

# LANDFORMS VISION IAS

**JAYAKRISHNA**

# FLUVIAL LANDFORMS



JAYAKRISHNA

## CASCADES



A waterfall is a place where a river flows over a sharp edge. Cascades are a series of small, continuous waterfalls

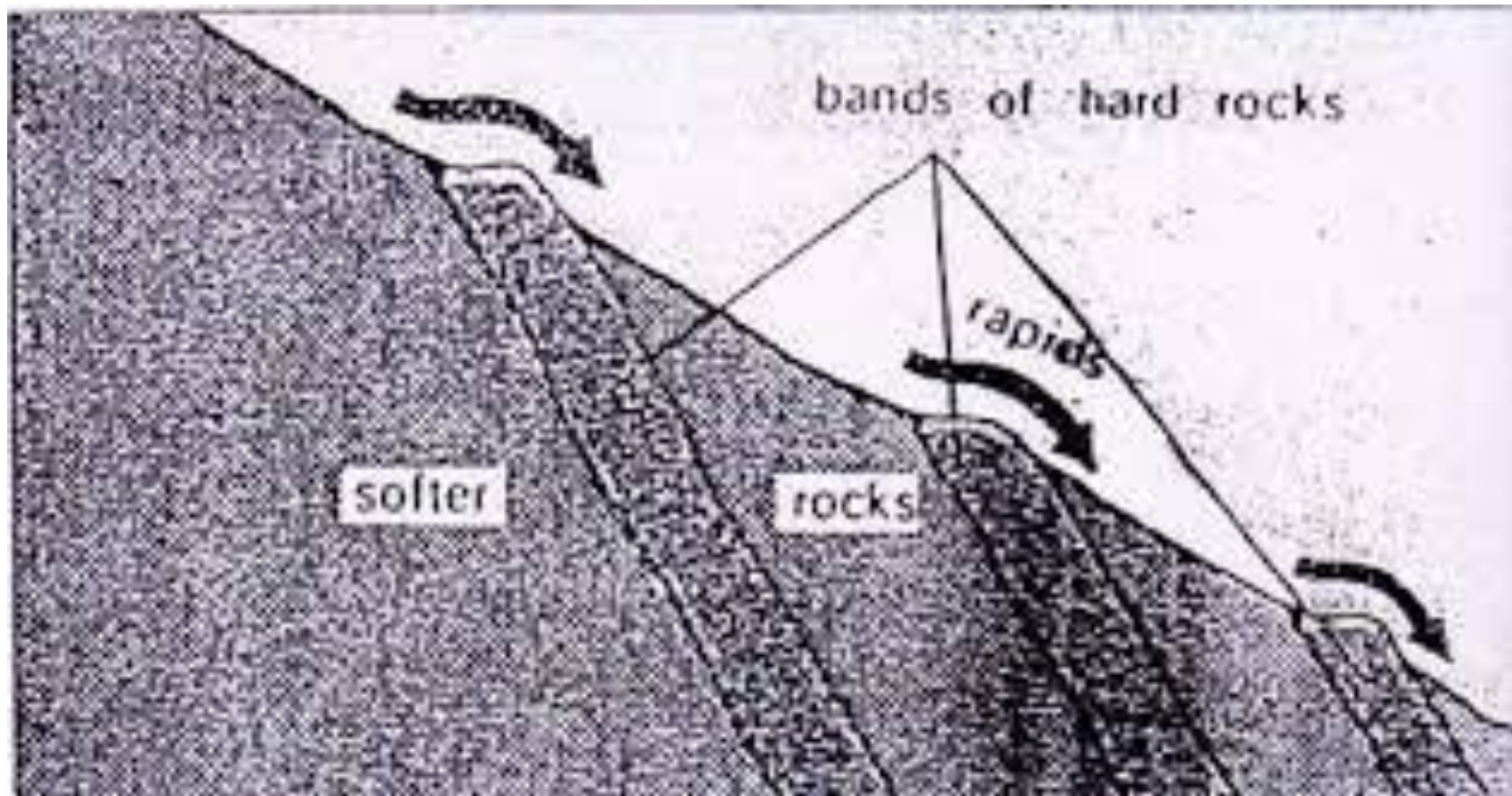
**RAPIDS**

**AND**

**CATARACT**







Rapid is a rough section of a river or stream which is difficult to navigate due to the swift and turbulent motion of the water. While Cataracts are turbulent waters formed where flowing waters encounter resistant rock layers.

## GORGE



JAYAKRISHNA





A canyon is considered larger than a gorge. They are both deep valleys, with steep walls but a canyon is often wider compared to a gorge. The gorges are narrower than canyons. Canyons are mainly localized to the arid areas while gorges can be found in moist areas.

