

Ministry of National
Defence (Portuguese)

National Maritime
Authority



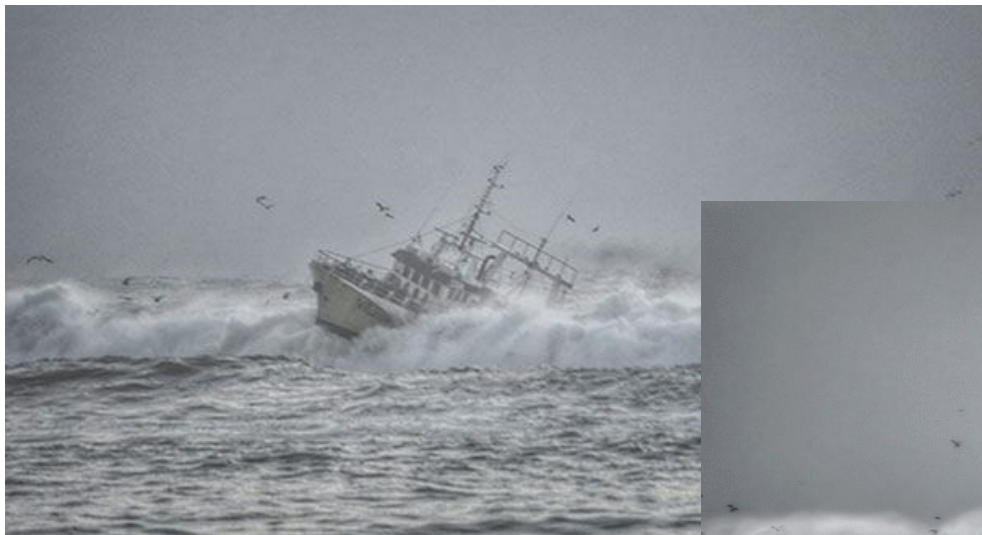
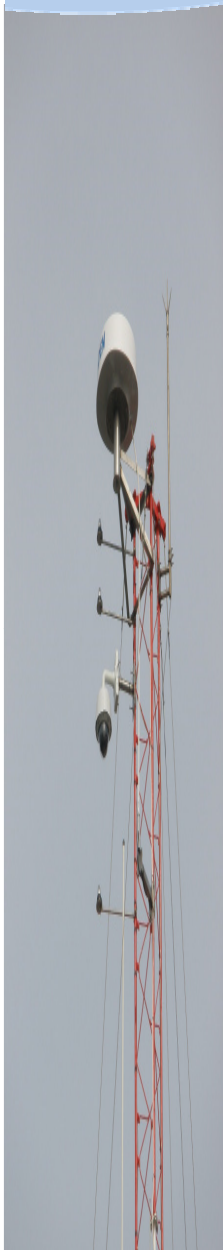
Commander Manuel Santos

March 27, 2017

SUMMARY

- Motivation
- Concept
- Objectives
- System components
- Information Management
- Geographic Coverage
- Implementation Plan
 - Stages
 - Installation examples
 - Interaction with other entities
- Advantages and Disadvantages
- Conclusion

MOTIVATION



MOTIVATION

- To create a decision support system for the Local Maritime Authority (LMA) – towards the development of *Costa Segura* (Safe Coast).
- To apply this system nationwide.

CONCEPT

- The Captain of the Port, as LMA, is responsible for exercising the state authority in their area of jurisdiction: port safety and security, aid and rescue, and enforcing marine environmental protection regulations.
- To this end, the LMA must have the necessary human resources and equipment that can maximize these competencies.
- Emphasized are the technological resources, since they stand out as efficient and effective aids to decision-making.

OBJECTIVES

- The *COSTA SEGURA* system is a decision support system whose objective is to obtain situational knowledge of the port, coastal and littoral areas under the Maritime Authority's jurisdiction by resorting to an integrated hardware-software system which is effective but low-cost.

