

MARINEMET Pilot Project

AFRIMET Conference #05

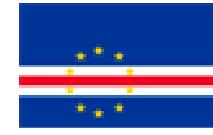
Boadilla del Monte, Madrid, October 2012



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Marine Meteorology Pilot Project for the Northwest African Basin and Macaronesia - MARINEMET -

- West Africa Directors Conference (WADC) → 4-year Marine Meteorology Pilot Project.
- Participants: Senegal, Cape Vert, The Gambia and Mauritania
AEMET-Spain in collaboration with Spanish Authority Ports and Las Palmas University through WMO



- **Pilot Project Objectives:**

- ✓ Technology transference (software)
- ✓ Technology transference (hardware-equipment)
- ✓ Knowledge transference (documents and training courses)

Objectives

- Technology transference (software): www.afrimet.org/marinemet/
 - 1) MODULE 1: Remote sensing products: **concluded**
 - 2) MODULE 2: Deep sea water modeling: **concluded**
 - 3) MODULE 3: Harbour application of ocean modeling (SAPOs): **concluded**
- Technology transference (hardware-equipment):
 - 1) Tide gauges: **almost finished (oct-nov-dec 2012)**
 - 2) Personnel computers for the Harbour application: **November 2012**
 - 3) Automatic Weather Stations: **almost finished (oct-nov-dec 2012)**
- Knowledge transference
 - 1) Documents: www.afrimet.org/marinemet/ → Documents
 - ✓ Remote sensing products
 - ✓ Deep sea water modeling
 - ✓ Harbour application of ocean modeling
 - 2) Training courses:
 - ✓ Training to build capacities in the general curricula adopted by WMO: **Toulouse 2009.**
 - ✓ Training to build capacities in the general curricula adopted by WMO: **UK-Met Office 2010.**
 - ✓ Short-term course for meteorologists → **Las Palmas (October 15th-19th 2012)**
 - ✓ Users' training courses in Senegal, The Gambia, Mauritania and Cape Vert → **at the end**
 - ✓ Specific courses for in-situ instrument maintenance and management → **in-situ with the equipment installation**

Commitments of NMHSs (Approved in Feb.2010-WADC, Banjul)

- Among the NMHSs responsibilities there are three commitments approved in the last Director Conference in Banjul:
 - Be engaged in the long-term maintenance of the equipment acquired under the MARINEMET framework:
 - *Automatic weather stations*
 - *Tide gauges*
 - *Computers*
- Important NMHSs commitment is “*to involve in the project activities*”. The operation of the system after 4 years depends only on the NMHSs. So, it is needed the services involved enough human resources in this pilot project.



MARINEMET's OBJECTIVES

(July 2009 - December 2012)

