

SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
Integrated Applications End-to-End Solutions (1)

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SPACE INFRASTRUCTURES FOR MARITIME SURVEILLANCE

Abstract

Considering the high importance of the maritime domain for fisheries, security (border surveillance, smuggling, trafficking, piracy), environment monitoring, Maritime Surveillance is becoming a top priority for the European maritime policy. With the adoption of an Integrated Maritime Policy, the European Commission is giving a strong impulse on maritime surveillance, enlarging the scope to transnational initiatives. This creates the opportunity to develop new and powerful capabilities, able to answer these emerging challenges. Space systems, with their global coverage, are identified as major assets for this maritime policy. Many demonstrations in the last years have shown the space systems capabilities to provide Maritime Surveillance organization with the relevant data to support the various needs for the users benefit. Space systems encompasses different missions such as observation (radar optical), AIS message capture, Search and Rescue data collection and signal intelligence. The space-based AIS mission, as a new operational asset of the Maritime Surveillance capabilities will offer a global situation awareness, a rapid access to worldwide information with short time data refreshing capabilities. Such system design, performances and services capabilities is addressed in the scope of the SAT-AIS phase B1 study led by Astrium for ESA in 2011-2012. The SAT-AIS initiative promoted by ESA aims at providing Europe with the first high performance system able to capture vessels AIS signals in the densest traffic areas in the world, with a high level of reliability and confidence in distributed data. In this frame Astrium proposes an innovative approach to define an affordable operational system based on a LEO constellation of simple light satellites meeting unprecedented high performances, compatible of a high quality of services. This approach is kept in line with the strong cost constraints of the program and the various possible operational environments. This paper presents an overview of the improved capabilities offered by space infrastructures to maritime surveillance. It also describes the definition and performances of this new generation of SAT-AIS system, highlighting the benefits of the high performance and reliable detection capabilities.