OBJECTIVES

- This situational knowledge of the port, coastal and littoral areas allows to:
 - Sustain maritime aid and rescue operations (by guiding rescue vessels)
 - Promote navigation safety (by tracking vessels in confined areas, such as a port entry, by providing support to vessels in difficult situations or in case of accident.
 - Assist anti-pollution operations (by guiding the respective vessels to the affected areas)



OBJECTIVES

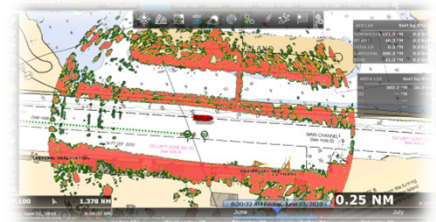
- Complementary to this, the system can:
 - Monitor and eventually control a vessel.
 - Detect illegal activity (for instance, unauthorized fishing or illegal nautical recreation activities).



***OPERATIONAL TOOL
H24/D365***

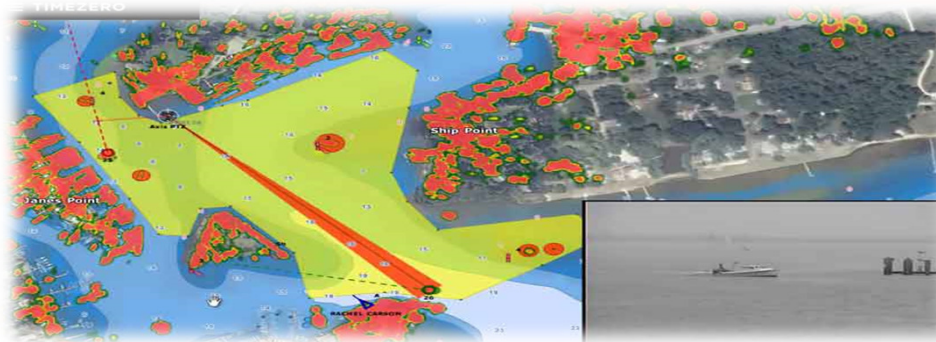
SYSTEM COMPONENTS

- Each station of the *COSTA SEGURA* system is equipped with the following COTS (commercial off-the-shelf) components:
 - X-Band Radar
 - Thermal optical camera, for both daytime and night vision.
 - Automatic Identification System (AIS) and object tracking (ARPA – Automatic Radar Plotting Aid), with associated alarms.
 - VHF Radio
 - Integration and information management software, with electronic charts visualization.

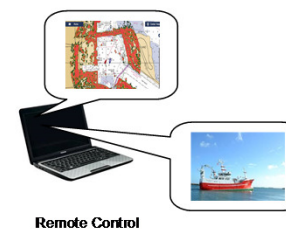
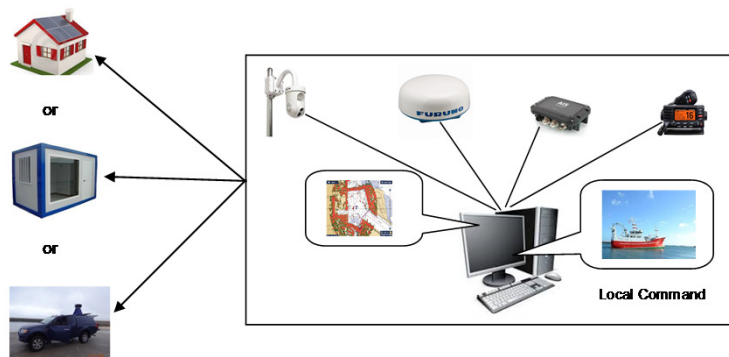


INFORMATION MANAGEMENT

- The information collected from the radar, optical camera, AIS and VHF radio is integrated by the software and displayed at the local station.
- The information can also be visualized remotely from a central command station, where the data is transmitted via Internet (TCP/IP protocol)
- The radar signal, camera pictures, AIS signal and radio communications can be recorded and played later in an integrated way (requires acquiring the appropriate equipment)



