



MARINEMET

Marine Meteorology Pilot Project

WA NMHSs Conference #04

Ilha Sal, March 2011



nombre y posición
e-mail

Pilot Project summary

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

- West Africa Directors Conference (WADC) → 4-year Marine Meteorology Pilot Project. July 2009-June 2013
- 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)

MARINEMET-Objectives

- Technology transference (software):
 - 1) MODULE 1: Remote sensing products: **finished**
 - 2) MODULE 2: Deep sea water modeling: **finished**
 - 3) MODULE 3: Harbour application of ocean modeling (SAPOs): **on-going**
- Technology transference (hardware-equipment):
 - 1) Tide gauges: **on going**
 - 2) Personnel computers for the Harbour application: **beginning 2012**
 - 3) Automatic Weather Stations: **2011**
- Knowledge transference
 - 1) 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.
 - ✓ Training to build capacities in the general curricula adopted by WMO: UK-Met Office.
 - ✓ Short-term course for meteorologists.
 - ✓ Users' formation courses in Senegal, The Gambia, Mauritania and Cape Vert
 - ✓ Specific courses for in-situ instrument maintenance and management

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*
- Other 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 - March 2011)

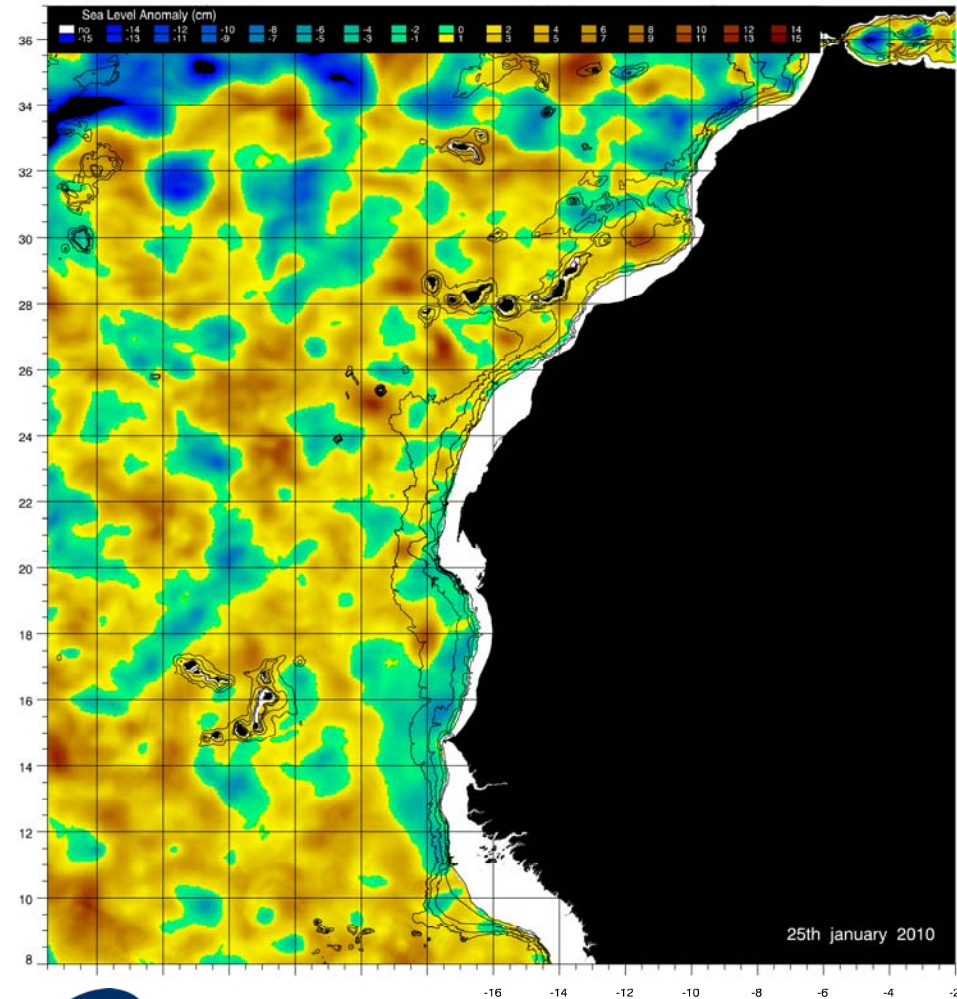
1. Technology transference (software)

MODULE 1: Remote sensing products

- 5 remote sensing products are available on near-real time:
 - From Geo-Eye (L-band antenna). **Only 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.