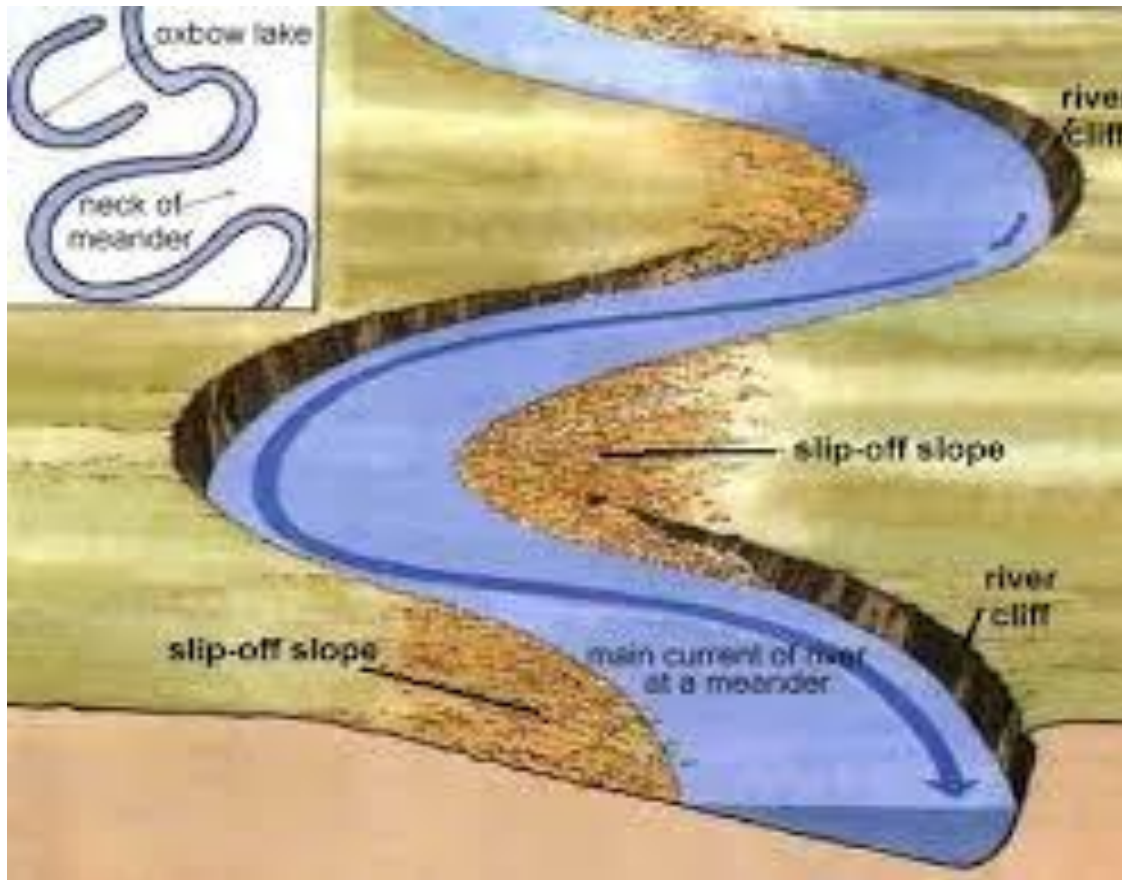


## MEANDERS

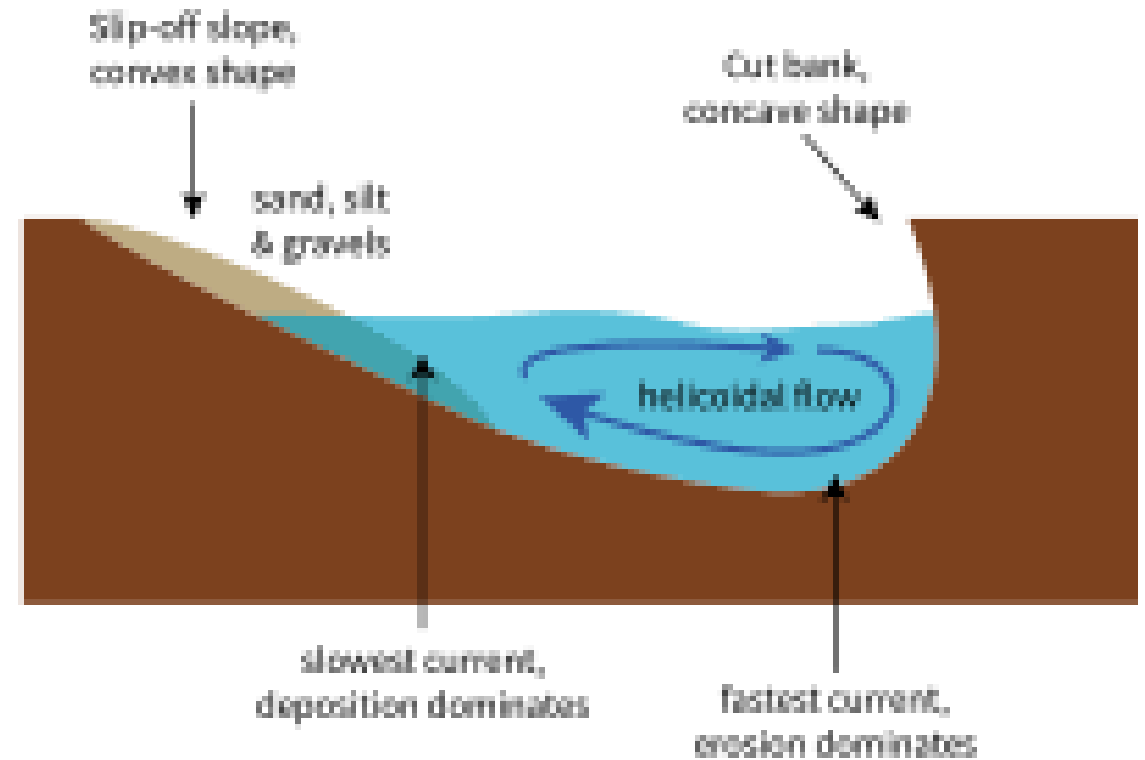


Meanders are extreme U-bend in the course of a stream, usually occurring in a series. The sinuous or the winding path of the river is called Meander.

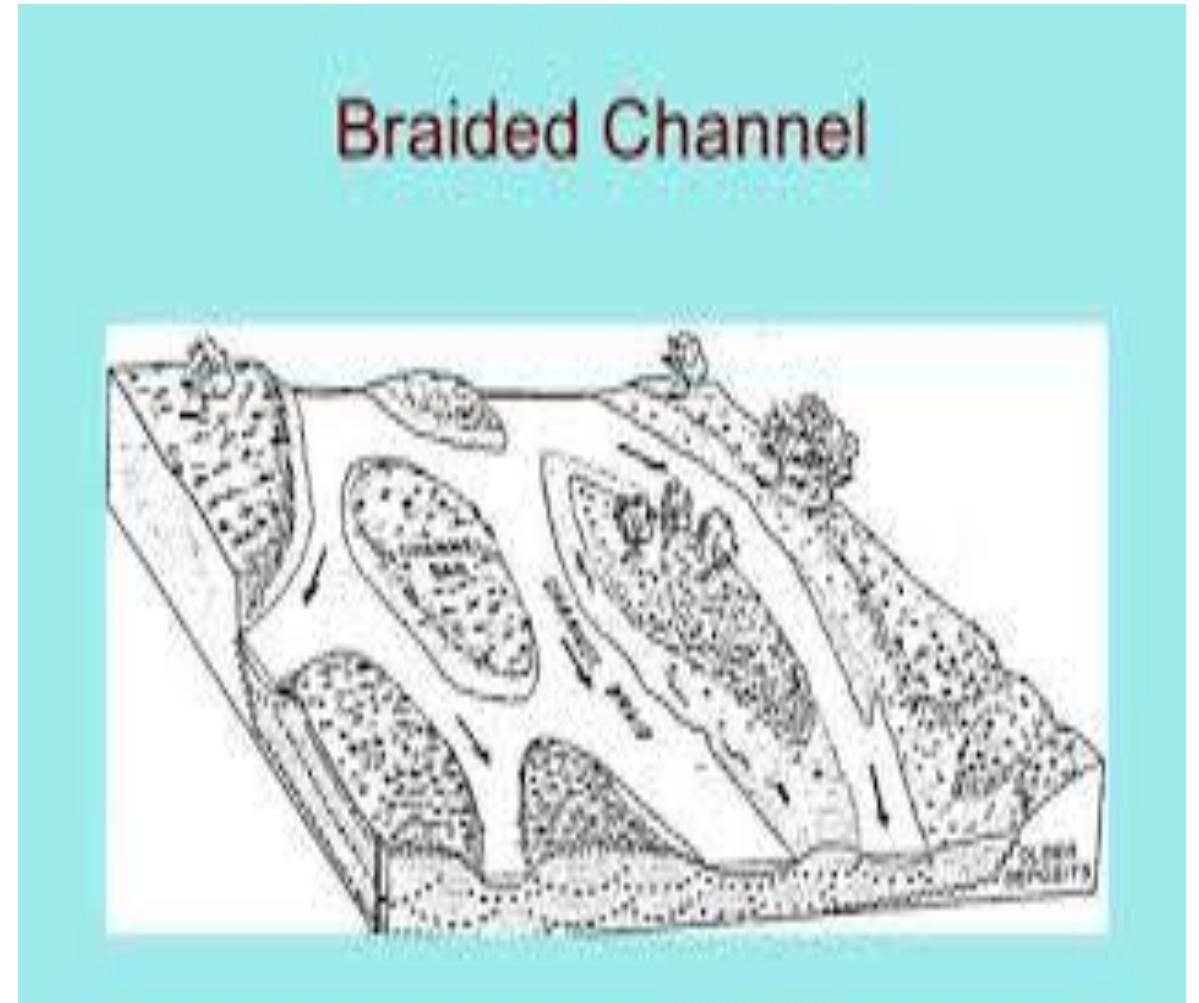
## RIVER CLIFF AND SLIP OFF SLOPE



- The lateral erosion on the outside bend causes undercutting of the bank to form a **river cliff**.



