

FP7 Cooperation Work Programme:
Theme 6 Environment (including climate change)

Call Title: Environment (including climate change)

- Call identifier: *FP7-ENV-2008-1*
- Date of publication: 30 November 2007
- Deadline: 25 February 2008 at 17.00.00, Brussels local time

ACTIVITY 6.4. EARTH OBSERVATION AND ASSESSMENT TOOLS FOR SUSTAINABLE DEVELOPMENT		
Sub-activity 6.4.1. Earth and ocean observation systems and monitoring methods for the environment and sustainable development (EUR 21 million)		
<i>4.1.3.</i>	<i>ENV.2008.4.1.3.1 Developing Earth Observation for the monitoring and prediction of environmental impacts from energy resource extraction, transportation and/or exploitation</i>	<i>Collaborative project (large-scale integrating project)</i>

ENV.2008.4.1.2.1. Monitoring and observing oxygen depletion throughout the different Earth system components



FP7 Cooperation Specific Programme for 2008

Chapter 6: Environment (including Climate Change)

Call ENV.2008.4.1.2.1 Monitoring and observing oxygen depletion throughout the different Earth system components

Proposal full title: **Towards Global Observatories for Oxygen Depletion**
Proposal acronym: OXYWATCH
Type of funding scheme: Collaborative Project, medium-scale focussed research project
Name of the coordinating person: Arne Körtzinger
Total funding requested: 3.5 Million Euros
Funding period: 2009 – 2012 (4 years)

Participant no.	Participant organisation name	Country
1 (Coordinator)	IFM-GEOMAR: Leibniz-Institut für Meereswissenschaften, Kiel	Germany
2	ETHZ: Eidgenössische Technische Hochschule Zürich	Switzerland
3	AADI: Aanderaa Data Instruments AS, Bergen	Norway
4	UiB: University of Bergen, Bergen	Norway
5	KANNAD, Guidel	France
6	IEO: Instituto Español de Oceanografía, Centro Oceanográfico de Canarias, Tenerife	Spain
7	LPAOSF: Laboratoire de Physique de l'Atmosphère et de l'Océan Simeon Fongang, Dakar	Senegal
8	LOCEAN-IPSL/CNRS: Laboratoire d'Océanographie et du Climat: Expérimentations et approches numériques, Paris	France
9	ICCM: Instituto Canario de Ciencias Marinas, Gran Canaria	Spain
10	CIO-RUG: Rijksuniversiteit Groningen, Groningen	Netherlands
11	MPI-BGC: Max-Planck-Institut für Biogeochemie, Jena	Germany
12	INMG: Instituto Nacional Meteorologia e Geofísica, Sal	Cabo Verde
13	IRD: Institut de recherche pour le développement, Paris	France
14	IFREMER: Institut français de recherche pour l'exploitation de la mer	France
15	INDP: Instituto Nacional de Desenvolvimento das Pescas	Cabo Verde

