

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

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SAT-AIS ESA INITIATIVE: A COST EFFECTIVE SOLUTION FOR A EUROPEAN OPERATIONAL
SYSTEM FOR MARITIME SURVEILLANCE**Abstract**

SAT-AIS is the Agency's initiative for a European space system that will provide maritime traffic data to institutional organisations and other entities, based on detection of ship AIS signals.

Maritime Surveillance increasingly relies on space systems to combine different missions such as observation (radar optical), AIS message capture, Search and Rescue data collection and signal intelligence. These means are complementary and allow coverage of cooperative (AIS) and non-cooperative vessels (not emitting AIS). Although the AIS communication system protocol was not originally designed for capture from space, this opportunity is very promising and provides a good situational awareness of vessels at a consistent scale with other sensors.

The space-based AIS mission, as part of the maritime surveillance capabilities will offer a global situation awareness, a rapid access to worldwide information with short time data refreshing capabilities. Space-based AIS services can support security and environmental issues of maritime surveillance, commercial shipping, extending the coastal services to high seas with a global view and answer to users needs such as Maritime Security, Environment and Safety, Fleet management.

Such system design, performances and services capabilities is addressed in the scope of phase B1 study led by ESA in 2011-2012.

Astrium proposes an innovative approach to define an affordable operational system based on a LEO constellation of simple light satellites meeting unprecedented high performances to answer the institutional users' needs for global observation, including the high traffic zones. The system is deployed with an optimized launch strategy. This approach is in line with the strong cost constraints of the program and the various possible operational environments.

This paper presents elements of definition and performances of this new generation of SAT-AIS system. The space segment, ground segment and concept of operations are described as key components optimized for a cost effective end-to-end solution compatible of SAT-AIS programme stakes. The potential contribution and system impact of the hybridization of the proposed institutional system with a commercial system is also evaluated to optimise the service at the lower costs for the users.