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Development of innovative remote sensing techniques and tools for mapping marine bioindicators and their potential responses to specific anthropogenic pollutants

STOPP - Strumenti e Tecniche di Osservazione della Terra in Prossimità e Persistenza

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STOPP - Strumenti e Tecniche di Osservazione della Terra in Prossimità e Persistenza

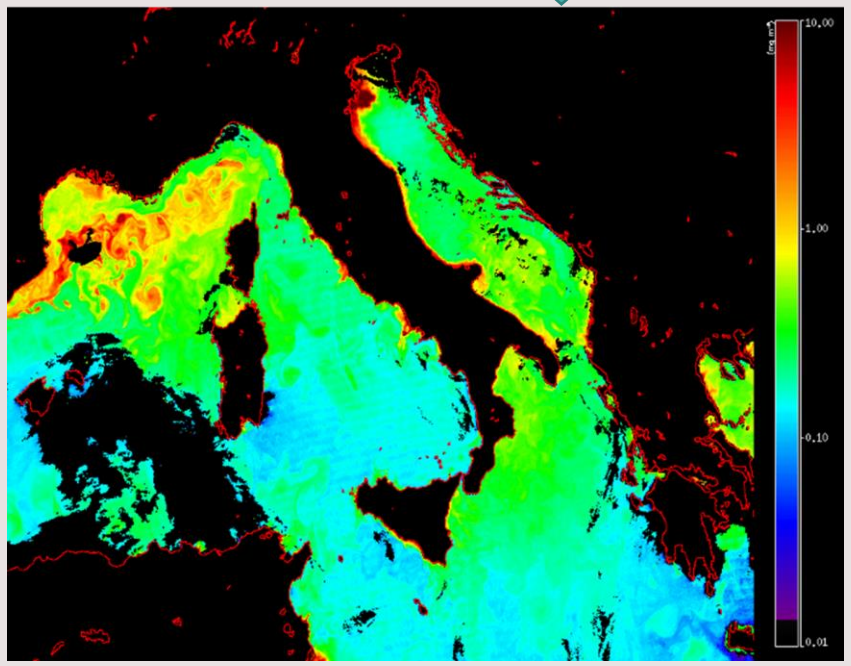
can remote sensing play a role in the control destruction of marine ecosystems???

OIL SPILL

BEACH EROSION

ECOSYSTEM ALTERATION

Anthropogenic impacts overlap with climate change that can amplify the effects of pollution on marine ecosystems.



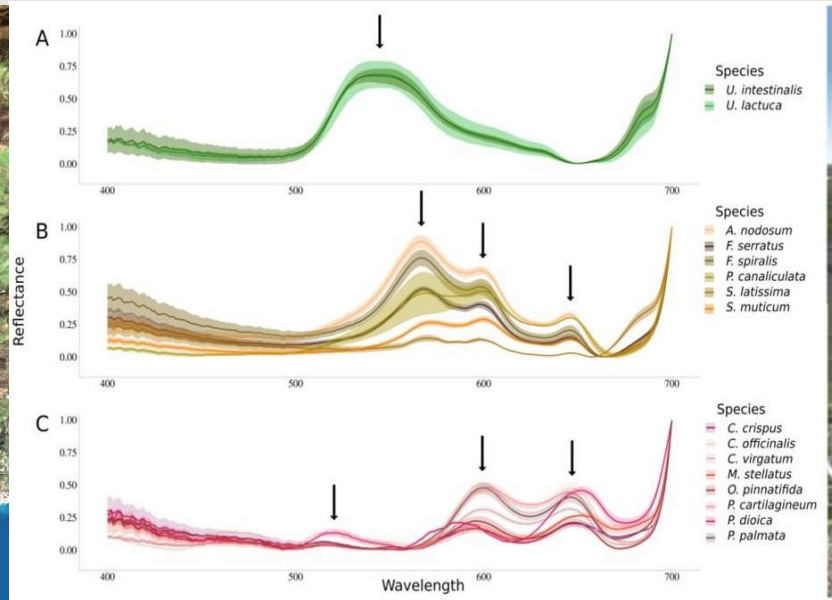
And... what about of coastal marine pollution?

