

ESA IAP Blue Belt demonstration project:

supporting the European Maritime Safety Agency (EMSA) Blue Belt Project, by providing a service based on satellite based AIS data complementing the terrestrial AIS data

19/20 April 2012

gfabritius@cls.fr



Overview of the presentation



Page 2



СІ

- Introducing CLS
- Introducing AIS / SAT-AIS
- Scope of the Blue Belt project:
 - Background & Objectives
 - Technical implementation
 - Users' perspective
- Conclusion and next steps

http://www.cls.fr



Introducing CLS











Created: 21 April 1986

Core activities:

- Commercial operation of satellite systems for positioning, data collection, ocean observation and surveillance
- Developing added-value applications and services based on satellite remotesensing data;

Sectors of activity:

- environmental surveillance
- sustainable management of marine resources
- maritime security
- oil and gas

Shareholders:

2010 turnover: €60 M





Introducing AIS / SAT-AIS (1/2)



Page 4

As per IALA (International Association of marine aids to navigation and Lighthouse Authorities) and IMO (International Maritime Organisation) definitions:

- AIS (Automatic Identification System) is a communications system based on a protocol using the VHF maritime mobile band, for the exchange of navigation data. There are numerous AIS devices, known as stations, which use this protocol to communicate.

- AIS enables the automatic exchange of shipboard information from the vessel's sensors (dynamic data), as well as manually entered static and voyage related data, between one vessel and another and between a vessel and a shore station(s).

- AIS devices are required **internationally on most commercial vessels** as identified by IMO in the Safety of Life at Sea Convention (SOLAS), Chapter V.

- AIS improves the safety of navigation and protection of the environment by assisting in the effective navigation of ships:

- 1. in a ship-to-ship mode for **collision avoidance**;
- 2. as a means for littoral States to obtain information about a ship and its cargo; and
- 3. as a VTS tool, i.e. ship-to-shore (traffic management).









Introducing AIS / SAT-AIS (2/2)





The collection by satellites of AIS messages transmitted by ships (SAT-AIS) is a **very promising technology** :

- Global long-range coverage, outside of current coastal limitations (around 40nm)
- Relying on existing terminals onboard ships
- Main technical issue: intra-system collisions

 \Rightarrow There are current service capabilities & on-going research/projects to further improve the technology and develop related applications \Rightarrow User Requirements are being consolidated







Background & Objectives of the Project





The **EMSA (European Maritime Safety Agency) Blue Belt pilot project** was initiated by the EU Belgian Presidency and endorsed on 2 December 2010 by the EU Council of Transport Ministers to be implemented by EMSA.

- Its objectives are to facilitate Short Sea Shipping and support EU customs authorities providing them with additional information about ships, their journey and their cargoes within the EU.
- It combines official customs tools and vessel monitoring and tracking tools, in order to **facilitate custom procedures and assist customs' decision-making process**.

The IAP (ARTES 20 element) demonstration project aims to support the EMSA Blue Belt Project, by providing a service based on satellite based AIS data to complement the terrestrial data. Such a service would detect offshore vessels equipped with AIS tracking devices, impossible to detect by shore-based systems alone.

The data delivered will be assessed in regards to quality, reliability, and suitability to meet end-user and stakeholder requirements.

The activity will furthermore assess and demonstrate **the added-value** of satellite based AIS data to complement terrestrial AIS for such ship tracking based services.



Scope of the Project (1/3)



Project Team:

Prime contractor: CLS

 in charge of receiving, processing and distributing Satellite-AIS data in near real time to EMSA (through SafeSeaNet Streaming Interface – SSN SI) and ESA (through THEMIS platform)

Subcontractors: KSAT (with the support of FFI), exactEarth Europe and LuxSpace

• Satellite-AIS data providers



Planning:

KO: 28/09/11 (11 months duration) Data delivery has been operational since 20/10/11, until 20/07/12 CCN1: April 2012 Final presentation: End of August 2012

http://www.cls.fr







Key facts:

2 services: provision of satellite-AIS data from:

- 252 "Blue ships" which undergo the demonstration, and which are sailing to and from Europe (worldwide coverage)
- all ships (i.e. "blue ships" and non-"blue ships") operating in southern coast of the Mediterranean Sea (North Africa) and southern Atlantic approach to Europe including the Bay of Biscay



 \Rightarrow Use of THEMIS web platform for data visualization, operational use, export etc...

 \Rightarrow Interface with EMSA SSN-SI



Scope of the Project (3/3)

Page 9



CLS operating the service for ESA/EMSA, relying on:

- EMSA SSN-SI
- CLS THEMIS web platform
- CLS Task Monitor tool





Users' perspective





Operational use:

EMSA combines the provided satellite AIS data with complementary information (ships static data, terrestrial AIS positions) to produce **vessel & voyage reports**. Satellite-AIS data is used for/as:

- « filling the gaps » of terrestrial AIS capabilities
- back-up option for terrestrial AIS infrastructure

EMSA is delivering via email two hours before estimated time of arrival of a blue ship in a port of call, a vessel & voyage report report to the concerned custom authorities. Maritime custom authorities from all EU Member States are involved.





Conclusions and next steps





Demonstration project – current status:

- on-going demonstration (data feed until end of July 2012)
- on-going **evaluation of the data** (quality, reliability...) performance assessment, according to a given matrix of parameters updated in real time (TUI, PoD, Timeliness etc.)
- World premiere operational service relying on all today available SAT-AIS assets (at European level)
- Final presentation at ESA: August 2012
- on-going evaluation by EMSA of the provided Blue Belt service to custom authorities, for EC to decide corresponding **possible extension to all short sea shipping**





Questions ?



Thank you !

Gaëtan FABRITIUS

www.cls.fr www.lrit.fr www.sat-ais.org