

# The Garrotxa Volcanic Zone



The **Garrotxa Volcanic Zone** is located around the settlement of **Olot**, to the north west of Gerona (see map **opposite**; Figure 2).

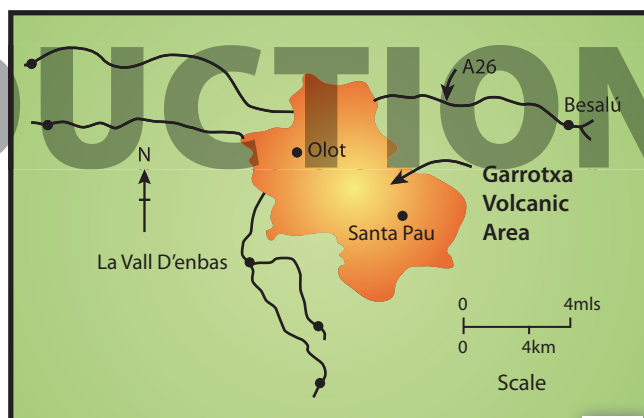
The Garrotxa Volcanic Zone is an excellent place in which to appreciate the appearance and features of a volcanic landscape. This area is a great contrast to the coastal landscapes around the area of your accommodation centre on the Costa Brava.

There are 30 **strombolian** volcanic cones here, various explosion craters and many basalt formations to see. The last eruption in this area occurred around 11,500 years ago ... so you *should* be safe!

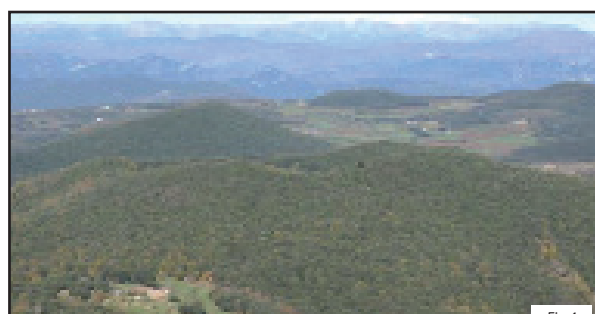
A strombolian type of eruption (named after the Italian island of Stromboli) involves fairly thick/viscous magma coming from the volcano's crater. Gases escape every so often from this magma to produce a lot of minor explosions – with lots of whooshes and thumps. Lava then shoots out of the crater to high altitudes and at great speeds to then fall back to earth and build up the volcanic cone. Strombolian eruptions are therefore pretty noisy affairs! Luckily (or disappointingly?!), *this* volcanic area is now extinct!

As this **map** (figure 3) shows, the Garrotxa Volcanic Zone covers quite an extensive area and there are a wide choice of volcanoes to view.

Apart from the volcanic cones and craters, there are other equally fascinating volcanic outcrops to see. The **columnar basalt** formation of **Castellfolit de la Roca** rises up more than 30 m.



**Lava flows** from many past eruptions can also be seen throughout the area. Those of la **Fageda de Jordà** (between Olot and Santa Pau) have a very lumpy, uneven surface due to the effects of gas escaping through the already solidified upper layer of the lava flow.



Photograph Courtesy of Ramon Canadell Gelis,  
Mayor of Santa Pau

# The Llobregat River Delta: Visit to a Nature Reserve



Fig 20

The Llobregat River lies southwest of Barcelona. The Llobregat River is about 170kms long and has its source in the foothills of the Pyrenees to the north of Barcelona.

The river's delta is an important wetland zone in NE Spain. It is considered to be of international importance by the European Union. This is because the delta attracts migrating and breeding birds during the year.

The delta's natural landscapes consist of a mixture of marshes, lagoons and reed beds. Apart from the sandy coastal edge (where the delta meets the Mediterranean Sea), the Llobregat delta is a permanently wet landscape. It is exposed to river flooding and it is continuously inundated with constant seepage from the coastal lagoons and from the Llobregat river. Thus the waters vary in their salinity (their salt levels).

In such a variety of environments, there are specific flora and fauna that thrive in particular areas – and only *some* that bite!

Unfortunately, there is not a lot of original marshland and saltwater ponds remaining in the Llobregat Delta today. As human presence in this area has expanded, much of the delta's land has been lost under housing, industry, roads, railways, agriculture and an airport. In an attempt to protect and conserve the remaining areas of the Llobregat Delta, a few Nature Reserves have been set up.



