

Linking space to user needs

Coastal water quality monitoring

Smart City Expo World Congress · Barcelona, 3–5 November 2026



The coastal challenge

What problem does the city face?

- Coastal areas lack **real-time data** on bathing water quality
- **Weekly sampling** can **miss fast pollution events**, after storms or runoff
- **Sparse sensors** limit coverage of beaches, river mouths and discharge areas
- **Late or blanket beach closures** harm bathers' health and tourism
- Public advisories need **clear, timely, traceable evidence**

22,000

EU bathing sites, assessed mainly through periodic sampling (EEA, 2026)

Weekly

Current average sampling cycle, with no real-time platform

The solution at a glance



What it does

Uses **Copernicus satellites** and **local buoys** to show where and when bathing water needs a closer look



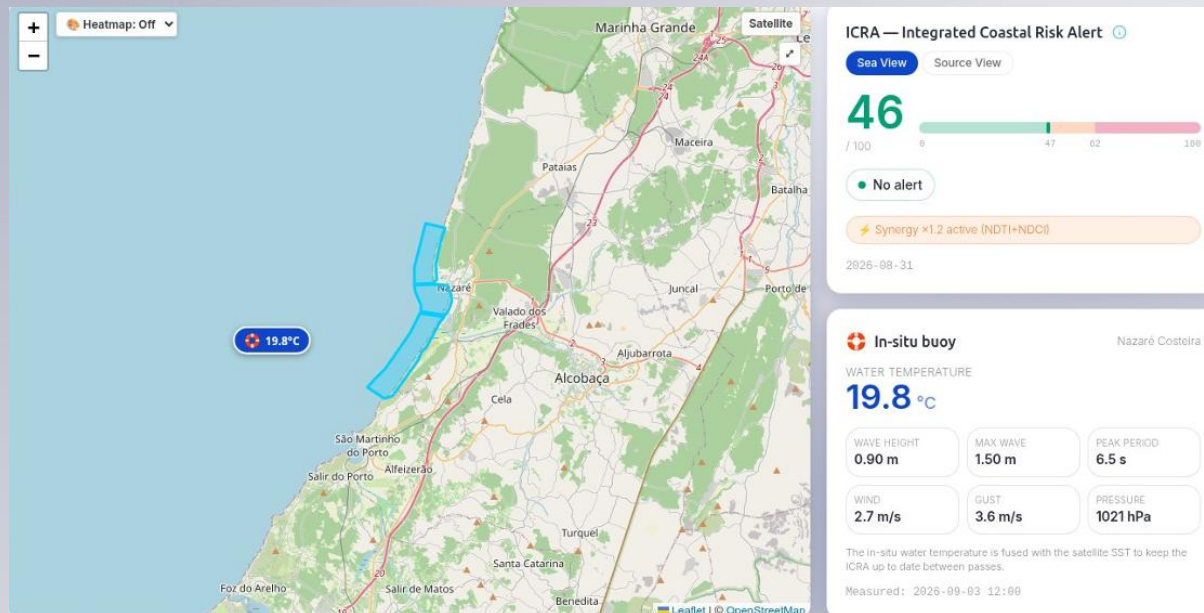
Who it is for

Municipal environment teams, coastal managers, ports and lifeguard services



What users get

Beach-zone maps, **10–20 m high-resolution views**, risk alerts and history



EU Space inside



Copernicus

Data / services used

Sentinel-2 optical imagery;
Sentinel-3 sea-surface temperature

Added value

Provides **free, repeatable** coastal **indicators**, spatial coverage and **historical context**.



Galileo / EGNOS

Data / services used

Not required for this use case

Added value

Geolocation is handled through NGSI-LD; beach zones and buoys are at fixed, known positions



