

# Oceanographic Research Fleet: Spanish activities on 2008



Juan José Dañobeitia (UTM- CSIC)



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ERVO2009

14-15 May, Copenhagen, Denmark



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**R/V Hesperides; 82,5 m, ICE-Class 1C**



**R/V Sarmiento de Gamboa, 2007, 70,5 m. DP Class 1**



**R/V Garcia del Cid, 1977, 37 m**



**R/V Las Palmas, 1978, 41 m, Supplier**



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# NEW EQUIPMENT

## BIO HESPERIDES

- Piston corer (10 m)

- *New piston corer: Join venture between OSU (USA) & R&D Geosciences team*



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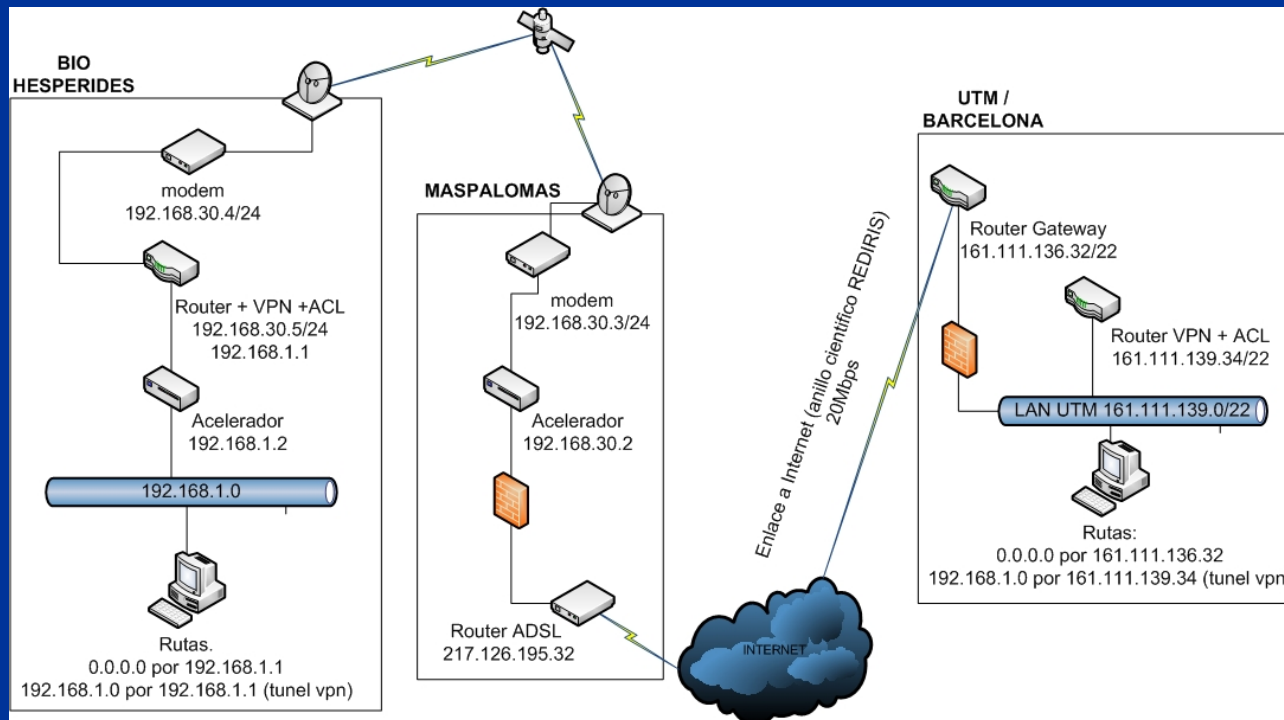


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# • NEW EQUIPMENT (II)

## • BIO HESPERIDES

- VSAT High speed Satcomm (Internet, VoIP): Operator Hisdesat. X Band



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# NEW EQUIPMENT (III)

## B/O Sarmiento de Gamboa

- Lacoste & Romberg Air- Sea II Gravitymeter
- VSAT High speed Satcomm (Internet, VoIP, VPN Implementation )
- Citometer sorter
- PCO2 (testing)
- SeaSoar

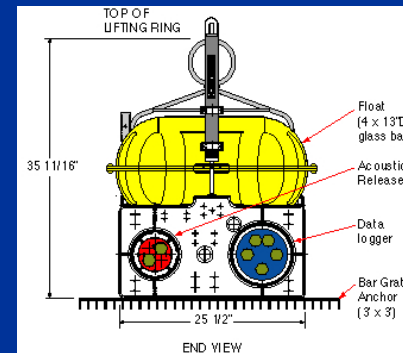
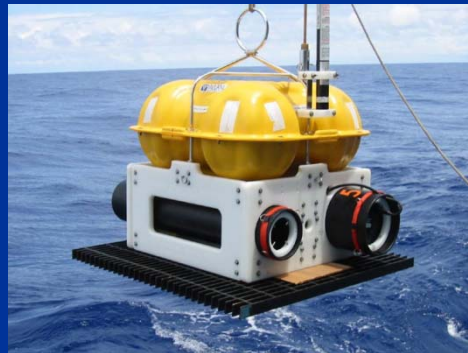
### • Ship's position Real Time Monitoring



# NEW EQUIPMENT (IV)

## B/O Sarmiento de Gamboa

- Seismic equipment
- MCS Compressors: Containerized LMF 25/138-207-E50 (MCS Digital streamer to be installed during 2009)
- 18 OBS MOU between SCRIPPS and UTM



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# TECHNOLOGICAL DEVELOPMENT PROJECTS

