

MA04PG

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Igneous rocks of the Rafal d'Ariant

Location



Municipality: Escorca

U.T.M. coordinates (31N ETRS89): X: 493098
Y: 4416161



Difficulty and duration



2 h 30 min

Access

The Rafal d'Ariant can be reached by two different routes that cross the public property of Mortitx. They both start near the houses of Mortitx, at P.k. 11 on the Ma-10 road from Pollença to Lluc.

One of the routes runs through the hilly zone of the Cementer de la Coma and the Serra Mitjana and then descends to the houses of the Rafal d'Ariant, while the other takes advantage of the bed of the Mortitx torrent. They both take more or less the same time.

Principal interest

Petrographic

Secondary interest

Mineralogical, tectonic

Description of the locality

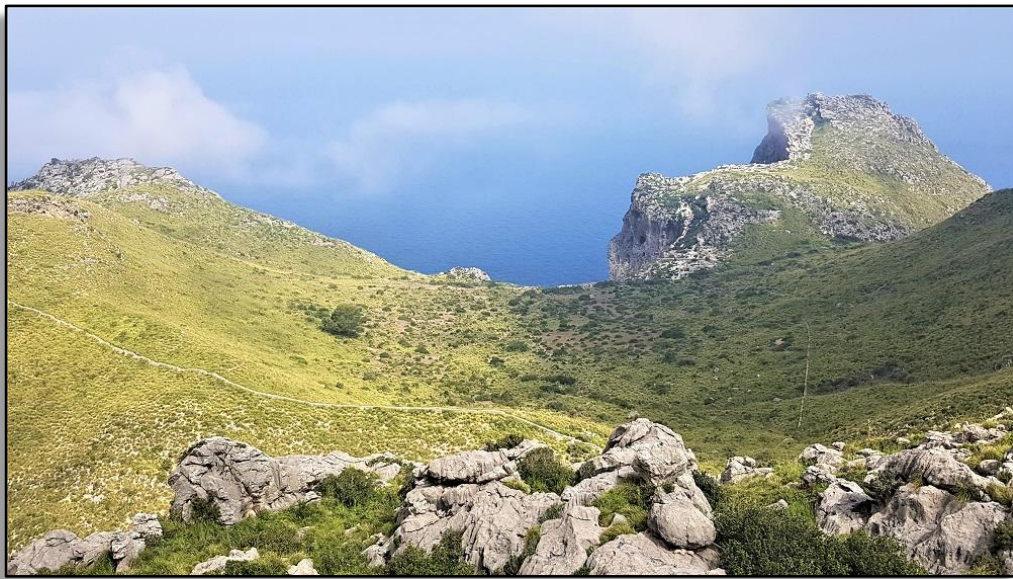
Although, as is well known, Mallorca is not an island of volcanic origin, it does have some points where rocks of magmatic origin can be found.

The most common material is basalt, which is present in numerous outcrops, mainly along the Serra de Tramuntana range. Most of them are from the Upper Triassic (237-201 Ma), although there are also some from the Lower Jurassic (201-175 Ma) or even, occasionally, from the Lower Miocene (23-15 Ma).

The island's magmatic rocks are of two types: volcanic and subvolcanic (also called philonian or hypabyssal). While the former originate on the surface as a product of volcanic activity, the latter do so at great depths due to masses of magma which invade the earth's crust and solidify inside it.

The volcanic types of rock are the more abundant in the island, although the much scarcer subvolcanic rocks also outcrop in the zone of the Rafal d'Ariant, which contains some of the most important outcrops of these subvolcanic rocks in the Balearic Islands.