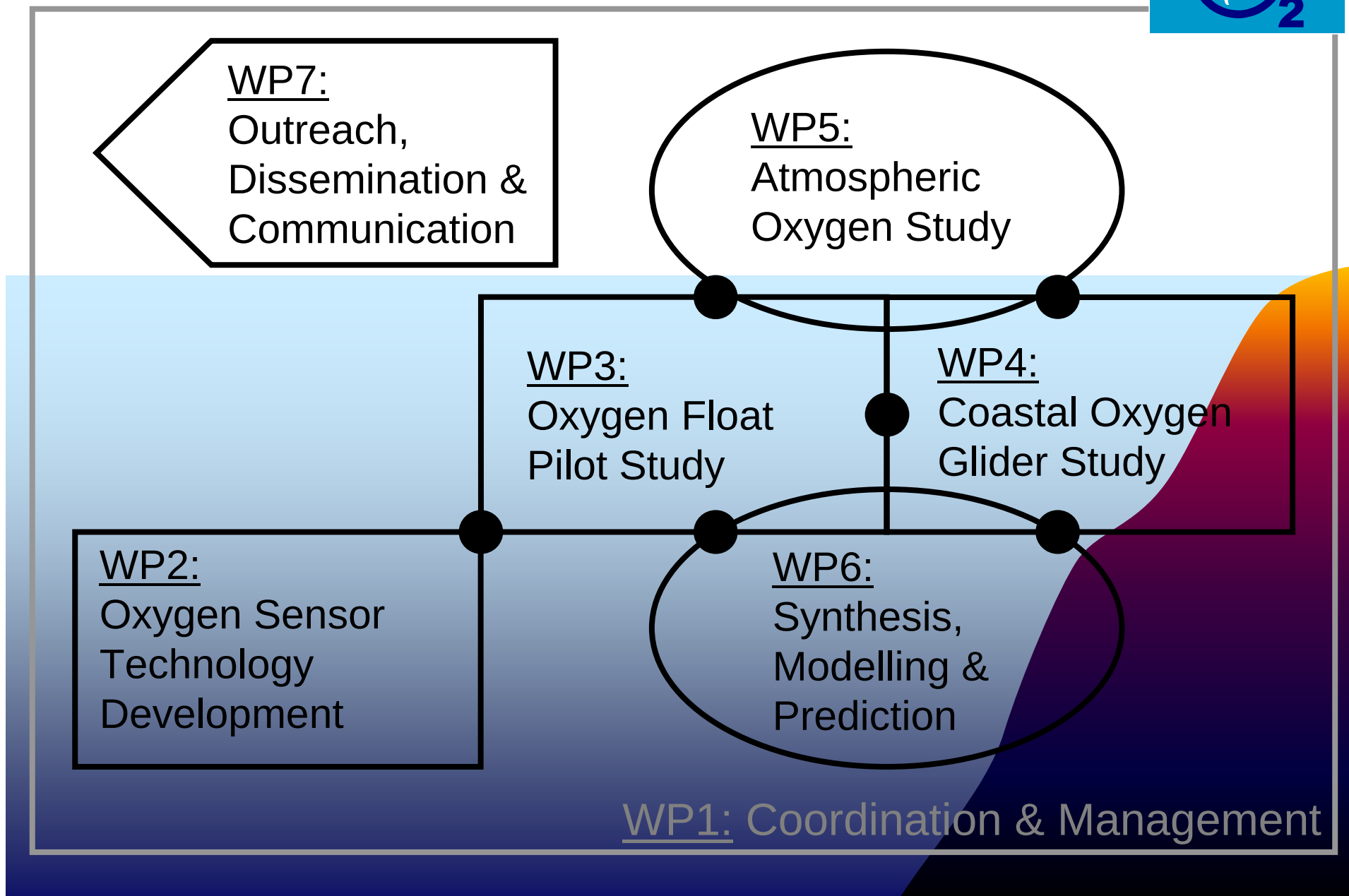


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Objectives

- Improve the optode technology to measure oxygen with an absolute **accuracy of ± 1 % or $\pm 2 \mu\text{M}$** and **90 % response time of less than 15 s**.
- Improve the performance of a **high resolution pressure sensor** to enhance profile resolution and collect **atmospheric pressure** data for optode calibrations from floats at the surface.
- Establish routines for **data acquisition and quality control** to be able to smoothly manage and openly share high quality oxygen data from multiple instruments.

- Improve optics
- Improve electronics
- Develop semi-transparent foil
- Improve temperature measurement
- Establish multi-point calibration facility
- Explore possibilities of air/water pressure sensor with 2 mbar resolution
- Perform thorough laboratory and field tests
- Develop secondary QC measures and protocols