1. Technology transference (software)



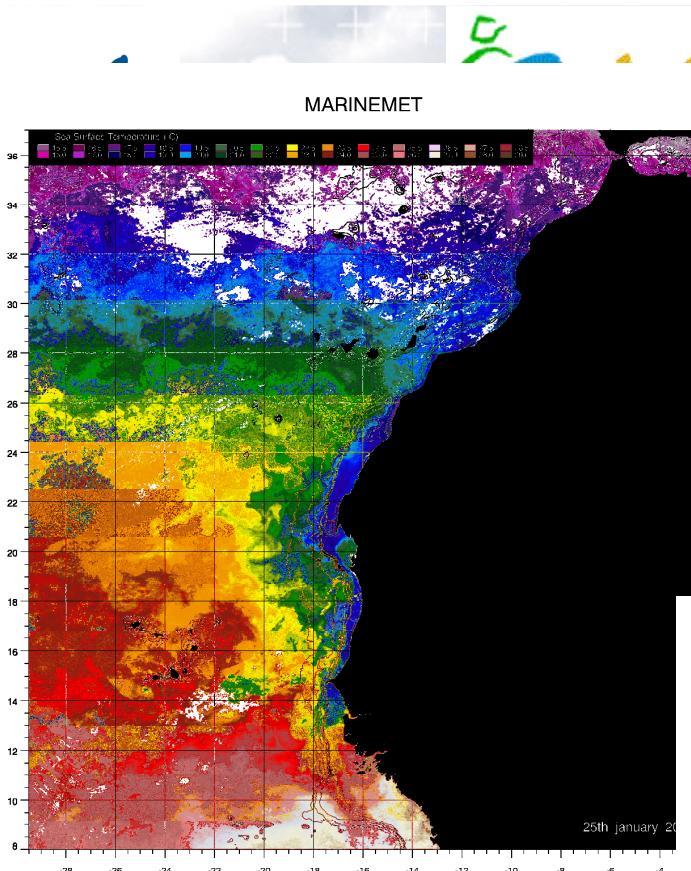
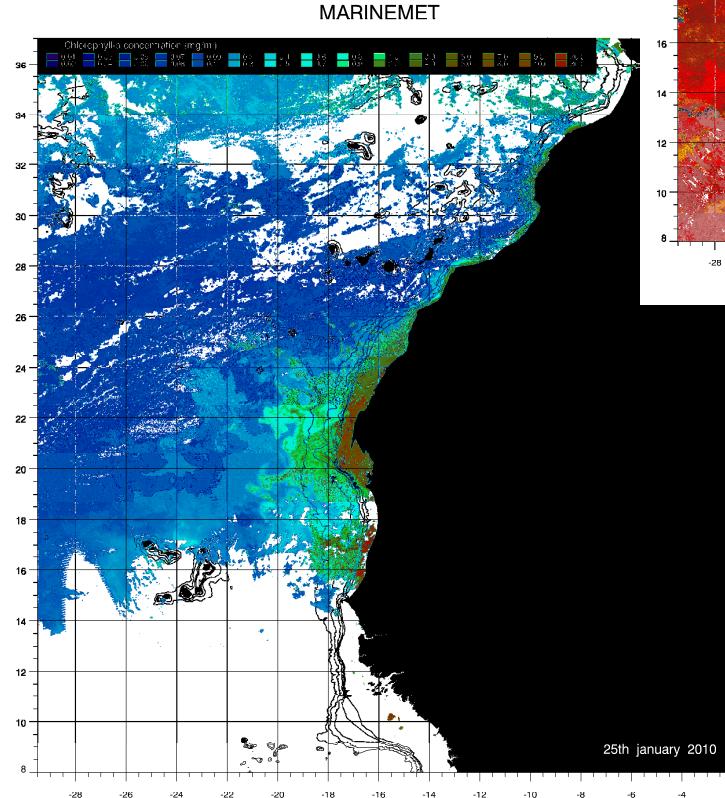
MODULE 1: Remote sensing products

- 5 remote sensing products are available on near-real time:
 - From Geo-Eye. **Only available until December 2010**
 - Sea level anomalies
 - Surface currents
 - From ocean color web (virtual antenna). MODIS data
 - Sea surface temperature
 - Chlorophyll-a concentration
 - Thermal fronts
- For 4 different windows:
 - Senegal-Gambia
 - Mauritania
 - Cape-Vert
 - Full window
- From March-2010 the satellite products are delivered by email to the coordination committee and other recipients suggested.

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Transferable
products
Ocean color web

