



**Marine Tech Unit**



## Research Vessel Sarmiento de Gamboa

Built as multipurpose research vessel in 2007

- Global (not polar)
- Overall length: 70 meters
- Crew 16 / Scientists 26
- 24 hours per day
- 8000 m depth deployed equipment



From July 2007 to July 2008 , the ship was passing Sea Tests and crew and technicians training. During this time several official presentations were done in several harbors in Spain in a project called “Science in Harbour”.

In august 2008 start the first official cruise in the NW of Spain, according to the agreement with Galician Government.

In January 2008 the ship was testing ROV operation with Ifremer Victor 6000 in Toulon waters with a complete success

### Equipment

#### Deck operations and gears

- *Trawl winches (2)* 5500 m, Ø 26 mm + 200 m, Ø 50 mm.
- *Net Drum* 15m<sup>3</sup>
- *Aux winch + capstan* 200 m, Ø 26 mm.
- *Net sounder winch* 4800 m, coax. Ø 9,4 mm or 3380 m, Ø 11,2 mm.
- *CTD winch* 7000 m, coax. Ø 10 mm
- *Plankton winch* 6000 m, Ø 6 mm
- *CORER winch* 8000 m, Ø 18 mm
- *Multinet winch* 7000 m, coax. Ø 14 mm
- *Aft “A” Frame*: 12000 dN static out, 5000 dN dynamic, height 7810 mm, width 5680 mm
- *Starboard “A” Frame*: 13000 dN static out, 5000 dN dynamic, outboard 3000 mm, height 7000 mm (+ one deck) , width 3900 mm
- *CTD Telescopic Frame*: 5000 dN static out, 1000 dN dynamic,, outboard 4000 mm, height 7000 mm (+ one deck) , width 3900 mm
- *Multicorer*
- *Piston Corer*
- *Boxcorer*





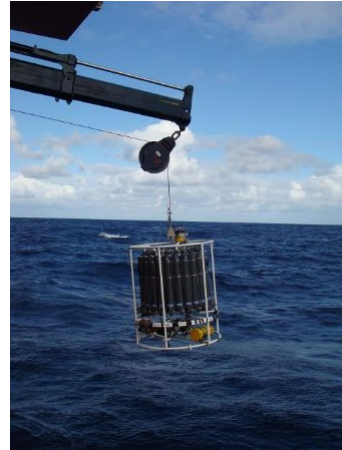
## Marine Tech Unit

- Pelagic and Bottom Fishing gears...



## Deployed equipment

- CTD+ Rosette Seabird 911 plus
- Plankton Multinet LHPR
- SeaSoar surveying
- Bongo nets



## Hull mounted equipment

- 8 meters "Gondola" for multibeam and parametric echosounders
- Two drop keels 3 meter long for echosounders, ADCP and USBL
- MB ALTAH HYDROSWEEP DS-3 de 1° x 1° (15,5 kHz , 10.000 m)
- MB ATLAS HYDROSWEEP MD-3
- PARASOUND (0,5 a 6 kHz)
- Hydro. Kongsberg SIMRAD EA600, 12 kHz y 200 kHz
- Biol. Kongsberg SIMRAD EK60 de 18, 38, 70, 120 y 200 kHz de haz partido (split beam)
- ADCP Ocean Surveyor de Teledyne RD Instruments de 75 y 150 kHz
- USBL POSIDONIA 6000 de IXSEA
- Acoustic modem LinkQuest
- Net Sensors Scanmar
- POS-MV Attitude and inertial navigation system
- Continuous water sampling Termosalinograph
- Continuous water/air CO<sub>2</sub> sampling pCO<sub>2</sub> General Oceanics



## Seismic equipment

### Energy Supply

- Two containerized compressors of 31 m<sup>3</sup>/m each (Total: 850 Kw): one on back deck other in hold
- Two Seismic frames to support a air-guns clusters

### Recording system

- A digital streamer of 6,0 km length Mounted on two winches



## Labs and analytical equipment

### 450 m<sup>2</sup> Laboratories

- Main Lab. 94 m<sup>2</sup>
- Samples Hold 5 m<sup>2</sup>
- Wet Lab. + CTD Hangar 55 m<sup>2</sup>
- Analysis Lab. 28 m<sup>2</sup>
- Chemistry Lab. 21 m<sup>2</sup>



## Marine Tech Unit

- Thermo regulated Lab. 12 m<sup>2</sup>
- CTD Operation Room 5 m<sup>2</sup>
- Water sampling CO<sub>2</sub> Disl. Wat 23 m<sup>2</sup>
- Total 243 m<sup>2</sup>
- Elect. Equipment Room 35 m<sup>2</sup>
- Computing & Processing Lab. 32 m<sup>2</sup>
- Transceivers Room 31 m<sup>2</sup>
- Gravimeter Room 6 m<sup>2</sup>
- Fisheries 26 m<sup>2</sup>
- Fisheries Freezer 50 m<sup>2</sup>
- Hold Fisheries 71 m<sup>2</sup>
  
- Containerized labs
- Citometer and sorter
- Spectrofluorometer and Spectrophotometers
- Espectrofluorimetry
- Espectrofluorimetry
- Fluorimetry: 2 x fluorometer (cont. & discrete)
- Salinometry
- Distilled water (Ultrapure)
- Titroprocessor
- Epifluorescence Microscopy
- Meteorological Station
- Continuous termosalinometer
- Laminar Flux
- Auxiliary equipment