The build-up of deposited sediment is known as a **slip-off slope**.



braided channel, consists of **a network of river channels separated by small, often temporary deposits, called braids**



## RIVER DELTA



**Distributary** - a branch of a river that does not return to the main stream after leaving it.

**Delta** – Is a low-lying plain that is composed of sediments deposited by a river at its mouth.



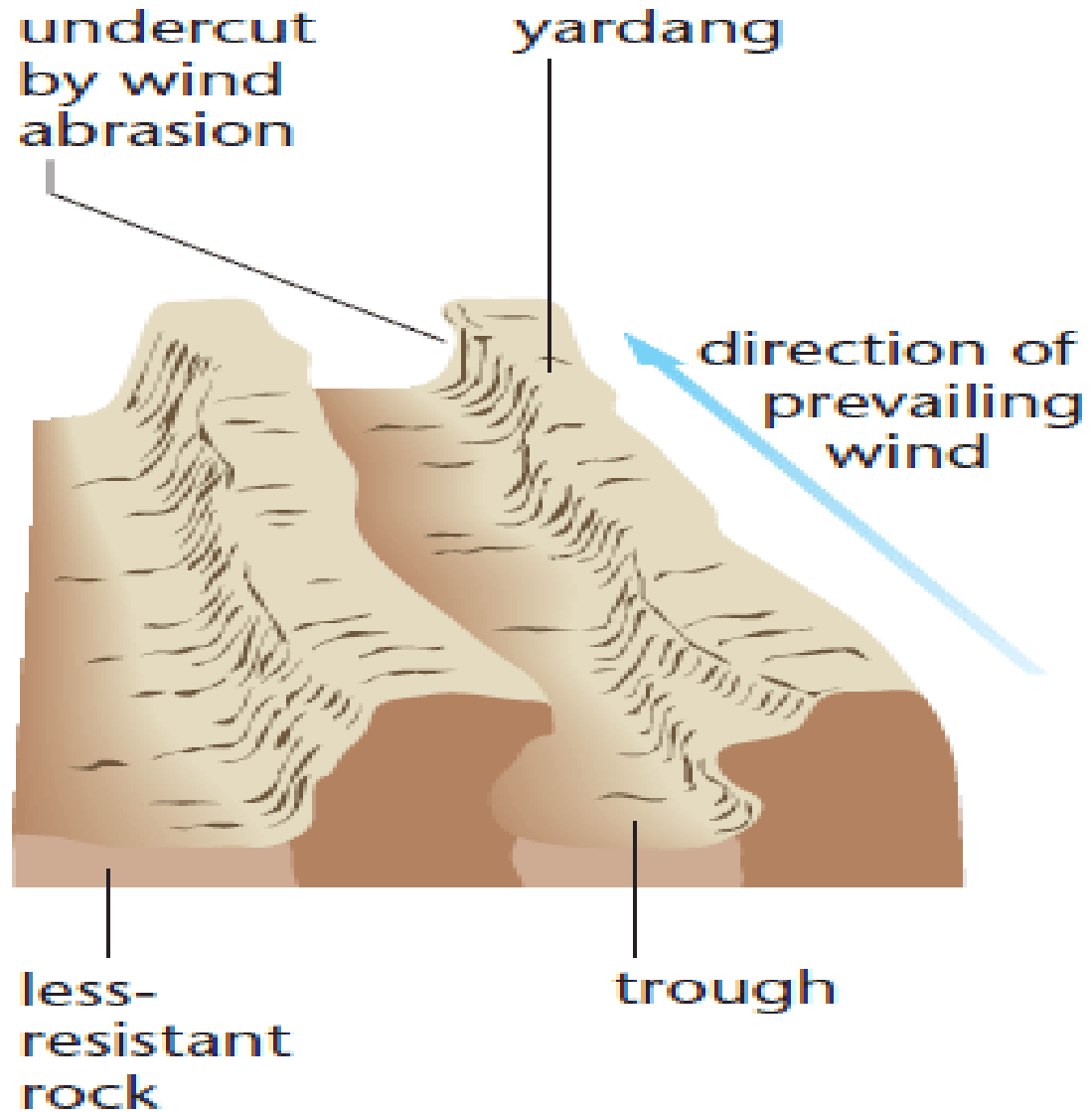
# **AEOLIAN LANDFORMS**

# PEDESTAL ROCKS



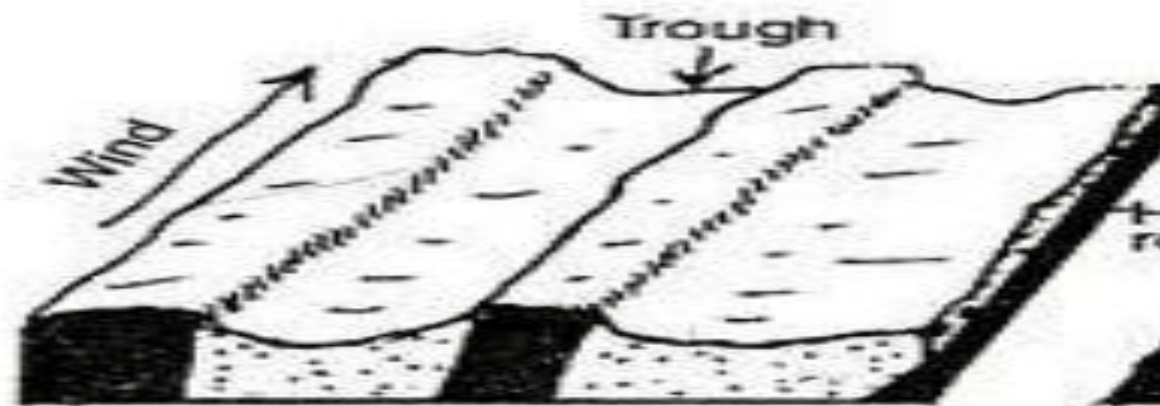
**pedestal rock** - An mushroom-shaped land-form found typically in arid and semi-arid regions

# YARDANG



# Zeugen



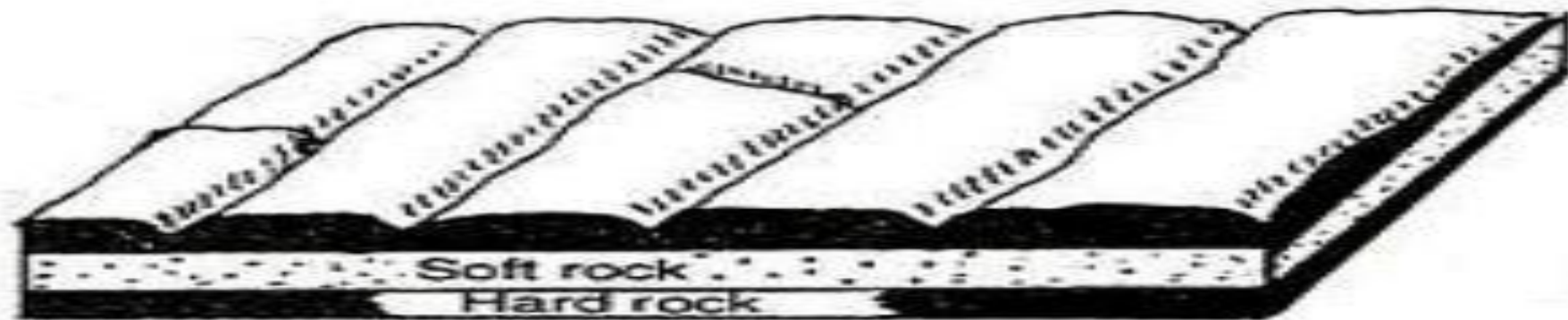


Belts of softer rocks are abraded into troughs.