Technological Development Engineering Service (UTM) + SARTI-UPC



Dimensions	One 17" glass sphere One 13" glass sphere
Weight (with ballast)	100 kg
Consumption	2 W
Autonomy	20 days
Batteries	Rechargeable Lithium-ion
Clock	TCXO [0.2 PPM]
ADC	Delta-Sigma Crystal CS5372 24 bits
Sampling rate	125-1000 sps
Memory	Compact Flash [2 GB]
Sensors	External geophone [4,5Hz] HighTech HTI-90-U hydrophone
Release	Güralp mechanical release
Aids to location	Xenon flasher, RF beacon and flag



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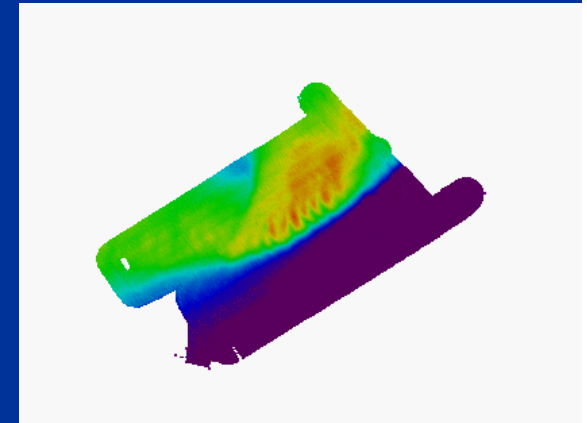
# NEW EQUIPMENT

(V)

- B/O García del Cid

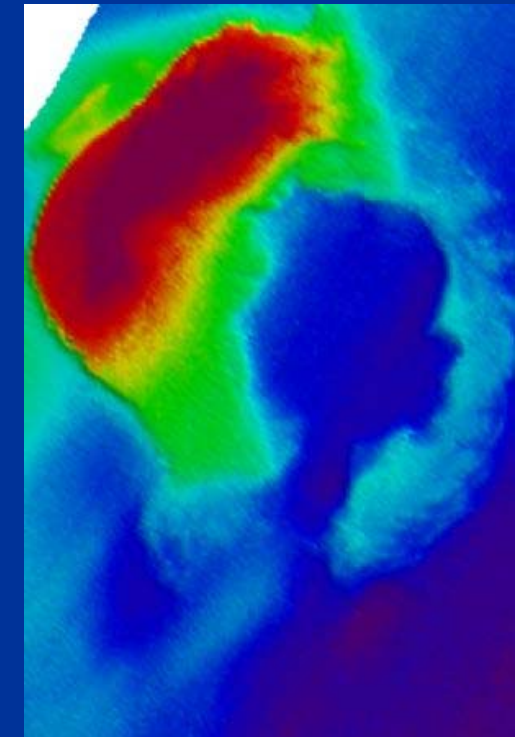
## Multibeam echosounder

- ELAC SeaBeam 1050D dual 50 kHz (3000 m) -180 kHz (600 m).
- Octopus F-180 Inertial positioning and Attitude sensor (pitch, roll heading, heave)



## ADCP:

Teledyne RDI OS 75 kHz



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## Lost Instruments

- Analog Teledyne 2.5 Km. Streamer. . **March 2008.** Lost in South Atlantic due to severe weather conditions.



## *Equipment troubles*

- Found origin of beam forming problem on EM120 at faulty Titanium ice window. Manufacturer is implementing a correction algorithm and a window replacement will be done in next dry docking
- Noise suppression on BO Sarmiento de Gamboa acoustic instruments. Work in progress



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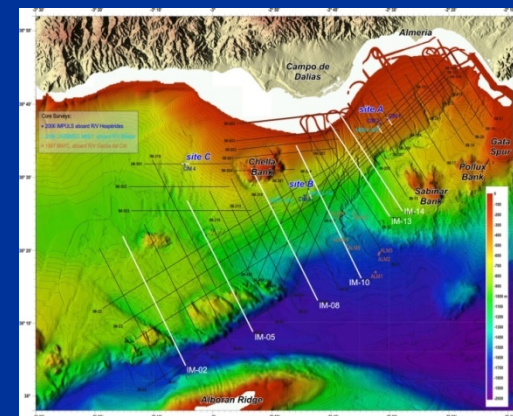
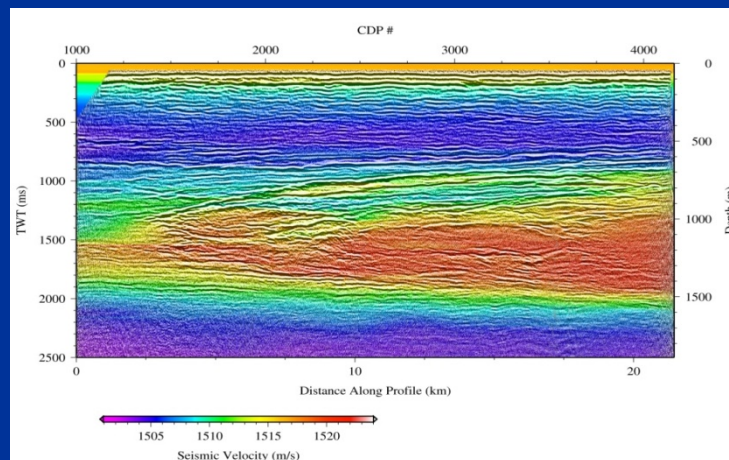
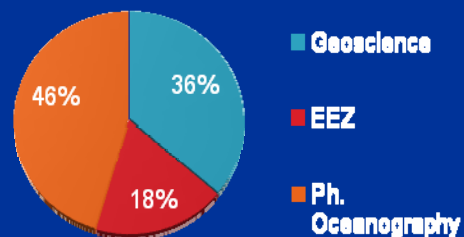
# National Science Programme