## Information and Communication Systems

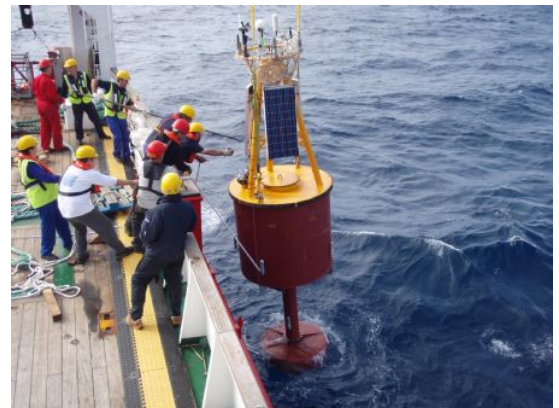
- SADO (System for acquisition of oceanographic data)
- User support
- VSAT Satellite system
- Inmarsat B and Fleet 33 Satellite Comm. Systems
- Web Server
- Transfer of SADO data automatically to land office (web)



## Cruises

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

2008





## Marine Tech Unit

**“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 +) + Rosette 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*

**“CALIBRA-2”** OBS Testing  
**aug 19th - aug 23rd 2008**  
**Galicia coast**  
**UTM.CSIC**

### Equipment

Mooring and recovery of 18 OBS

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

**“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



### “EUROSITE08” (EUOREG)

**Instituto Canario de Ciencias del Mar**  
**dec 3rd - dec 7th 2008**  
**North of Tenerife Island (Canary Islands)**

### Equipment

CTD + Rosette 10  
Mooring of ODAS Meteo Buoy ARGOS Buoy

## 2009

### “ForSaGal”

REF: **Xunta de Galicia**  
**Feb 10<sup>th</sup>, Feb 25<sup>th</sup>**  
**Galicia**  
**Galician Universities**

### Equipment

Students training bottom and water sampling

### “FAMOSO”

REF: **(CTM2008-06261-C03-01 MAR)**  
**March 6<sup>th</sup>, March 23rd**  
**Gulf of Lion (Med)**  
**IEO,Ubarcelona, ICM.CSIC**

### Equipment

ADCP LADCP  
CTD + Rosette 250  
LHPR 12  
Bongo 85  
 $\mu$ -Shuttle 5  
Drift buoys  
Laboratories

### “FORCLIM”

REF: **Ifremer Bartering**  
**April 1<sup>st</sup>, April 20<sup>th</sup>**  
**Gulf of Biscay**  
**Univ. Bordeaux et al.**

### Equipment

ADCP LADCP  
CTD + Rosette 250  
MCN plankton Net  
Drift buoys  
Laboratories

### “FAMOSO”



## Marine Tech Unit

REF: (CTM2008-06261-C03-01 MAR)

April 29<sup>th</sup>, May 14<sup>th</sup>

Gulf of Lion (Med)

IEO,Ubarcelona, ICM.CSIC

### Equipment

ADCP LADCP  
CTD + Rossette 250  
LHPR 12  
Bongo 85  
 $\mu$ -Shuttle 5  
Drift buoys  
Laboratories

### “BIOFUN”

REF: E.C. BIOFUN CTM2007-28739

May 29<sup>th</sup>, Jun 28<sup>th</sup>

Mediterranean Sea (Barcelona-Italy-Crete)

ICM.CSIC, et al.

### Equipment

Deep Sea Bottom sampling  
Trawl, Agassiz, Multicorer,

### “CAIBEX”

REF: CTM2006-02293

Jul 6<sup>th</sup>, Sept 5<sup>th</sup>

Atlantic , Galicia to Canary Islands box  
IIM.CSIC, Un. Las Palmas, ICM.CSIC

### Equipment

ADCP LADCP  
CTD + Rossette 250  
LHPR 12  
Bongo 85  
 $\mu$ -Shuttle 5  
Laboratories

### “FAMOSO”



REF: (CTM2008-06261-C03-01 MAR)

Sep 14<sup>th</sup>, Sep 22<sup>th</sup>

Gulf of Lion (Med)

IEO,Ubarcelona, ICM.CSIC

### Equipment

ADCP LADCP  
CTD + Rossette 250  
LHPR 12  
Bongo 85  
 $\mu$ -Shuttle 5  
Drift buoys  
Laboratories

### “DIVA-ARTABRIA”

REF: Xunta de Galicia

Sep 30<sup>th</sup>, Oct 30<sup>th</sup>

Galicia Bank

Universities of Galicia

### Equipment

Gravity coring  
Multibeam  
Parametric  
Dredging

### “IDEADOS”

REF: CTM2008-04489-C03-01 MAR

Nov 30<sup>th</sup>, Dec 17<sup>th</sup>

Mallorca Island

ICM.CSIC, IEO, UTM.CSIC

### Equipment

Pelagic Fishing Trawl  
EK60 (Biomass)  
ADCP LADCP  
CTD + Rossette 250  
MCN Plancton net  
RMT Plancton net  
LHPR 12  
Bongo 85  
Laboratories

