

**ME21GE**

646006

**From Es Canutells to Cala en Porter cove fossil dunes**

## Location



Town: Alaior and Maó

UTM coordinates (31N ETRS89): X: 599098  
Y: 4412231



## Difficulty and duration



30 min

## Access

You can reach the Site of Geological Interest from the Sant Domènec street from the Cala en Porter residential area or from the Es Canutells and Calescoves coves. However, walking the entire length of the coastline that comprises the Site of Geological Interest would be difficult due to the abundant vegetation covering a number of sections. So, the best way to see the Site of Geological Interest is by boat.

## Principal interest

Geomorphological

## Secondary interest

Stratigraphic, sedimentological and palaeontological

## Description of the site

This Site of Geological Interest is the only one in Menorca that comprises exclusively rocks sedimented during the Quaternary, the latest of the geological periods. This is down to a huge fossil dune that outcrops discontinuously from Es Canutells to the Cala Llucalari cove, although because of the quality of the outcrops, the site of interest only stretches as far as the Racó d'en Pudent inlet on the edge of the Cala en Porter residential area.



General view of the Site of Geological Interest from Cala en Porter with the fossil dunes at Racó d'en Pudent hugging the cliff in the foreground.

These dunes form a rock created by the consolidation of the sand that accumulated on the coast through the action of the wind and which in the Balearics is called *marès*. This great pile of sand was the consequence of successive climate changes that have affected the Earth over the last million years. During the extremely cold periods of glaciation, the water on Earth accumulated in the form of large glaciers at the geographical poles and on mountains, leading to a drop in sea level. This process meant that huge extensions of sand were left to the mercy of the wind, which, if it blew from the sea inland, could drag the sand towards the coast creating a line of dunes, which, when it came up against an obstacle, such as a cliff, would deposit sand at the foot of it.

In the site of interest, the drop in sea level and the subsequent accumulation of sand that formed the rocks would have occurred some 140,000 years ago. Dating has been possible thanks to the identification of fossil remains of land snails that lived in the dune when it had not yet been consolidated. These fossils were identified in silt with red colouring contained in the dune at Calescoves cove, as well as at other sites, such as Racó de Sant Josep.

Also of particular interest are the *Myotragus* tracks, a mammal from the species of the subfamily Caprinae, that have been identified in these fossil dunes. It is believed to have arrived in the Balearics at the end of the Miocene (around 5 million years ago) when a large part of the Mediterranean dried up. Isolated from the outside world and free from predators, its evolution resulted in the rather curious-looking species known as *Myotragus balearicus*, small in stature, with very short robust legs, very centrally positioned eyes and just one incisor.

The Site of Geological Interest also contains the outcrops at Racó des Suro (very near Es Canutells) and the Racons d'en Pudent and Sant Josep (next to Cala en Porter). At these sites, the rock was used to extract blocks for construction. *Marès* quarries are relatively common along the Menorcan coast, making it

easy to transport the blocks by boat, but because of their distribution, they developed especially in the *marès* sedimented during the Miocene rather than in the Quaternary, as is the case here.