INFORMATION MANAGEMENT



GEOGRAPHIC COVERAGE

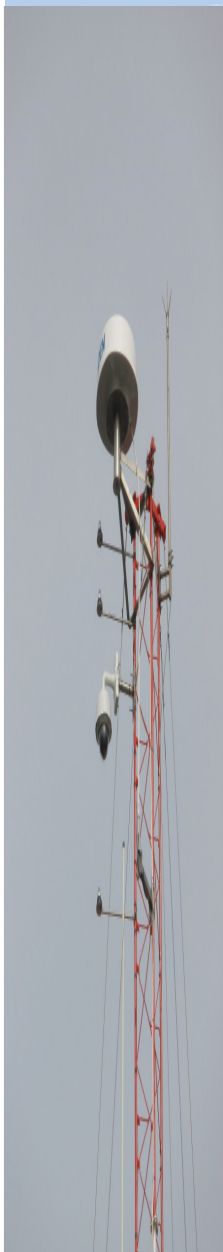
- The *COSTA SEGURA* system aims to cover the national coastal zones, including the islands Madeira and Azores, prioritizing those which require special care (port approach and entry, anchorage)
- The radars to be installed have an effective 24 nautical mile range.
- The lighthouses infrastructures, which have been strategically placed along the coast, are ideal locations for setting up local stations. Although, other solutions are possible.



IMPLEMENTATION PLAN

■ Stages

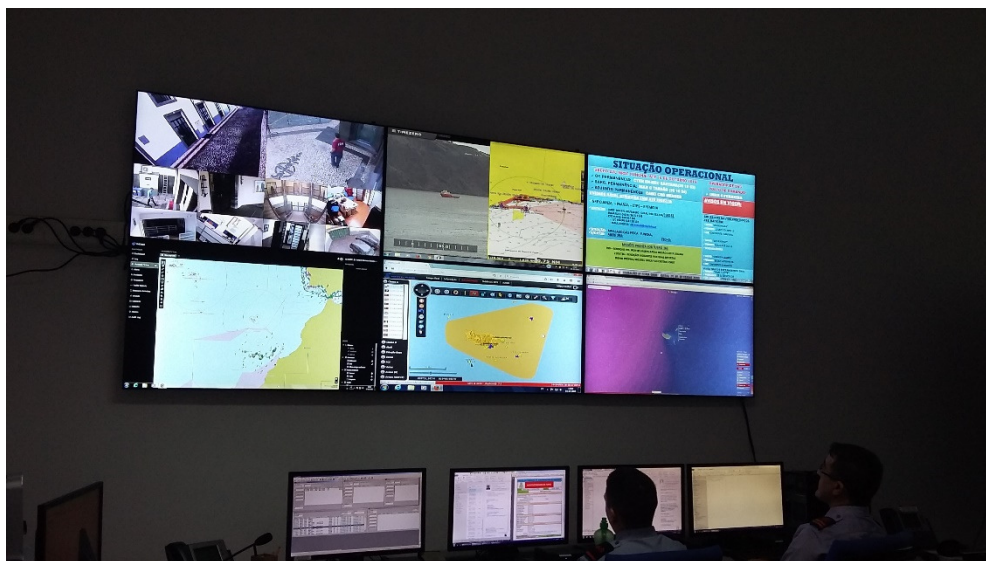
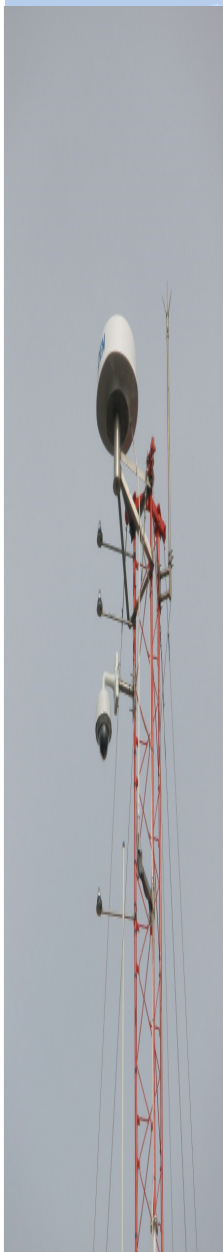
The plan is for the *COSTA SEGURA* system to have nationwide coverage within 3 years (24 local stations and 8 remote stations)



