THE OPINION OF THE ADVISOR OF FINAL QUALIFYING WORK

Title of the final qualifying work Application of satellite imagery data for oil spills detection
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Educational program Geographical Information Mapping
Level Master
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Training requirements	Corresponds	Mainly corresponds	Not corresponds
to be able to formulate and set tasks (problems) of the FQW correctly, to analyze and diagnose the genesis of the problems, to define relevance	+		
to be able to set priorities and methods for solving tasks (problems)	+		
to be able to use, process and analyze modern scientific, statistical, analytical information	+		
to be able to provide modern methods of analysis and interpretation of the information, to assess capabilities of the particular methods in task (problem) solving	+		
to be able to plan the time of work rationally, to determine the correct sequence and volume of operations and decisions in the performance of the task	+		
to be able to evaluate the results of computations objectively	+		
to be able to analyze the results of data interpretation	+		
to know and apply methods of the system analysis	+		
to be able to carry out interdisciplinary research	+		
to be able to make independent informed and reliable conclusions from the work done	+		
to be able to use domain-specific scientific literature	+		
to be able to apply modern graphic, cartographic, computer and multimedia technologies in research	+		
to be able to use cartographic methods and GISs	+		

Advantages of the work
The work studies the problem of detecting oil slicks at sea using Sentinel-1 images and the technique of "transect lines". The main advantage of this work is to provide the potential of the "transect lines" technique applied to Sentinel-1 dual-pol GRD data as a simple tool to detect oil spill. A comparison with the results obtained by applying the same technique to Radarsat-1 full polarization images is described and recommendations provided. In particular, Sentinel-1 images acquired in correspondence of the oil slicks occurred 50 km off the coast of Bahia on 28 October, 2019, near the port of Novorossiysk on 8th August 2021 and close to Al Khiran on 10th August, 2017 were analyzed and the problem of false alarms discussed.

Noted shortcomings of the work
The work is well structured and both methodology and result clearly presented, emphasizing also the limits of the approach and providing recommendations on the use of SAR data acquired by two different spaceborne missions. Future development direction for this work are provided. No significant shortcomings were noted.

Conclusion
The output of the work is the output of the application of the "transect lines" to Sentinel-1 dual-pol GRD data acquired in correspondence of the oil slicks occurred 50 km off the coast of Bahia on 28 October, 2019, near the port of Novorossiysk on 8th August 2021 and close to Al Khiran on 10th August, 2017.

Advisor

Giovanni Nico
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