Chapter 9. Coastal relief

9.1. Coastal environments

- The tide is a phenomenon characterized by periodic variations in sea level. Its extent and period depend on where you are in the world: in the Mediterranean, the tidal range is not very pronounced (40 cm).

- Tidal currents

Sea currents have two distinct origins:

- tidal currents, known as “gravitational” currents: their origin is the tide-generating force, whose primary cause is Newtonian attraction (the lateral and horizontal movements that accompany the vertical rise and fall of sea water);

- radiation” currents: their more or less distant origin is solar radiation, responsible for phenomena such as wind patterns, seasonal cycles and meteorological disturbances.

Figure 9. 1: Tidal currents

A wave is a deformation of the surface of a body of water, usually caused by the wind.

Figure 9. 2. A wave

A swell is an undulatory movement of the sea surface formed by a wind field far from the observation zone (distant wind).

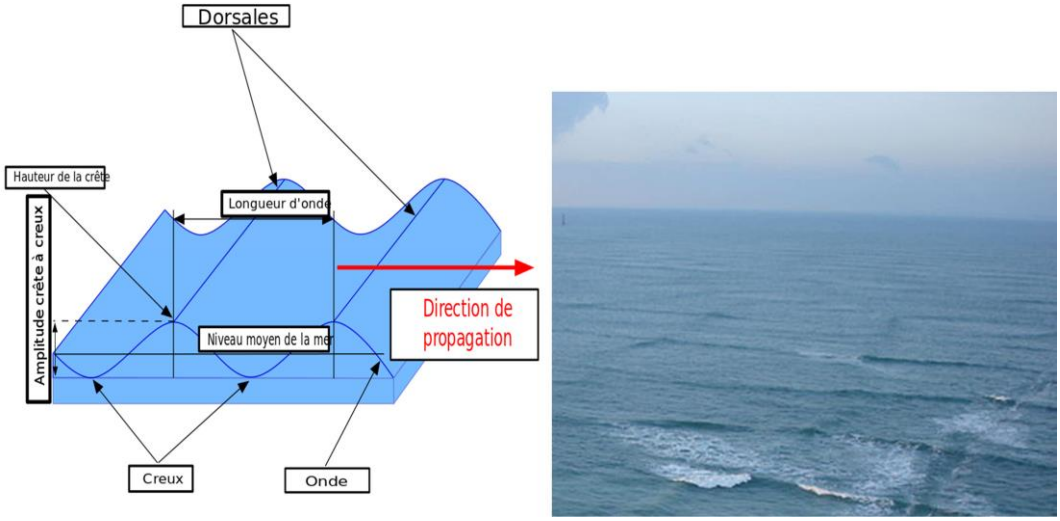

Figure 9. 3. The swell

9. 2. Eroding coastal landforms

In geomorphology, a littoral platform, also known as a rocky plateau or marine erosion (or abrasion) platform, is a flat surface carved by waves and subaerial weathering into a rock of minimal resistance, and which rises slowly to the foot of a cliff.

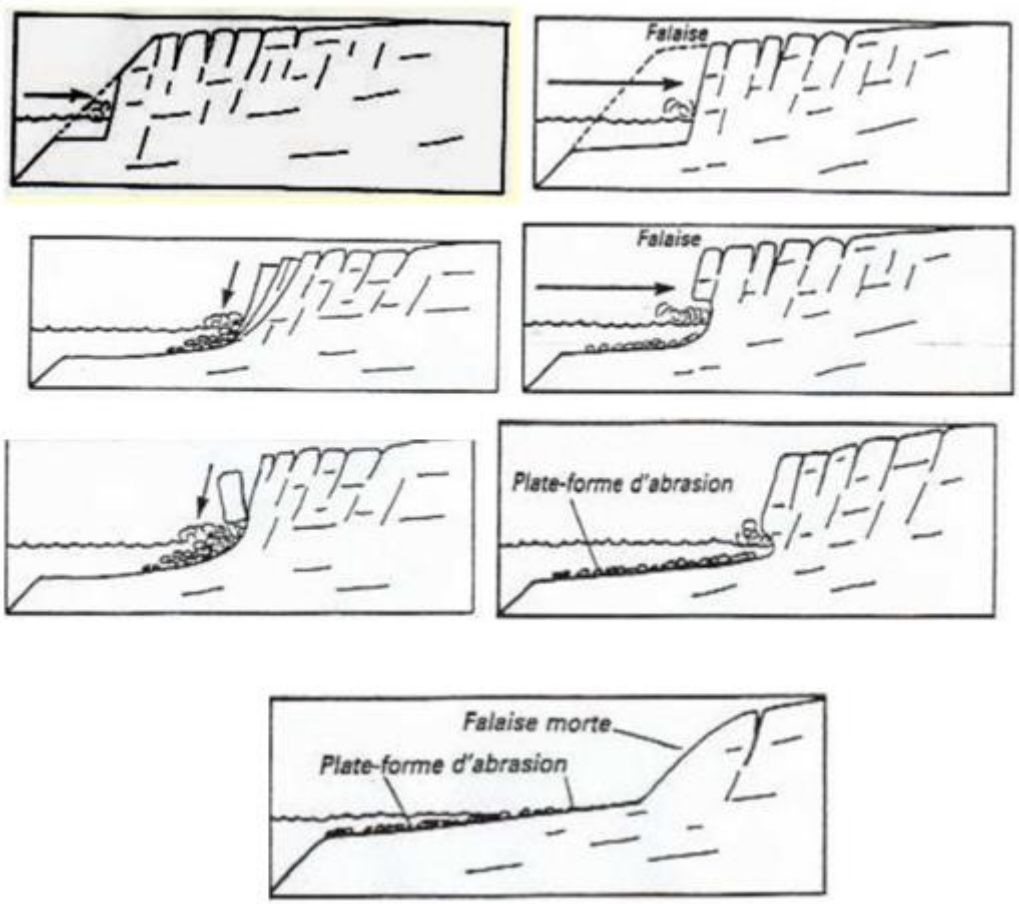

Figure 9. 4. Cliff recession

Figure 9. 5. Cliff

Coastal deposits

- The coast is the land adjacent to or near the maritime domain (sea or ocean).
- The coastline is the strip of land between the sea and the mainland.

- In geomorphology, a beach is defined as “an accumulation on the seashore of geomaterials of varying size, from fine sands to boulders”.

Beach rock: beach sandstone is a sedimentary rock formed in the littoral zone by the rapid cementation of sand or shell debris (consolidated, bedded beach formation).

Figure 9.6. Beach rock