Geotourism Route Coast of São Paulo

Learn about the geological history of the coast! Visit our interpretive panels!

How do coastal plains form?

The Caraguatatuba Plain

HOW WAS OUR COAST FORMED?

The continents we know today were not always as they are now. They are continuously on the move. Sometimes smaller continents join together to form a larger one. At other times, a large continent breaks into smaller ones.

About 200 million years ago, all the landmasses formed a single large continent called Pangaea. However, this continent broke up into smaller continents. One of these was Gondwana, which also broke into fragments, including modernday South America and Africa.

On the newly formed coast of South America, the Serra do Mar arose, and the coastal plains and beaches were built. That's the way our coastline was formed!

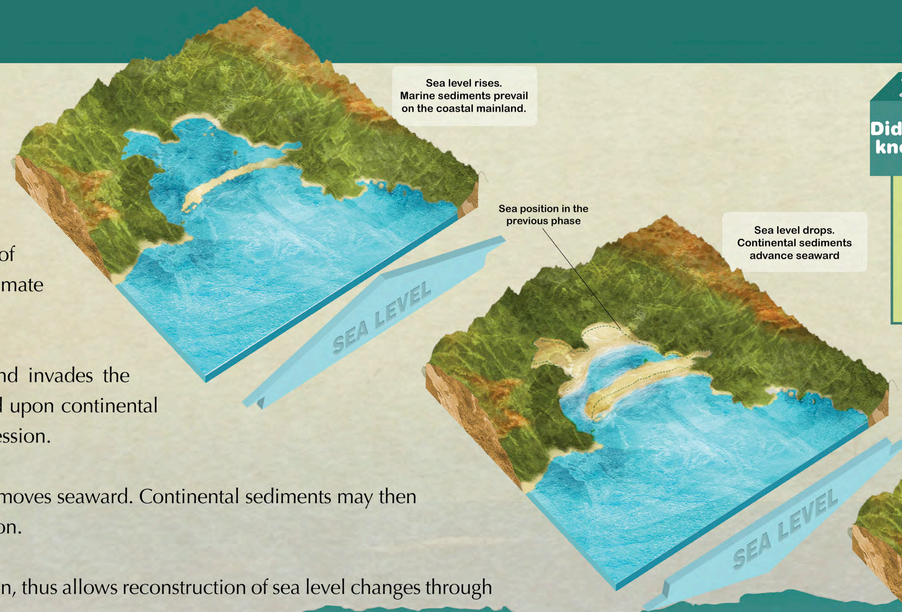
WHAT IS THE REASON FOR THESE LARGE, FLAT AREAS?

Plains are flat areas of varying sizes formed by sediments brought by rivers or the sea. These sediments provide important information on variations in sea level along the history of our planet. In the case of the Brazilian coast, these variations were caused mainly by natural climate change over time.

For example, when the world's glaciers thaw, sea level rises and invades the continent. When this happens, marine sediments may be deposited upon continental sediments, like those carried by rivers. This process is called transgression.

With the growth of glaciers, sea level decreases and the shoreline moves seaward. Continental sediments may then be deposited upon marine sediments. This process is called regression.

The study of the sediments in plains, such as the Caraguatatuba Plain, thus allows reconstruction of sea level changes through geologic time.

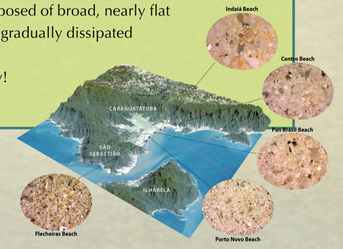


Did you know?

The Caraguatatuba Plain is the largest of the northern coast

Observe the map. In this part of the coast, the Serra do Mar is separated from the coast by a large, flat plain, the Caraguatatuba Plain, which is covered by marine and river sediments. It owes its large size to the proximity of Ilhabela, the largest continental island in Brazil. Ilhabela acts as a barrier to ocean currents responsible for coastal erosion, thus favouring accumulation of sediments in this large area. The large arc-shaped configuration of the coastline in this region is the Caraguatatuba Bay. The beaches here are composed of broad, nearly flat strips of sand, with an extensive surf zone, where the energy of the waves is gradually dissipated before reaching the beach.

See the sand from these beaches in the display!



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