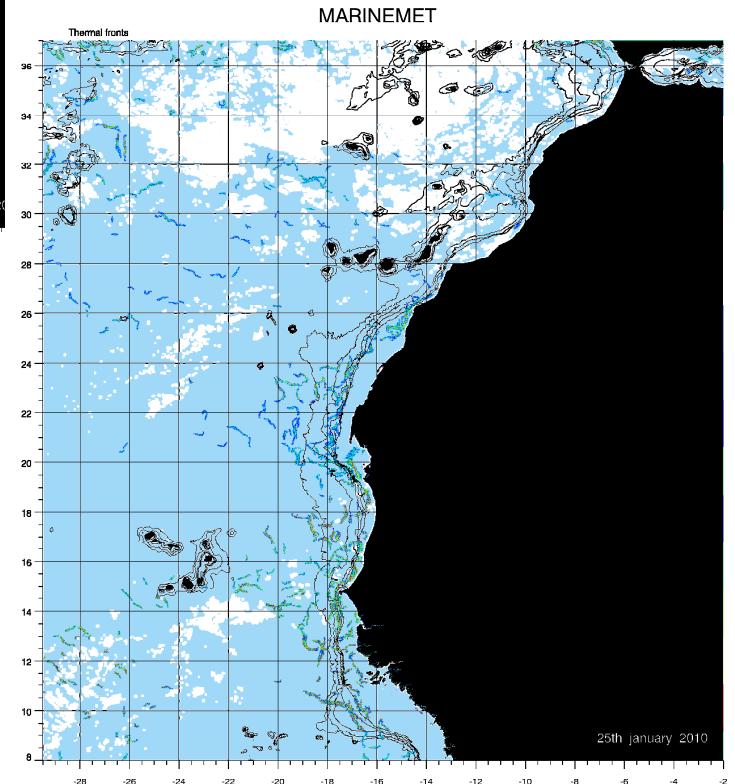
Chlorophyll-a concentration



Sea surface temperature



Thermal fronts



AEMET, Agencia Estatal de Meteorología

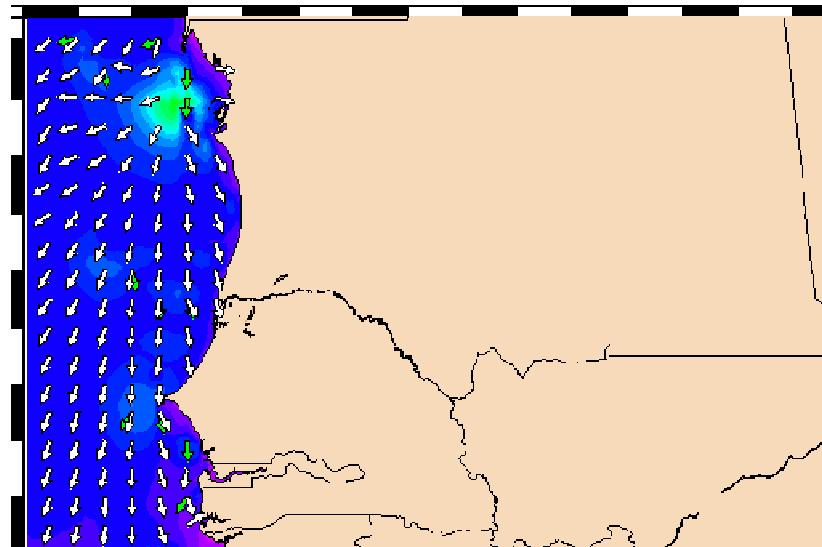
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MODULE 2. Deep sea water modeling

- VERSION 1: WAM (WAve prediction Model) outputs. ECMWF Boundary Conditions (2.5' Cape Vert and 5' Mauritania, Senegal and The Gambia).

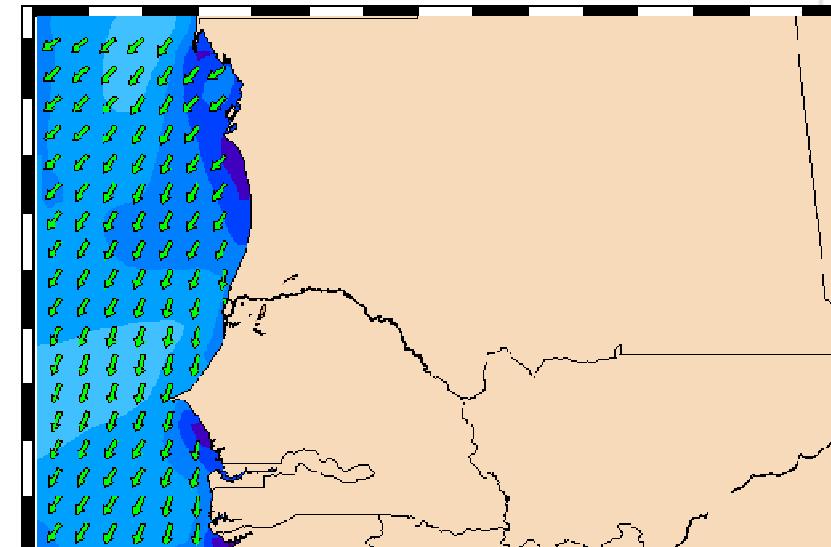
SALIDA DEL MODELO DEL DÍA 27/01/2010 A LAS 00 UTC
Campo de Oleaje a las 12 UTC del día 27/01/2010 / Horizonte Predicción = 12 horas

Horizonte (H) 00 12 24 36 48 60 72

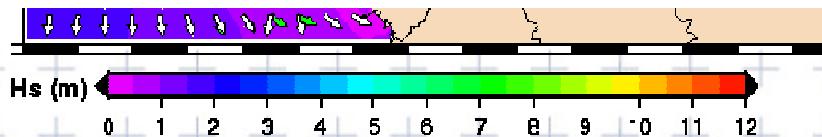


SALIDA DEL MODELO DEL DÍA 27/01/2010 A LAS 00 UTC
Viento en superficie a 12 UTC del día 27/01/2010 / Horizonte Predicción = 12 horas