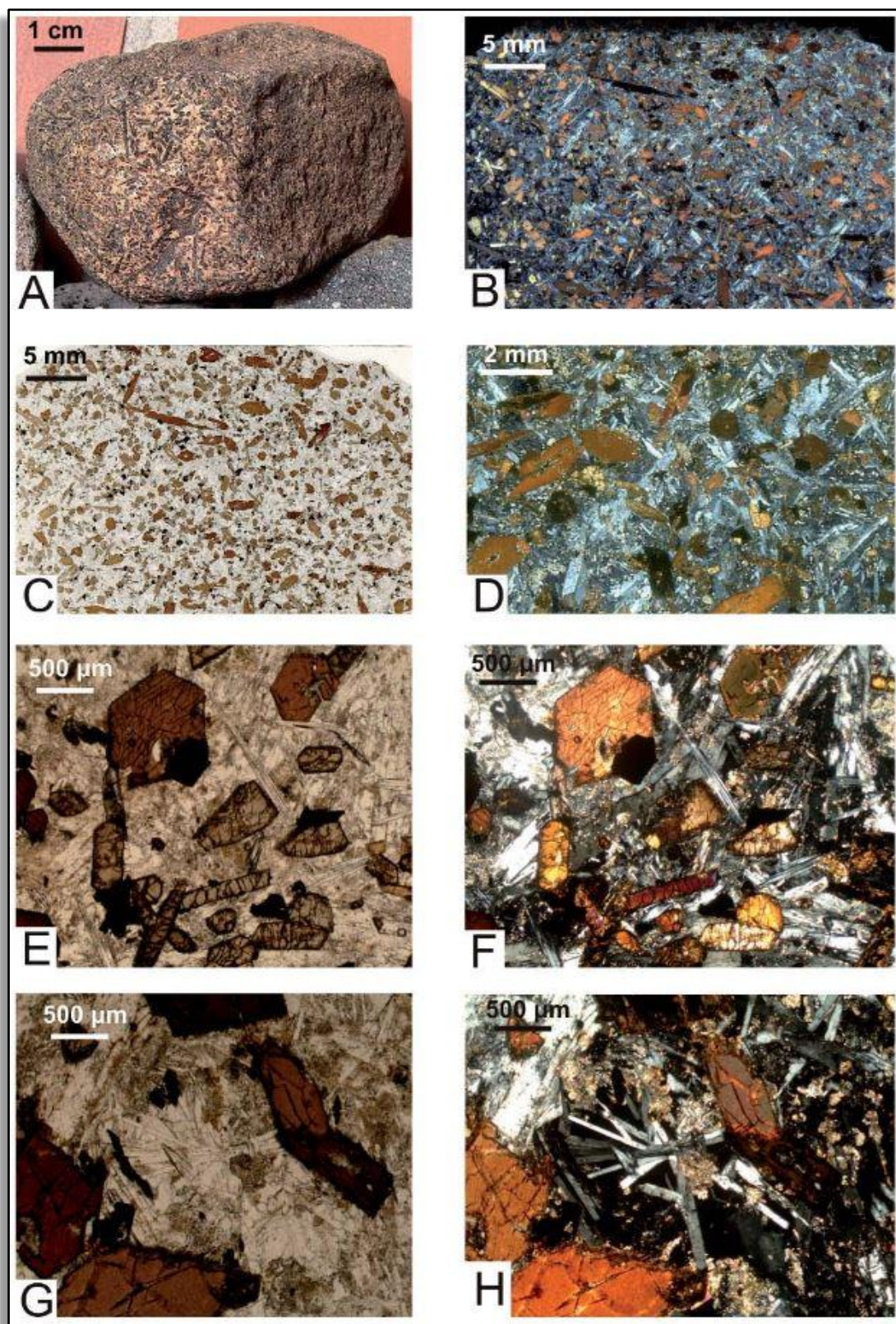
Subvolcanic rocks are characterised by fitting into the rocks of the earth's crust by means of dykes which are generally vertical. When the dykes, for various reasons, insert themselves in a horizontal plane, they are called sills.



Panoramic view of the valley of Rafal d'Ariant (the central depression in the photograph).

In the Rafal d'Ariant the subvolcanic rocks form sills that affect materials of the Upper Triassic.

The most interesting subvolcanic rocks from the scientific point of view belong to the group of the teschenites, a type of rock related to plutonic rocks. These are rocks with a grainy appearance, with large, lengthy, dark crystals that are easily noticed at first sight. They belong to the amphiboles, a group of silicate minerals. In a secondary manner there appears a diverse range of minerals with microscopic-sized crystals.



Teschenite-type rock of Rafal d'Ariant and various petrographic microscope views of its minerals in a thin lamina.
Taken from Enrique (2012).

In the zone there is also an abundance of reddish, yellow and black volcanic rocks, locally with many vacuoles (rounded cavities formed by the entrapment of gas bubbles in the volcanic material when it cooled), filled with malachite-type copper carbonates, like those that appear in the vicinity of the houses of the Rafal d'Ariant.



Teschenite-type rock (left) and vacuoles filled with malachite (right).

For more information

Enrique, P. 1986. Nota sobre les roques hipabissals de la Serra de Tramuntana: algunes característiques petrogràfiques i geoquímiques. *Bolletí de la Societat d'Història Natural de Balears*, 30: 19-50.

Enrique, P. 2012. Rocas tescheníticas en el Norte de Mallorca: aproximación a su clasificación. *Geogaceta*, 51: 11-14.

Recommendations

It is advisable to take a hat, plenty of water and comfortable footwear.

The site can be visited all year round, although it is best to do so in spring or autumn and in good weather (one of the accesses runs along a torrent bed). It is not recommended to visit in summer because there is no shade along the route.

Since the Rafal d'Ariant can be reached by two different routes, it is recommended to make a circular itinerary. The routes pass through impressive karstic landscapes with abundant limestone pavements and chasm (like the Avenc de s'Aigo) and through the interior of a karstic canyon (the Mortitx torrent).

Do not miss the Font des Rafal, a gallery spring located in the valley of the Rafal d'Ariant, whose water is salty due to the presence of gypsums in the materials it crosses (Keuper), and also the coastal cliffs of 100 m height.