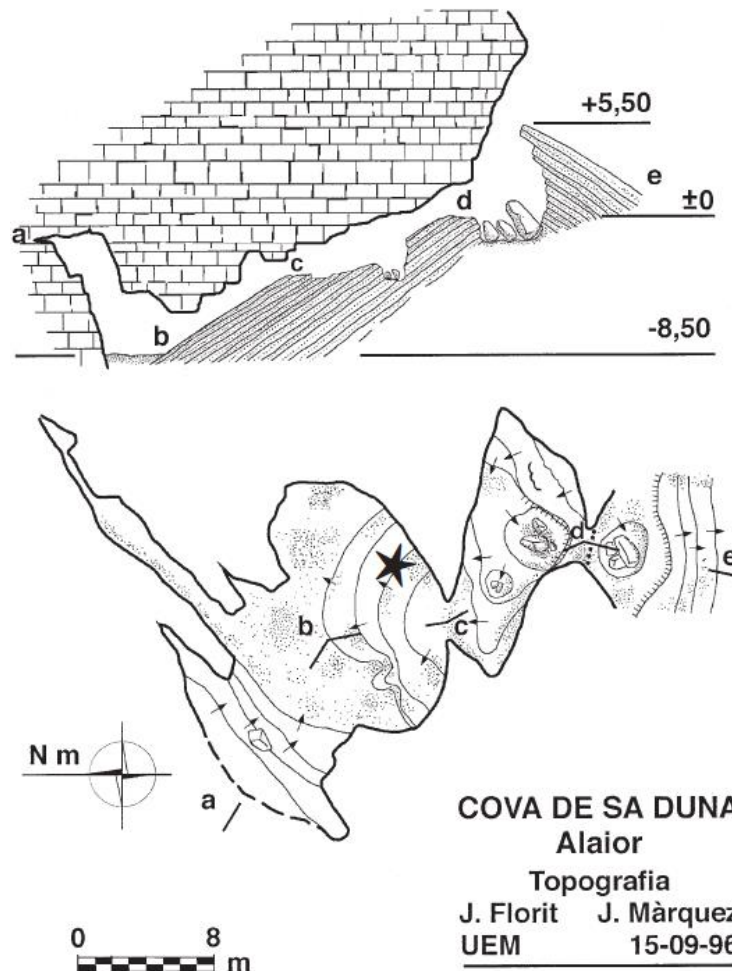
Fossil dunes at Racons des Suro and Sant Josep. Note the walls that adopt flat and vertical surfaces as result of *marès* mining.

This activity has uncovered stunning slices of rock that reveal its characteristics, such as the cross stratifications. This is a type of sedimentary structure resulting from the layout of the grains of sand, which arrange themselves in laminae that form angles between them. The arrangement is a reflection of the advance of the grains of sand due to the action of the wind that created these dunes. It should also be noted that mining triggers a series of instabilities, in other words, it accelerates its erosion, which causes blocks of rock to fall. Scientists have described the dunes at these two sites as *climbing dunes*. This type of dune occurs where the sand has risen along one slope due to the action of the wind.



Close-up of the gently sloping laminations at Racó des Suro and of the fallen blocks.

Also, on the cliffs at the western edge of Calescoves cove is the Sa Duna cave, especially unique due to the fossil tracks that the site contains. This is a cavity in the coastline rising some 12 metres above sea level, inside which is a stunning fossil dune that stands at least 14 metres high and has significantly good stratification. The sand that forms the dune must have entered the mouth of the cave, which would have been higher than it is now, until it covered it completely. The mouth of the cave today is the product of erosion on the peak of the dune. In these rocks, an exceptional number of well-preserved traces and tracks of *Hypnomys*, a dormouse (rodent), described as a species of Balearic giant dormouse endemic to Menorca.



Topographical image of the Sa Duna cave, in cross-section (top) and the floor (bottom). The cave has two main chambers (d and b) with a maximum width of 16 metres, connected by a narrow passage (c). The cave is filled by a fossil dune from the Quaternary that resulted in *marès* (topography by J. Florit and J. Màrquez and published by Quintana i Arnau, 2004 and Trias, 2004).

## To find out more

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## Recommendations

Remember to wear suitable footwear if you want to visit the site following the coastline. If so, be very careful not to fall over the cliff. You can visit the Site of Geological Interest much more comfortably by boat, which will take you close up to the coastline.

We also recommend a visit to the prehistoric necropolis at Calescoves. This is a series of cavities hewn out of the rock in the walls of the ravine that ends in the cove (around ninety), where ancient communities buried their dead. The necropolis was used for around a thousand years, between the eleventh century BC until well into the Roman period. As well as Calescoves, right next to the Site of Geological Interest, you will find Cala en Porter and Es Canutells.