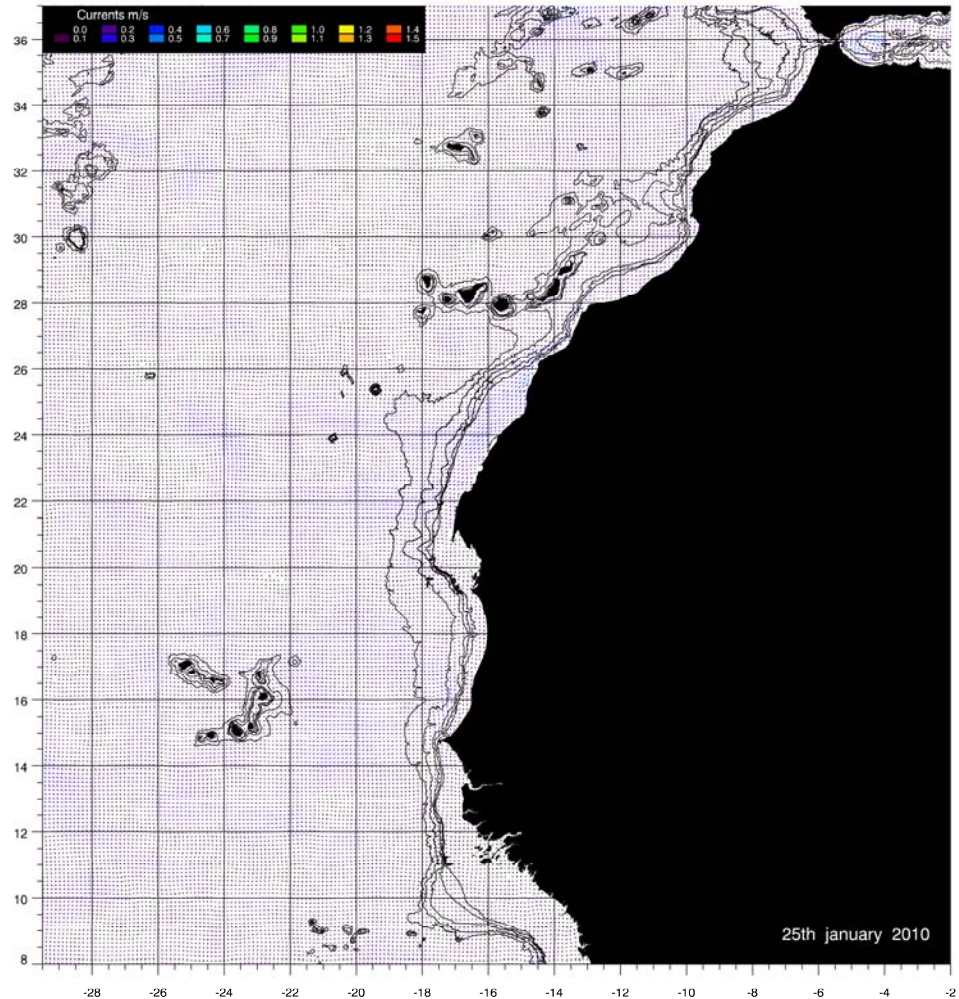
Products until Dec-2010

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Sea level anomaly
(available until December 2010)