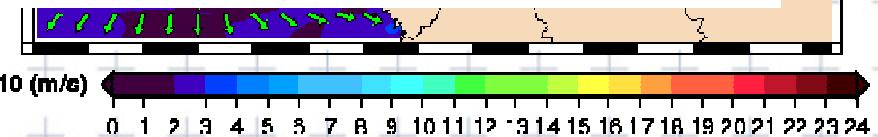
Horizonte (H) 00 12 24 36 48 60 72



VERSION 2: Because of the ECMWF data policy, WaveWatch 3 model and NCEP Boundary Conditions are being proved



Vectores: Dir media mar de fondo: → Dir media mar de viento: →



Vectores: Dirección de propagación del viento en superficie →

MODULES 3: Harbour application of ocean modeling: SAPOs

Three SAPOs:

- Mindelo
- Dakar
- Nouakchott

Steps:

- Preparation internal document with the bathymetric information. **Finished**
- Application design to the Northwest African Area: Boundary Conditions, grids... **Finished**
- Adaptation SAPO system to the application designed. **Finished**
- Bathymetric information digitalization. **Finished**
- Bathymetric information interpolation into the regular grid. **Finished**
- Information transference and implementation in the three computers. **Delayed**
- Established BC's (from WAM) and Wind Fields. **Finished**
- Beginning of Operations. **Delayed**



MARINEMET's OBJECTIVES

(July 2009 - December 2012)

2. Technology transference (hardware-equipment)

Transference technology (hardware)

(Approved in Feb.2010-WADC, Banjul)

1) AUTOMATIC WEATHER STATIONS: Oct-Nov-Dec 2012

- 2 stations in Senegal
- 3 stations in Mauritania
- 3 stations in Cape Vert
- 1 station in The Gambia
- 1 station as a spare

2) PERSONNEL COMPUTERS: Nov-2012 (Spain)

✓ Harbour application of ocean modelling (SAPOs):

- 1 computer in Dakar - Senegal
- 1 computer in Nouakchott - Mauritania
- 1 computer in Mindelo - Cape Vert
- 3 computers like replicas