In-situ / other data

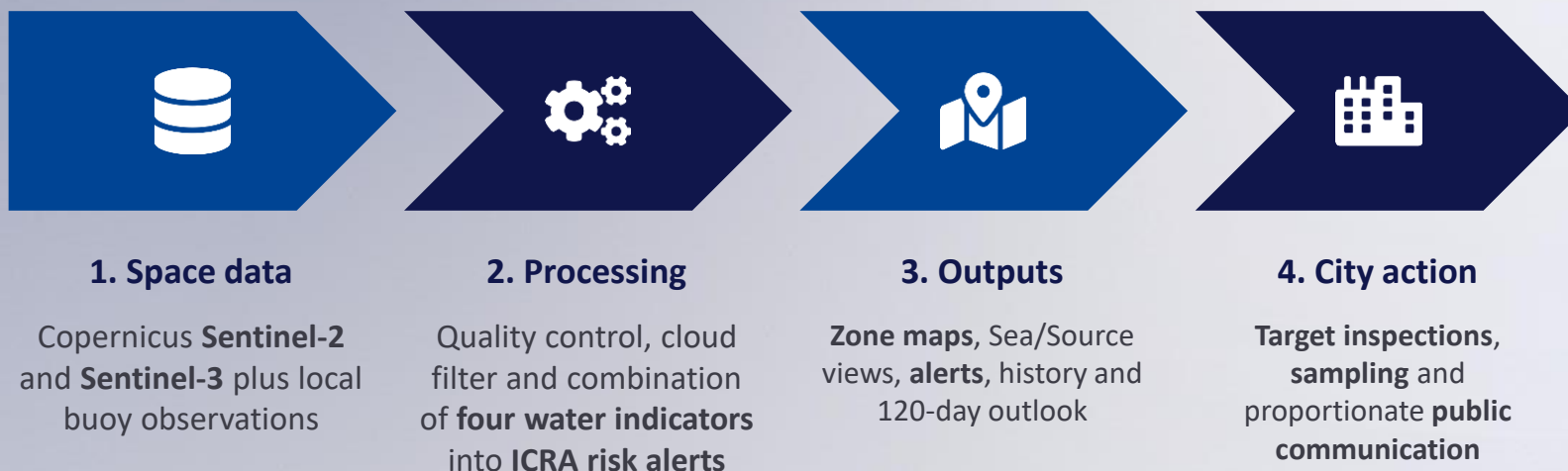
Data / services used

Offshore buoys: Nazaré Costeira (PT) and Bol van Heist (BE)

Added value

Fresh water-temperature readings **complement satellite observations** between passes.

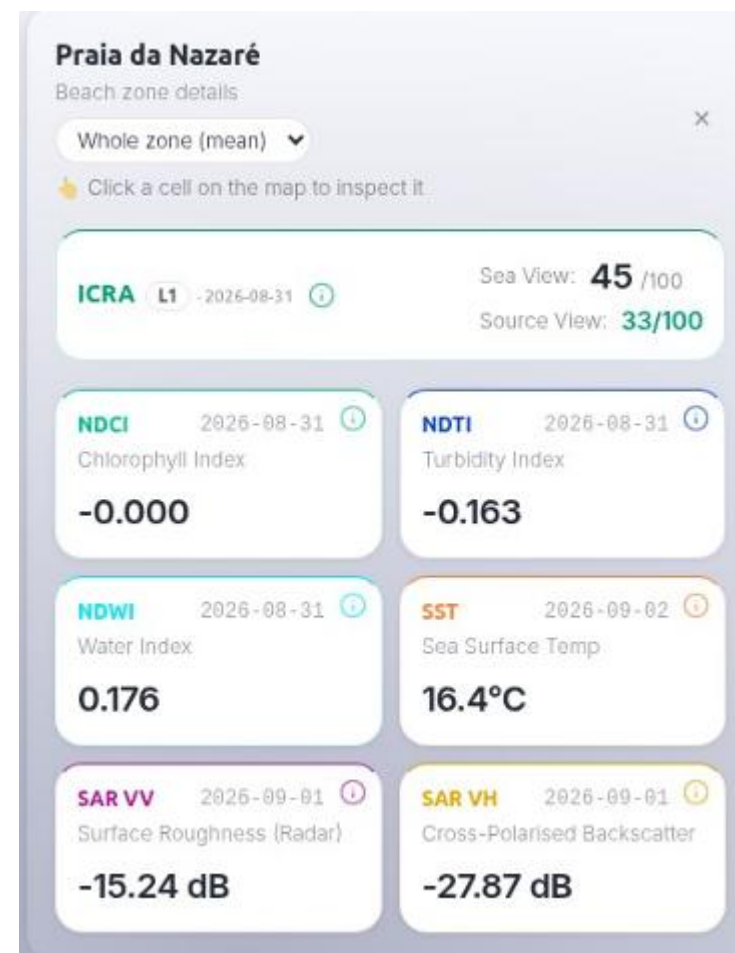
How it works



Curious how it works? Watch the platform in action, from satellite to beach alert: [here](#)

The pilot in practice

Stakeholders involved	Municipalities of; Nazaré (PT), Zeebrugge (BE), North Yorkshire (UK)
Period	February–September 2026
Partners	EY · Libelium · Factual Consulting
End users involved	Municipal environment teams, coastal managers and lifeguard services
Framework	EUSPA-OP-21-21 Lot 5 – SC10



Results and benefits

33 of 40

Top-level alerts matched a **real sewage discharge**

78%

Discharge episodes **flagged** at surveillance level or above

3 of 3

Testers **would recommend** the tool

Copernicus data flags real pollution events, helping coastal teams sample and warn the public sooner.

Who can benefit and what's next



Who can use it

- **Coastal municipalities** and beach managers
- **Ports:** dredging plumes, discharges, algal blooms and oil spills
- **Environmental and public-health authorities**
- **Tourism operators**, researchers and lifeguard services



Lessons learned & next steps

- Alert thresholds work best when **set per zone**, from local history
- **Delays** in sampling and discharge records **limit real-time validation**
- **Next:** clearer index colour scales, **oil-spill layer (Sentinel-1)**, **local forecasts**

Interested in testing it in your city? Talk to us at the EUSPA booth.

Find out more



Download all PoC material

Presentations, factsheets and the brochure 'EU Space for smart cities' are available via the QR code.

Contacts

Valeria Catalano, Valeria.CATALANO@euspa.europa.eu

Alberto Hernandez, a.hernandez@libelium.com

Paola Testa, paola.testa1@ey.com

Patricia Lopes, Patricia.Lopes.Bautista@be.ey.com

Web: www.euspa.europa.eu



Linking space to user needs

Get in touch with us

www.euspa.europa.eu