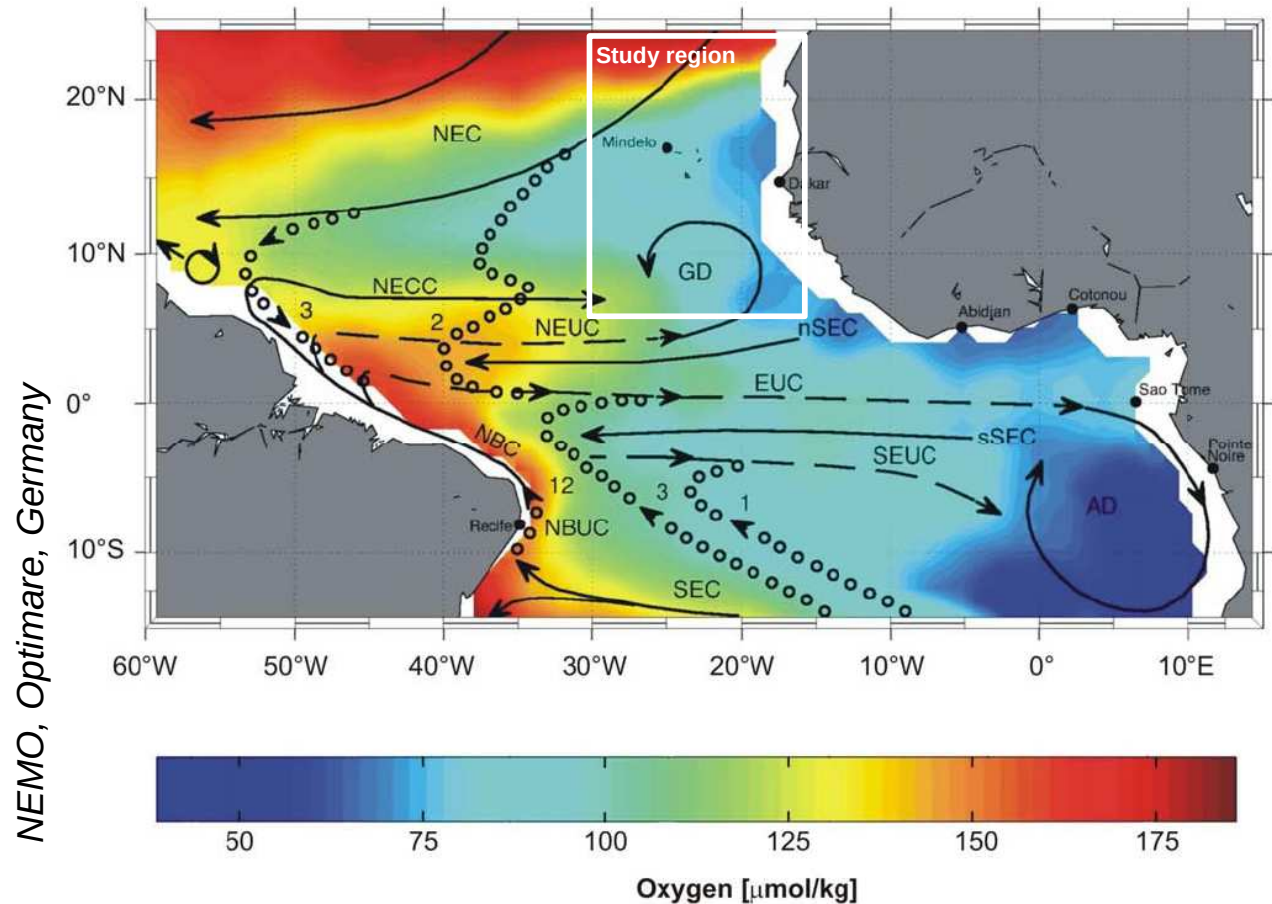
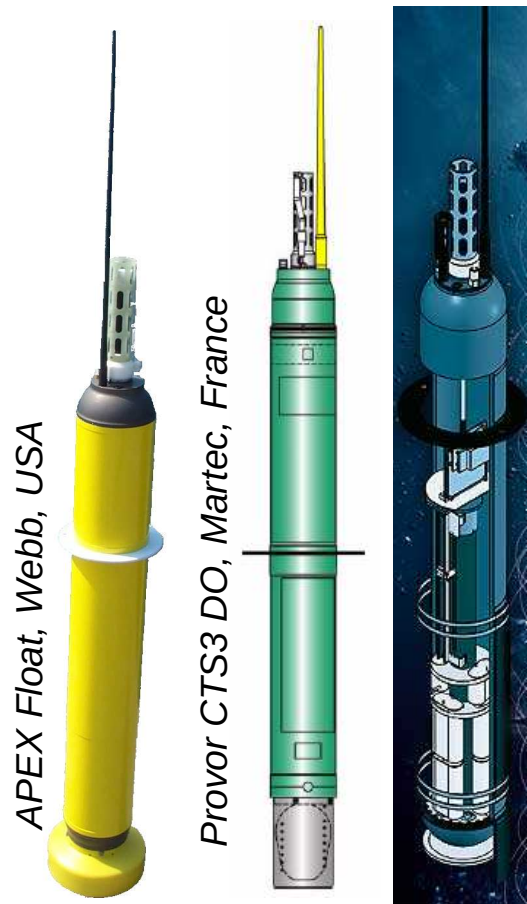
WP3: Oxygen Float Pilot Study

IFM-GEOMAR/Germany, IEO/Spain, LPAOSF/Senegal



Objectives

- Planning, organization, execution and evaluation of an oxygen float pilot study in the OMZ region off northwest Africa
- Deployment of ~30 float from 3 manufacturers
- Provide oxygen reference data set from repeated annual cruises to the region