- **Performed Research Surveys**
- **R/V HESPERIDES , IPY, EUROMARGINS, HERMES, VI FP**



- 2 IPY Antarctica surveys; Oceanography (24 days) ,Seismic (47days) :
- 5 Physical oceanography cruises. (ca. 90 days),
- 2 EEZ cruises (ca. 22 days. Spain & Portugal), survey Atlantic for Argentina (7 days)
- 3 geosciences cruises (excluding SMC). Ca. 40 days, Mediterranean, Atlantic
- Total operational days: 240 days

## BIO HESPERIDES Cruise days (2008)



# National Science Program

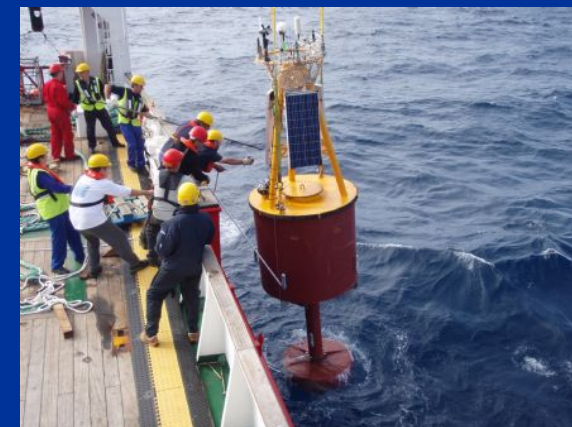
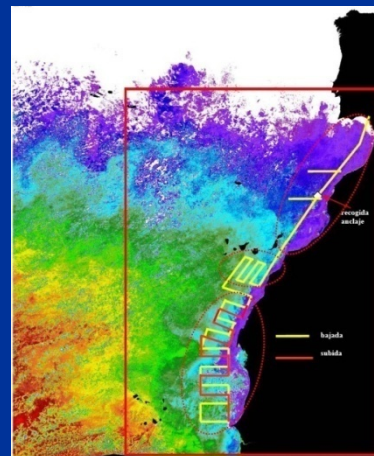
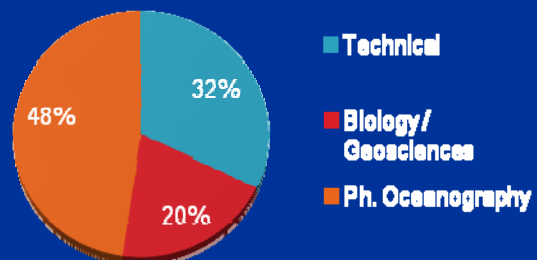
- **Performed Research Surveys**

- **R/V SARMIENTO DE GAMBOA. EUROSITE**



- ROV scenario certification. Deployment of Ifremer's Victor 6000, 5days
- 1 Multidisciplinary cruise (Benthos, chemistry, Multibeam, coring. – 23 days )
- 3 SAT /technical cruises ( 27 days, )
- 3 Physical oceanography cruises. ( 60 days ).
- Total operational days: 115 days

**B/O Sarmlento de Gamboa  
Gamboa  
Cruise Days ( 2008 )**



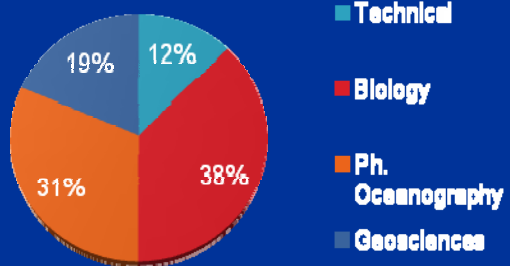
# National Science Programme

- **Performed Research Surveys**
- **R/V GARCIA DEL CID**

- 5 Physical oceanography cruises. ( 60 days ).
- 6 Biological cruises ( 58 days ).
- 3 Geosciences cruises ( 24 days ).
- Total operational days: 142 days



