

APPLICATION FOR CONSENT TO CONDUCT MARINE SCIENTIFIC RESEARCH
IN AREAS UNDER NATIONAL JURISDICTION OF UNITED KINGDOM

Date : 24/4/06

1 - GENERAL INFORMATION

1.1. Cruise name and/or number: RADPROF0706

1.2. Sponsoring institution :

Nom : IEO, Instituto Español de Oceanografía.

Adresse : Avenida de Brasil, 31 – 28020. Madrid (Espagne).

Téléphone : 91-597 44 43

Fax : 91-597 47 70

Directeur : Concepción Soto Calvo

1.3. Scientist in charge of the project :

Name: Alicia Lavín Montero.

Address : Instituto Español de Oceanografía, Centro Oceanográfico de Santander

Promontorio de San Martín, s/n. Apdo correos 240. 39080. Santander. Spain

Telephone: 942-29 10 60

Fax : 942-27 50 72

Email: alicia.lavin@st.ieo.es

1.4. Scientist involved in the planning of the project :

Nom : Alicia Lavín Montero (Chef de projet)

Adresse: Promontorio de San Martín, s/n. Apdo correos 240. 39080. Santander

Téléphone: 942-29 10 60

Fax : 942-27 50 72

Email: alicia.lavin@st.ieo.es

Nom : Jose Manuel Cabanas (Chef of the cruise)

Adresse: Cabo Estay Canido s/n Apdo 1552, 36980 Vigo

Téléphone: 996 492111

Fax : 986- 498626

Email: jmanuel.cabanas@vi.ieo.es

1.5. Submitting officer:

Nom : Alicia Lavín Montero (Chef de projet)

Adresse: Promontorio de San Martín, s/n. Apdo correos 240. 39080. Santander

Téléphone: 942-29 10 60

Fax : 942-27 50 72

Email: alicia.lavin@st.ieo.es

2 - DESCRIPTION OF THE PROJECT

2.1. Nature and objectives of the project :

The project aims at the thermohaline characterization of the zone by means of repeated hydrographical transects performed twice a year. This is a contribution for some objectives of the International program CLIVAR « Describe and understand the physical processes responsible of climate variability and its seasonal, interannual and decadal predictability ».

Other objective is to describe and quantify the fluxes of energy, mass, freshwater, oxygen and nutrients in 3 or 4 boxes in the Iberian and European basin and between this and the Bay of Biscay and the Cantabrian Sea. This fluxes will be quantified by means of dynamical computations from the distribution of hydrographical properties and the mass conservation in the box

The objective of the CO₂ team from IIM Vigo is to quantify the meridional transports of inorganic carbon and to determine the anthropogenic carbon in the Bay of Biscay. During the second leg of the cruise VACLAN 2005, pH and alkalinity measurements will be performed. The variables in the carbonic system (pH and alkalinity) will allow to compute in a precise way the total inorganic carbon C_T making use of the thermodynamical equations for the carbon cycle (Dickson, Deep-Sea Research 1981) and the dissociation constants of Mehrbach et al. (Limnology and Oceanography, 1973).

The study also includes the evaluation of plankton in the area, through the characterisation of the Dissolved Organic Matter (DOM) in the transects and the measurement of total nitrogen concentration and natural abundance of ¹⁵N and the determination of the structure of the picoplanktonic community (<2 μm).

2.2. Relevant previous or future research cruises :

- RADPROF 0403: Vigo-Santander (09/04/03-17/04/03)
- RADPROF 0903: Santander-Vigo (10/09/03-20/09/03)
- RADPROF 0204: Vigo-Santander (05/02/04-13/02/04)
- RADPROF 0904: Vigo-Santander (06/09/05-14/09/04)
- RADPROF 0105: Santander-Vigo (26/01/05-4/02/05)
- RADPROF0206: Vigo-Santander (5/02/06-14/02/06)

2.3. Previously published research data relating to the project :

3 - METHODS AND MEANS TO BE USED

3.1. Particular of vessel

Nom :
Nationalité : Espagnol
Propriétaire : Espagnol
Opérateur :
Longueur hors-tout :
Tirant d'eau maximum:
Tonnage brut :
Propulsion :
Vitesse maximale : noeuds
Code d'appel :
Méthodes et possibilités de communication (dont telex, fréquences) :
Nom du commandant :
Nombre d'hommes d'équipage : 27.
Nombre de scientifiques embarqués : 31