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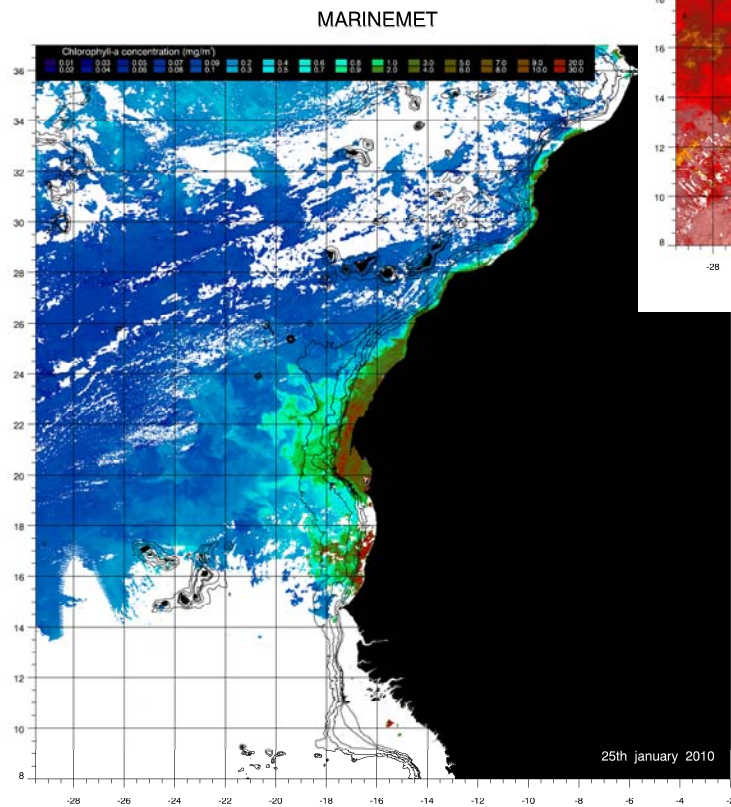


Surface currents
(available until December 2010)

