

**REPORT OF SPAIN TO THE
IXth CONFERENCE OF THE
EASTERN ATLANTIC
HYDROGRAPHIC COMMISSION
(EAthC)
OF THE
INTERNATIONAL HYDROGRAPHIC ORGANIZATION
(IHO)**

DAKAR, 6-8 December 2006

INDEX

EXECUTIVE SUMMARY

This report summarizes the efforts, works and goals accomplished by the staff of the IHM and personnel on board IHM Hydrographic vessels during the period of time October 2004 / October 2006 in the area covered by the East Atlantic Hydrographic Commission.

1. HYDROGRAPHIC OFFICE

There haven't been relevant modifications in the organization of our Hydrographic Service since the last meeting.

2. SURVEYS

2.1. Coverage of new surveys

2.1.1. The Instituto Hidrográfico de la Marina carries out hydrographic surveys of the Spanish EEZ with multi beam echo sounders for one month a year, by means of Hydrographic Commissions on board BIO "Hespérides":

- From 1995 to 1997, work was focused on the Balearic Islands, as a part of the 40.556 sq. kms Mediterranean Sea project.
- In September 1998 surveys of the Canary Islands were started, covering 100.000 sq. kms aggregate in 1998, 1999 and 2000.
- In 2001, 2002 y 2003 surveys in Galicia were started.
- In 2004 and 2005 no hydrographic surveys of the Spanish EEZ were carried out as the BIO "Hespérides" was devoted to other tasks not related to the IHM.
- Further hydrographic surveys at the Spanish EEZ off Galicia are scheduled for the second half of September and the first half of October of this year.

2.1.1.1. Data captured in these surveys using sounders EM 12 and EM 1002 are processed at the IHM since 1997, so as to produce Bathymetric Maps at scale 1:200.000, as well as fair sheets for cartographic updates.

2.1.1.2. Software used for this processing is HIPS (bathymetry) and SIPS (reflectivity) from Caris Universal Ltd., and it can be considered as satisfactory for our cartographic production needs up to date. We should note that our experience shows that workstations for processing must be high performance, powerful machines for a quick workflow (relatively speaking, considering the necessary slowness of high accuracy processing).

2.1.2. Hydrographic launches “Astrolabio” and “Escandallo” carry out hydrographic surveying using multi beam echosounder: EM 3002D, to achieve full bottom coverage of main ports and their approaches. The following have been completed up to date:

- Approach channels, ports and anchorages of Cádiz, Zona Franca and Estación Naval de Puntales.
- Rota Naval Base.
- Approach, anchorage and port of Ceuta.
- Approach and port of La Carraca.
- Approach, anchorage and port of ría de La Coruña.
- Approach, anchorage and port of ría de Ferrol.
- Approach, anchorage and port of Huelva.
- Approach and port of Algeciras.
- Approach, anchorage and port of ría de Vigo.
- Approach, anchorage and port of Marín at ría de Pontevedra.
- Approach and anchorage of ría de Arosa.
- Approach and anchorage of ría de Muros – Noya.

2.1.3. Once S.V. “Tofiño” was fitted with a multi beam echosounder for deep waters (up to 5000 m) EM-300, she carried out the following surveys:

- West side of the Island of Lanzarote.
- Strait of Gibraltar.