Name : Comide Saavedra
Nationality : Spanish
Owner : IEO
Operator : IEO
Overall length : 66.7 m
Maximum draught : 4.65 m Maximal displacement: 3022 t
Gross tonnage : 1113 UMS
Propulsion : 2250 CV
Cruising speed : 13 knots
Call sign : Method and capability of communication (including telex, frequencies) :

Name of master : Ernesto Fernandez
Number of crew : 27
Number of scientists on board : 31

3.2. Aircraft or other craft to be used in the project :

3.3. Particulars of methods and scientific instruments :

Types of samples and data	Methods to be used	Instruments to be used
Hydrology	Vertical Profile Surface Profile	Bathysondes Thermosalinograph
Picoplankton/Chl	Flux citometry	Filtration
CO ₂ measurements	Spectrophotometer	Spectre-Photometer

	Potentiometer titration	Titrimetric Metrohm
Measures de courant		Aanderaa measurement of current
MOD		Filtration Spectrofluorometer Perkin Elmer LS50B

3.4. Indicates whether harmful substances will be used :

YES

Chemical products used:

Usual name of the product	Chemical formula	Quantity on board and concentration	Nature S : solid, L : liquid G : gas
Glutaraldehyde	C ₅ H ₈ O ₂	0.05 L	L
Mercury Chloride	HgCl ₂	0.6 L	L
Acetone	CH ₃ COCH ₃	5 L	L
Chlorhydric Acid	HCl	3 L	L
m-Cresol Purple Sodium	NaC ₂ H ₈ O	1 g	S
Para formaldehyde	(HCHO) _n	0.05 L	L
Sodium Hydroxide	OHNa	4 Kg	L
Sodium Tiosulfate	Na ₂ SO ₃	2Kg	L
Potassium Iodide	KIO ₃	1 Kg	L
Manganese Sulfate	MnSO ₄	4 Kg	L
Nitrogen liquid	N ₂	30 L	L
Sulfuric Acid	SO ₄ H ₂	2 Kg	L

3.5. Indicate whether drilling will be carried out :

NO

3.6. Indicate whether explosives will be used:

NO

4 - INSTALLATIONS AND EQUIPMENTS

Details of installations and equipments (dates of laying, servicing, recovery, exact locations and depth)

B/O:	IEO
Position:	GPS
Acoustic:	LADCP
Hydrology	Thermosalinograph Fluorimeter
Climatologic:	Meteorological Station

5 - GEOGRAPHICAL AERAS

5.1. Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude) :