Fig 21

This map (figure 22) shows two Nature Reserve areas that have been established to conserve the landscape and the wildlife that needs it. Notice the fact that they are "clinging on" – just – with Barcelona Airport as a noisy neighbour. It will be the **Remolar Filipines Reserve** that you'll visit.



Fig 23

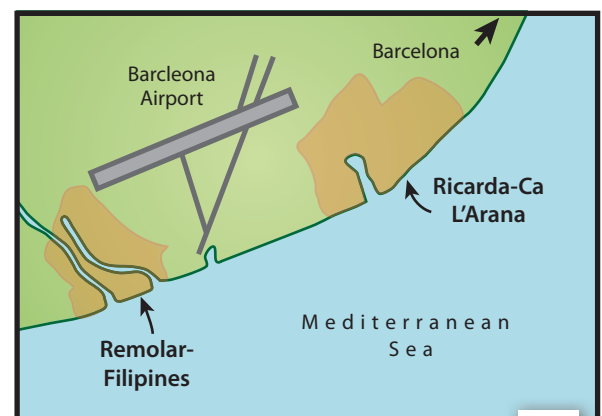


Fig 22

## The Story of the Mountain

The Montserrat mountain rises from a plain in Catalonia, NW of Barcelona. Its circumference is about 18 miles (30 km) at its base. The main axis trends (it is **oriented**) from W.N.W. to E.S.E. At the base of Montserrat, on its eastern side, runs the river Llobregat. Montserrat rises to 1,236 m (4,054 ft) above sea level. The highest point is the Tur de San Jeronimo (also called Mirador or La Miranda).

Montserrat has a fascinating rock structure with a unique geological formation. The mountain is made of grey **conglomerate**, a **sedimentary** rock.

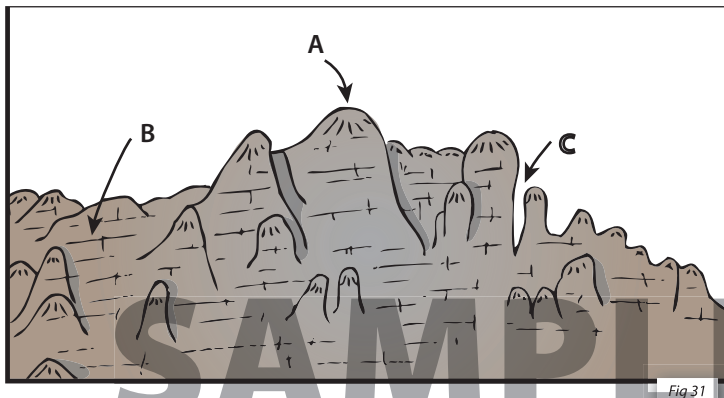


Fig 31

The name Montserrat means “**the sawed mountain**”. This name has been given to this abruptly rising mountain mass because of the many pinnacles and towers of rock that are seen around its summit area, looking just like the teeth of a saw. These rock spires (or teeth) are called **penascos**. There are also **narrow, deep, V-shaped ravines** cut by water that cut deeply down into the rock.

Letter	Feature
<b>A</b>	A <b>penasco</b> , a rock pinnacle
<b>B</b>	A layering of the rock can be seen ( <b>bedding planes</b> ) in the structure
<b>C</b>	A water cut, <b>V-shaped ravine</b>

Fig 32

The following notes and diagrams explain the **4 basic stages** involved in the development of:-

- the conglomerate rocks that make up this mountain were lain down in a great lake that once covered this area (1)
- as rivers flowed into this lake they brought sands, gravels and mud and deposited them in alternate layers (2)
- During a period of orogenesis (mountain building!), these sediments (that had been compressed into rock and cemented together) were uplifted to great heights (3)
- Once the rocks were exposed to weathering (wind, water, frost shattering), they were naturally sculpted in to the forms you can see today (4). Heavy rainstorms are particularly able to erode the rocks as the conglomerate rock is relatively soft. The fast flowing water on steep slopes soon (and still does) cut into the landscape.

