

## MONITORING COASTAL WATERS IN NEAR REAL TIME

*SAIMON is a Near Real Time satellite network for monitoring the Eutrophication Risk in the Coastal waters of the province of Thesprotia (Region of Epirus, Greece).*

### The challenge

In order to monitor the Eutrophication risk in the Coastal Waters of the Epirus Region, a service has been developed for the Water Directorate of the Decentralised Administration of Epirus and Western Macedonia.

The most accurate method of measuring water quality in coastal areas is the collection of data on the field. These parameters that define the status of water quality are described in the EC Water Framework Directive (WFD) of 2000 and the Marine Strategy Directive (MSFD) of 2008.

The challenge SAIMON (SAteLLite Near Real Time Monitoring Network) had to meet was to provide accurate measurements of the data needed for defining the risk of Eutrophication in near real-time without having to have daily on-site measurements. With this solution, the region would be able to provide directly to its users (fish farmers, scientific community, citizens) accurate data with much lower operational costs and with a wider area coverage.

### The space based solution

A space-based solution was the key in order to meet the challenge described above. SAIMON, a cloud-based geoinformation service, was developed for monitoring Eutrophication Risk in the wider Coastal Area of Epirus Region.

Sentinel-3 data were used for extracting information about important parameters such as: Chlorophyll, Sea Surface Temperature and Water Transparency.

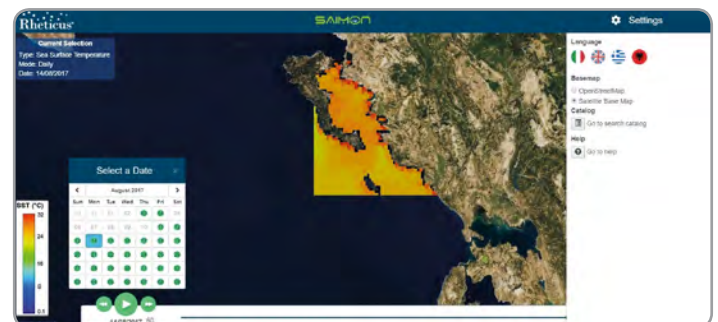
These parameters are being inserted automatically into the SAIMON service. Every time new Sentinel-3 Imagery is available over the area of interest, the service downloads it automatically, performs all the measurements for the parameters needed and

produces the results for the specific day. These results are thematic maps with a range bar legend for each of the measured parameter.

The service is provided using Rheticus®, an automatic cloud-based geoinformation service platform and is available through <http://saimon.rheticus.eu/saimon>

It is worth mentioning that the Water Quality monitoring service was initially designed and developed within the framework of the ESA funded MarCoast project.

With SAIMON, the Water Directorate is able to have a reliable tool that covers a wide area and works in all weather conditions.



SAIMON user interface for the monitoring of Eutrophication Risk in the Coastal area of Epirus region.

### Benefits to Citizens

One of the important duties that the water directorate of the Decentralised Administrations of Greece has to do is to provide to its users, who are fishermen, fish farms, scientific community or even the citizens, all the information needed concerning the quality of the water in the coastal areas they live and/or work in.

With SAIMON, this information is provided reliably, accurately and directly to people who can have an easy access to the service. This makes SAIMON a valuable tool for fishermen and fish farms for monitoring changes in the fish population and provides them with all the necessary information to make decisions regarding their production.

Thematic Area



**BIODIVERSITY AND ENVIRONMENTAL PROTECTION**

Region of Application



**EPIRUS REGION**

Sentinel mission used



S3

Copernicus Service used



-

Usage Maturity Level



4

Furthermore, it is a great tool for the scientific community to monitor the Epirus Coastal area in near real time, watch the tendencies over a period of time and predict or even prevent the consequences of the Eutrophication Phenomenon.

## Outlook to the future

The Water Directorate of Decentralised Administration of Epirus and Western Macedonia had faith in developing and adopting innovative technologies in order to improve their environmental monitoring services they provide to their citizens whilst reducing the costs of using traditional on-site measurement methods.

With the increasing availability of satellite data through the Copernicus programme and the successful practices and examples that have already been deployed in several sectors, a great range of opportunities in environmental monitoring is presented.



Chlorophyll measurements in SAIMON service for Water Directorate of Decentralized Administration of Epirus and Western Macedonia

“Thanks to the SAIMON, we are able to provide to our citizens accurate and reliable information about the Eutrophication risk in our regions coastal area on a daily basis.”

*Serafim Tsipelis, Director of Water Directorate of Decentralized Administration of Epirus and Western Macedonia*

Solutions to citizens' everyday problems should always be the lead objective in designing new innovative technologies for improving their lives. SAIMON is a great example of how to approach the problem and finally develop a successful service for solving it.

Stelios Bollanos<sup>1</sup>, Yiota Spastra<sup>1</sup> and Serafim Tsipelis<sup>2</sup>

1. Planetek Hellas, Greece
2. Decentralized Administration of Epirus and Western Macedonia, Greece

Email: [Bollanos@Planetek.gr](mailto:Bollanos@Planetek.gr)

[Spastra@planetek.gr](mailto:Spastra@planetek.gr)

[stsipelis@pdhp-dm.gov.gr](mailto:stsipelis@pdhp-dm.gov.gr)

## ABOUT COPERNICUS4REGIONS

This Copernicus User Story is extracted from the publication “**The Ever Growing use of Copernicus across Europe's Regions: a selection of 99 user stories by local and regional authorities**”, 2018, Edited by NEREUS, the European Space Agency and the European Commission.

The model cases focus on local and regional authorities who successfully applied Copernicus data in 8 major public policy domains. The views expressed in the Copernicus User Stories are those of the Authors and can in no way be taken to reflect the official opinion of the European Space Agency or of the European Commission.

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