspros Potamos, 2 km north of Makrigialos. Its stream gathers the waters from the area south of the ridge Romanati (937m) and takes them to the beach of Analipsi. In the gorge, there is a well-formed path, part of the European path E4, which follows the river bed almost all along its length. In some places, benches have been placed for rest and stairs that make the descent which can last for 2 hours smoother..



THE ROUTE

The route starts a little further south than the Peaks, where the characteristic yellow and black signs of the E4 trail, point to the access to the entrance to the gorge next to the old water mill of Elias (1925). From there follow the comfortable path on the side of the gorge and shortly afterward follow the downhill path leading to the riverbed, at the heart of the gorge. The gorge is green, full of pine trees (hence its name). Next, to the riverbed, the vegetation is covered with plane trees and herbs, while the formations of the whitish rocks that exceed 100 meters in height will impress you.

As you reach the southern exit of the gorge, you will come across a source of crystal clear water to which you can cool. The exit of the gorge is not at sea but higher, very close to the Aspros Potamos (white river) settlement that has become an impressive agrotourism accommodation. Below you will see the enormous impressive rock called Volakas of the Saracenus ("Volakas" means rock in the Cretan idiom). According to tradition, there was a Cretan pirate hiding in Crete. There are also many small rocks on the rock. Tradition wants these stones to be a kind of play: the passing kids were throwing stones to see whether they would find food or not. If the stone was left in the bush, then they would find food otherwise they would stay fasted. Right below you reach the Aspros(white) River, where the road that connects Makryialos with Pefki village passes. If no-one waits for you in a car, you have to walk the other 2 kilometers to Makryialos.

ADDITIONAL INFORMATION

Prefecture: Lassithi Type: Hiking Water Existence: Has Water to Spring Length (km): 4.5 Altitude Difference (m): 310 Difficulty: 1 Hours: 2 Access: Asphalt

Canyon of dead in Zakros

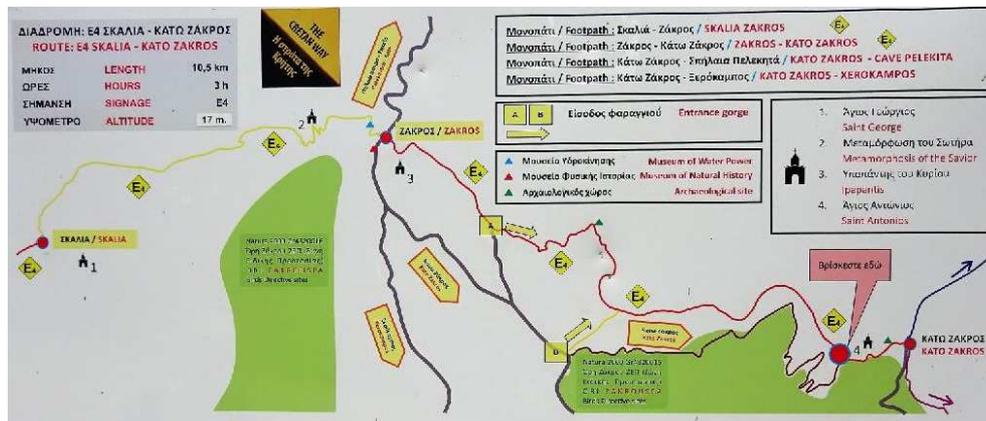


Just a short distance from Pano (upper) Zakros, almost 100 km southeast of Agios Nikolaos, begins the beautiful Gorge of Kato Zakros or Gorge of the Dead, which ends in Kato Zakros and is part of the European path E4. Its riverbed gathers the waters of two main streams, of Akadvas and of Pano Zakros, which are united in the Lenika site. The beauty of the landscape, its historical significance, and easy accessibility attract a large number of visitors every year. Road signage in the area is very good, and a section that was difficult in the past and referred to as "difficult" in many travel guides, has now been completely overcome.

It is an exceptionally beautiful canyon with large caves on its walls. In some of these caves there were found tombs from the Minoan era and within them finds of great archaeological value. Due to these graves, the gorge is called "The Gorge of the Dead" and the caves "Caves of the Dead". Approximately in the middle of the gorge, a short path ascends to the Kastela hill to the north of the gorge, where a Minoan fortification has been identified.