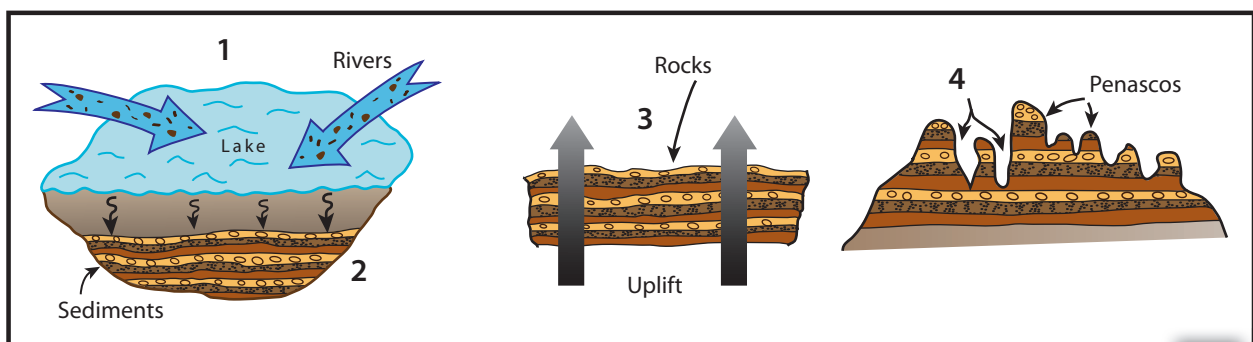


Fig 33

# Barcelona: La Rambla

**La Rambla** is a world-famous boulevard (a wide street) that runs down through the centre of the city to the port area of Barcelona. La Rambla is an area of life, colour and activity and includes a wide range of shops and leisure attractions; it also has many cultural aspects. It is a superb road to amble down (and perhaps spend a few Euro!).



Fig 36

La Rambla boulevard runs from **Plaça de Catalunya** down to the port of Barcelona and the statue of **Christopher Columbus** – see map; figure 36.



Fig 37

La Rambla is lined with many eye catching sights. Shops of all sorts dominate La Rambla (and its side streets). There are plenty of cafés too. La Rambla also contains buildings/features of striking architecture e.g. the multicoloured cobbled pavement designed by **Joan Miró**; the **Gran Teatre del Liceu** opera house and Gaudi's **Palau Güell**; look out for them.

In the area of La Rambla are two *new* cultural buildings - the **Centre de Cultura Contemporània de Barcelona (CCCB)** and the **Museu d'Art Contemporani de Barcelona (MACBA)**.

Back on La Rambla, **La Boqueria** is a "must do" activity. It is a traditional food market (with samplings possible!).



# Barcelona: Gaudí: The Sagrada Família Cathedral

## Background

The **Sagrada Família** is the very striking cathedral with amazing spires that dominate the Barcelona skyline.

The architect of this grand building was **Gaudí**. Gaudí's architectural style combines structure and decoration inspired by the forms of nature. The Sagrada Família displays all of Gaudí's architectural theory and practice in one building.

The origins of the Sagrada Família go way back in history. In 1866 the Associació Espiritual de Devots de Sant Josep was founded. This Association wanted to construct a cathedral dedicated to the Holy Family. In 1881 the Association bought a large piece of land located between the streets Marina, Provença, Sardenya and Mallorca in Barcelona to build the cathedral (see figure 45 below).



Fig 45

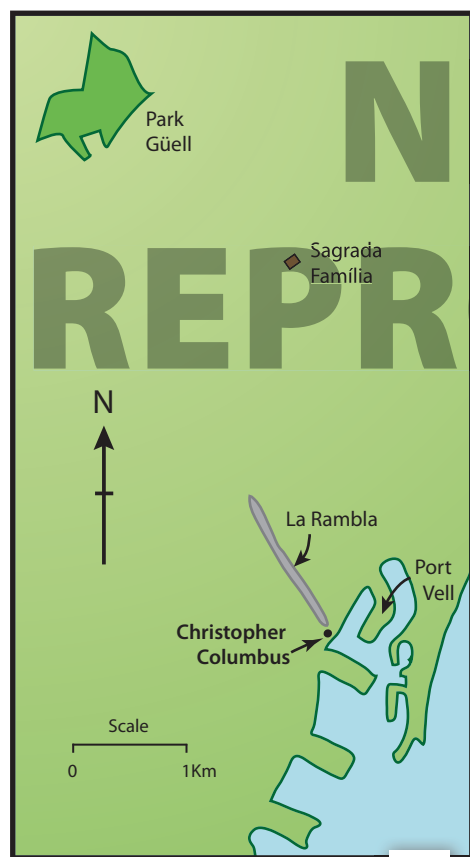


Fig 46

The first architect hired for the cathedral project resigned soon after his appointment amid many arguments. It was only after this that Gaudí became the architect of the cathedral. The cathedral was started in 1882. However, due to a lack of money, the bell-towers of the temple were very slow to rise up. In fact, by the time of his death, Gaudí only saw one completed bell-tower of the cathedral, the bell-tower of Saint Barnabas in the Nativity façade.