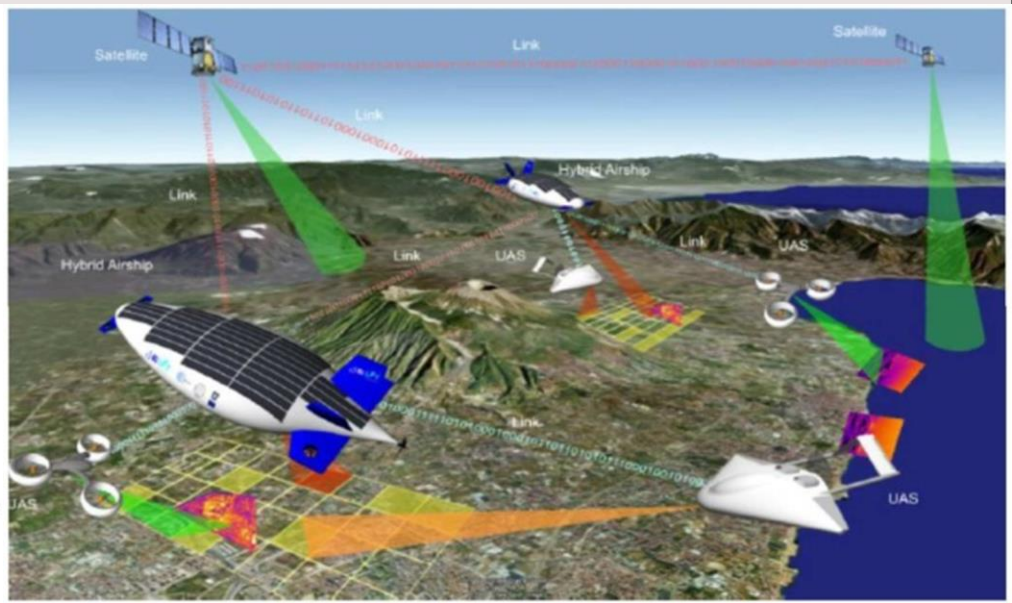
This work is part of the STOPP project (Strumenti e Tecniche di Osservazione della Terra in Prossimità e Persistenza), funded by ASI (Agenzia Spaziale Italiana) and aims to:

(I) map seagrasses and macroalgae species applying remote sensing methodology (e.g., Leaf Area index – LAI);

(II) select target species that can respond to certain pollutants through variations in the spectral signature;

(III) develop an innovative methodology for the monitoring and mapping of marine bioindicators by detecting "target wavelengths" caused by the impact of chemical pollutants on seagrasses and macroalgae species.