2.2. New technologies and/or equipment.

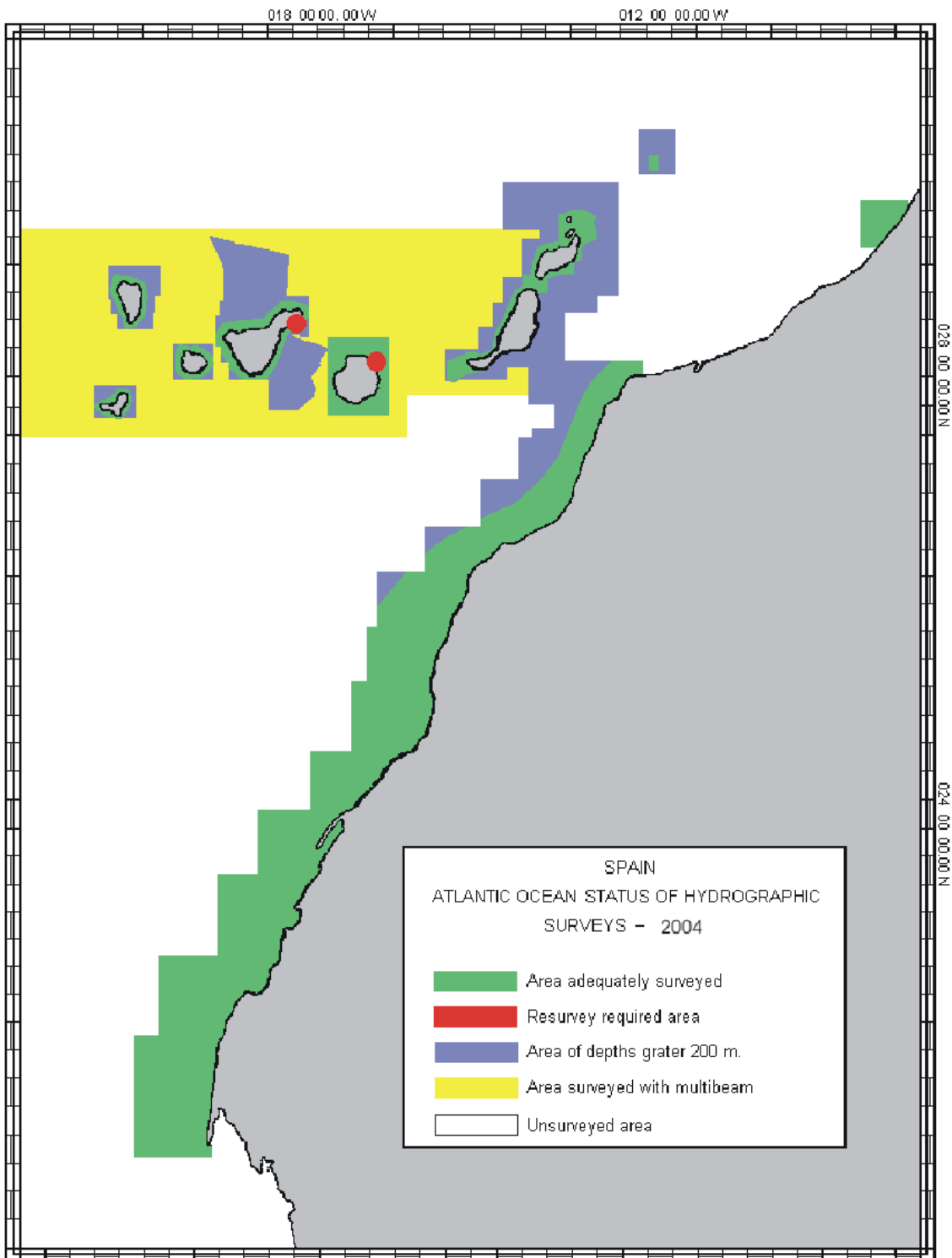
For 2007 it is schedule to fit one multi beam echosounder for deep waters (up to 5000 m) EM-300 onboard R.V. “Malaspina”.