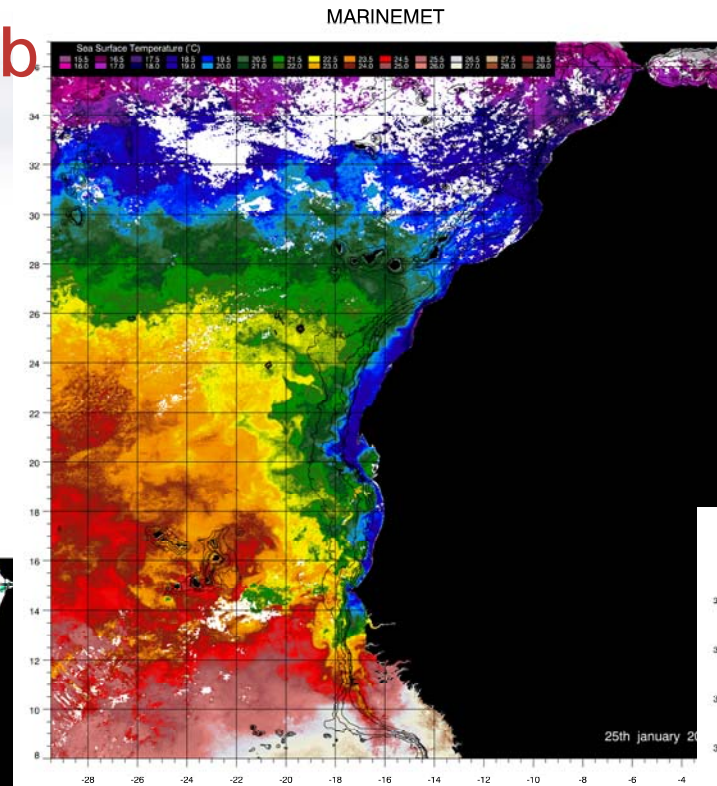
Transferable products

Ocean color web

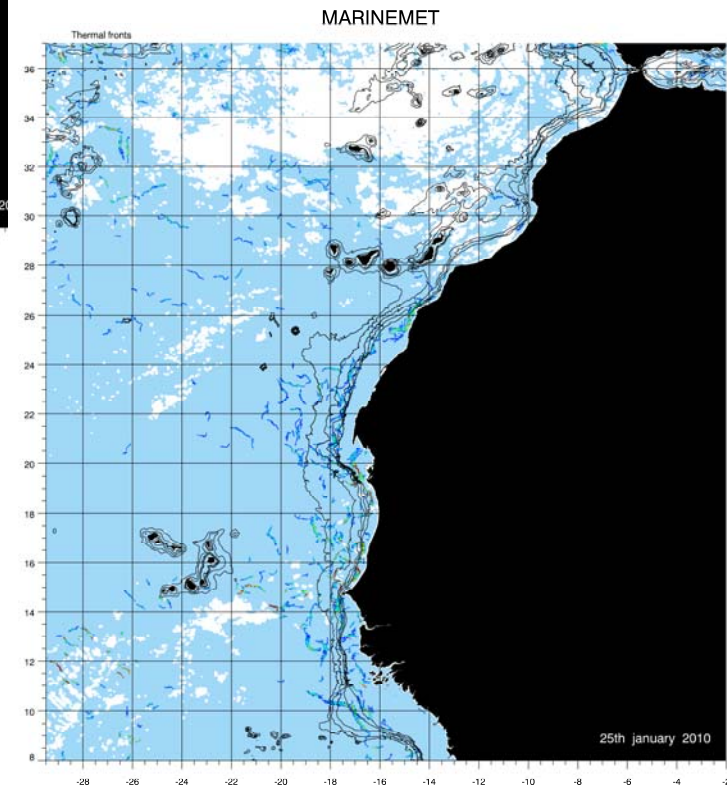
Chlorophyll-a concentration



Sea surface temperature



Thermal fronts

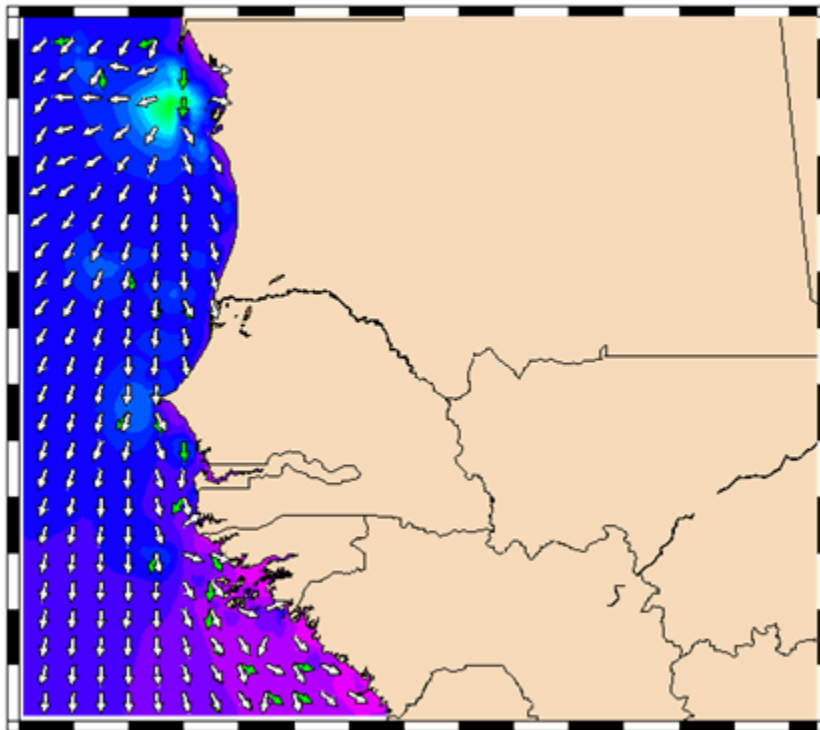


MODULE 2. Deep sea water modeling

- 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

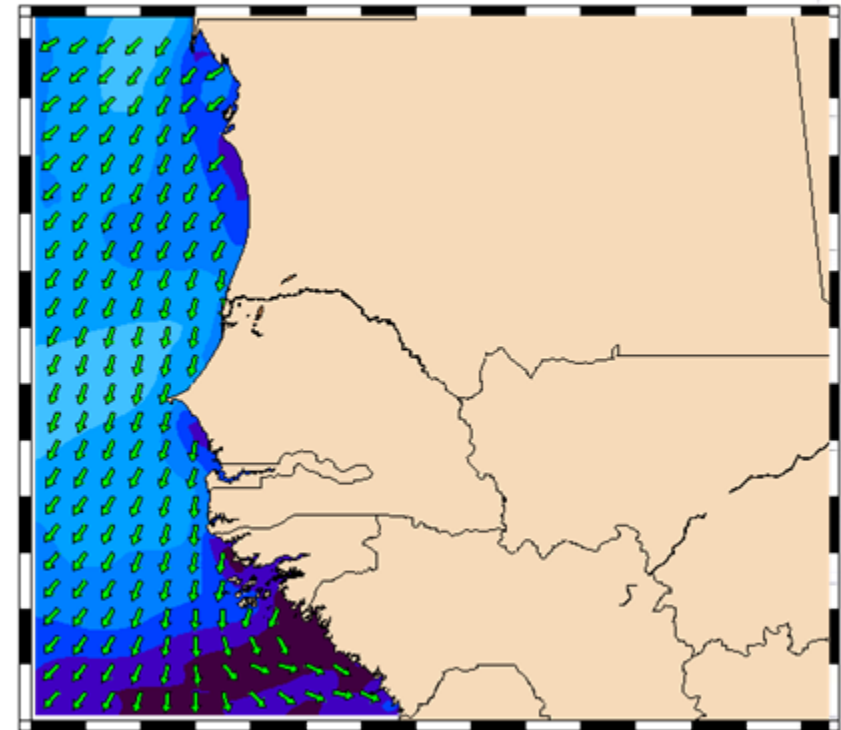


Hs (m) 0 1 2 3 4 5 6 7 8 9 10 11 12

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

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



U10 (m/s) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

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. March 2011. **On going**
- Information transference and implementation in the three computers. June 2012
- Established BC's (from WAM) and Wind Fields. June 2012
- Beginning of Operations. June 2012
- SAPOs results validation. January 2013

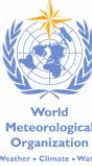
MARINEMET's OBJECTIVES

(July 2009 - March 2011)

2. Technology transference (hardware-equipment)

Transference technology (hardware)

(Approved in Feb.2010-WADC, Banjul)