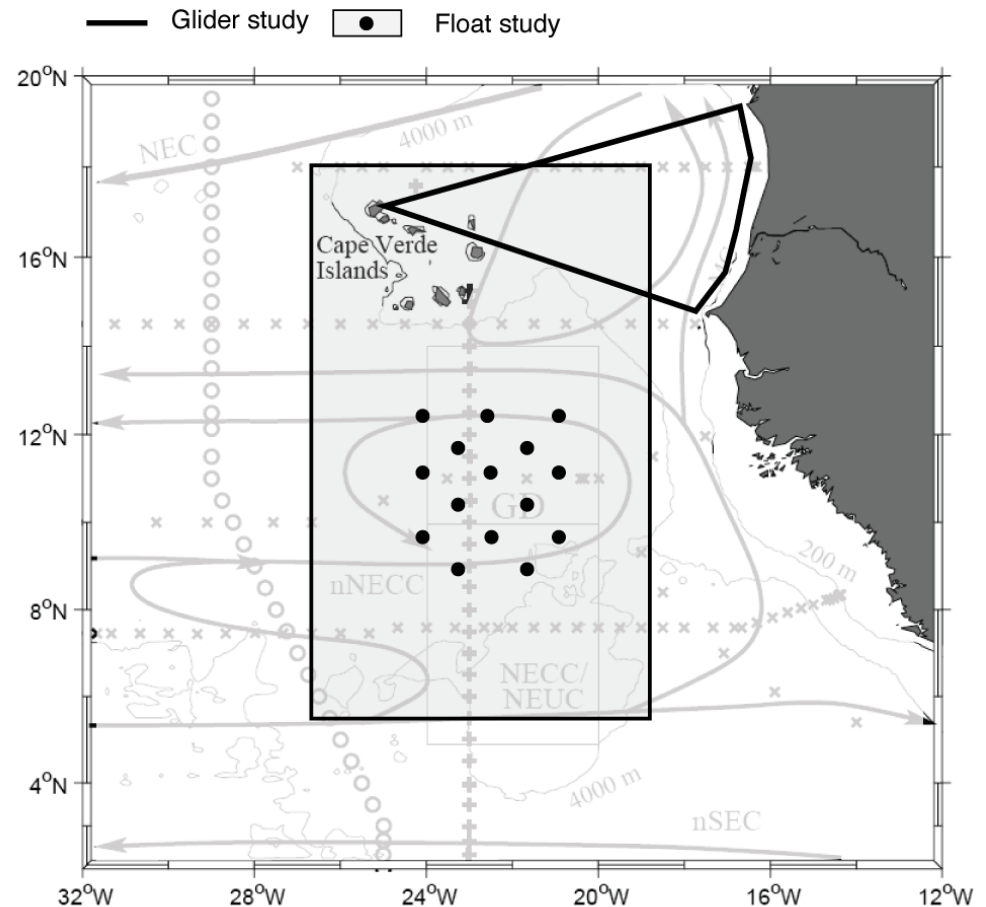
WP4: Coastal Oxygen Glider Study

IPSL/France, IFM-GEOMAR/Germany, LPAOSF/Senegal, ICCM/Spain, INDP/Cape Verde



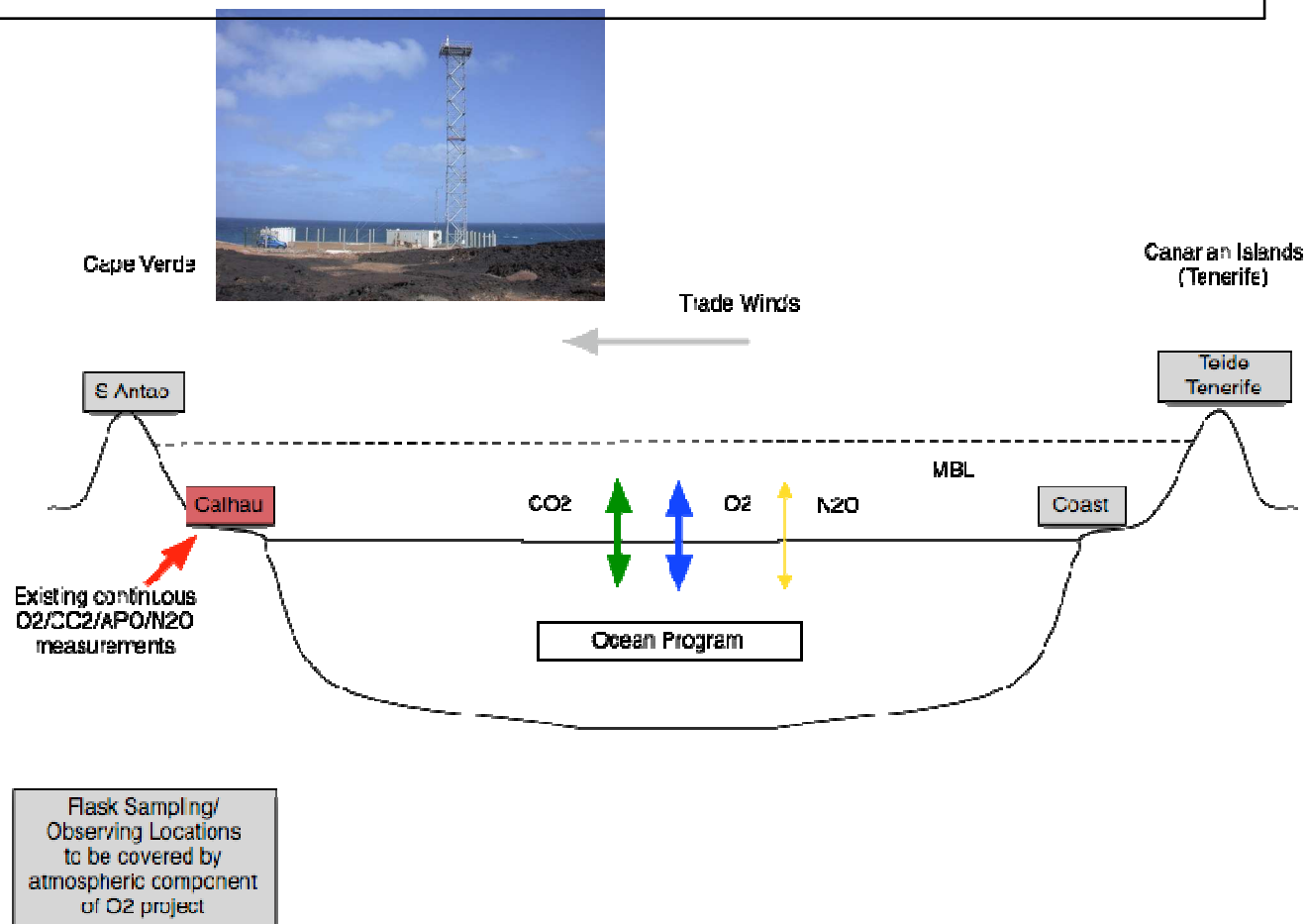
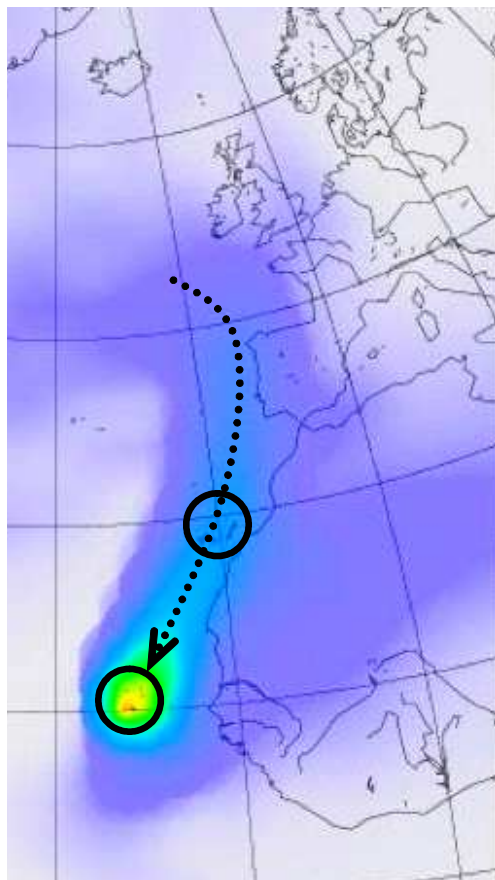
Objectives

- Planning, organization, execution and evaluation of collaborative glider missions focussing on the coastal – shelf break regions along the North West African Coastal zone between Morocco and Cabo Verde / Senegal
- Operation mode: transects and “glider swarm”



Objectives

- Run continuous atmospheric oxygen and CO₂ concentration measurements at station Calhau (Cabo Verde) and on Gran Canaria (env. La Isleta) within the marine boundary layer.
- Establish regional oxygen and APO (Atmospheric potential oxygen) climatologies.
- Implement a atmospheric modelling framework of the transport of oxygen and CO₂ using the WRF-VPRM regional circulation model.



Objectives

- Establishment of secondary quality control procedures for oxygen measurements from floats and gliders with particular emphasis on the detection of sensor drifts.
- Integration and synthesis of the observations combining statistical techniques and numerical models, including first steps toward data assimilation.
- Determination of the impact of present and future oxygen depletion on ecosystems (lower and higher trophic levels)