FIGUEIRA DA FOZ



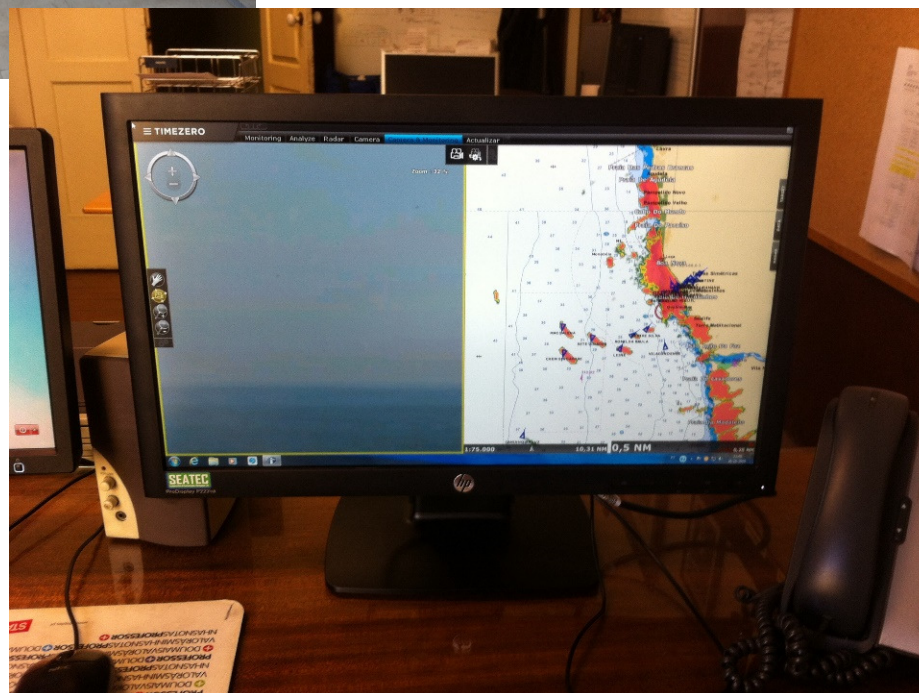
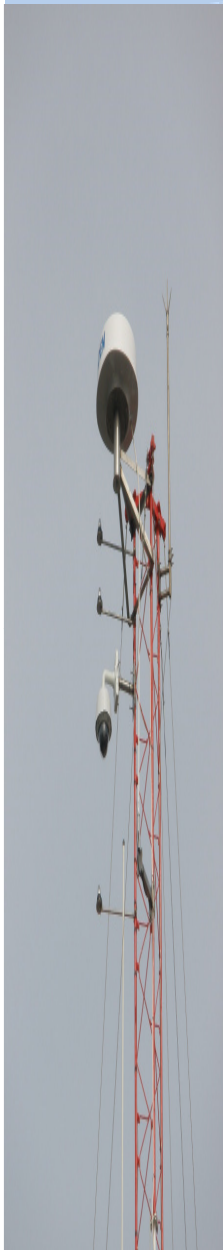
FUNCHAL