1) AUTOMATIC WEATHER STATIONS: 2011

- 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: 2012

✓ 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

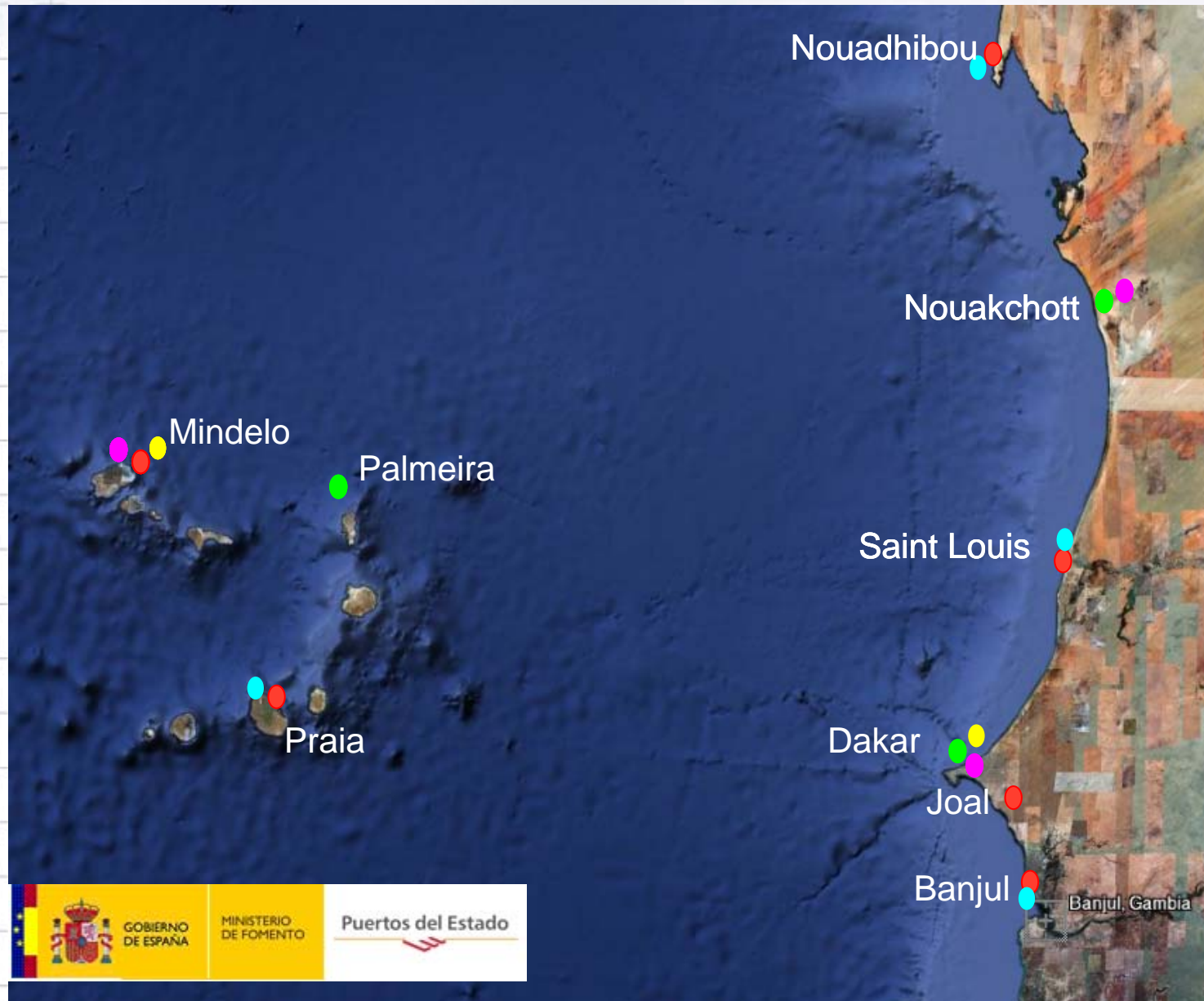
✓ Remote sensing facilities

- 1 computer in RSMC-Dakar

3) TIDE GAUGES: 2011

- 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



- NOAA – IOC stations
- SAPO's
- MIROS stations
- Standard tide gauges
- Answer to Tide Gauges Questionnaires

MARINEMET's OBJECTIVES

(July 2009 - March 2011)

