

ABSTRACT SUBMISSION CONTROL PANEL

Abstract ID#:

179434

Date Started: 2016-08-03

11:54:59

Last Modified: 2016-08-03

14:29:43

Primary Section/Focus

Group: OS

7 Steps to submit an Abstract:

1. [Session](#)
2. [Abstract Details](#)
3. [Author\(s\)](#)
4. [Abstract Text](#)
5. [Special Programs](#)
6. [Payment](#)
7. [Submit Abstract](#)

Options:

[Abstract Tutorial](#)

Sign out

[-View Submission](#)
[-Withdraw](#)
[-Transfer](#)
[-Letter of Invitation](#)
[-Abstracts Viewer](#)
[-User Portal](#)

Help:

[Report a Technical Issue](#)

Abstract #179434

CALYPSO: a new HF RADAR network to monitor sea surface currents in the Malta-Sicily channel (Mediterranean sea)

Giuseppe Ciraolo¹, Aldo Drago², Simone Cosoli^{3,4}, Fulvio Capodici¹, Antonino Maltese¹, Adam Gauci², Anthony Galea², Joel Azzopardi², Giusi Buscaino⁵, Francesco Raffa⁶, Salvatore Mazzola⁵ and Rosario Sinatra⁷, (1)University of Palermo, Department of Civil, Environmental, Aerospace, Materials Engineering (DICAM), Palermo, Italy, (2)University of Malta, Department of Geosciences, Msida, Malta, (3)National Institute of Oceanography and Experimental Geophysics - OGS, Trieste, Italy, (4)The University of Western Australia, School of Civil, Environmental and Mining Engineering, Perth, Australia, (5)CNR IAMC, Institute for Coastal Marine Environment, Capo Granitola, Italy, (6)CNR IAMC, Institute for Coastal Marine Environment, Messina, Italy, (7)University of Catania, Catania, Italy

Abstract Text:

Located in one of the main shipping lanes in the Mediterranean Sea, and in a strategic region for oil extraction platforms, the Malta-Sicily channel is exposed to significant oil spill risks. Shipping and extraction activities constitute a major threat for marine areas of relevant ecological value in the area, and impacts of oil spills on the local ecosystems and the economic activities, including tourism and fisheries, can be dramatic. Damages would be even more devastating for the Maltese archipelago, where marine resources represent important economic assets. Additionally, North Africa coastal areas are also under threat, due to their proximity to the Malta-Sicily Channel.

Prevention and mitigation measures, together with rapid-response and decision-making in case of emergency situations, are fundamental steps that help accomplishing the tasks of minimizing risks and reducing impacts to the various compartments. Thanks to state-of-art technology for the monitoring of sea-surface currents in real-time under all sea-state conditions, the CALYPSO network of High-Frequency Radars represents an essential and invaluable tool for the specific purpose. HF radars technology provide a unique tool to track surface currents in near-real time, and as such the dispersion of pollutants can be monitored and forecasted and their origin backtracked, for instance through data assimilation into ocean circulation models or through short-term data-driven statistical forecasts of ocean currents.

The network is constituted of four SeaSonde systems that work in the 13.5MHz frequency band. The network is operative since August 2012 and has been extensively validated using a variety of independent platforms and devices, including current meter data and drifting buoys. The latter provided clear evidences of the reliability of the collected data as for tracking the drifting objects. Additionally, data have provided a new insight into the oceanographic characteristics of the region, documenting the presence of a number of previously unreported features.

The observing network represents an unique opportunity that exploit HF radar in coastal seas to meet Europe's needs for operational mapping of the surface ocean. Additionally, it provides expertise and support for a new generation of scientists and technical staff.