✓ Remote sensing facilities + project web

- 1 computer in RSMC-Dakar

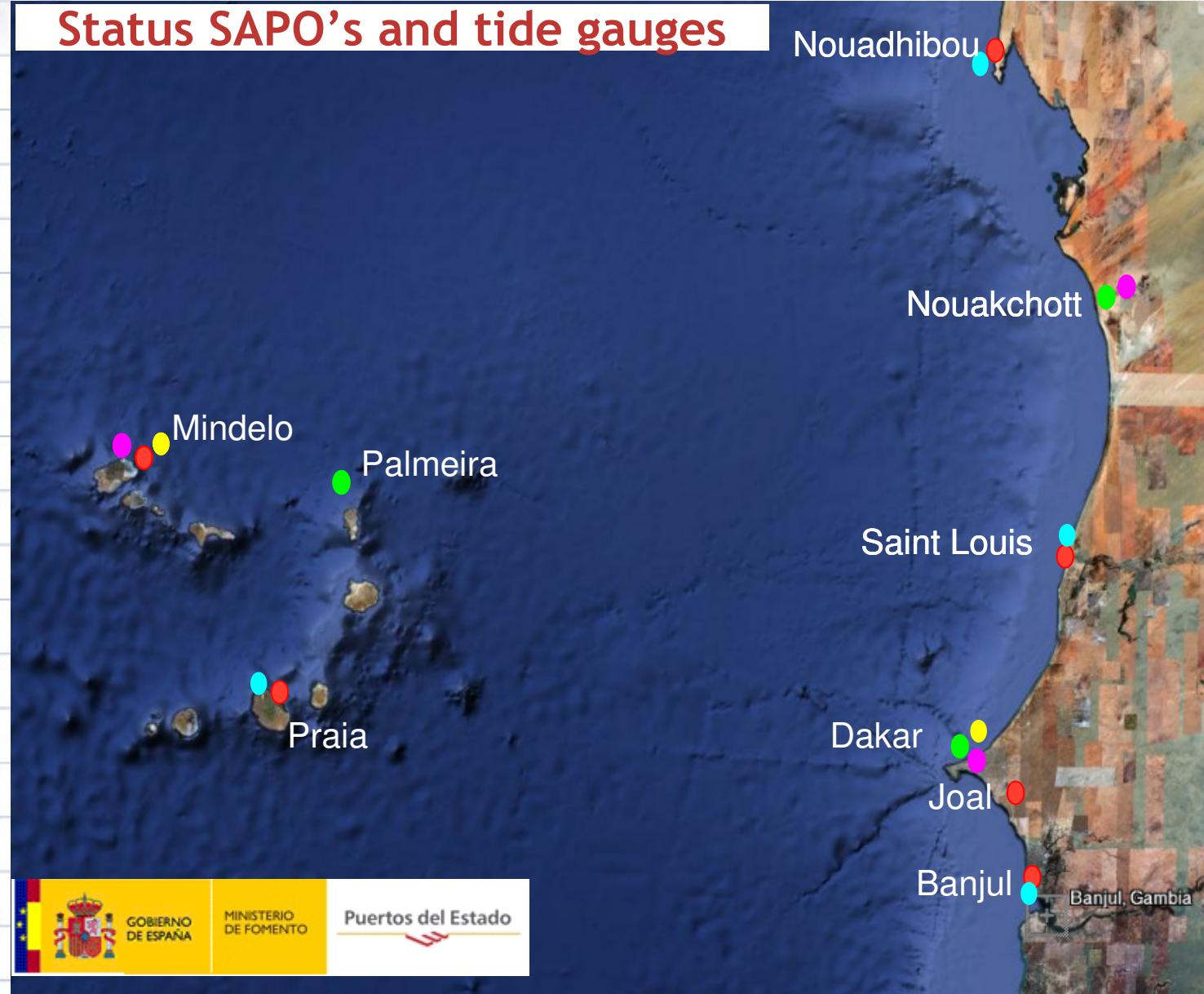
✓ Deep water modellization

- 1 computer in RSMC-Dakar

3) TIDE GAUGES: Oct-Nov-Dec 2012

- 1 MIROS station in Dakar - Senegal
- 1 MIROS station in Mindelo - Cape Vert
- 1 standard station in Nouadhibou - Mauritania
- 1 standard station in Praia - Cape Vert
- 1 standard station in St. Louis - Senegal
- 1 standard station in Banjul - Gambia
- 1 station as a spare

Status SAPO's and tide gauges





MARINEMET's OBJECTIVES

(July 2009 - December 2012)

3. knowledge transference



1. DOCUMENTS (<http://www.afrimet.org/marinemet/index.php/en/documents>)

- Technical documents:
 - Remote sensing products:
 - Theoretical Basis - **finished**
 - Products interpretation - **finished**
 - Products guide - **finished**
 - Deep sea water modeling
 - Harbour application of ocean modeling
 - Web site structure
- Annual documents:
 - MARINEMET PILOT PROJECT ANNUAL DOCUMENT - **finished**

2. TRAINING COURSES

- Training meteorological course in Meteo-France: Senegal, Cape Vert and Mauritania → **September 2009**
- Training meteorological course in UKMO: The Gambia → **May-June 2010**
- MARINEMET training course (focal points): Las Palmas → **October 2012**
- Maintenance and management of the equipment: tide gauges, AWSs: Senegal, The Gambia, Mauritania and Cape Vert → **When the equipment is installed SUTRON (Oct-Nov-Dec 2012).**
- MARINEMET training final users course: Senegal, Mauritania, Cape Vert and The Gambia → **First half 2013**



MARINEMET WEB SITE

Marinemet

Web portal

www.afrimet.org/marinemet/



PRODUCTS (data and documents):

- Observations: remote sensing and tide gauges
- Models outputs: Deep sea water modeling and Harbour application of ocean modeling (SAPOs)

Maritime Meteorology Project (Monitoring and Services) for the Northwest African Basin and Macaronesia

Home Participants Interesting Links Services Documents Contact

Spanish French English

Products

» Modelling

» Observation

MARINEMET project

Overall objective Specific Objectives Expected Benefits

Recognizing the weakness revealed by a WMO survey in those countries regarding a lack of expertise in marine meteorology in their national meteorological services, as well as an absence of an effective warning and disaster mitigation strategy.

Taking into account that an important part of the population of West African countries lives in coastal cities, with their economic activities in the coastal zones, thus having growing demand for marine meteorology services and an urgent needs to enhance their operational capacity in this field.

The overall objective of this Project is therefore, to enhance the capacity of the NMHSs of West African coastal countries and provide them with the relevant tools that will allow them to contribute to the sustainable development of their respective countries and enhance the delivery of products and services to the various socioeconomic sectors related to marine activity as it is essential for them.



