Littosat | Coastal satellite dashboard

hytech imaging

Littosat offers a dashboard

For managers of coastal areas and marine protected areas
Fed by new data from satellite images

**Pilot areas : Brittany, Normandy, Gulf of Lion
National and international deployments underway**

Allowing spatio-temporal monitoring of coastal environment parameters

**Coastal vegetation
Morphodynamics of shallow waters
Turbidity and microalgal blooms**

Based on a simple and intuitive display interface
Distributing geoservices that meet the standards of the INSPIRE directive

Available in regional geodatabases
https://littosat.hytech-imaging.fr/littosat-bzh/

Littosat-viewer
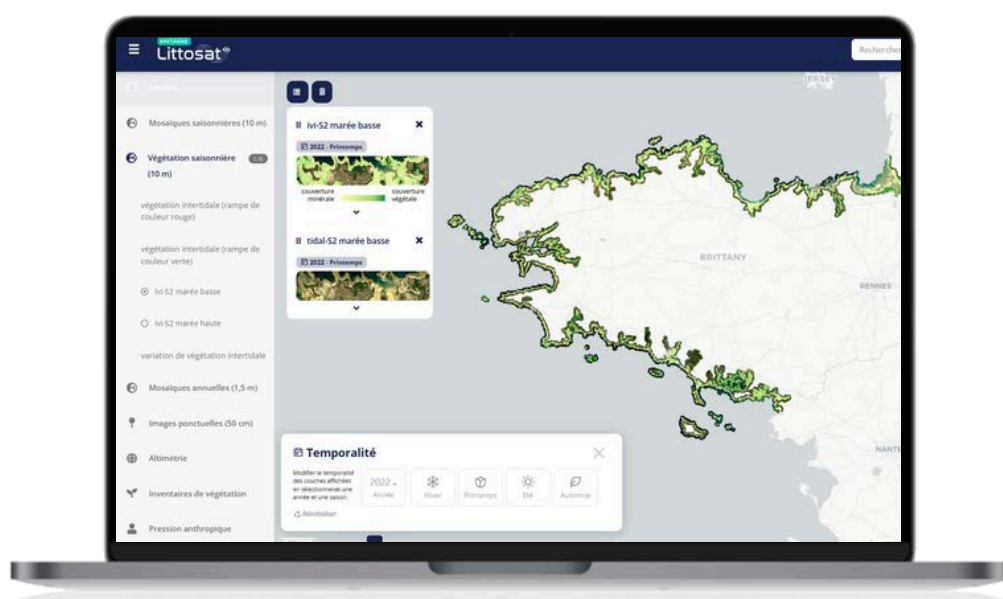
Distribution of Littosat-data
- inter-annual and intra-annual comparisons of vegetation status
- comparison with other data (e.g. Litto3D, seagrass inventories, etc.)
- add your own data layers on demand

View Sentinel-2 images
- images every 5 days since 2015
- selection based on calendar and % of cloud

Distribution of OGC services
- can be reused in your GIS
- interoperability with other platforms

Littosat-data

**tidal-S2** mosaics of Sentinel-2 images at different tide levels
seasonal regional coverage at 10 m over the period 2018-2024, Channel Atlantic coverage in 2025

ivi-S2 emerged foreshore vegetation index
seasonal regional coverage at 10 m over the period 2018-2024 + changes between 2 seasons, Channel Atlantic coverage in 2025

bathy-S2 depth and relief of shallow waters
soon available, at 10 m, coverage currently being defined

chloro-S2 chlorophyll content
soon available, at 10 m, coverage currently being defined

turbi-S2 turbidity, suspended matter
soon available, at 10 m, coverage currently being defined

1- tidal-S2 high tide
2- tidal-S2 low tide
3- ivi-S2 low tide
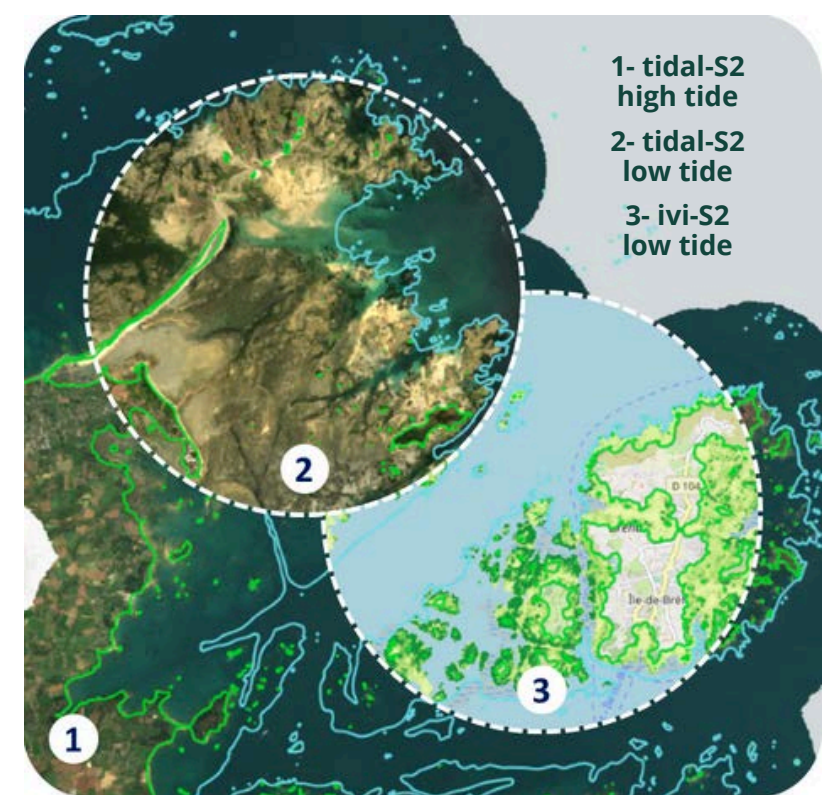
Overview of Littosat data ©Hytech-imaging, contains modified Copernicus Sentinel-2 data (2022)