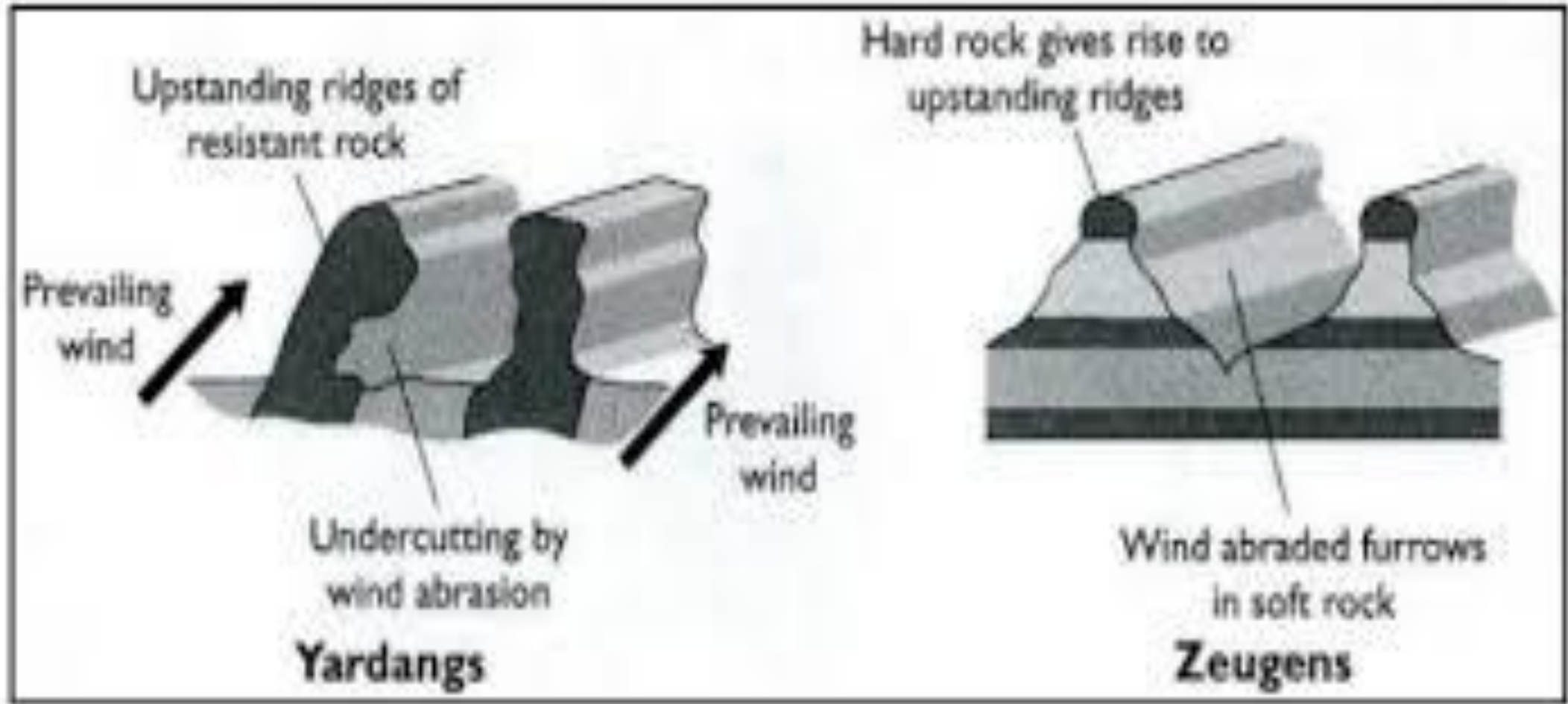
Hard rocks are undercut and narrow ridges rise as yardangs.

**Fig. 1.78**



**Fig. 1.79** Weathering, dew and temperature open up joints.





**Yardang:** The irregular rock ridges of 10 meters high running parallel to the prevailing winds. When the sand-laden wind erodes zones of softer rock between harder vertical ridges into alternating ridges and furrows.

**Zeugen:** It is a landscape of alternate horizontal ridges and furrows made by the action of wind abrasion. It may be as high as 30 m height.

# MESAS AND BUTTE



**Mesa** -a flat-topped elevated land standing up from a plain.

**Buttes** - are **tall, flat-topped, steep-sided towers of rock**. Buttes were once part of Mesas. In fact, the only difference between a mesa and a butte is its size.

Land is being constantly worn down by wind,  
water and ice.



original  
level of  
the  
plateau.



# INSELBERGS



**Inselberg: an isolated rock hill, knob, ridge, or small mountain that rises abruptly from a gently sloping or level surrounding plain.**





Barchan

# Sand Dune Formation

Covering some 20 percent of the world's deserts, dunes form wherever there's constant wind and loose sand. Size depends on the supply of available sand; shapes follow the dictates of wind direction.

## Barchan

"Barchan" is Turkic for a crescent-shaped dune—found on the edge of sand seas and formed when the wind blows steadily from one direction.

Unidirectional winds



## Seif

Elongated, sharp-crested seifs, named after the Arabic word for sword, take shape in regions with moderate sand and shifting winds.

Slightly variable winds



## Star Dune

Seasonally changing winds create multiarmed, pyramid-shaped dunes. Building up more than out, they can rise to over a thousand feet.

Multidirectional winds



GRAPHICS: LAWSON PARKER, NGM STAFF



PACIFIC COAST, PERU



SAHARA, CHAD



RUB AL KHALI, SAUDI ARABIA





**Loess Plain:** The surface is covered by deposits of wind transported silt that has settled out from dust storms over many thousands of years. These depositions are called as Loess.

# GLACIAL LANDFORMS



# Corrie & Arete



A corrie is an **armchair-shaped hollow found on the side of a mountain**. In France corries are called cirques.



An arête is a **thin, crest of rock left after two adjacent glaciers have worn a steep ridge**.

## HORN or PYRAMIDAL PEAK



A horn results when glaciers erode three or more arêtes, usually forming a sharp-edged peak.

