

# living planet symposium | BONN 23–27 May 2022

TAKING THE PULSE  
OF OUR PLANET FROM SPACE



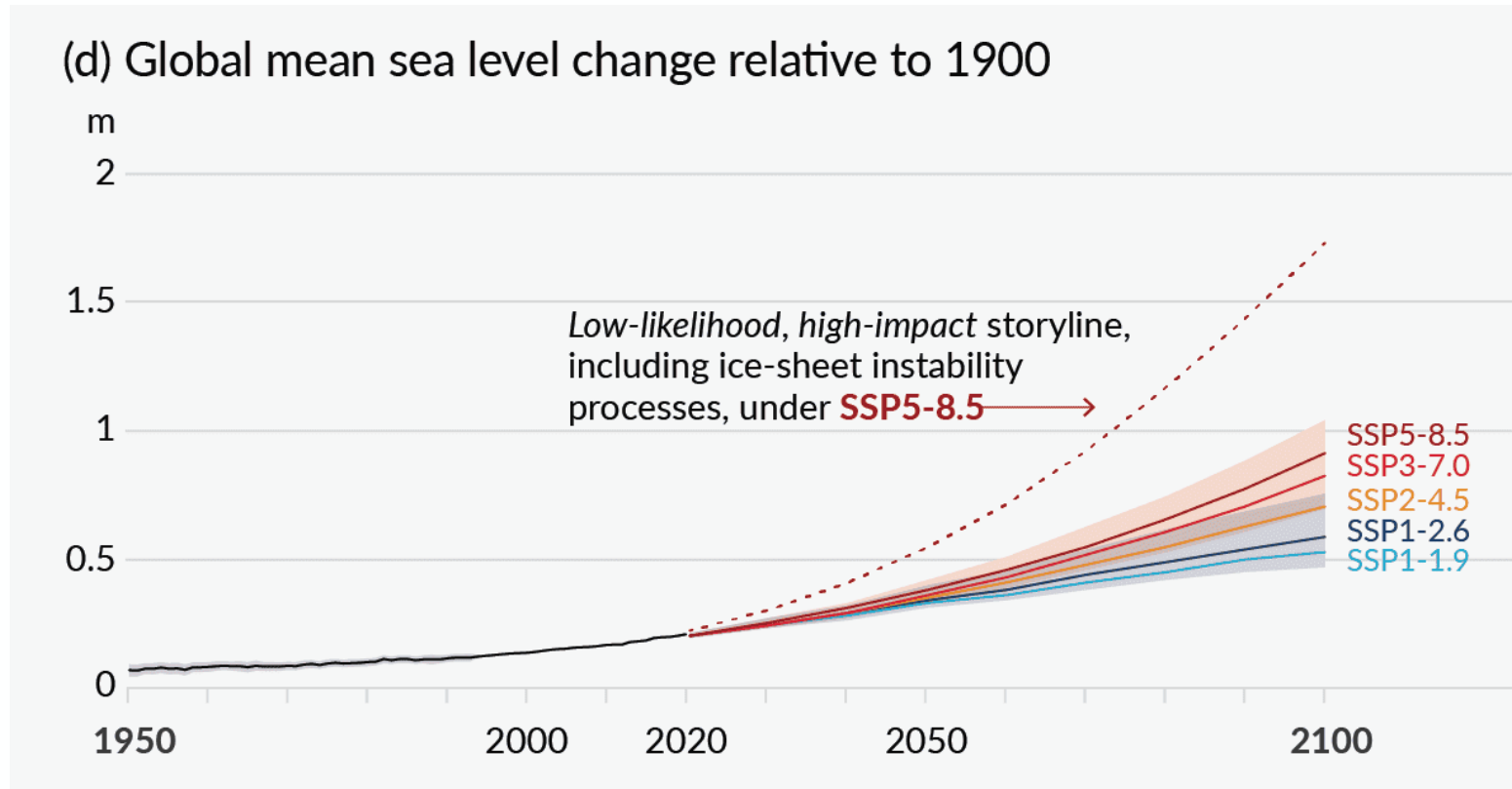
*Invited session*

## Coastal Erosion: The Satellite Contribution

24<sup>th</sup> May 2022

The IPCC AR 6 report indicates a best estimated world sea level rise of 66 cm by end of this century. As a result, the coastal erosion process as visible and measured by satellite since the 80s could only increase in the near future. This session intends to provide a dedicated forum to scientists associated to public authorities to report on the use of satellite data to characterize this process over the past 30 to 40 years. To this purpose, the Agency placed in 2018 two contracts that studied the process in 9 ESA member states. Algorithms, methods and results will be presented together with other relevant studies in other part of the world.

