COLLABORATE

CIVIL PROTECTION STARTS WITH YOU

112
EMERGENCY NUMBER

USEFUL CONTACTS

- PSP 212 721 400
- GNR 217 655 870
- MUNICIPAL CIVIL PROTECTION SERVICE 212 946 577
- CACILHAS FIRE DEPARTMENT 212 722 520
- ALMADA FIRE DEPARTMENT 212 722 290
- TRAFARIA FIRE DEPARTMENT 212 950 093

PREVENT
PLAN
RESCUE

Municipal Civil Protection Service of Almada
Rua dos Lusíadas - Bairro do Matadouro
2800-221 Pragal
Tel.: 212 946 577
www.cm-almada.pt
pcivil@cm-almada.pt

USEFUL CONTACTS

SELF-PROTECTION MEASURES:

- Take extra care when traveling along the coastline and riverbanks, especially in areas historically more vulnerable to coastal flooding. Avoid traveling and staying in these locations.
- Refrain from engaging in activities related to the sea, such as sport fishing, water sports, and beach walks. Also, avoid parking vehicles too close to the shoreline.

- Practice defensive driving, reduce speed, and be particularly cautious of possible water accumulation on roads.

- Do not cross flooded areas to avoid the risk of being swept away into holes in the pavement or open manholes.
- In areas at risk of coastal erosion, residents should pay attention to the possible impact on buildings (homes, beach facilities, etc.) located near the coast or beaches.

- Stay informed about weather updates and follow the instructions from Civil Protection and Security Forces.

SELF-PROTECTION MEASURES

Coastal Risks

Prevention | Self-Protection

112
EMERGENCY NUMBER

PROTEÇÃO CIVIL ALMADA

CMA CÂMARA MUNICIPAL DE ALMADA

COASTAL FLOODS AND OVERTOPPING

FLOODS

According to Decree-Law No. 115/2010 of October 22, a flood is defined as *"the temporary coverage of land by water outside its normal boundaries, resulting from floods caused by natural processes such as precipitation, increasing river flows, mountain torrents, and ephemeral watercourses, corresponding to river floods, or from the rise in sea levels in coastal areas."*

Floods, resulting from natural phenomena, can be classified into:

Coastal floods: These can originate from the rise in water levels relative to the normal level, due to the combination of oceanographic and atmospheric forces, which, in transition areas like estuaries, can be further influenced by river-based forces.

Coastal floods are influenced by three main factors, which can occur together:

- High tide level
- Meteorological surge
- Wave action

Floods resulting from intense precipitation, also sometimes referred to as pluvial floods, are directly caused by surface runoff or by the exceeding of local natural or constructed drainage networks.

Coastal floods and overtopping affect beaches, coastal dunes, cliffs, detrital barriers (such as spits, welded barriers, and barrier islands), tombolos, salt marshes, coastal protection zones, transitional waters and their respective beds and protection zones, as well as structures and infrastructures along the coast that increase susceptibility to the advancing sea.

SUSCEPTIBILITY TO FLOODING AND COASTAL OVERTOPPING

In Mainland Portugal, areas classified with high susceptibility to flooding and coastal overtopping are distributed along almost the entire coastline of Mainland Portugal.

COASTAL EROSION

Coastal erosion is the natural process that causes the reduction of beaches and the retreat of dunes and cliffs. It shapes the coast through the action of waves, currents, and wind.

Destruction of Beaches and Dune Systems - Decrease in the volume of sand on the beach and adjacent dunes, with progression inland and downward from the dominant direction of erosion of an erosive berm.

Retreat and Instability of Cliffs - Movement of a mass of rock or cohesive soil down a coastal cliff. The centre of gravity of the affected material moves downstream and outward from the cliff. This includes:

- Collapse (Falls)
- Tilting (Tipping)
- Slides (Slips)
- Rotational Slumps and Debris Flows.

These movements are predominantly triggered by intense and/or prolonged rainfall, earthquakes, storms at sea, and anthropogenic activities.

COASTAL EROSION