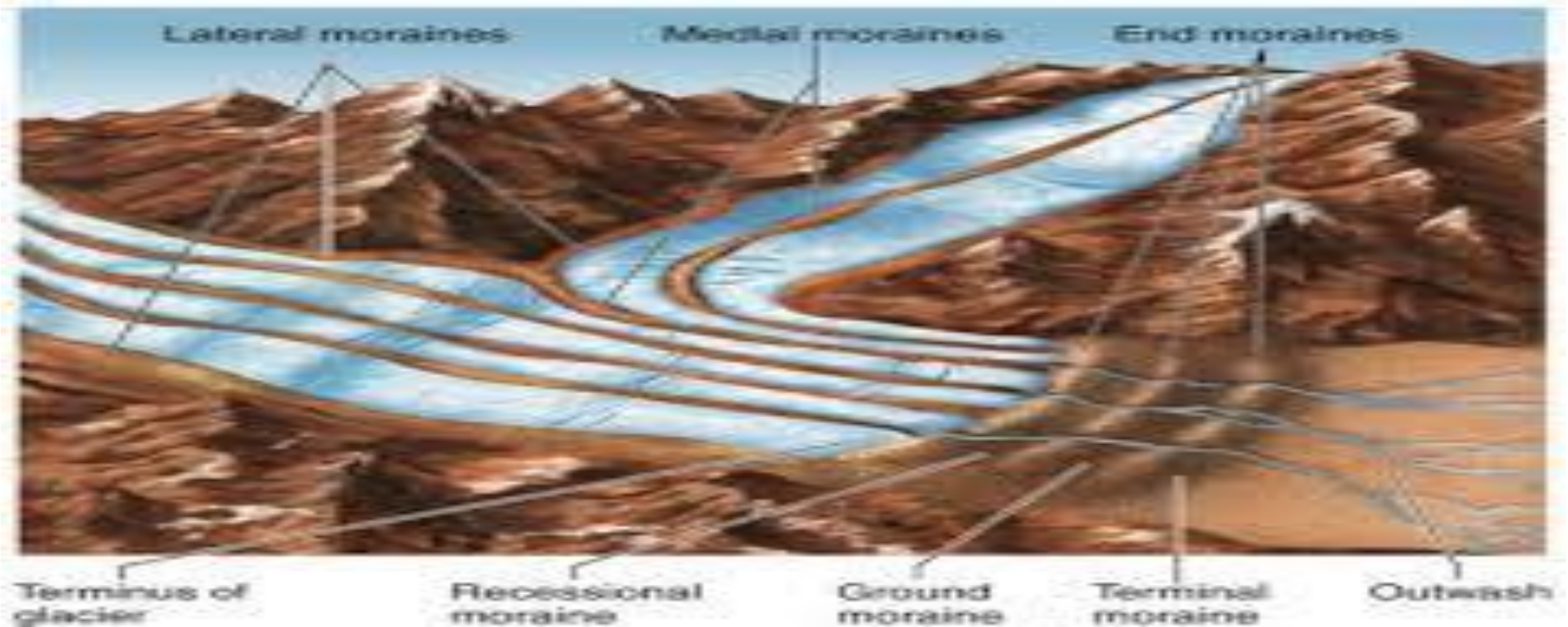
# COL



A col is **the lowest point on a mountain ridge between two peaks.**



# MORAINES



A moraine is **material left behind by a moving glacier**. This material is usually soil and rock. Glaciers transport all sorts of dirt and boulders that build up to form moraines.

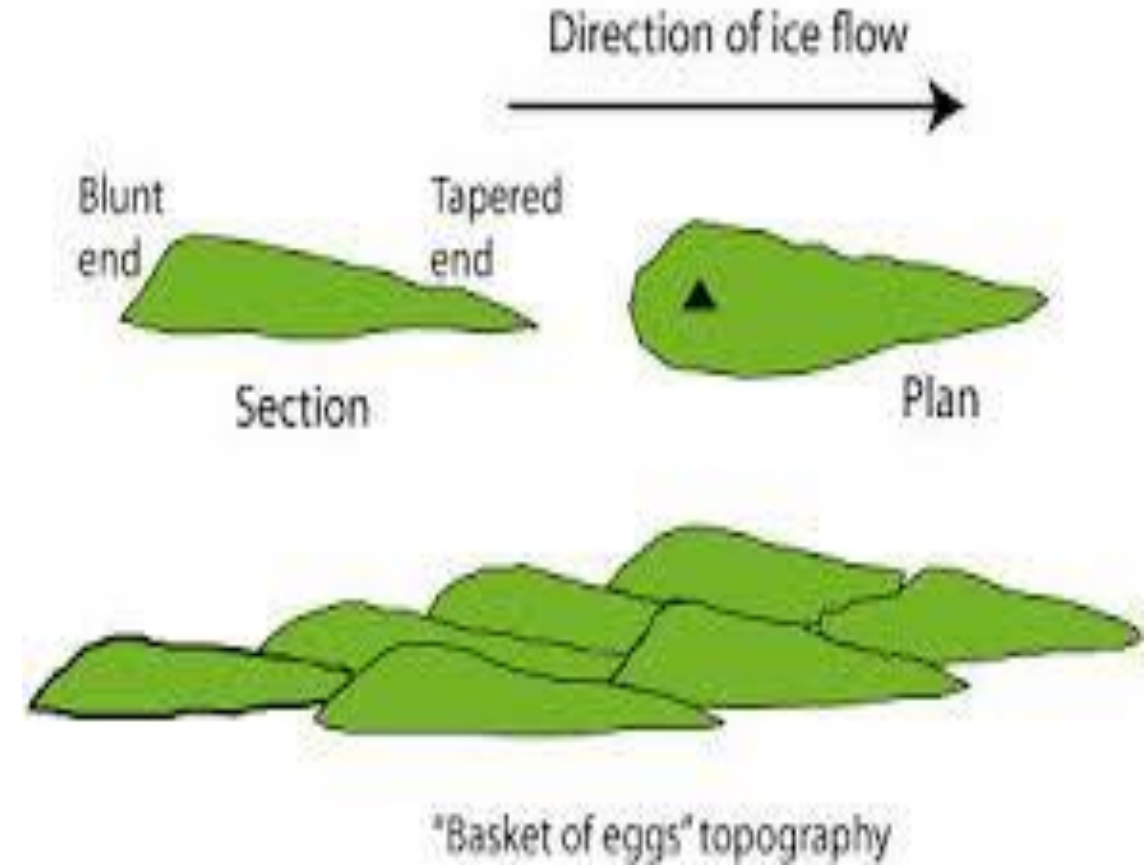
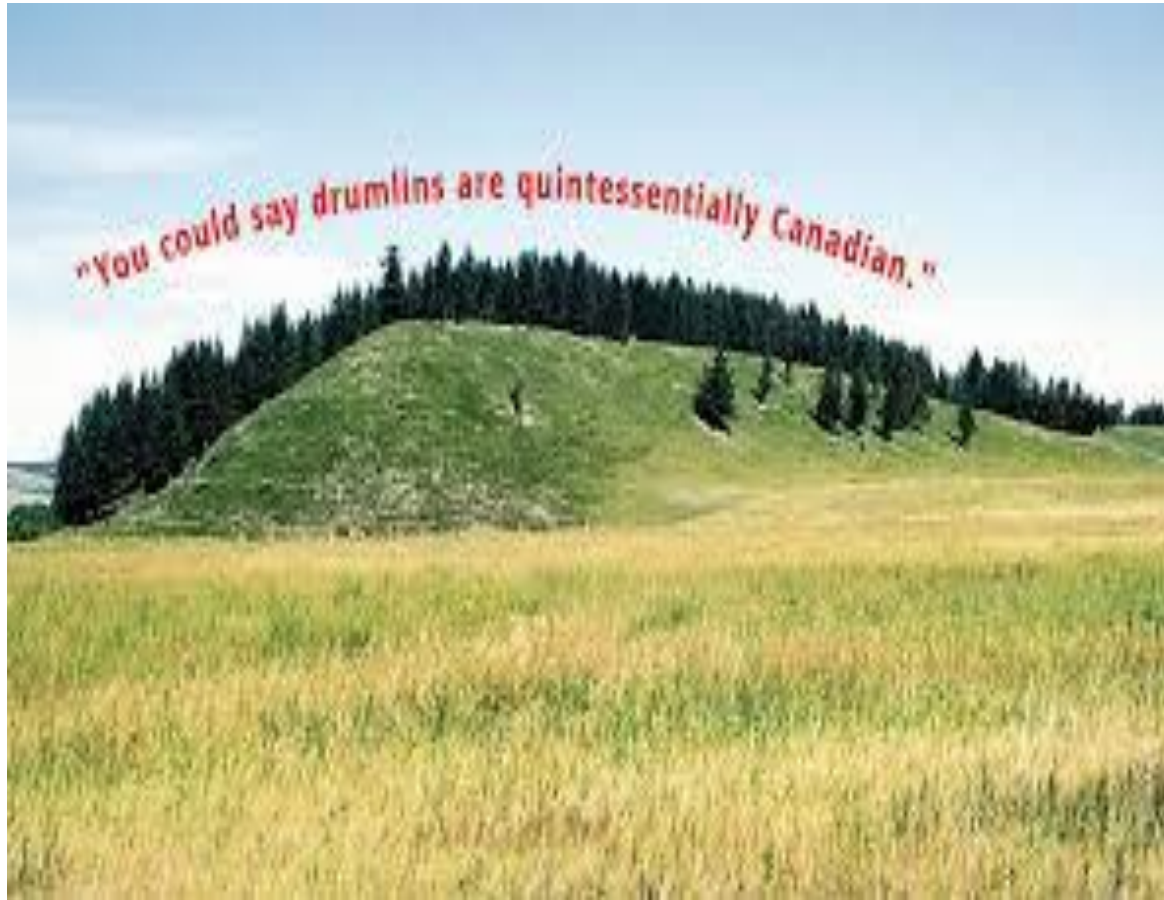


