

COSMO-SkyMed contribution in oil spill monitoring of the Mediterranean Sea

F.Nirchio, G.Pandiscia, G.Ruggieri, R. Santoleri, F. Tataranni, A. Giancaspro, P. Trivero, N. Pinardi, A.Masini, C. Castellani

*F.Nirchio, **G. V. Pandiscia, **G.Ruggieri, **A. Giancaspro, # R. Santoleri, †F. Tataranni, ‡P. Trivero, ††N. Pinardi, ‡‡ A.Masini, †*C. Castellani

- * Agenzia Spaziale Italiana francesco.nirchio@asi.it fax:+39 0835 339005 ph.: +39 0835 377220 loc. Terlecchia 75100 – Matera, Italy
- ** Telespazio S.p.A. gianfranco.pandiscia@telespazio.com
- ** Telespazio S.p.A. giovanni.ruggieri@telespazio.com
- ** Telespazio S.p.A. antonio.giancaspro@telespazio.com
- # ISAC-CNR rosalia.santoleri@artov.isac.cnr.it
- † Consorzio Innova tataranni@consorzio-innova.it
- ‡ Università Piemonte Orientale trivero@unipmn.it
- †† INGV n.pinardi@sincem.unibo.it
- ‡‡ FlyBy S.p.A andrea.masini@flyby.it
- †*ACS chiara.castellani@acsys.it

Abstract

The Italian Space Agency (ASI) has started seven Pilot Projects to support risk management activities. The current paper describes one of these projects, called PRIMI, which regards marine pollution by hydrocarbons. PRIMI is presently at half of its development cycle. Remote Sensing has provided useful information to the authorities in charge to contrast marine pollution, but it has also shown evident limits as an operational service. Some of the most frequent are poor revisiting cycle, lag of time between data acquisition and the availability of the information at the end users, lack of other useful information such as in situ meteorological and oceanographic conditions and the development of the spill. PRIMI tries to provide solutions to the previously mentioned limits, using several sensors and data types, and combining monitoring and forecasting capabilities. It is made up of four components, one devoted to the analysis of SAR data, another for Optical data, an oil spill forecast subsystem and a central archive that provide web-gis services. A preliminary version of the system is already operational, while the final version will be ready by the middle of 2010. For what concerns the SAR component, it is able to analyze data coming from different missions like ERS, ENVISAT and ALOS. In this framework COSMO-SkyMed data are becoming more and more interesting, for the operational service, due to their features. In the paper the system is described in general, information is provided on all the parameters measured and made available to the end user, concerning the slicks, the meteorological and oceanographic data and the ships present on the image analysed, particular attention is paid to the specificity of COSMO-SkyMed in this framework.

References

1. Nirchio F., Sorgente M., Giancaspro A., Biamino W., Parisato E., Ravera R., Trivero P., “Automatic detection of oil spill from SAR images”, *International Journal of Remote Sensing*, 26 (6), 1157 – 1174, 2005.
2. Trivero, P.; Biamino, W.; Nirchio, F “High resolution COSMO - SkyMed SAR images for oil spills automatic detection.” *Geoscience and Remote Sensing Symposium*, 2007. IGARSS 2007.
3. Zecchetto S., De Biasio, Nirchio F., Di Tomaso S. “Similarities and differences of SAR derived wind field using two different methods: the local Gradient and the continuous wavelet transform method. *SeaSar Symposium* ESA feb.2008.