Extract from IPCC AR6 Summary for Policymakers - Figure SPM.8



# ESA Coastal Erosion

## The studied sites

### Coastal Erosion from Space – ARGANS

#### United Kingdom

- ✓ Chesil Beach
- ✓ Start Bay
- ✓ Perranporth
- ✓ Spurn Head to Hunstanton
- ✓ Cardigan Bay

#### Ireland

- ✓ Dublin Bay
- ✓ Ravens Point and Rosslare
- ✓ Waterford Estuary
- ✓ Cork Harbour
- ✓ Muir Eireann

#### Spain

- ✓ Barcelona and Tordera Delta
- ✓ Port of Castellón and Port of Sagunt
- ✓ Cadiz and Mazagón Beach
- ✓ El Puntal de Santander
- ✓ Bay of Biscay

#### Canada

- ✓ Pointe au Loup
- ✓ Pointe aux Outardes
- ✓ Longue Pointe de Mingan
- ✓ Bylot Island
- ✓ Baffin Bay

#### Italy

- ✓ Lido di Jesolo
- ✓ Catania, Sicily



### Space for Shore – i-Sea

#### France

- ✓ Coast of the New Aquitaine
- ✓ Coast of Normandy
- ✓ Provence-Alpes-Côte d'Azur Region
- ✓ Vendée Department
- ✓ Morbihan Department
- ✓ Charente-Maritime Department
- ✓ Occitany Region (Roussillon)

#### Greece

- ✓ Eastern Macedonia & Thrace
- ✓ Peloponnese
- ✓ Euboan Gulf
- ✓ Rhodes Island

#### Germany

- ✓ North Sea
- ✓ Baltic Sea
- ✓ Southern Schleswig-Holstein Wadden Sea tidal flats

#### Portugal

- ✓ Northwest coast
- ✓ Peniche
- ✓ Alentejo
- ✓ Algarve

#### Romania

- ✓ Romanian Coast
- ✓ Constanta
- ✓ Chilia secondary delta

#### Norway

- ✓ Svalbard



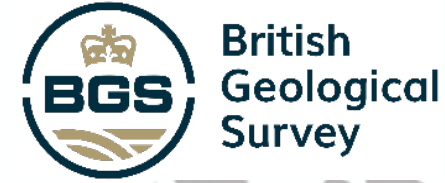
# The Coastal Change Consortium



in St Laurent mouth (Canada)



in Kilkee (Ireland)



Coastal Erosion events:  
in Nerja (Spain)



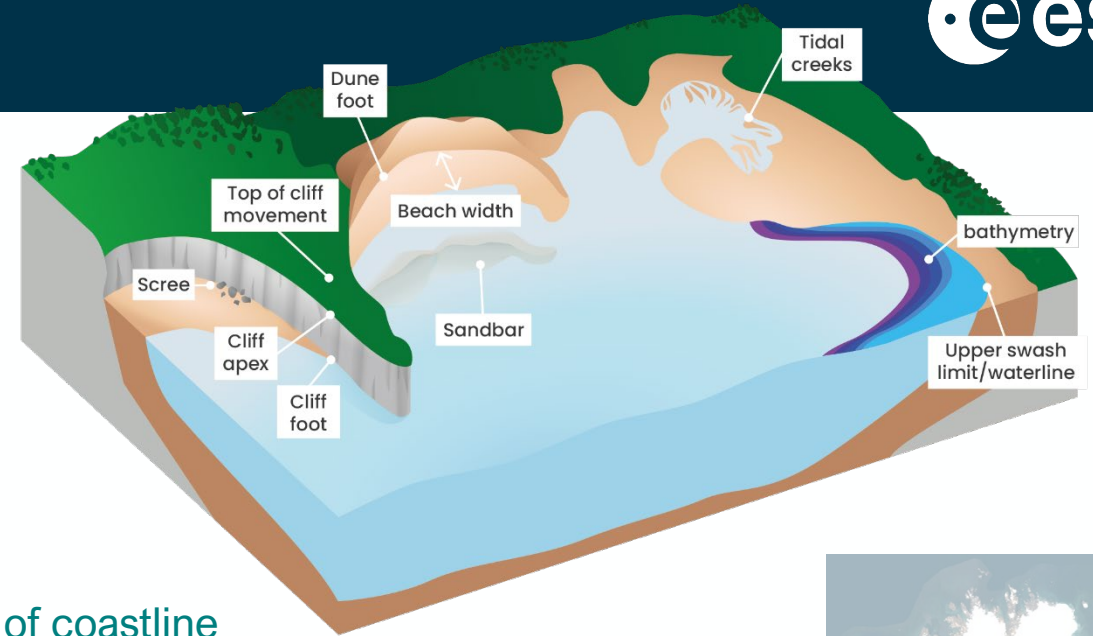
**ISPRA**  
Italian National Institute  
for Environmental  
Protection and Research



# Space for Shore Consortium



Long-term, large-scale, and high-frequency monitoring of multi-morphological indicators



Optical remote sensing experts

SAR remote sensing experts

Coastal erosion experts



Service development



~4000 km of coastline

25 years of retrospective

Thousands of satellite images

~10 algorithms developed

> 40 end-users and experts involved