## B/O García del Cid. Cruise Days ( 2008 )



# ■ *B/O García del Cid*

## 2003 -2007 Cruises



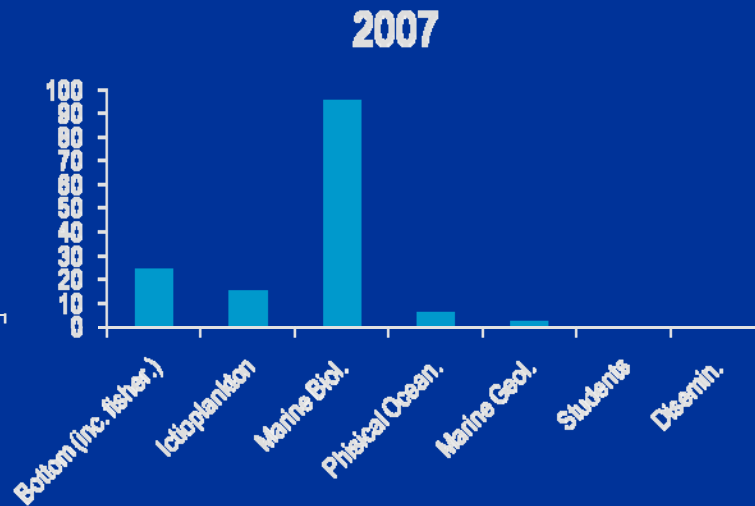
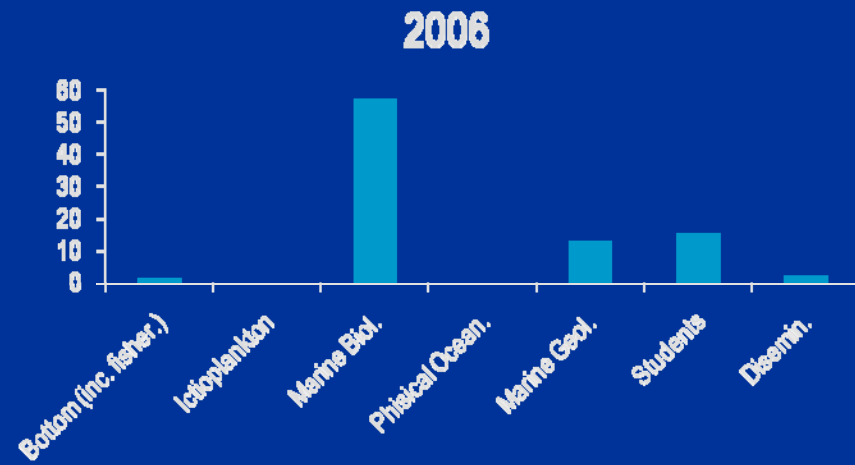
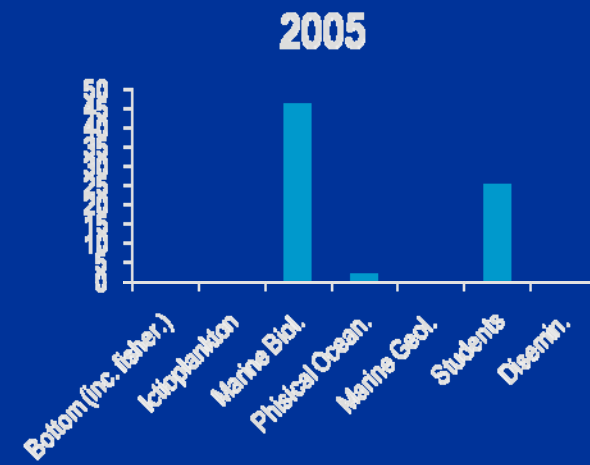
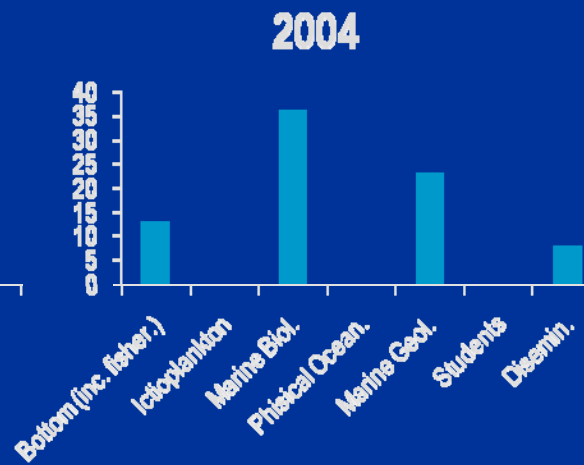
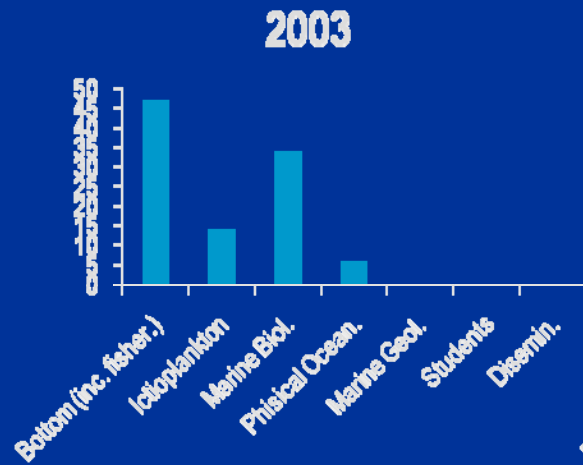
### 2003-2007



\*Effective cruise days

# B/O García del Cid

## 2003 -2007 Cruises



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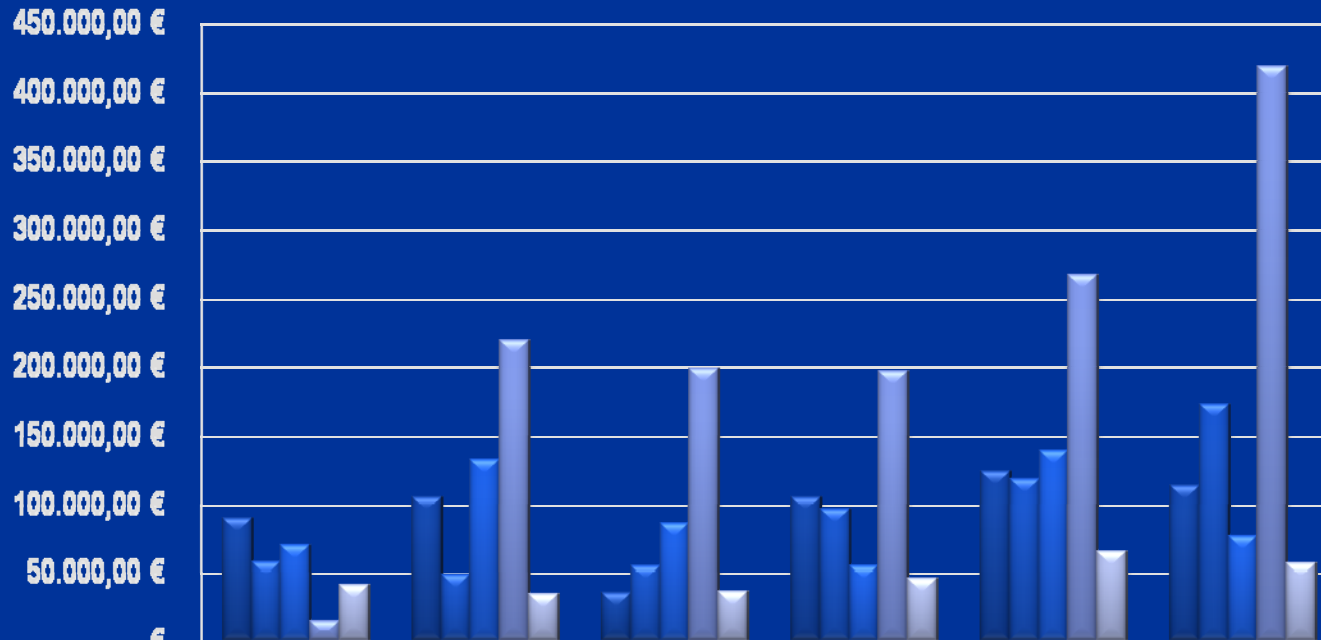
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# ■ B/O García del Cid

