BELGIAN EARTH OBSERVATION

AQUALOOKS Improving atmospheric correction and aquatic particle retrieval with bidirectional remote sensing data

Programme	Contract	Start - End	Project type
STEREO III	SR/00/374	1 July 2019 - 30 June 2022	Exploration

https://eo.belspo.be/AQUALOOKS
https://eo.belspo.be/AQUALOOKS-webstory

AQUALOOKS

Context and objectives

The AQUALOOKS project aimed to improve remote sensing observations of coastal and inland waters thanks to multi-looks observations. Today, correcting remote sensing observations for air-water interface BRDF (i.e. skyglint and sunglint) or water BRDF is still challenging in turbid waters. This results in an increased uncertainty in final products.

Project outcome

Scientific results

Main AQUALOOKS scientific results include the acquisition of a very rare database of in water measurements of multi-views radiometry (multi-views AOP) and volume scattering function (multi-views IOP) in turbid waters as well as the production of an algorithm for sunglint correction in turbid water when SWIR band is not available and dedicated to metre-scale sensors.

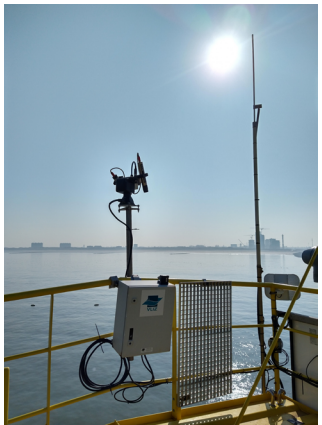
Societal (including environmental) relevance

Results of AQUALOOKS project will help to improve the processing of ocean colour images in coastal and inland waters by improving correction for water BRDF and air-water interface (i.e. sunglint) BRDF.

Products and services

Instruments :

- Design and production of a radiometric cage for multi-views in water measurements.
- Design and production of the new version of the PANTHYR instrument for autonomous measurements of hyperspectral water reflectance. The new version includes multi-views acquisition capacity.



Datasets :

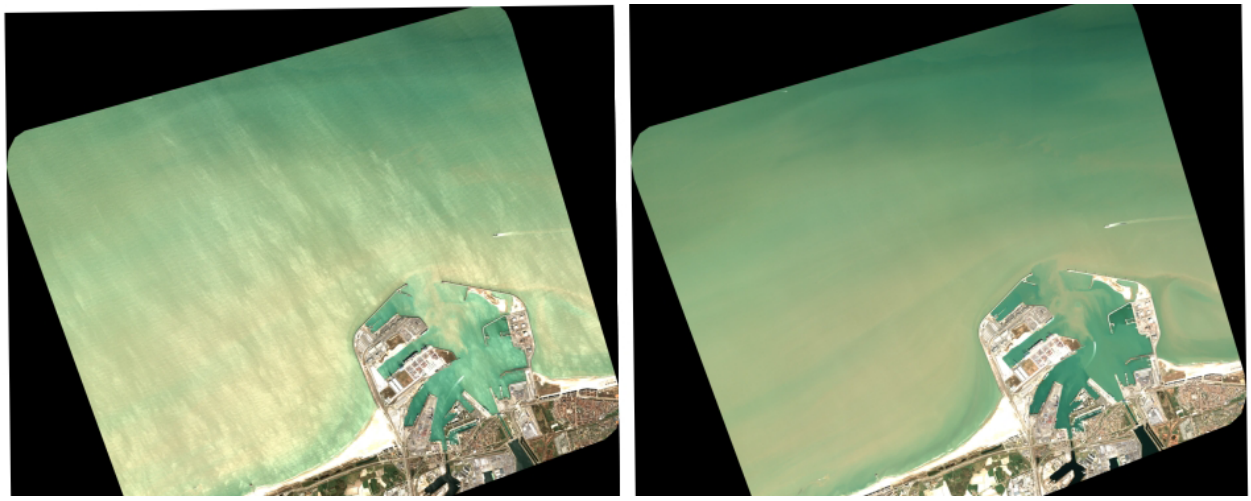
- Above water multi-views radiometric dataset acquired by the PANTHYR instrument at RT1 (500 m offshore Ostend harbour)
- In water multi-views radiometric dataset associated to inherent optical properties including the Volume Scattering Function. Data were acquired in a large variety of inland and coastal waters showing a large range of turbidity (1-30 NTU).
- Dual-look stereo Pléiades images in Belgium waters (10 pairs of images showing water with and without sunglint).

Algorithms :

Sunglint correction algorithm for meter-scale resolution sensors adapted to turbid waters when no SWIR band is available.

Potential users

Potential users are all scientists and people involved on water monitoring who use ocean colour remote sensing products.



Project leader(s)

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Belgian partner(s)

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Location

The "Grand Large" leisure basin in Mons, the Meuse River at Godinne and Belgian coastal waters.

Website

https://odnature.naturalsciences.be/aqualooks

belspo

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