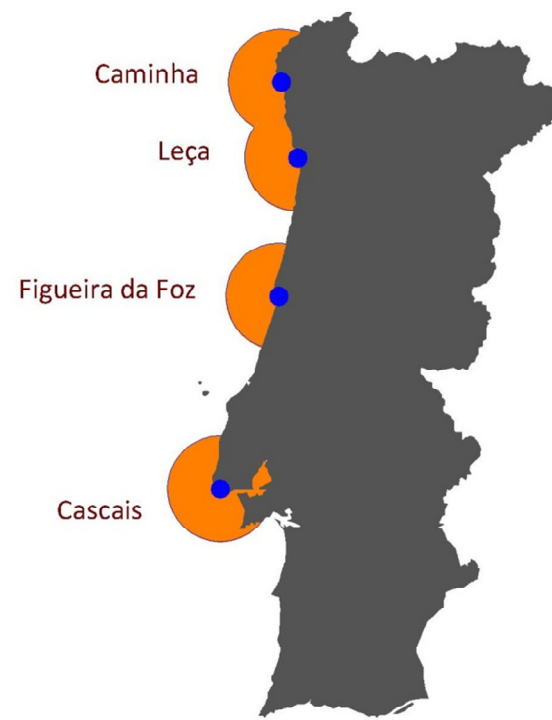
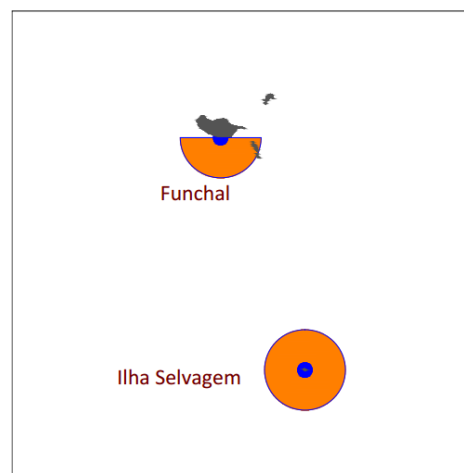
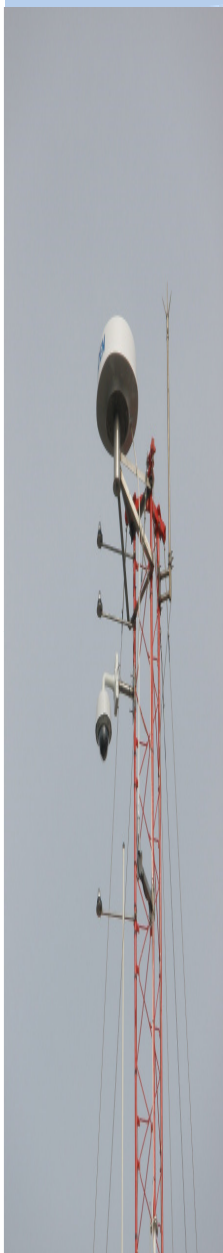
LEÇA-LEIXÕES