## 2003 -2008 COSTS



### 2003-2008



	2003	2004	2005	2006	2007	2008
OTHERS	88.465,26 €	105.041,42 €	34.878,26 €	104.299,10 €	123.263,75 €	113.004,51 €
FUELAND LUBRICANTS	57.394,25 €	47.432,36 €	54.392,63 €	95.233,53 €	117.540,42 €	171.760,66 €
EQUIPMENT	69.283,25 €	131.566,72 €	85.447,95 €	53.927,29 €	138.587,43 €	75.788,28 €
MAINTAINANCE & NEW INSTAL.	14.694,66 €	217.935,44 €	197.815,26 €	196.008,98 €	266.013,78 €	417.717,92 €
FOOD & PROVISIONS	40.071,52 €	34.149,12 €	35.366,03 €	45.171,77 €	64.919,16 €	56.228,39 €



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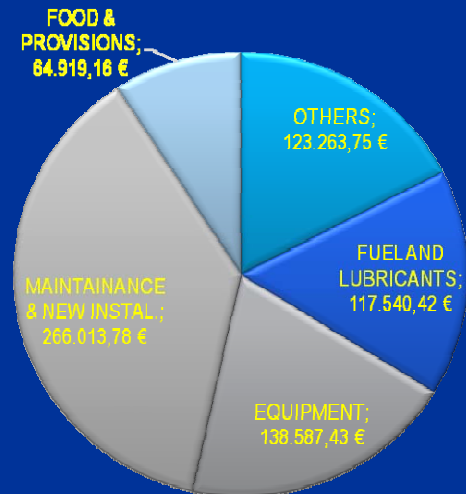
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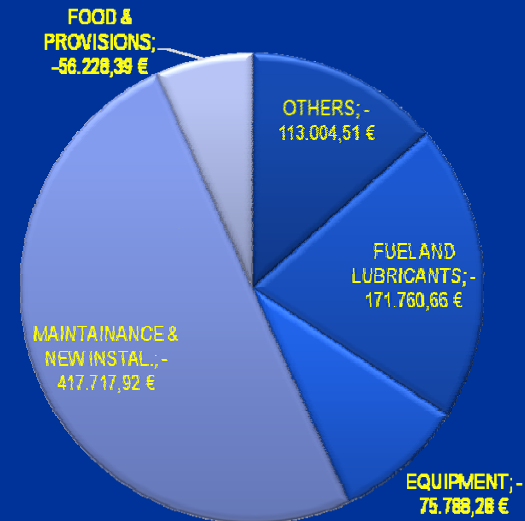
# ■ B/O García del Cid