After Gaudí's death, in 1926, work on the cathedral moved even more slowly; it was a very complex design. Fortunately Gaudí left an overall plan of the project and his drawings have allowed building work to continue. However, in 1936, at the height of the Spanish civil war, the crypt and the workshop of Gaudí (containing many of the models he had made for the cathedral) set on fire. Fortunately, in 1940, the burnt models were restored and are now used today to allow the completion of the cathedral.

In 1954 a push was given to the construction of the cathedral when the Passion façade was begun. In 1976 the bell-towers of the Passion façade were finally crowned.

# Barcelona: The 1992 Olympic Games

## Olympic Village/Marina and the Hill of Montjuïc

The **Olympic Village** was built for the 1992 Barcelona Olympic Games. This is a fascinating place to visit today with many points of interest.

The **Barceloneta** leads to the Olympic Village and Marina where the athletes lived during the Olympic Games of **1992**. The Barceloneta is a traditional sailing and fishing district, renowned for its seafood restaurants. The Olympic Marina here has many bars and restaurants and has become a new recreational area. There are also over four kilometres of beaches here, offering the possibility to enjoy all kinds of water sports.

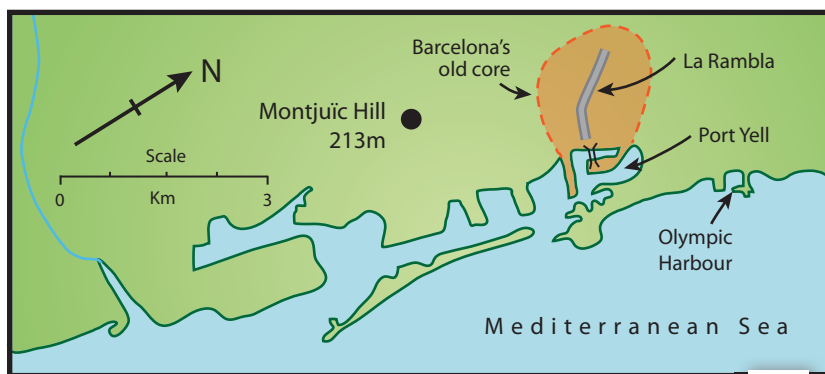


Fig 56

The areas related to the 1992 Olympic Games can be divided up into two main areas. One significant area is built by the sea (**Olympic Harbour**; see map above) whilst the other is located on **Montjuïc Hill** (again, see map above):-

## Down by the Sea: Olympic Harbour/Marina

### The Olympic Harbour

The **Olympic Harbour** itself is spectacular. This area of old dockland was developed to berth a large number of pleasure boats after the Olympic Games had finished. With its seaboard position, this area is most attractive and has many cafés, restaurants and bars that give the area an interesting and lively feel. There is also a great area of small stallholders selling all sorts of trinkets and souvenirs, (should those Euros be burning a hole in your pocket!).



Fig 57

### Plaça Dels Voluntaris

At the **Plaça dels Voluntaris** there stand two tall towers (153.3m). One tower is home to the Hotel Arts with its 44 floors and 456 bedrooms. The other tower is the Mapfre Tower, mainly an office building but with shops and commercial activities at its ground level. There is also a giant fountain in the Plaça dels Voluntaris.

### The Park of the Olympic Harbour



Fig 58

Part of the Olympic Village is the **Park of the Olympic Harbour**. Here again there is much impressive architecture. As well as the buildings (e.g. Eurocity 2, 3, and 4), there are circular open areas (e.g. the Plaça de Tirant lo Blanc), fountains, bridges and sculptures. An interesting installation is set into the ground here; it is a list of the 257 gold medals won during the 1992 Olympic Games. In addition, some legendary figures of international sport have left their handprints in this square too.