

### living planet symposium BONN 23-27 May 2022

TAKING THE PULSE OF OUR PLANET FROM SPACE

EUMETSAT CECMWF



Watching out large-scale shoreline monitoring in Europe, comparison study from the Portuguese, French, German, Romanian, Norwegian, and Greek sandy coasts

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💽 i-Sea

Cesa Coastal Erosion Project

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TERRASIGNA



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# Indicators for describing the « sandy coastline »



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# **Towards large-scale and universal methods**









14. Dune vegetation

WATER CLASS
3. Wet sand
5. Water
6. Surf
8. Muddy foreshore
10. Shallow water
11. Turbid water

12. Water on rock

13. Submerged herbarium





Possibility to extract waterlines, dune foot positions, vegetation limits, upper swash excursion...





Upper swash limit Best accuracy reached:

- 2.2 m with Sentinel-2 images
- 1.26 m with Pléiades images

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# Waterline for the Algarve region; annual products, between 1995 and 2022





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### for Shore - LPS2022 Dune foot evolution – How storms can erode the shoreline in one season







Space for Shore - LPS2022

# **Upper swash limit monitoring**





### Space for Shore - LPS2022 Shoreline changes Hörnum-Odde, Germany, North Sea (2015-2021)



# 26b <u>500 m</u>

**26**c

а



100

80

- 60

40

20

CI of LRR [m

95 %

2

0

Change Envelope [m]

Shoreline

### Shore-LPS2022 Shoreline changes Hörnum-Odde, Germany, North Sea (2015-2021)









# Waterline detection for Danube Delta and southern littoral











### In the european space agency → The european space agency

# Waterline detection for Danube **Delta and southern littoral**





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# **Examples for Chilia Secondary Delta site**

Bace for Shore – LPS2022







Waterline products derived from Landsat 5 and Landsat 8 data (south part of the Chilia Secondary Delta)

Waterline products derived from Landsat 5 and Landsat 8 data (north part of the Chilia Secondary Delta)

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# **Beach width**



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# Thank you!

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