## 2007 COSTS



## 2008 COSTS



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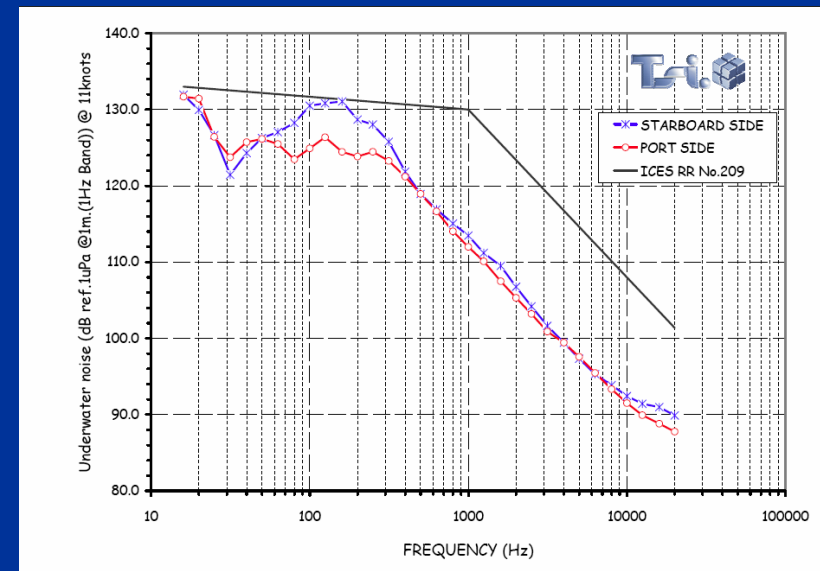
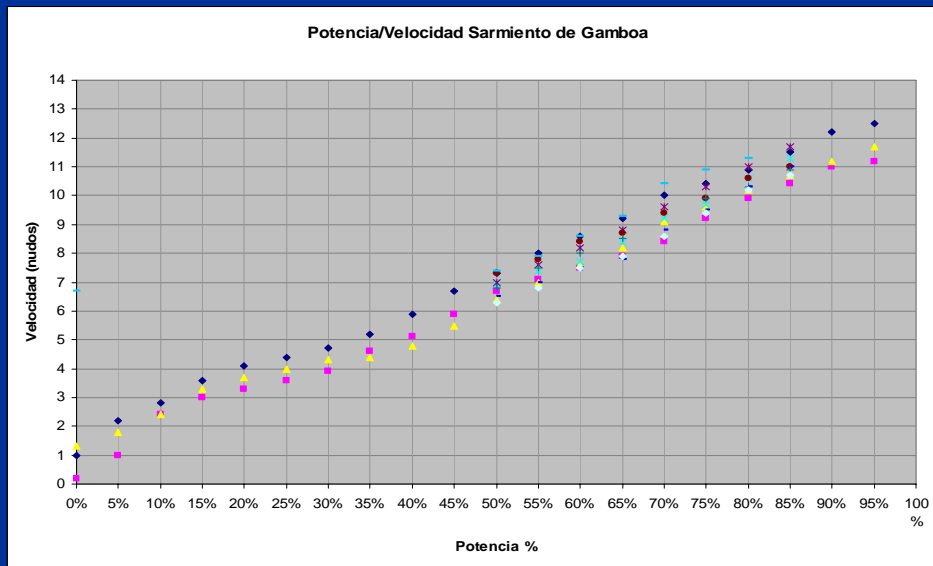
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# B/O Sarmiento de Gamboa



## Cruises

- Testing cruises during 2008 for noise measurements and acceptance of equipment
- Test cruise for FacsAria (citometer & sorter) validation



Noise measurements for 1 Hz band



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## Cruises

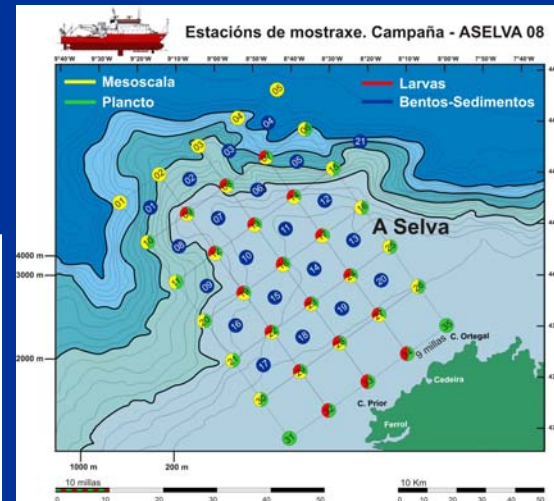
**“A SELVA”** *Los fondos batiales de costras carbonatadas de ‘la Selva’ (NW Galicia): estructura y funcionamiento básico del ecosistema*

Jul 7th - Aug 3rd 2008

Cape Ortegal (NW Spain), Xunta de Galicia

## Equipment

ADCP  
LADCP  
CTD (911 +) + Rossette 42  
CTD Seabird 25  
Bongo 5  
Vertical hauls  
Multibeam transects 2  
Fluorometer profiles 17  
Dredging  
Coring  
Scanmar  
Laboratories



CTD 911 + and rosette with LADCP installed

## ■ *B/O Sarmiento de Gamboa*



# Cruises

“CALIBRA-2” OBS Testing

aug 19th - aug 23rd 2008

Galicia coast

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## Equipment

Mooring and recovery of 18 OBS



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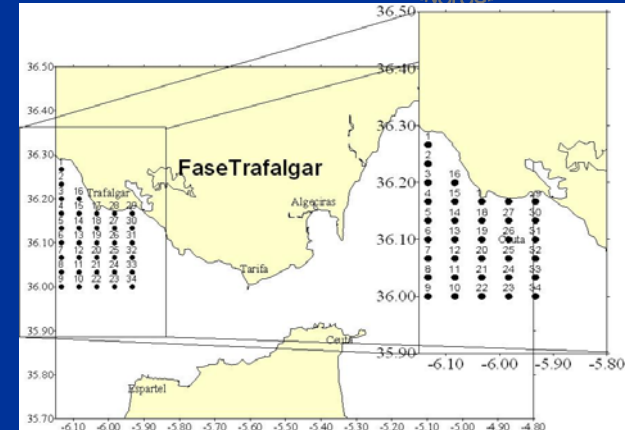
## ■ *B/O Sarmiento de Gamboa*

### Cruises

“**GIBRALTAR 08**” *Análisis integral del ecosistema marino del estrecho de Gibraltar: forzamiento físico y niveles tróficos* (CTM2005-08142-C03-01 MAR)

Sep 15th - oct 9th 2008

Gibraltar strait, Universidad de Cádiz



### Equipment

LADCP  
ADCP  
CTD + Rossette 250  
LHPR 12  
Neuston 10  
Bongo 85  
 $\mu$ -Shuttle 5  
FASTRAKA 16  
Mooring Currentmeters 2  
Laboratories



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# ■ *B/O Sarmiento de Gamboa*



## Cruises

“CANOA” *Corriente de Afloramiento del Noroeste*

*Africano* (CTM2005-00444 MAR)

