AIRBORNE POLLUTION SURVEILLANCE : TECHNOLOGY, CONFIGURATIONS, RECENT RESULTS AND EFFICIENT INTEGRATION TO MISSION MANAGEMENT SYSTEM

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Abstract

Operational airborne oil spill monitoring has become a global concern during the last three decades. Currently there is a multitude of specialized airborne remote sensing systems all over the world, which are operated for this purpose, especially for the deterrence of potential polluters and the support of oil spill clean-up activities. In the past, the main effort has been directed towards developing airborne sensors with enhanced spill monitoring capability. Recently, more and more attention has been paid to the automated processing of remotely sensed multi-spectral oil spill data acquired by integrated airborne sensor platforms In this paper focus is on advanced data processing and present ways of improving the usability of airborne multi-sensor oil spill monitoring systems with regard to on-board and groundbased data analysis as well as distribution of remotely sensed oil spill data via web map services. In this context we

1. give an overview of currently existing oil spill remote sensing technology and like infrared/ ultraviolet/visible line scanners, microwave radiometers, laser fluorosensors, and radar systems,
2. present a typical Airborne Mission Systems for network-based real-time data acquisition,
3. present the distribution of oil spill data and related data products using web-based geographical information systems.

During the presentation results from real most recent missions, highlighting the enhanced capabilities of the integrated multi-sensor mission systems likethe Multispectral Environmental
Data Unit for Surveillance Applications will be shown.
The strategies to efficiently integrate the entire capabilities of this Unit on subsystem basis into already existing third party Mission Management System (MMS) either as an upgrade or in the frame of a new installation is presented in this paper. As an example, the integration of the Pollution Surveillance Sensors (PSS) with the MMS developed by CABS, DRDO is presented. The advanced framework of the MMS, its capabilities and services provided for integrating the PSS is highlighted. The tight integration of the PSS as a subsystem into theMMS turns it into a powerful autonomous mission ready suite for pollution surveillance applications. The PSS can also seamlessly integrate into the other sensors and communication links on board the aircraft via the MMS into the multi-sensor integration (MSI) framework enabling effective intelligence gathering, data dissemination and control of the PSS system from ground.