THE ROUTE

For easy access to the gorge, you can leave your car at the entrance of the gorge, near the village of Pano Zakros, and cross the gorge, reaching about 2 hours in Kato Zakros where you can enjoy your swim and food on the beautiful beach of the village and visit the Minoan Palace of Zakros. There is also a second entrance for the gorge, approximately in the middle of the road connecting Pano with Kato Zakros.



ADDITIONAL INFORMATION

Prefecture: Lassithi Type: Hiking, Signed, E4 path Existence of water: It has water until spring

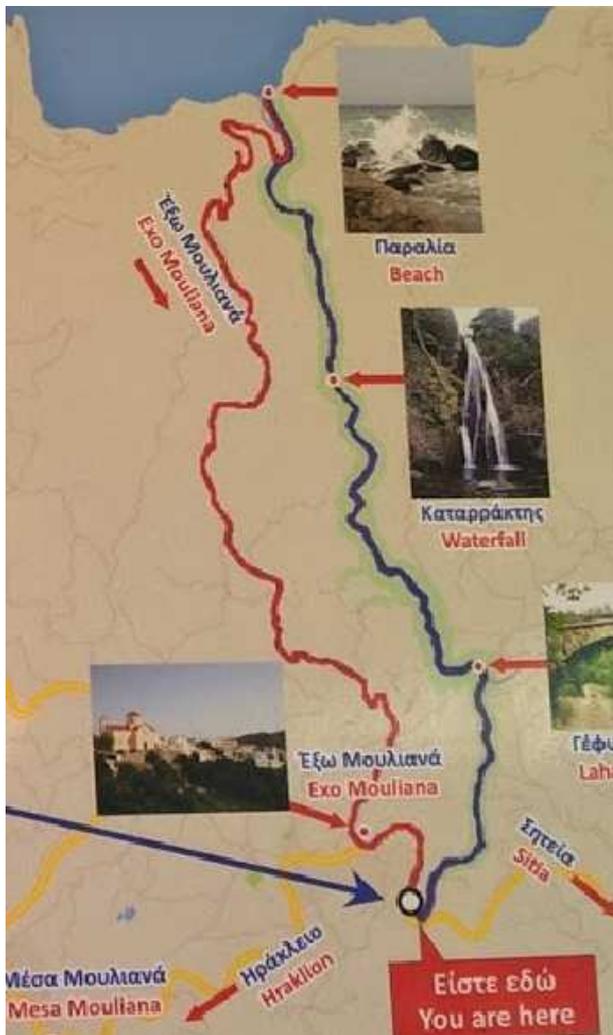
Length (km): 4 Altitude difference (m): 150 Difficulty: 1 Hours of Route: 3 Access: Asphalt

Richtis gorge



Richti Gorge is located on the northern side of Lassithi Prefecture, between Agios Nikolaos and Sitia. The path that crosses it starts northeast from the village of Exo Mouliana and ends at the rocky beach of Richti, east of the village of Kalavros. The total length of the route is approximately 3 kilometers and the altitude and entry altitude difference is approximately 350 meters. The gorge even in the summer has plenty of water, which is collected in a tank. It gathers the waters of the Drimias mountain (918m) through two main streams, Lahana and Mesa Mouliana, which are united near the beginning of the path.

THE ROUTE



The canyon can be crossed within three to four hours on foot, depending on the walking pace. The route starts from the stone arched bridge of Lahana, where, during the exchange of populations (Greece - Turkey), it is said that the Christians killed the Turks of the region, who were trying to go to Sitia to leave for Turkey. The route continues in a verdant scenery in the river, which is an oasis of coolness in Eastern Crete. Platans, oleanders, and sage are countless and smells of aromatic plants alternate continuously. An impressive presence - a footprint of the past - is the old watermills that the visitor encounters in its passage.

The culmination of all, however, is the beautiful 20 meter high waterfall of 20 meters high, which forms a wonderful pond at its base and gives its name to the entire gorge. The word richtis means "waterfall" in the Cretan idiom and is found in many place names of Crete, (rictis, riktara, etc.). The waterfall has water even in the summer and one can enjoy swimming in the pond. Next to it is a bench, under the plane trees, which makes the relaxation really enjoyable. A beautiful ending on the way is the exit from the canyon on the beautiful pebbled beach of Richti, where there is a small woods with trees, stone chairs, tables and a stone fountain with drinking water.

ADDITIONAL INFORMATION

Prefecture: Lassithi Type: Hiking, Signed Existence of water: Has water until spring Length (km): 5
Altitude difference (m): 650 Difficulty: 2 Hours of Route: 3 Access: Asphalt