COPERNICUS DATA GIVE PROSPECTS

The purpose of this study is to upgrade the existing infrastructure of Geospatial Information (SDI) of Thessaloniki with Satellite data from Copernicus in almost real time.

The challenge

The Municipality of Thessaloniki acknowledges the need for central management of geospatial and attributive information in order to provide quality information to the citizens. In this context, an open data portal and an enterprise Geographical Information System (GIS) were developed and have been in operation since 2008.

One of the features that was missing though was high resolution satellite data which would have allowed continuous environmental monitoring of land and sea. Although high resolution Sentinel data was freely available through the Copernicus Scientific Hub for more than 2 years, several technical limitations like size and complexity prevented the operational use of these data and their exploitation according to their value until recently.

The space based solution

The Municipality of Thessaloniki acquired a new Satellite data service from Geospatial Enabling Technologies (www.getmap.eu), integrating the Sinergise Sentinel Hub technology within the existing GET SDI Portal web portal environment. The solution provides access to near real-time Sentinel-2 & 3 (OLCI) satellite data via standard OGC Web Services, WMS / WMTS and WCS, in order to give to the end user (internal user, citizen, other organisations) advanced search, viewing and downloading on satellite data of Copernicus system.

The service gives direct access with multiple selection criteria (e.g., date of capture, cloud cover) on standard multi-spectral data such as single band images, colour RGB composite spectral channels such as True Colour, False Colour, Short Wave Infrared, or remote sensing indexes like NDVI, NDWI, SAVI, LAI, and EVI. These products are available in a browser, through the Municipalities' geoportal, or in a GIS environment, without the need to download, process or transform of the data.

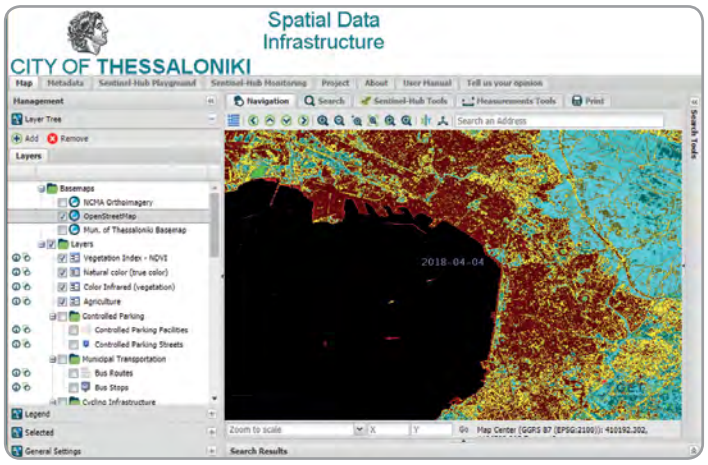
Finally, through a real-time alert service, the system operator of the Municipality can be notified when new data is available.

Benefits to Citizens

The Copernicus Sentinel data will support several internal needs of various departments of the Municipality (Directorate of Technical Services Department of Building and Planning Applications, Urban Environmental Management, Directorate of Urban Planning and Architectural Design, Independent Civil Protection Department).

The data will additionally be useful to the following programmes and actions of the Strategic Plan for Urban Resilience:

- Local risk reduction and development of a risk management system (adverse natural phenomena such as earthquakes, floods, landslides and forest fires).
- Strengthening the environmental awareness of citizens through the availability of modern satellite data to Climathon participants
- Monitoring Green areas / neighbourhoods in the city as well as Municipal properties and infrastructure.



Sentinel-2 data integrated to the Thessaloniki SDI platform. NDVI for the greater Thessaloniki area is automatically calculated using bands 4 and 8.
Credit: Contains modified Copernicus Sentinel data [2018]

Thematic Area: CIVIL PROTECTION

Region of Application: CENTRAL MACEDONIA

Sentinel mission used: S1 S2

Copernicus Service used: –

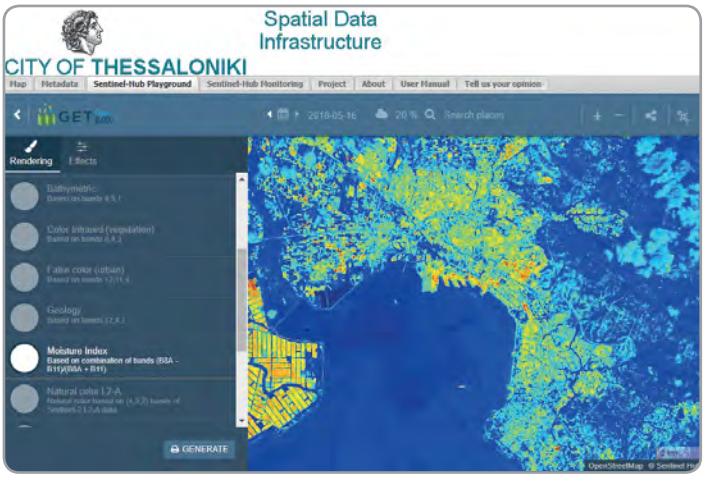
Usage Maturity Level: 5

→ THE EVER GROWING USE OF COPERNICUS ACROSS EUROPE'S REGIONS: A selection of 99 user stories by local and regional authorities

- Strengthening the Transparency and Efficiency of the Municipality through Open Data.
- Monitoring the environmental endurance of the Thermaikos Gulf ecosystem.

Outlook to the future

With the fully operational use of the Sentinels' constellation even more data will be available to support the Municipality in the daily operations and the strategic planning. Sentinel-1 SAR data, which is already available, can be used to monitor landslides phenomena or emergency situations like floods and oil spills. Sentinel 4 and 5 data can be used to monitor emission sources and air quality, providing a continuous monitoring system of air pollution. Using that data, new added value products and services are expected to emerge and provide even more information tailored to the users' needs.



Interactive Browser of Sentinel data products over the Greater Thessaloniki area. Users simple select product (RGB, band, index), date and cloud cover.
Credit: Contains modified Copernicus Sentinel data [2018]

> "The use of Copernicus - Sentinel data has transformed the way we understand space and has increased our capacity to manage emergency situations or monitor the environment."
>
> ***Simos Misirloglou,***
> ***City of Thessaloniki***

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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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