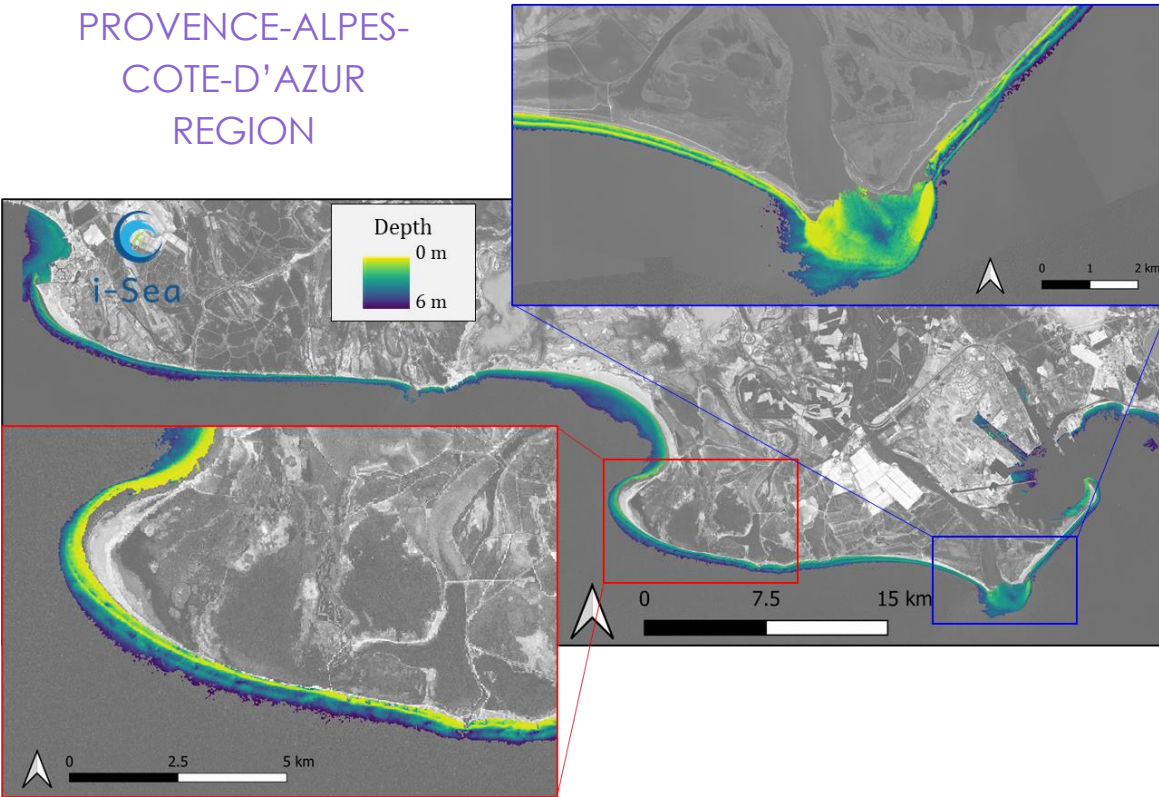


# Space for Shore French Success Story

Result of deep interaction between product developers and coastal managers



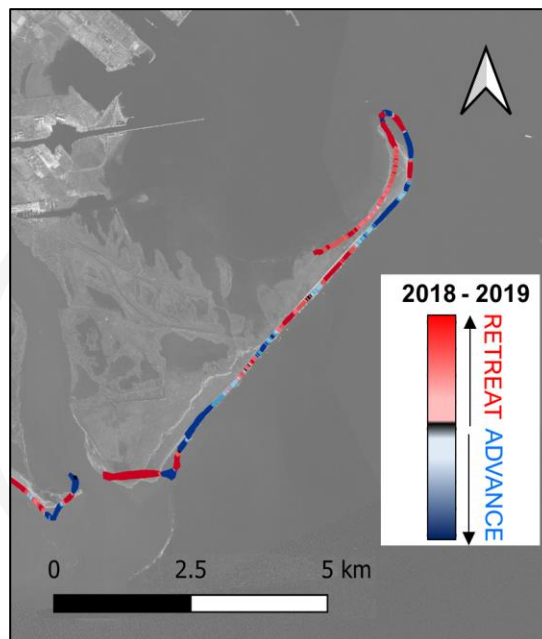
## PROVENCE-ALPES- COTE-D'AZUR REGION



## THE SPACE BASED SOLUTION

Coastline detection is derived from classification algorithms based on optical satellite images allowing the water limit to be adapted to the environment, depending on the nature of the sediment. The extraction is semi-automatic and allows a homogeneity of the result over the entire study area.

The changes in upper swash position is done along cross-shore profiles and surface area changes are also measured. This type of analysis is crucial to identify coastal erosion hotspots and areas at risk.



