ROUTE OF VOLCANIC CAVES

AZORES ISLANDS

Associação
OS MONTANHEIROS

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Credits

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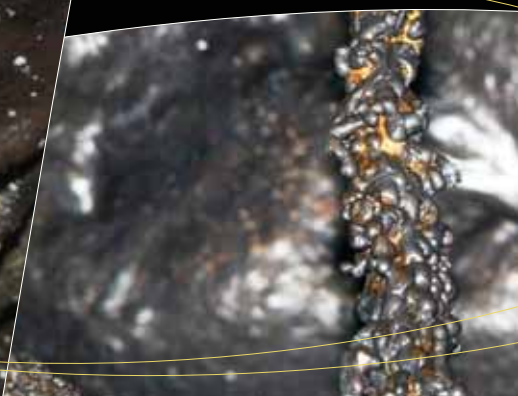
VOLCANOES AND CAVES

All the Azorean islands are of volcanic origin and they correspond to elevations of the ocean floor, due to the accumulation of volcanic products. The islands extend over a band about 600 km long and are aligned on several WNW-ESE tectonic lineaments. The archipelago is located in a very active seismic and volcanic area that corresponds to the junction of three major tectonic plates: the Eurasian, North American, and African plates. Since its Portuguese settlement, in the 15th century, 26 volcanic eruptions are reported for the Azores region, 14 of them submarine.

The volcanic caves, even if not worldwide occurring very frequently, can be found in several places where the magma rises to the surface. Along with other places, there are volcanic caves in the Azores, United States of America, Hawaii, Galapagos, Canary islands, Iceland, Italy, Japan, Kenya and Korea.

Volcanic caves, either lava tubes or volcanic pits, display a wide diversity of structures such as: *pahoehoe* and *aa* lavas, skylights, benches, lava stalactites and stalagmites, secondary stalactites and stalagmites (of silica, calcite, gypsum and iron oxides and hydroxides), colored layers of weathered/oxidized basalts, lava balls, gas bubbles, flow marks and *levées*.



AZORES VOLCANIC CAVES

Due to the volcanic nature of the Archipelago and the presence of several lava flows of basaltic type, the islands offer a diversified speleological heritage. Presently 271 natural caves are known, corresponding to many kilometers of underground paths, with peculiar features and live forms. These caves are of different types: lava tubes, volcanic pits, fractures and erosion caves.

The Azores volcanic caves are distributed throughout the islands of Pico (129), Terceira (69), São Miguel (28), São Jorge (19), Graciosa (10), Faial (9), Santa Maria (4), Flores (3) and no caves are known in Corvo Island.

In the Azores, the largest existing lava tubes are Gruta das Torres in Pico island and Gruta dos Balcões in Terceira island, with 5150 m and 4421 m respectively. The Morro Pelado and Bocas do Fogo volcanic pits in São Jorge island, with 140 m and 120 m respectively, are those with greater depths.

The Azores caves shows a unique cave fauna that includes 20 troglobian endemic species. Many of the autochthones ground-beetles species are known from Pico Island and among the endemic species are a blind ground-beetle which can be found only in the Água de Pau cave (São Miguel Island).

THE "GESPEA" WORKING GROUP

The "GESPEA – Working Group on Volcanic Caves of Azores" was created in 1998 by the Azores Government, aimed to study this natural heritage, given the singularity, rarity and importance of some Azorean caves in terms of ecologic, aesthetic, scientific and cultural values.

This Group, as a government consulter committee, is especially devoted to help Azores Government and other public institutions on initiatives concerning the Azores volcanic caves and in general regarding the study, promotion, conservation and management of the Azores speleological heritage. The initiatives carried out during the last years allowed the classification of several caves and pits from the Azores, the development of an inventory and data base system and the recognition of the scientific and educational importance of this natural heritage. Also, given the recognition for their scenic value, some caves were provided with conditions for tourist exploitation among which are Gruta do Carvão (S. Miguel Island), Gruta do Natal and Algar do Carvão (Terceira Island), Furna do Enxofre (Graciosa Island) and Gruta das Torres (Pico Island). These caves and its visitors centers are under management of the "AZORINA - Sociedade de Gestão Ambiental e Conservação da Natureza, SA" or by the "Associação Os Montanheiros" and "Amigos dos Açores" environmental NGOs, in cooperation with the Regional Government Environmental Office.

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ALGAR DO CARVÃO

The Algar do Carvão ("Charcoal Pit") is located in the central part of Terceira Island and, reclassified in 2004, is part of the Azores Regional Network of Protected Areas. The vent of the volcanic pit has 17 by 27 m size and is connected to a peculiar conduit, that ends in a lake of crystal clear water, around 80 m deep in relation to the uppermost part of the pit. The lake, which is formed by rainwater, has a maximum depth of about 15 m and dries up almost completely in summer.
The Algar do Carvão pit exhibits many stalactites and stalagmites of amorphous silica that can reach about 1 m in length and 40 to 50 cm in diameter, quite probably the most exuberant, rare and beautiful structures present in the volcanic caves of the Azores.
The first descending of Algar do Carvão dates back to 1893; however, the first organized descending took place in 1963. After a great effort carried out by the "Associação Os Montanheiros", an association for speleological exploration, it was possible to open this volcanic pit to the public on December 1st, 1968.
The Algar do Carvão scoria cone, its crater and a significant part of the volcanic conduit have a remarkable flora, and inside the pit there are several endemic species of the Azores and Macaronesia fauna, that includes the main population of an endemic troglobian spider.

ALGAR DO CARVÃO (TERCEIRA ISLAND)
MAR / APR / MAI & OCT – daily (15:00 - 17:30h)
JUN & SEP – daily (14:30 - 17:45h)
JUL & AUG – daily (14:00 - 18:00h)
Other timetable: with previous booking • Entrance: until 15 min before closing
T 295 219 992 • montanheiros@montanheiros.com
GPS: 38°43'42"N / 27°13'00"W

GRUTA DO NATAL

The Gruta do Natal ("Christmas Cave") is a branched lava tube located in the central part of Terceira Island, in-between semi-natural pastures and a nice small lake, inside a NATURA 2000 Network's protected area. The cave was probably formed in lava flows extruded from Pico do Gaspar cone and associated eruptive fissures, about ten thousand years ago.

With approximately 697 m in total length, the cave is characterized by an almost flatten pavement and high ceilings, allowing an easy walk inside it and where several structures can be observed, such as grooved walls, branched galleries, superimposed passages, lava stalactites and stalagmites, leveés and nice pavements of aa and pahoehoe–type lava flows.

On December 25th, 1969 the "Os Montanheiros" NGO opened the cave to the public and organized for the first time a Christmas Mass inside it, a tradition that continues till today. In 1998, once ensure the necessary safety conditions, begun the touristic management of this cave, offering to the visitors two different paths inside the volcanic cave.

In the visitor's center there is a photographic exhibition concerning the relevant historical and social activities that took place in "Gruta do Natal", including baptisms, mass and a wedding.

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JUN & SEP – daily (14:30 - 17:45h)
JUL & AUG – daily (14:00 - 18:00h)
Other timetable: with previous booking • Entrance: until 15 min before closing
T 295219992 • montanheiros@montanheiros.com
GPS: 38°44'15"N / 27°16'07"W