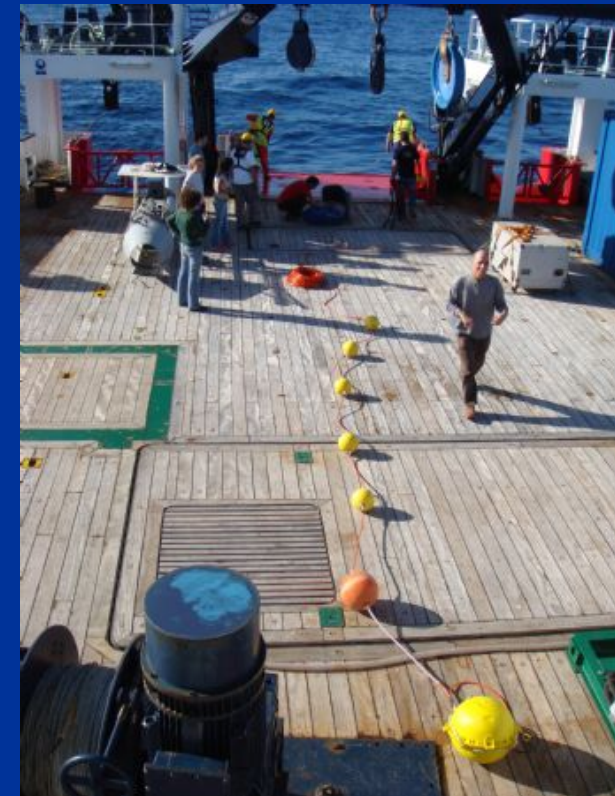
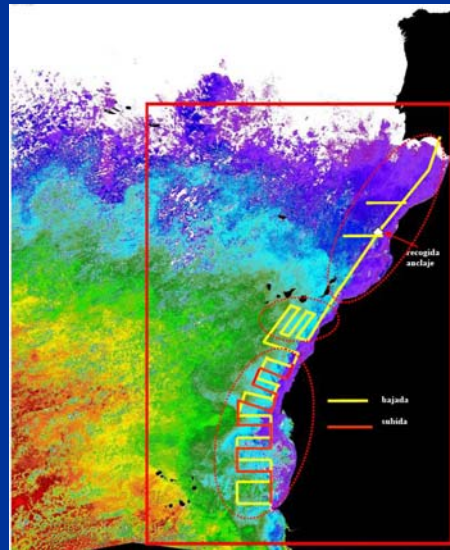
nov 3rd - nov 29th 2008

Africa Atlantic Coast from Gibraltar to Cape Verde Islands

ICM.CSIC

## Equipment

ADCP  
LADCP  
CTD + Rosette 250  
LHPR 12  
Neuston 10  
Bongo 85  
 $\mu$ -Shuttle 5  
FASTRAKA 16  
Mooring Currentmeters 2  
Laboratories



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# B/O Sarmiento de Gamboa

## Cruises



### “EUROSITE08” (EUOREG)

Instituto Canario de Ciencias del Mar

dec 3rd - dec 7th 2008

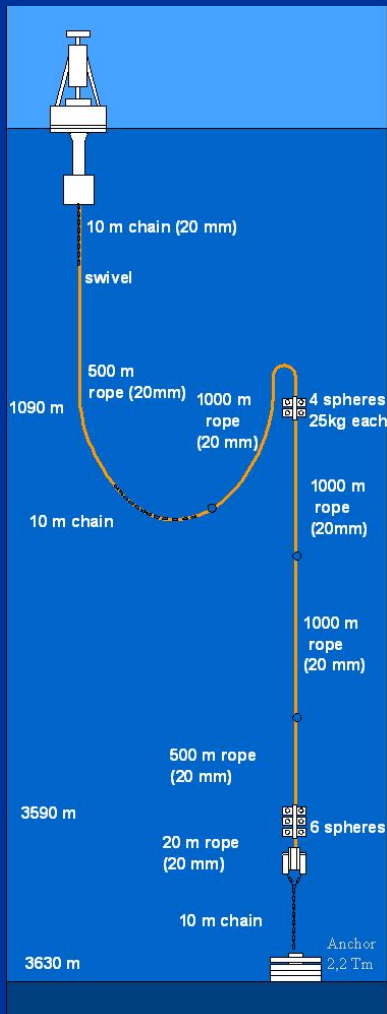
North of Tenerife Island (Canary Islands)

### Equipment

CTD + Rossette 10

Mooring of ODAS Meteo Buoy

ARGOS Buoy



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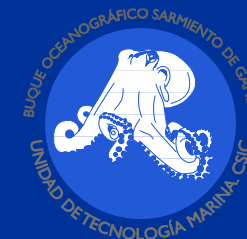
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## 2009 Cruises