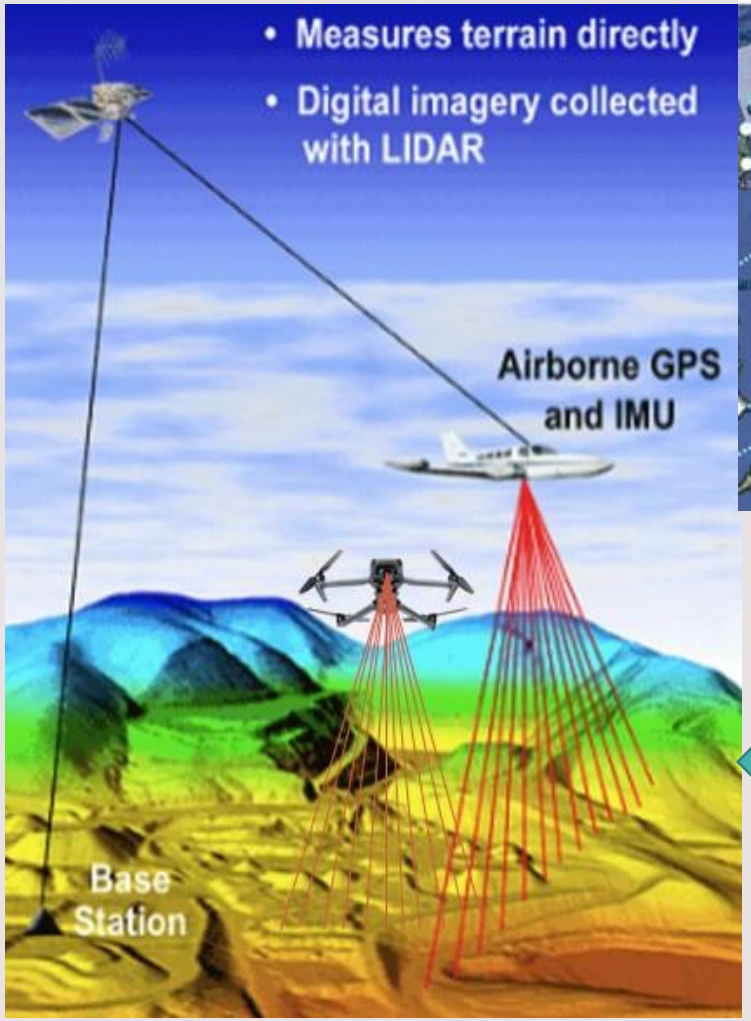


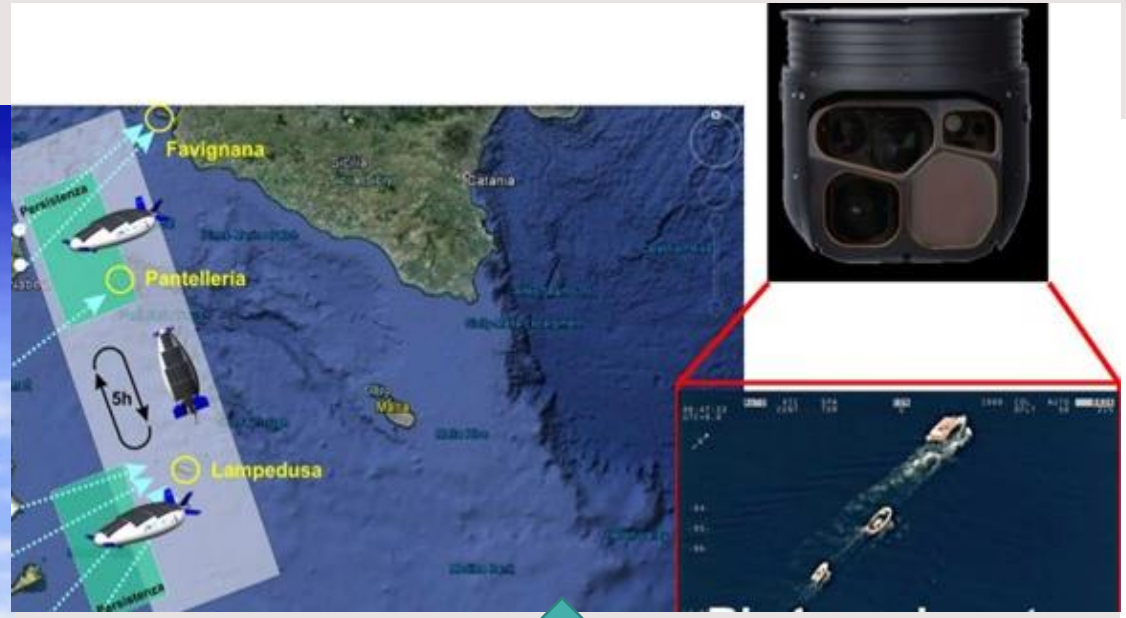



IT6000004
IT6000005
IT6000000
IT6000006
N
W
E
S
km
0 1,25 2,5 5
Test area:
SCI
Biocoenosis Distribution
Civitavecchia
Coastal terrigenous muds (VTC)
Coralligenous (C)
Dead matte (HP)
Dead matte and P.oceanica isolated shoots (HP)
Infralittoral Algae (AP)
P. oceanica on matte/dead matte (HP)
P. oceanica on matte/sand (HP)
P. oceanica on hard substrates (HP)
Coralligenous - precoralligenous aspect
Well sorted fine sands (SFBC)
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

COAST MAPPING

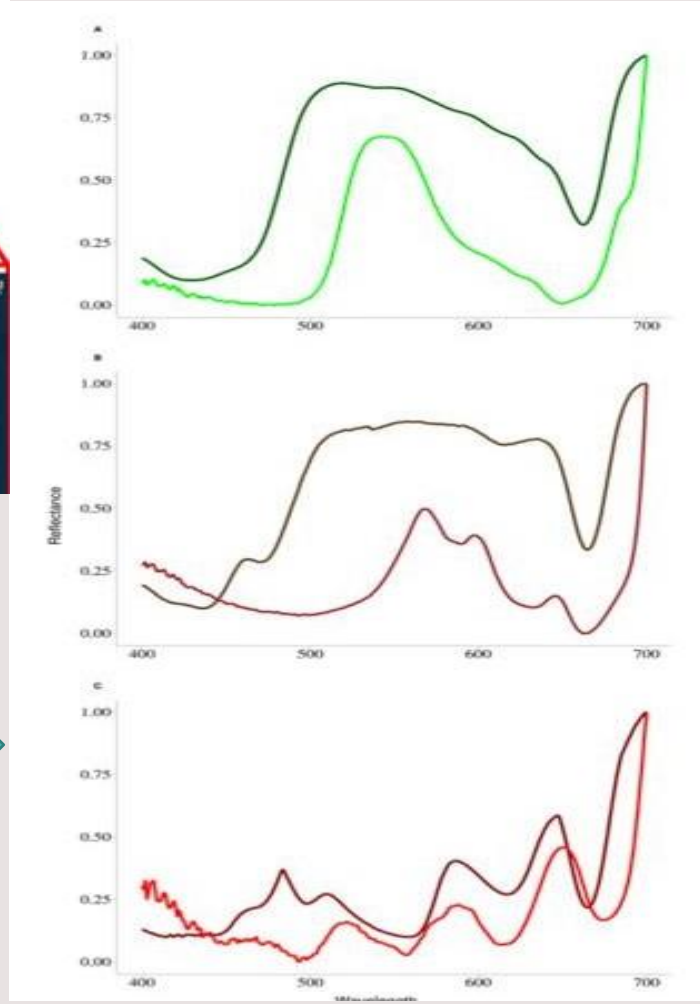
Remote Sensing Systems





ASI-STOPP-PROJECT

Spectral signature of green, brown and red algae



New bioindicators to assess the ecological quality of benthic biocenosis of coastal marine ecosystems:


Cystoseira spp.


Caulerpa cylindracea


Dyctyota dichotoma


Fucus spp.


Hypnea spp.


Padina pavonica


Sargassum spp.


Ulva spp.

THANKS FOR YOUR ATTENTION