Littosat-API
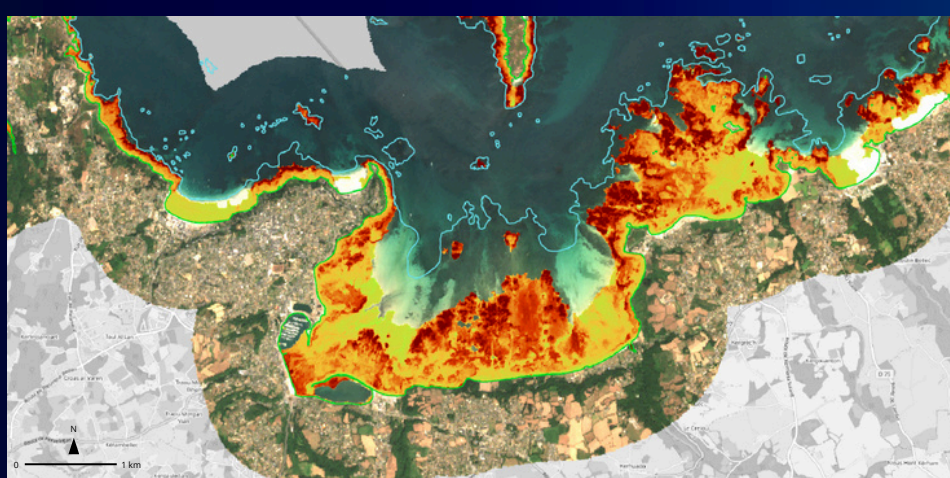
Robust, fully automated infrastructure enabling
- deployment in a coastal region in just a few days
- Upgrading to an API service to meet specific needs
  - API for selecting Sentinel-2 images according to tide and cloud cover criteria
  - API for launching calculations
  - API for extracting spatio-temporal statistics

Use cases
- Colonisation fronts of invasive foreshore species
- Characterisation of the state of health of intertidal macroalgae

Under development as part of the Coastal hub project (Copernicus Marine Service)

Innovation and R&D: towards a continuous emerged-submerged vegetation index

highest water level
lowest water level
Mineral cover   Vegetation cover
©Hytech-imaging, contains modified Copernicus Sentinel-2 data (2022)
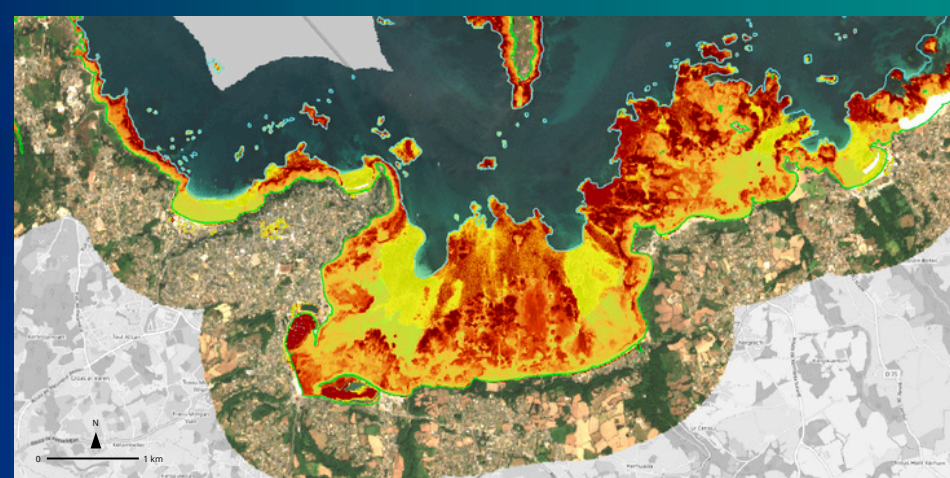
highest water level
lowest water level
Mineral cover   Vegetation cover
©Hytech-imaging, contains modified Copernicus Sentinel-2 data (2022)

Presence/absence of submerged aquatic vegetation index under evaluation.

Objective: continuous product on the foreshore, then on the shallows, independent of the water level and therefore of the tide.

Louannec, Brittany, France

Partners

cnes   OFB OFFICE FRANÇAIS DE LA BIODIVERSITÉ   SHOM L'océan en référence

IRISPACE Institut Régional de l'Innovation Spatiale   iuem   brgm Géosciences pour une Terre durable

Early adopters

Parc naturel marin Park an Arvorig   Parc naturel marin Iroise   ROL   Parc naturel marin Golfe du Lion

References

Bathysat bathymetry data production chain developed in partnership with Shom
tidal-S2 data reused by GéoBretagne and IRISPACE (Regional Copernicus initiative)
Littosat-viewer deployed for the Marine Natural Park of the Gulf of Lion (marine protected area)