**The year 2009 will be a test for people and equipment, logistics and technical support**

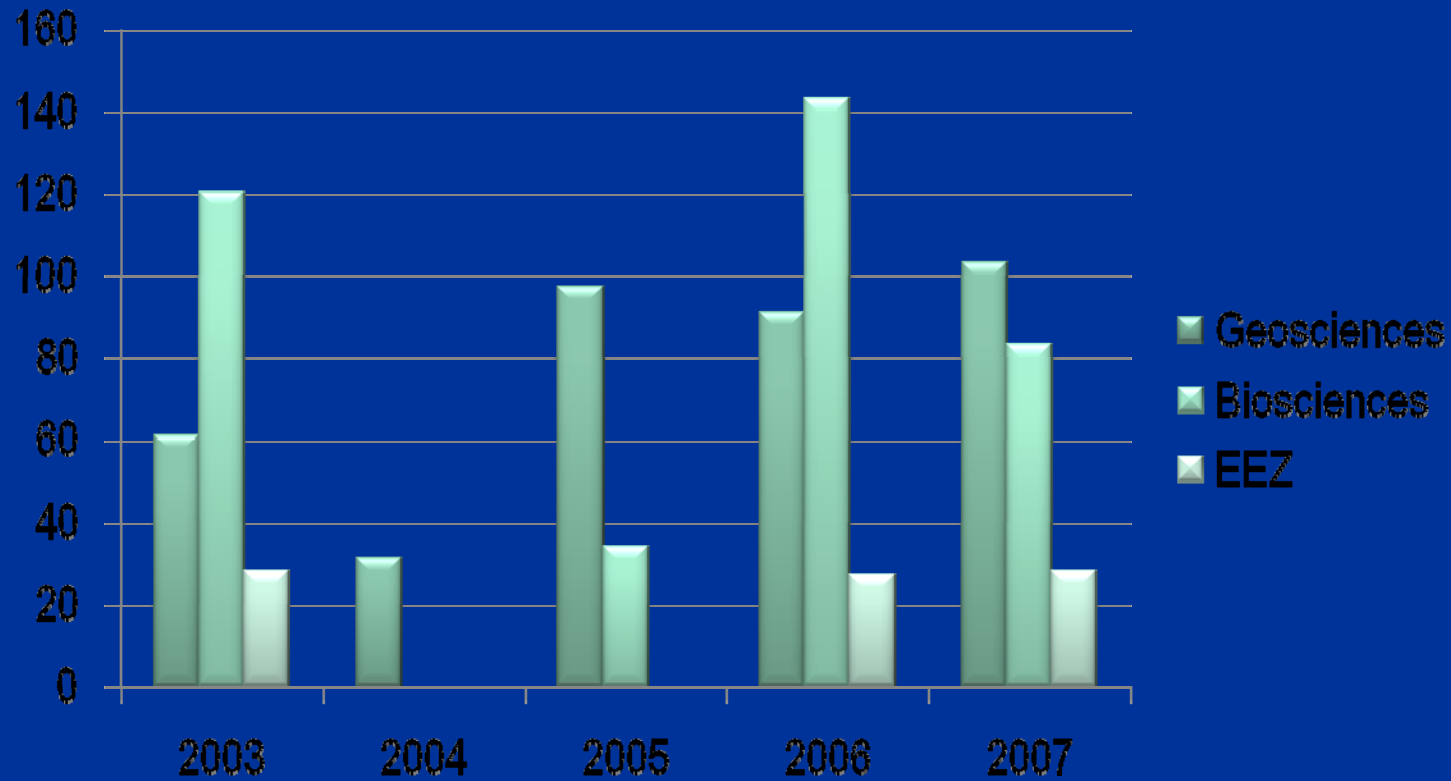
<b>XUNTA 1</b>	XUNTA2009	V. Urgorri	CTSdG	DX de I+D+i, Conselleria de Innovación e Industria
<b>FAMOSO 1</b>	CTM2008-06261-C03-01	M. Latasa	CO Gijon	IEO / CSIC
<b>FORCLIM</b>	OFEG2009 /IFREMER	Sabine SCHMIDT	EPOC	CNRS
<b>OBSEA</b>	AC	J. Piera / J.J. Danobeitia	UTM	CSIC
<b>BIOFUN</b>	CTM2007-28739	F. Sardá	ICM	CSIC / OTHERS
<b>CAIBEX</b>	CTM2006-02293	E. D. Burton	IIM	CSIC / ULPGC
<b>IDEADOS 1209</b>	CTM2008-04489-C03-01	M.P. Olivar Buera	ICM	CSIC / IEO



- BIO Hesperides*



## 2003 -2008 Cruises



Total days per cruise type



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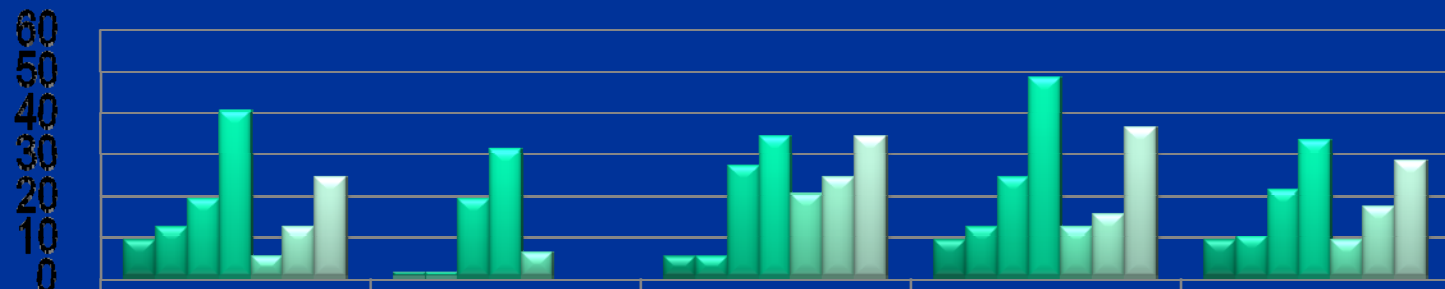


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- BIO Hesperides*



## 2003 -2008 Cruises



	2003	2004	2005	2006	2007
■ N.Projects	9	1	5	9	9
■ N.Cruises	12	1	5	12	10
■ Ave.Days	19	19	27	24	21
■ Max.Days	40	31	34	48	33
■ Min.Days	5	6	20	12	9
■ Ave. Days.GeoSci	12	0	24	15	17
■ Ave. Days BioSci	24	0	34	36	28



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*Thanks for your attention*



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