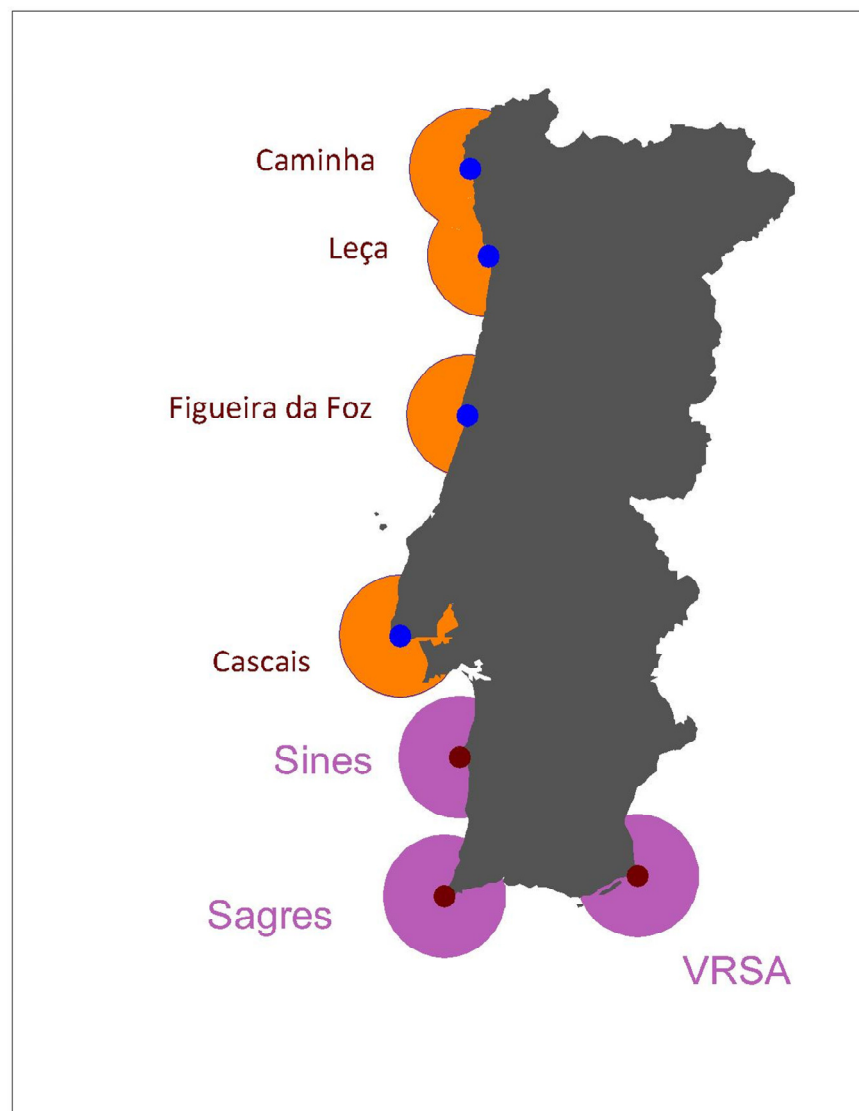
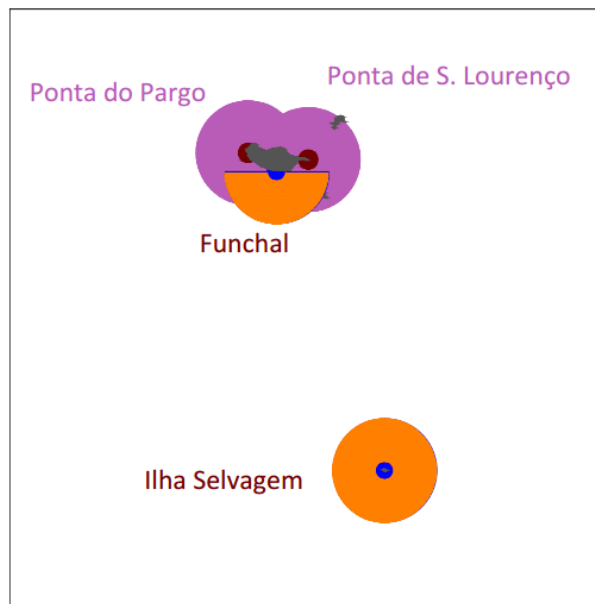
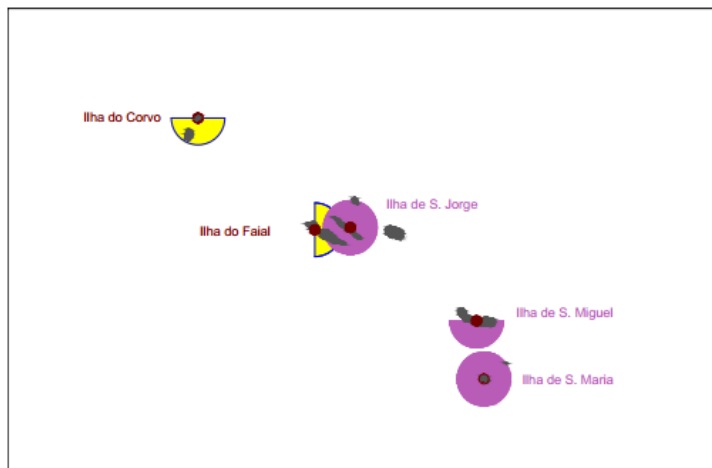
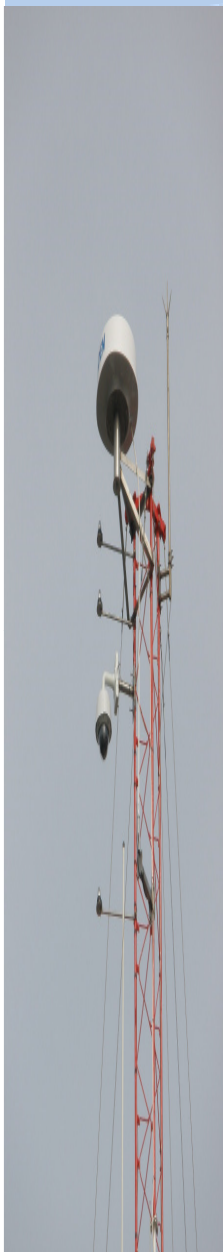
LEÇA - LEIXÕES



