

SEA SURFACE TEMPERATURE AND OCEAN WIND SPEED
DATA IN THE CYPRUS REGION FROM SENTINEL-3 USING
SENTINEL APPLICATION PLATFORM (SNAP) AND
ARC GIS PRO

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INTRODUCTION

The ability to measure sea surface temperature allows us to observe the global system and quantify ongoing weather and climate change. Several industries are particularly affected by increased SST the shipping industry, the offshore oil and gas industry, the fishing industry, etc. Knowledge of ocean wind behavior will enable ship masters to choose routes that avoid heavy seas or high headwinds that may slow the ship's travel, increase fuel consumption, or possibly cause damage to vessels and loss of life.

This paper aims to realization the Cyprus region's sea surface temperature and wind speed data. The comparison of results obtained using Sentinel Application Platform (SNAP) and ArcGIS Pro, shows that both tools can be used to realise Sea Surface Temperature and Ocean Wind Speed Data and give satisfactory results.

STUDY AREA

The Cyprus regions as the study area.



Figure 1: Area of Interest – Cyprus

METHODOLOGY

The EUMETSAT cooperates with agencies around the world, securing additional satellite data of benefit to weather forecasting and climate monitoring and provides access to Sentinel satellite data by providing Sentinel-3 data for processing.

The sea surface temperature and wind speed data methodology used SNAP - Sentinel Application Platform software, a standard architecture for all Sentinel satellite toolboxes.

The sea surface temperature and wind speed data are then located through the second methodology using the ArcGIS pro software. ArcGIS Pro is a full-featured professional desktop GIS application from Esri. With ArcGIS Pro there is the ability to explore, visualize and analyse. The last step of the methodology compares the results obtained using the Sentinel Application Platform (SNAP) and Arc GIS Pro.

RESULTS

Our research evaluated the results of SNAP and ArcGIS Pro software. The preliminary results of the two software during the vessel tracking process showed that a large number of objects were detected.