# Glacial Till



**Glacial till is the sediment deposited by a glacier.**

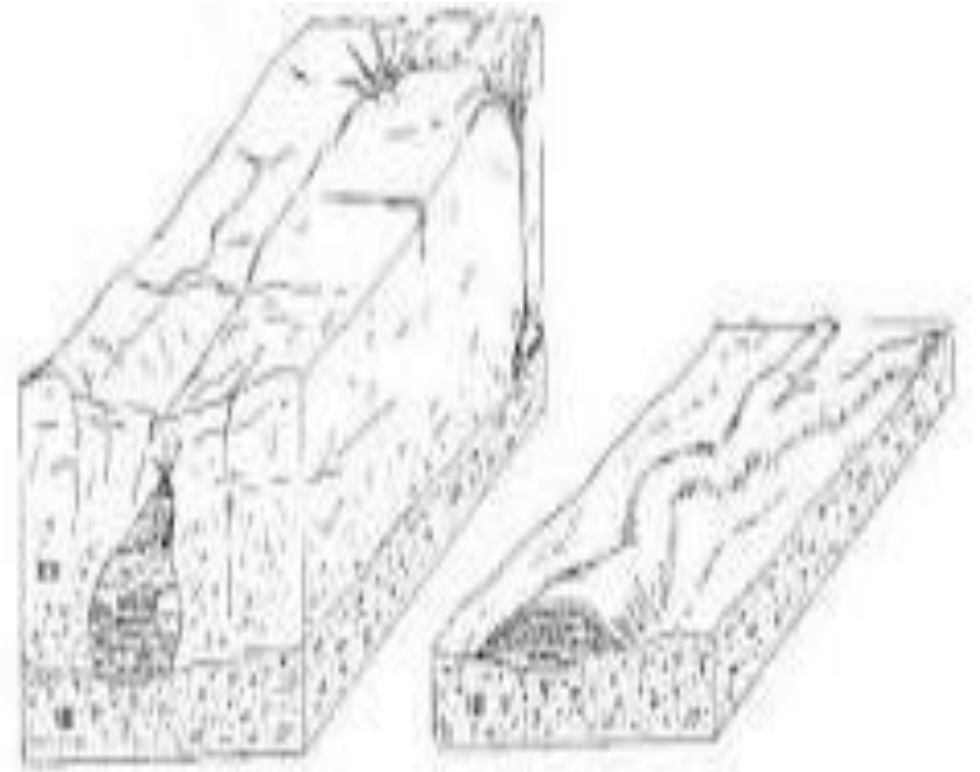
# Drumlins



Drumlins are **oval-shaped hills**, largely composed of glacial drift, formed beneath a glacier or ice sheet and aligned in the direction of ice flow.



# ESKERS



Eskers are **ridges made of sands and gravels**, deposited by glacial meltwater flowing through tunnels within and underneath glaciers. As the ice retreats, the sediments are left behind as a ridge in the landscape



# MARINE LANDFORMS

# CAPES & BAYS



A cape is a **high point of land that narrowly extends into a body of water**. A bay is a large body of water that is surrounded by land but not as enclosed as a gulf.

**Caves** occur when waves force their way into cracks of the rocks. The water contains sand and other materials that grind away at the rock until the cracks become a cave. It eventually breaks through to the other side forming an **arch**.