- Extract morphological information of the coastal area from satellite images
- Monitoring coastal changes at large spatial & temporal scales
- Extract the main information from the Mediterranean coast:
  - Bathymetry & changes
  - Coastline position & changes

## The Outcomes

6 coastal morphological indicators and coastal dynamics:

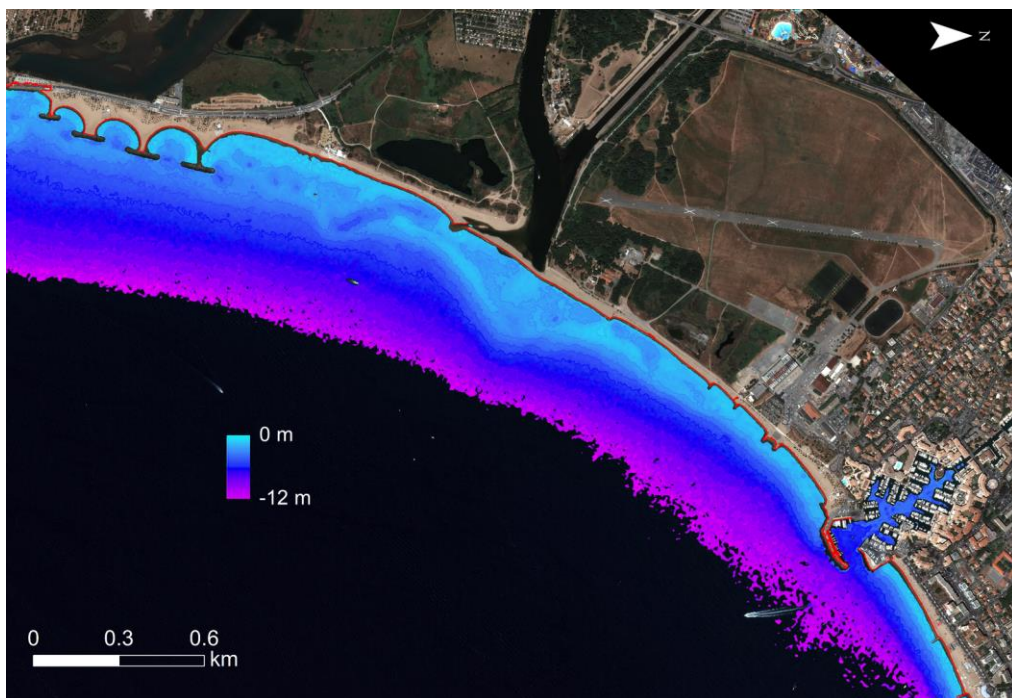
- Upper swash limit extraction
- Yearly changes in shoreline position
- Changes in coastal area
- Bathymetry
- Waterline limit
- Changes in nearshore seabed elevation

## EROSION RISK PREVENTION

The processing of satellite images now makes it possible to reconstruct shallow water bathymetry, based on the attenuation of light by the water column.

i-Sea produced a set of bathymetries on several sites with high socio-economic and ecological issues in PACA up to nearly 10-m deep covering large areas at high frequency, at very attractive costs.

The evolution of near-shore seabed is a necessary analysis to assess the erosion issues from which the littoral is suffering.



The use of satellite images has shown its interest in monitoring the impacts of global warming on the evolution of the coastline and anticipating the future of the coastline. It is for this reason that the Regional Directorate of Environment, Planning and Housing has supported I-sea in its research and development project ESA Coastal Erosion. The satellite data interpreted during 2 years of experimentation will enrich the future regional data platform "Mon Littoral Provence-Côte d'Azur".

The DREAL project team of "Mon Littoral Provence-Côte-d'Azur")

## FRENCH SUCCESS STORY

**30**

Years Retrospective

**06**

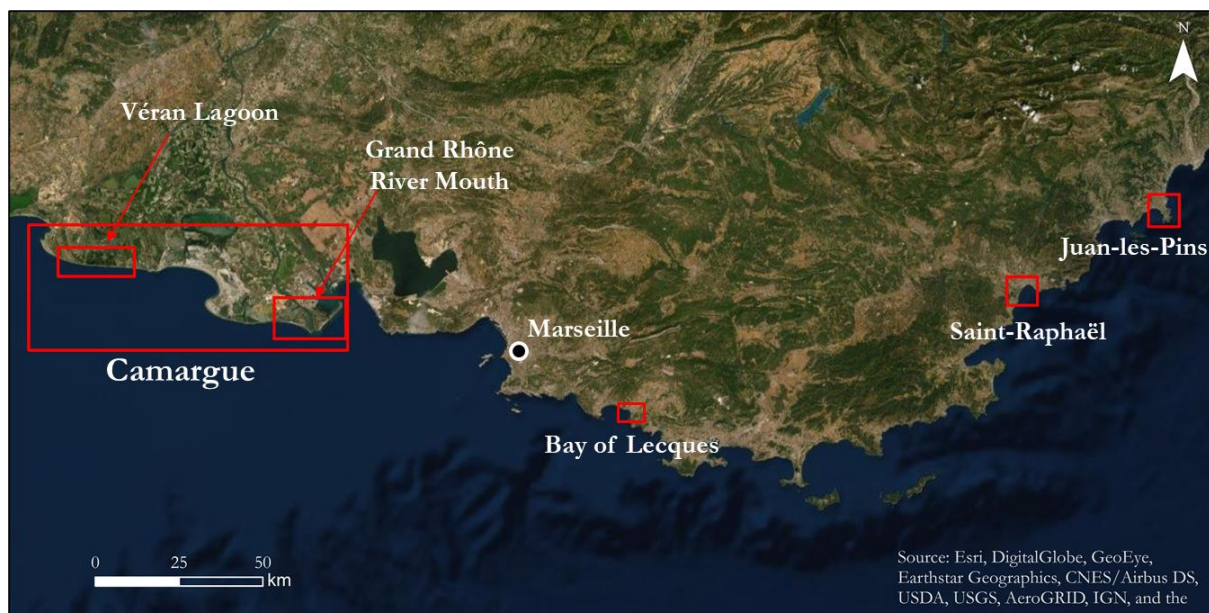
Areas of Interest

**128**

Km monitored

**350**

Number of products



A project funded by the ESA Earth Observation Envelope Program (EOEP-5)