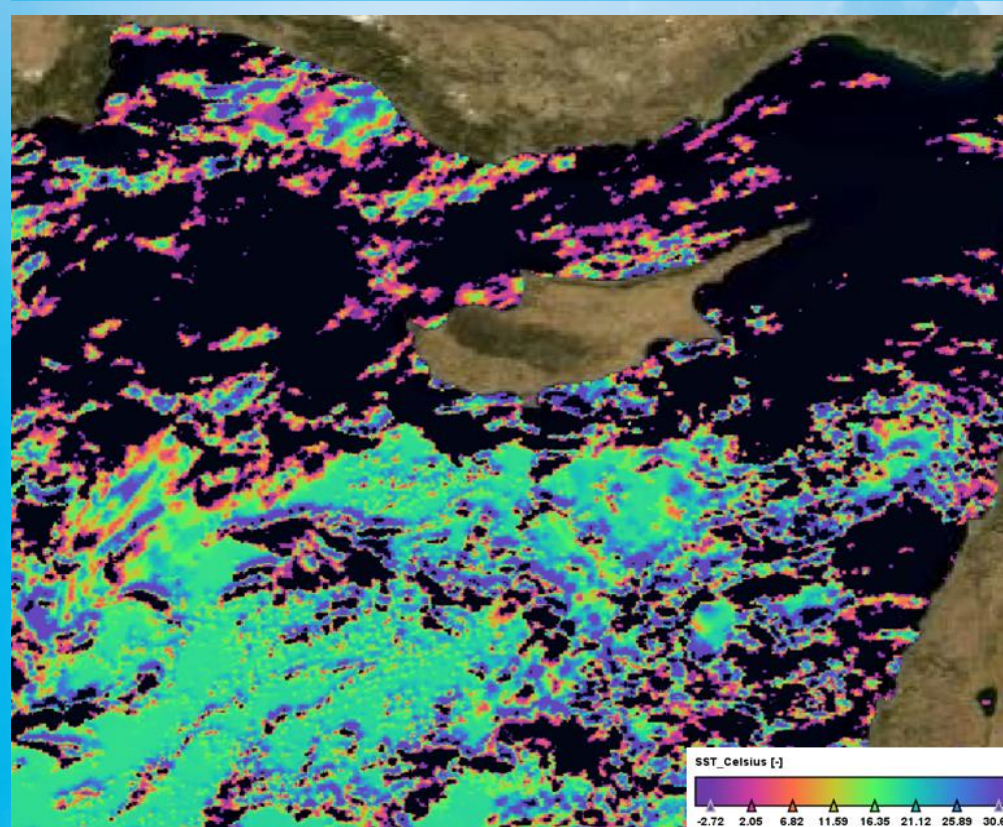


Figure 2: Sea Surface Temperature in Cyprus - SNAP

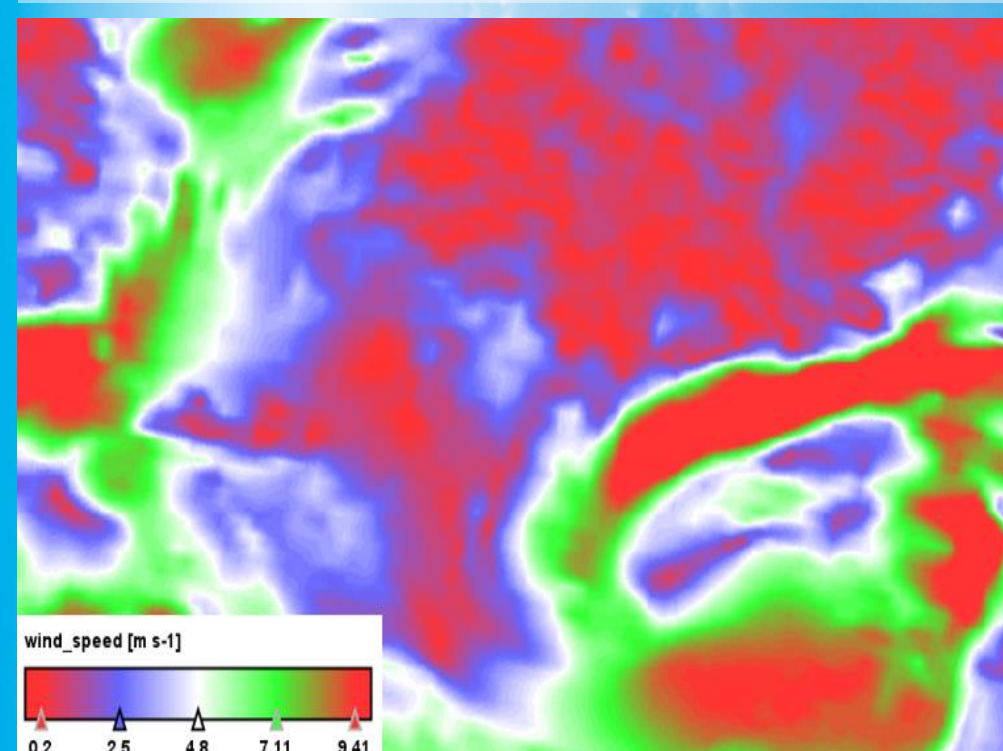


Figure 3: Ocean Wind Speed Data in Cyprus - SNAP

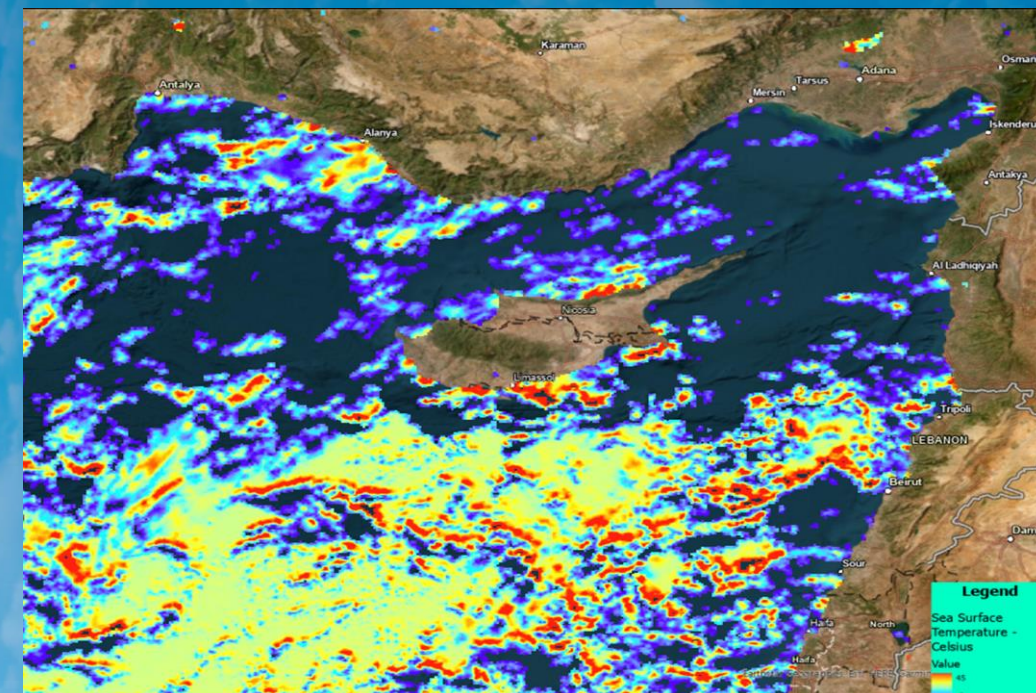


Figure 4: Sea Surface Temperature in Cyprus – ArcGIS Pro

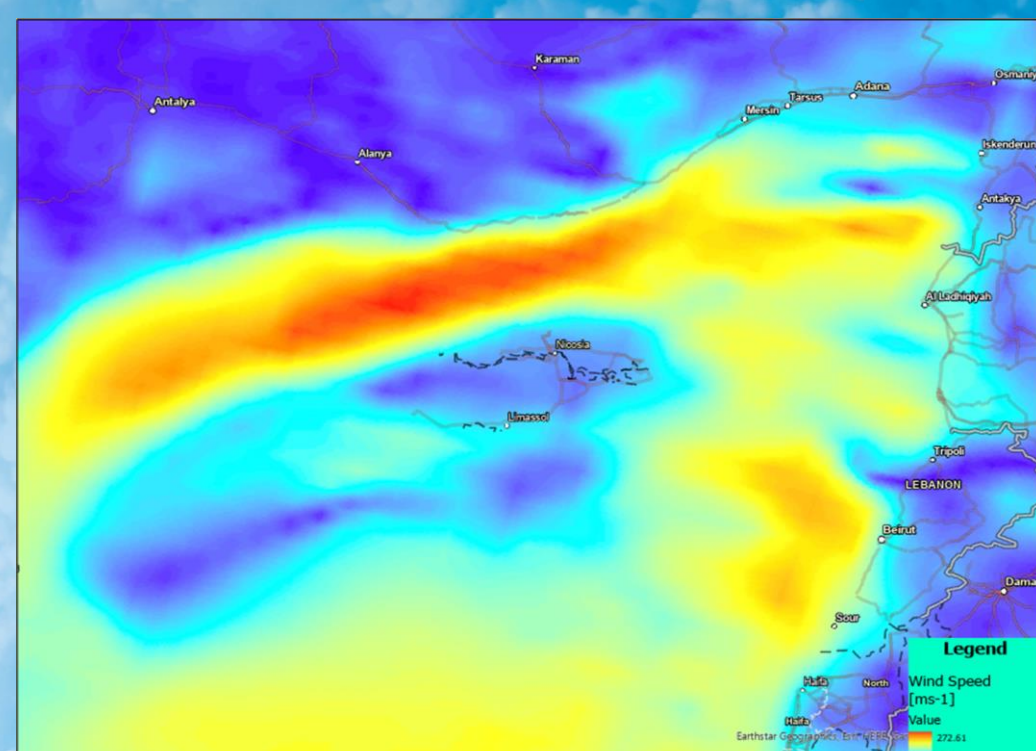


Figure 5: Ocean Wind Speed Data in Cyprus – ArcGIS Pro

CONCLUSION

The SST and OWS data from Sentinel-3 are valuable tools for scientists and researchers studying the ocean and its impact on the climate system. The data can provide insights into the complex interactions between the ocean and the atmosphere, which are critical for understanding and predicting weather patterns and long-term climate trends.

The sum of the results is greatly enhanced and the results show that the different techniques and methods provide a thorough analysis, so they can be used in maritime surveillance and security missions, both for industries and shipping.

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