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-2010 - **finished**

2. TRAINING COURSES

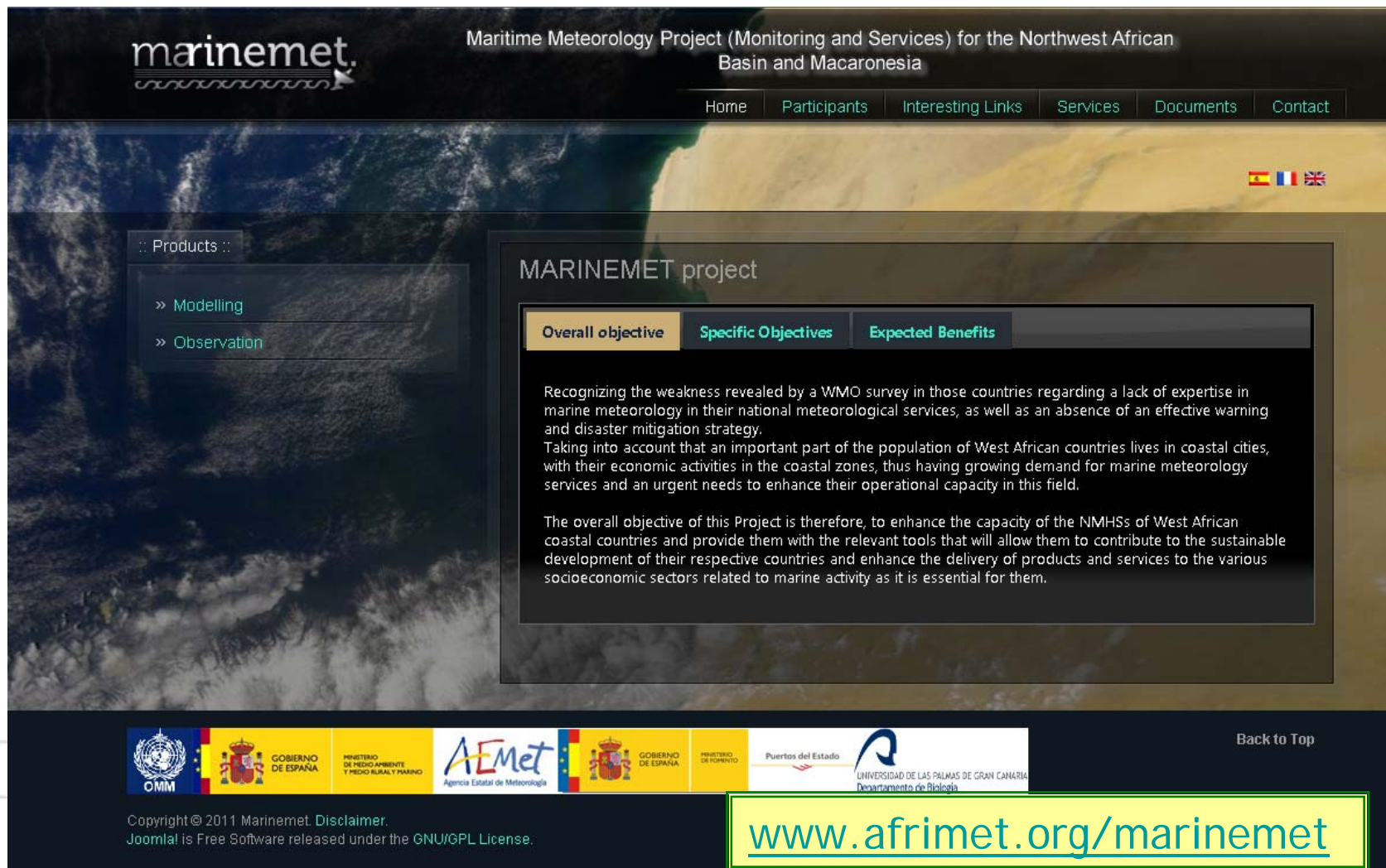
- Training meteorological course in Meteo-France: Senegal, Cape Vert and Mauritania → **September 2009**
- Training meteorological course in UKMO: The Gambia → **May-June 2010**
- MARINEMET training course (focal points): Las Palmas → **June 2012**
- Maintenance and management of the equipment: tide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

MARINEMET WEB SITE

Web portal

PRODUCTS (data and documents):

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



The screenshot shows the Marinemet web portal. The header includes the 'marinemet' logo and the title 'Maritime Meteorology Project (Monitoring and Services) for the Northwest African Basin and Macaronesia'. Navigation links for Home, Participants, Interesting Links, Services, Documents, and Contact are present. A sidebar on the left lists 'Products' with links to 'Modelling' and 'Observation'. The main content area, titled 'MARINEMET project', contains a table with three columns: 'Overall objective', 'Specific Objectives', and 'Expected Benefits'. The 'Overall objective' section describes the project's goal to enhance marine meteorological services in West African coastal countries. The footer features logos of the OMM, Spanish Government, AEMet, and the University of Las Palmas de Gran Canaria, along with a 'Back to Top' link.

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

Home Participants Interesting Links Services Documents Contact

Products

- » Modelling
- » Observation

MARINEMET project

Overall objective	Specific Objectives	Expected Benefits
<p>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.</p> <p>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.</p> <p>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.</p>		

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www.afrimet.org/marinemet

Near future

Steps (Until June 2011)

- Bathymetric data collection for the port wave forecast models (SAPOs): Senegal, Mauritania and Cape Vert → on going
- ToR for the tide gauges → expecting the offers
- Acquisition equipment:
 - Tide gauges → 1st half 2011
 - AWS → 2011
- Project web page development → continuous
- Documentation
- Additional cooperation



Agencia Estatal de Meteorología

Muito Obrigado pela sua atenção