# ARCH & CAVES



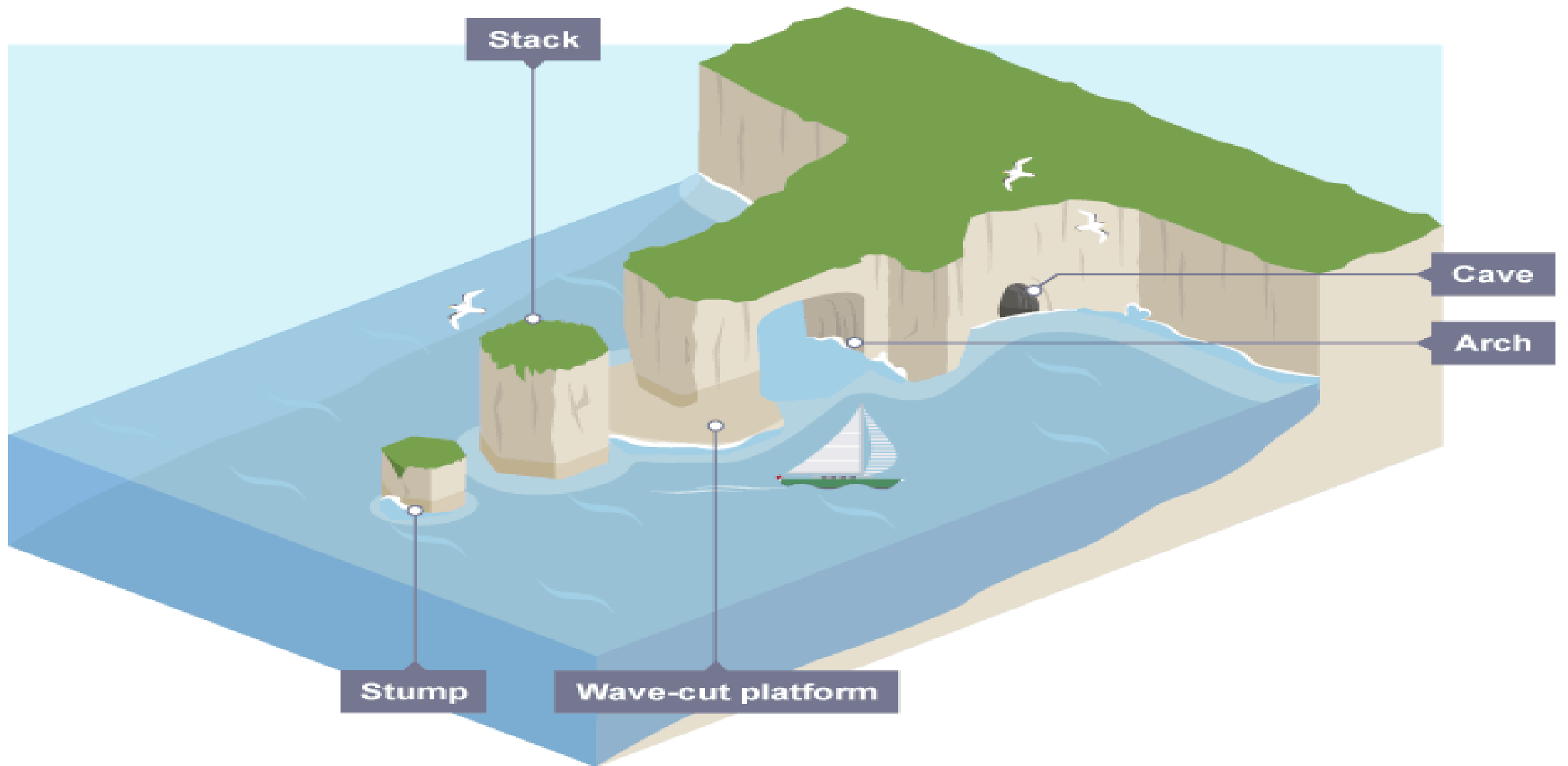
# STACKS AND STUMPS



The arch **collapses**, it leaves the headland on one side and a **stack** - a tall column of rock, on the other.

The stack will be attacked at the base by the waves. This weakens the structure and it will eventually **collapse** to form a **stump**.







The sea attacks the base of the cliff forming a wave-cut notch.

The notch increases in size causing the cliff to collapse.

The backwash carries the rubble towards the sea forming a wave-cut platform.

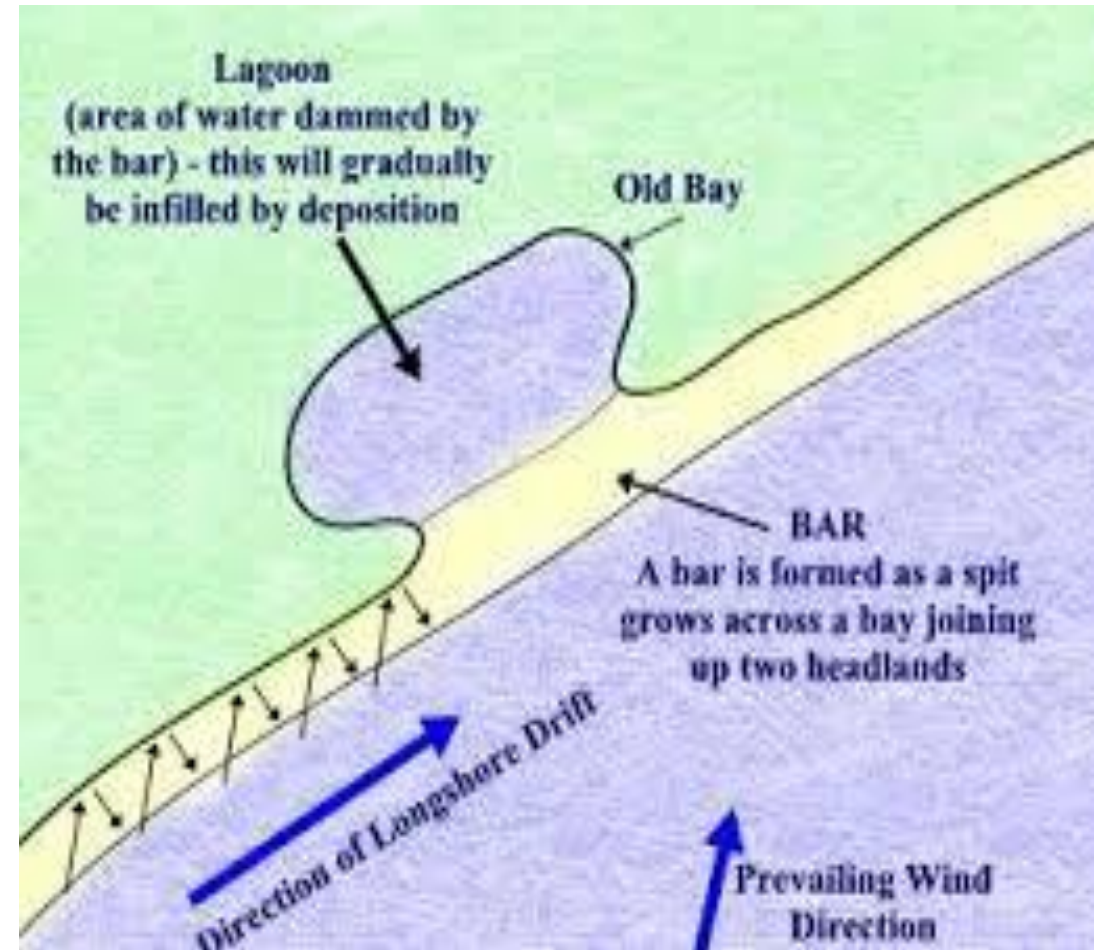
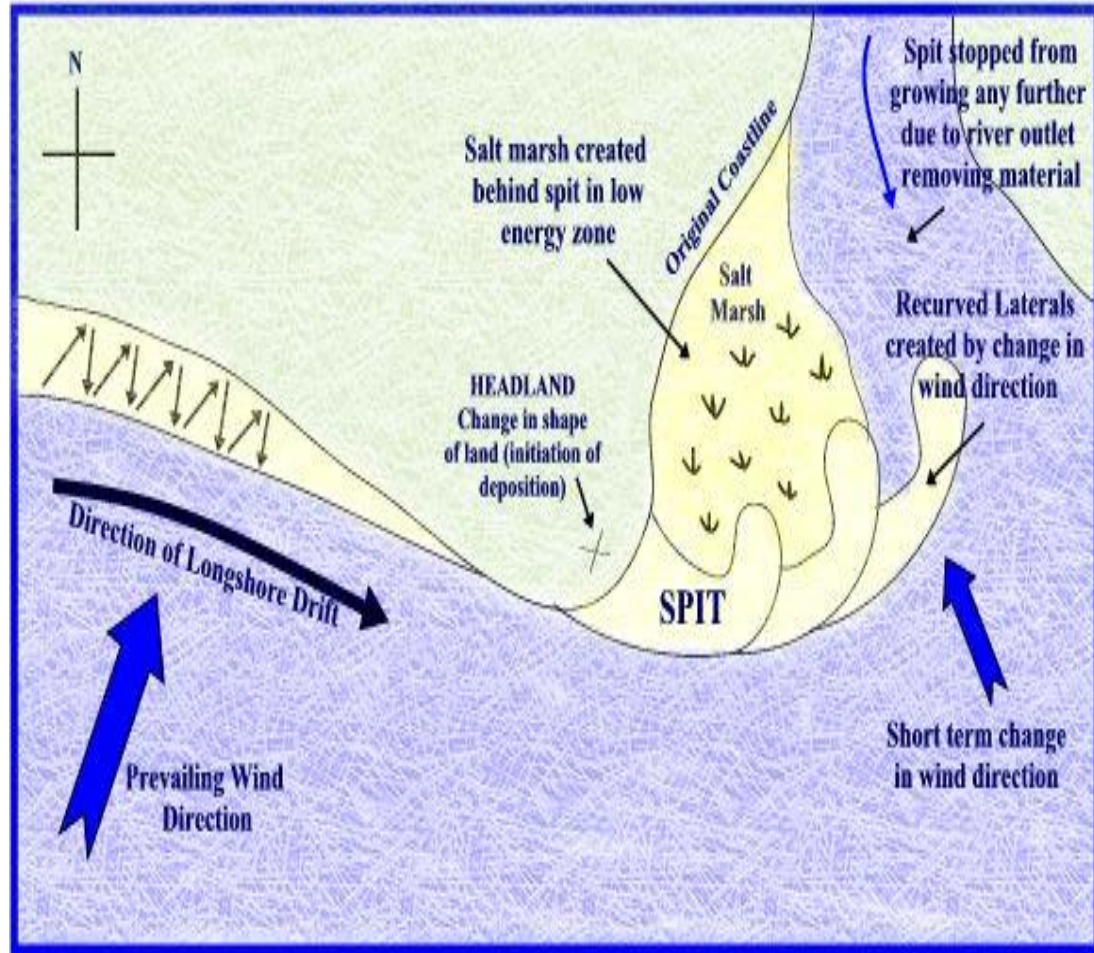
The process repeats and the cliff continues to retreat