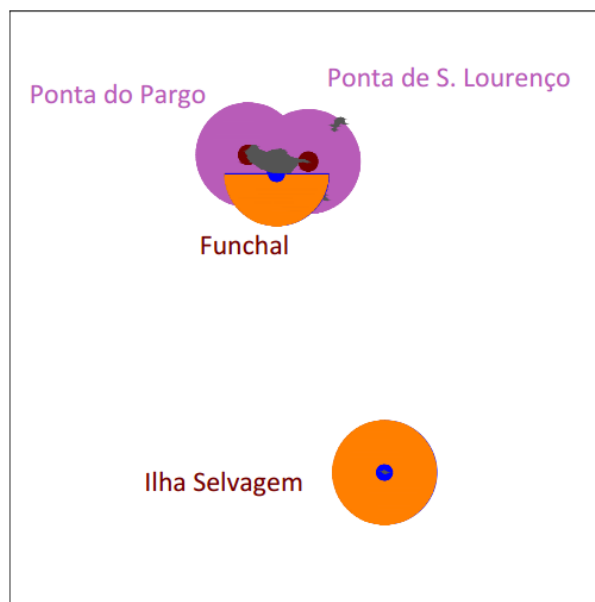
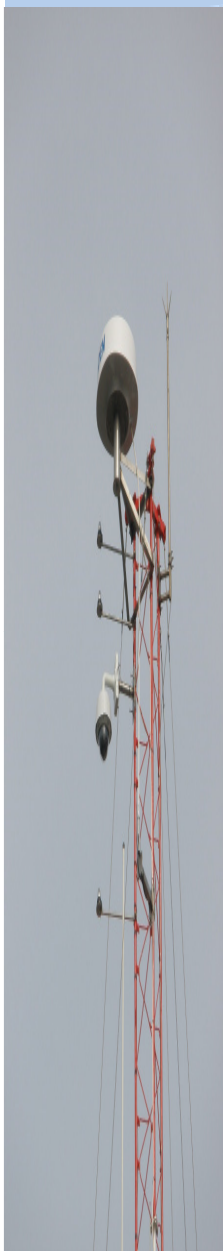
GEOGRAPHIC COVERAGE end of 2016



GEOGRAPHIC COVERAGE end of 2017



GEOGRAPHIC COVERAGE end of 2018



IMPLEMENTAION PLAN

■ Interaction with other entities

- Although it is not its main objective, the *COSTA SEGURA* system has the capacity to locally complement other systems – such as VTS (vessel traffic service) or, the Command and Control Maritime Surveillance System (SIVICC) used by our National Gendarmerie Force – in areas currently not covered by these.
- The system also can collect/provide information from/to other entities (for example: Port Authority)
- The system was designed to comply with the ANACOM (Portuguese Regulatory Authority for Communications) radar regulations. It has also been submitted to the National Commission for Data Protection (optical cameras).

SYSTEM ADVANTAGES AND DISADVANTAGES

■ Advantages

- Low investment
- Flexible, modular and scalable (technical parts and coastal stations are added according to the budget)
- Very low operating and maintenance costs (utilizes existing internet connections, and the software doesn't require yearly subscriptions, or paid updates)

SYSTEM ADVANTAGES AND DISADVANTAGES

■ Advantages

- Little training time required
- It does not require dedicated operators (nor hiring new personnel)
- Versatile functionality – it is used by Port Captaincy (24/7 in situation rooms), while at the same time the information can be used by the maritime police (24/7 at the picket) or Port Authority

■ Disadvantages

- Requires broadband internet access at the installation sites.

COSTA SEGURA SYSTEM

■ **Conclusion**

- Supports the decision-making of the Captain of the Port
- Increase in coastal safety conditions
- More efficient maritime rescue
- Modular and scalable
- Low-cost
- Easy to use
- Complements other coastal control system.
- Possibility to share information

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