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Near future

(Oct 2012 -

First half 2013)

Steps (oct 2012-first half 2013)

- Tide gauge and AWs → SUTRON
 - 5 oct - 13 Oct: The Gambia
 - 13 oct-26 Oct: Senegal
 - Nov-Dec: Mauritania
 - Nov-Dec: Cape Vert
- PCs for harbour application, modellization and satellite products → November 2012
- MARINEMET training course (focal points) and technical meeting: Las Palmas → October 2012
- MARINEMET training final users course: Senegal, Mauritania, Cape Vert and The Gambia
- Additional cooperation (operational project)

TIDE GAUGES AND AUTOMATIC WEATHER STATIONS - SUTRON

	Country	Station	Type
1	Senegal	Mole3	AWS
2	Senegal	Joal	Tide with MIROS
3	Senegal	St Louis	Tide with Radar
4	Cape Verde	Praia	Tide with Radar
5	Cape Verde	Palmeira	AWS
6	Cape Verde	Mindelo	Tide with MIROS
7	Mauritania	Mamghar	AWS
8	Mauritania	Arkiess	AWS
9	Mauritania	Nouadhibou	Tide with Radar
10	Gambia	Banjul	Tide with Radar

3 Types of Stations:

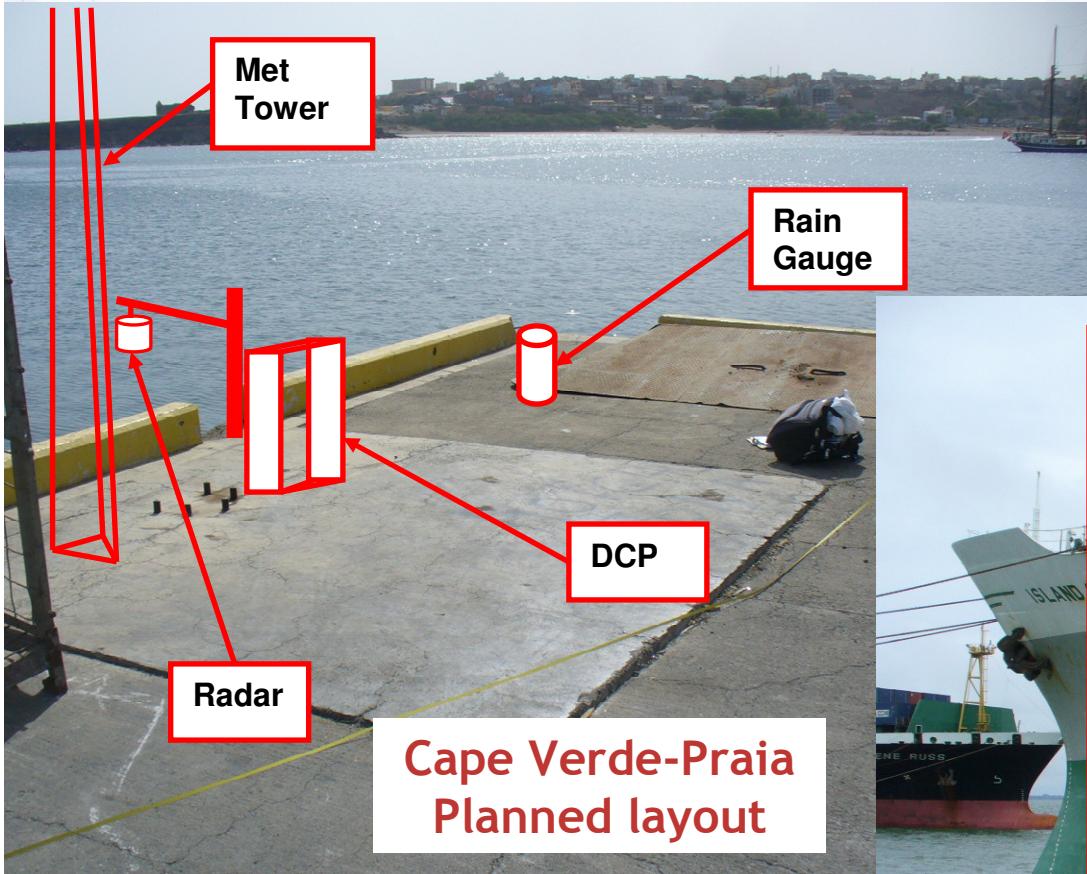
- Tide Station with MIROS
- Tide Station with Radar
- AWS Station

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¡Muchas gracias!