# CLIFF AND WAVECUT PLATFORM





# The Formation of a Spit



1. **Longshore drift** moves material along the coastline.
2. **Spit** is a long, narrow ridge of sand or pebble with one end connected to the coast and the other end running into the sea. Over time, the spit grows and develops **as hook**.
3. Waves cannot get past a spit, which creates a sheltered area where silt is deposited and **salt marshes** form.
4. **The Bar** is a stretch of sand deposition off the shoreline in parallel direction.

# What is Tombolos?

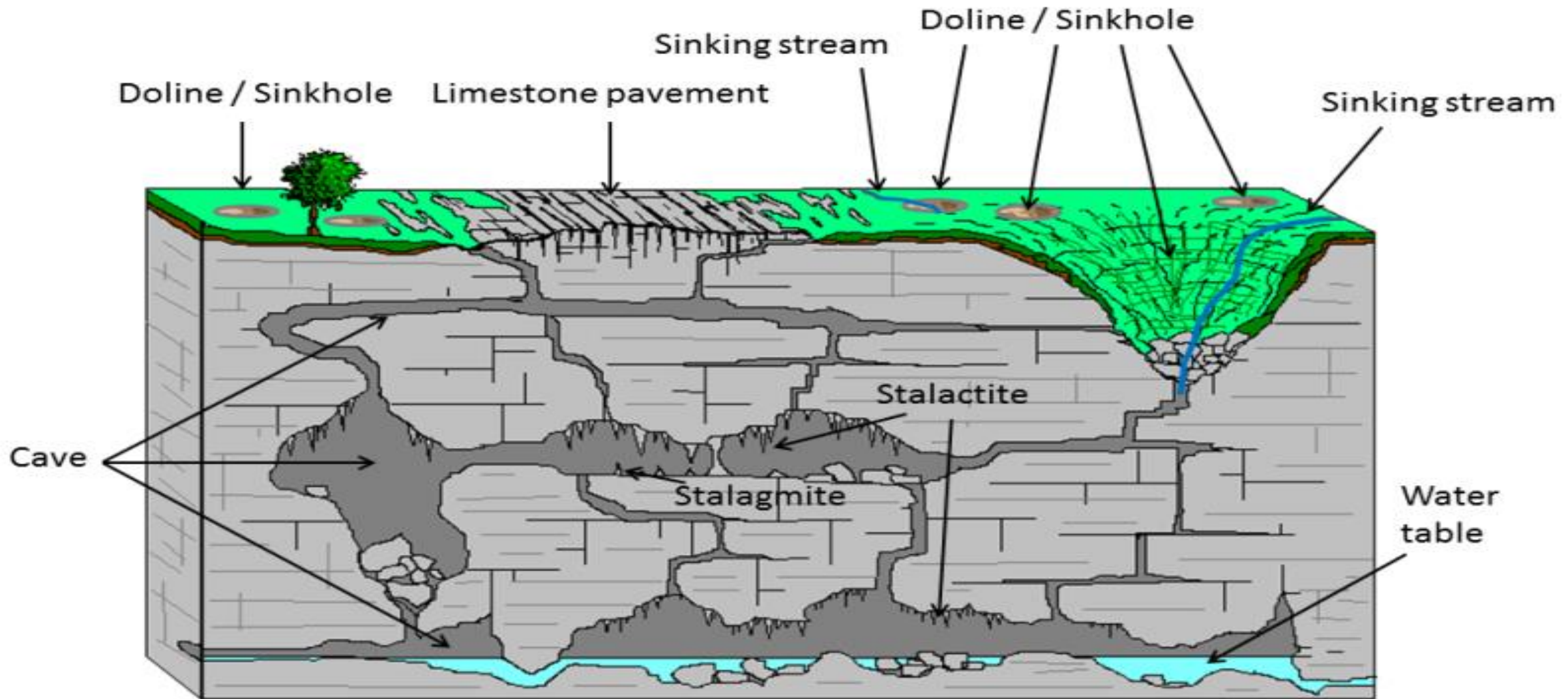
- ▶ a ridge of sand and shingle joining the mainland to an island



<http://80.59.24.98/Joomla/index.php/geog-historia/prof-d-marcelino-urresti/88-tema-1-o-relieve-costero>



# KARST LANDFORMS





# STALACTITES & STALAGMITES



A karst landform is a geological feature created on the earth's surface by the drainage of water into the ground. Typical karst forms include sinkholes, caves, limestone pavements and sinking streams. They were first studied in detail in Kras, Slovenia, hence the name *karst*.

**Sink hole:** The most recognizable karst landform is the sinkhole. This is a bowl, funnel or cylinder-shaped depression in the earth which feeds water underground.

**Limestone pavement:** These are small solution pits, grooves and runnels, collectively called pavement or karren.

**Doline:** A Sinkhole with the diameter around 1 km.

**Uvala:** When 2 or more Dolines coalesce to form large sinkhole called Uvala

**Polje:** These are major sinkholes with flat floors and steep walls.

**stalactite and stalagmite:** These are elongated forms of various minerals deposited from solution by slowly dripping water.

A stalactite hangs like an icicle(**a pendent mass of ice formed by the freezing of dripping water**) from the ceiling of a cavern.

A stalagmite appears like an inverted stalactite, rising from the floor of a cavern.

THE END