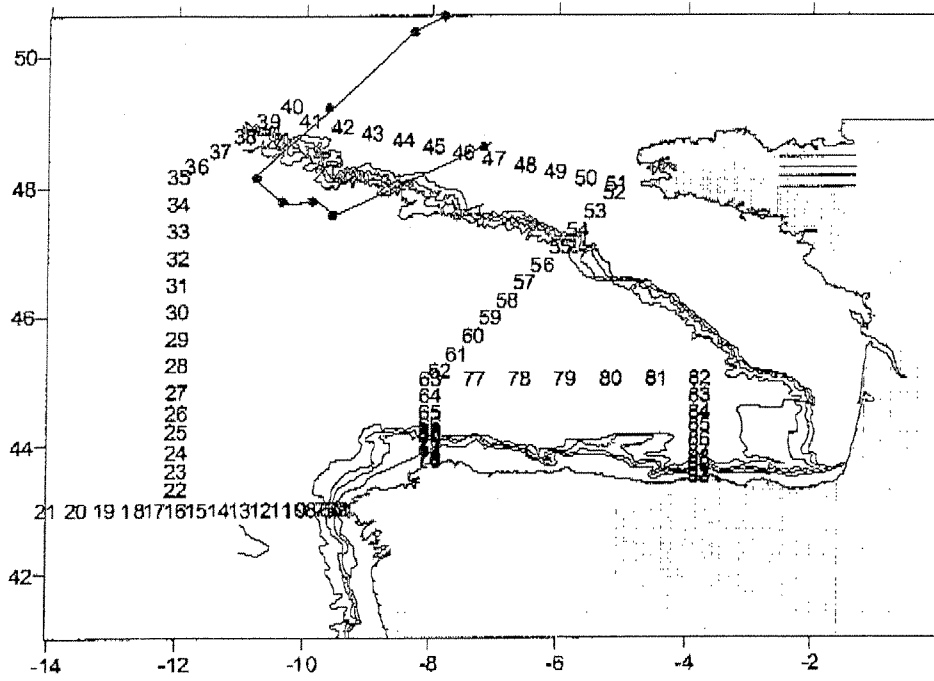
43° N – 13° 40' W / 49° N – 10° 30' W

5.2. Attach chart(s) at an appropriate scale showing the geographical areas of the intended work and, as far as practicable, the positions of intended stations, the tracks of survey lines, and the locations of installations and equipment:

(see attached chart)

Positions of intended stations for RADPROF0706:

<i>Station</i>	<i>Latitude</i>	<i>Longitude</i>
United Kingdom		
42	48° 55.4 ' N	9° 26.2 ' W
43	48° 49.6 ' N	8° 57.1 ' W
44	48° 43.8 ' N	8° 28.1 ' W
45	48° 38.0 ' N	7° 59.1 ' W
46	48° 32.3 ' N	7° 30.1 ' W
Ireland		
31	46° 30.0 ' N	12° ' W
32	46° 55.0 ' N	12° ' W
33	47° 20.0 ' N	12° ' W
34	47° 45.0 ' N	12° ' W
35	48° 10.0 ' N	12° ' W
36	48° 20.1 ' N	11° 43.3 ' W
37	48° 33.5 ' N	11° 20.9 ' W
38	48° 46.9 ' N	10° 58.5 ' W
39	49° 0.3 ' N	10° 35.9 ' W
40	49° 13.7 ' N	10° 13.2 ' W
41	49° 1.2 ' N	9° 55.4 ' W
France		
47	48° 26.5 ' N	7° 1.2 ' W
48	48° 20.7 ' N	6° 32.4 ' W
49	48° 14.9 ' N	6° 3.6 ' W
50	48° 9.1 ' N	5° 34.9 ' W
51	48° 3.3 ' N	5° 6.3 ' W
52	47° 53.9 ' N	5° 9.0 ' W
53	47° 37.3 ' N	5° 25.7 ' W
54	47° 20.7 ' N	5° 42.3 ' W
55	47° 4.2 ' N	5° 58.8 ' W
56	46° 47.6 ' N	6° 15.2 ' W
57	46° 31.1 ' N	6° 31.5 ' W
58	46° 14.5 ' N	6° 47.8 ' W



6 - DATES

6.1 Expected dates of first entry into and final departure from the research area of the research vessel :

entry date : 15/07/2006

departure date : 17/07/2006

6.2 Indicate if multiple entry is expected :

7 - PORTS CALLS

7.1. Dates and names of intended ports of call in

07/07/2006 (Vigo, Spain).

21/07/2006 (A Coruña, Spain).

29/07/2006 (Santander, Spain).

7.2. Any special logistical requirements at ports of call :

7.3. Name/Address/Telephone of shipping agent (if available)

8 - PARTICIPATION

8.1. Extent of which IEO. will be enabled to participate or to be represented in the research project :

Electronic
Hydrology : CTD
LADCP
Picoplankton/DOM
Sampling (IEO-Univ-Vigo)
CO₂ (IIM-CSIC)

8.2. Proposed dates and ports for embarkation/disembarkation :

start date : 07/07/2006 Vigo, Spain

end date : 29/07/2006 Santander, Spain

9 - ACCESS TO DATA, SAMPLES AND RESEARCH RESULTS

9.1. Expected dates of submission of preliminary reports which should include the expected dates of submission of the final results:

Before January 2007

9.2. Proposed means for access by scientific community to data and samples:

Scientific Report in 2007

9.3. Proposed means of making research internationally available:

International Journals