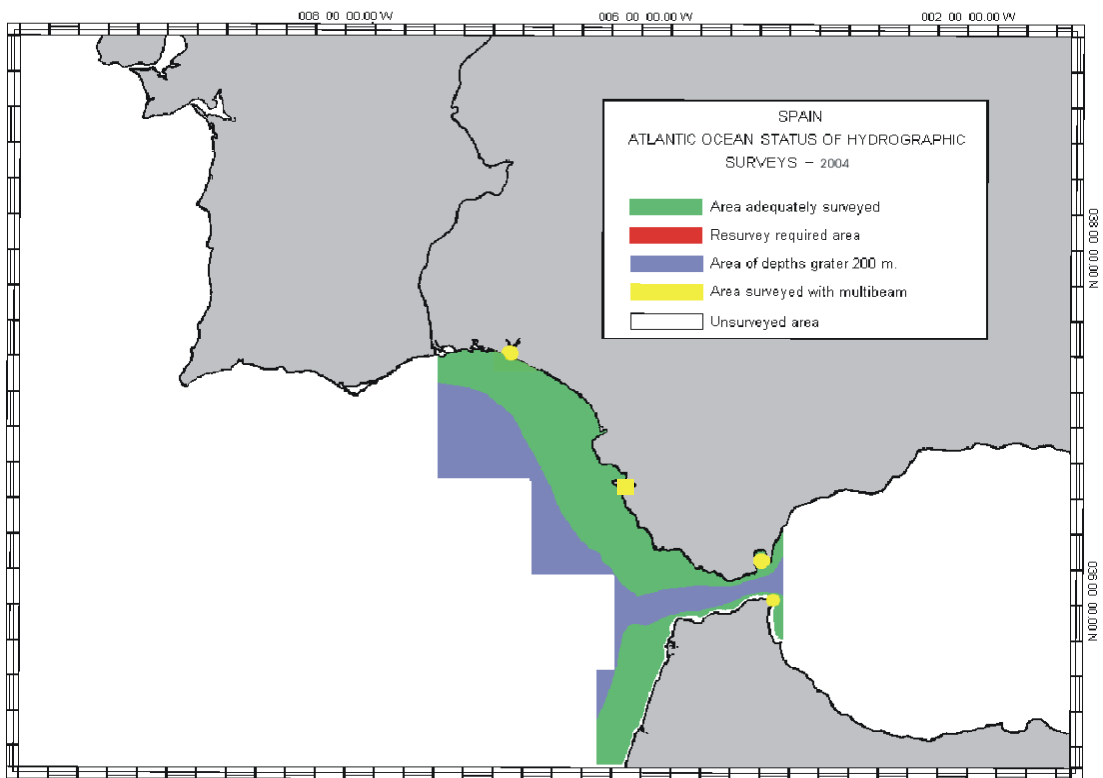
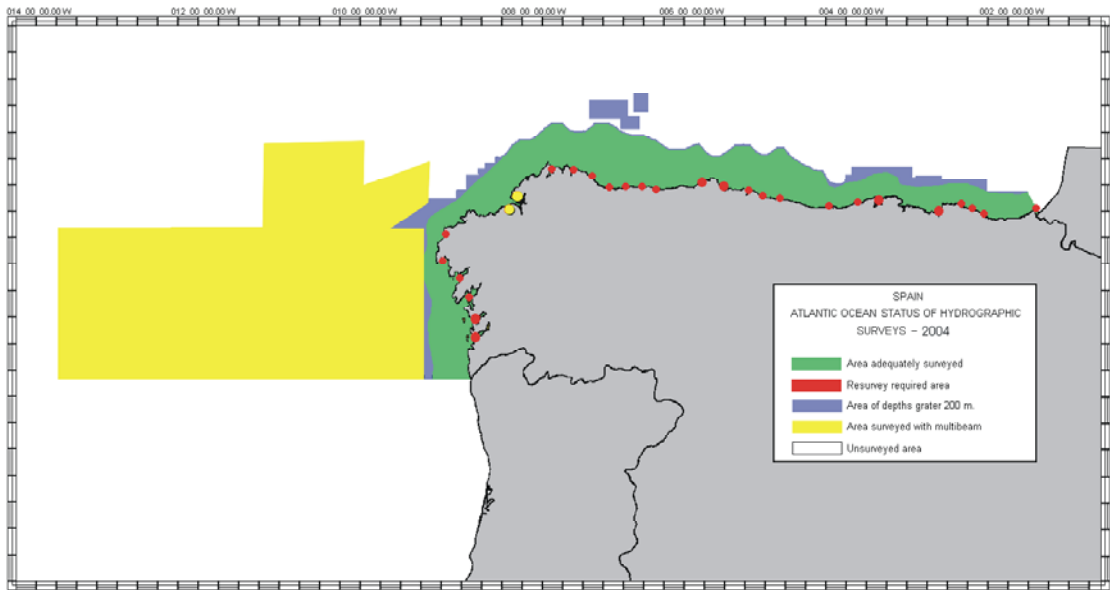
2.3. New ships

N/A.

2.4. Problems encountered

N/A.





3. NEW CHARTS AND UPDATES

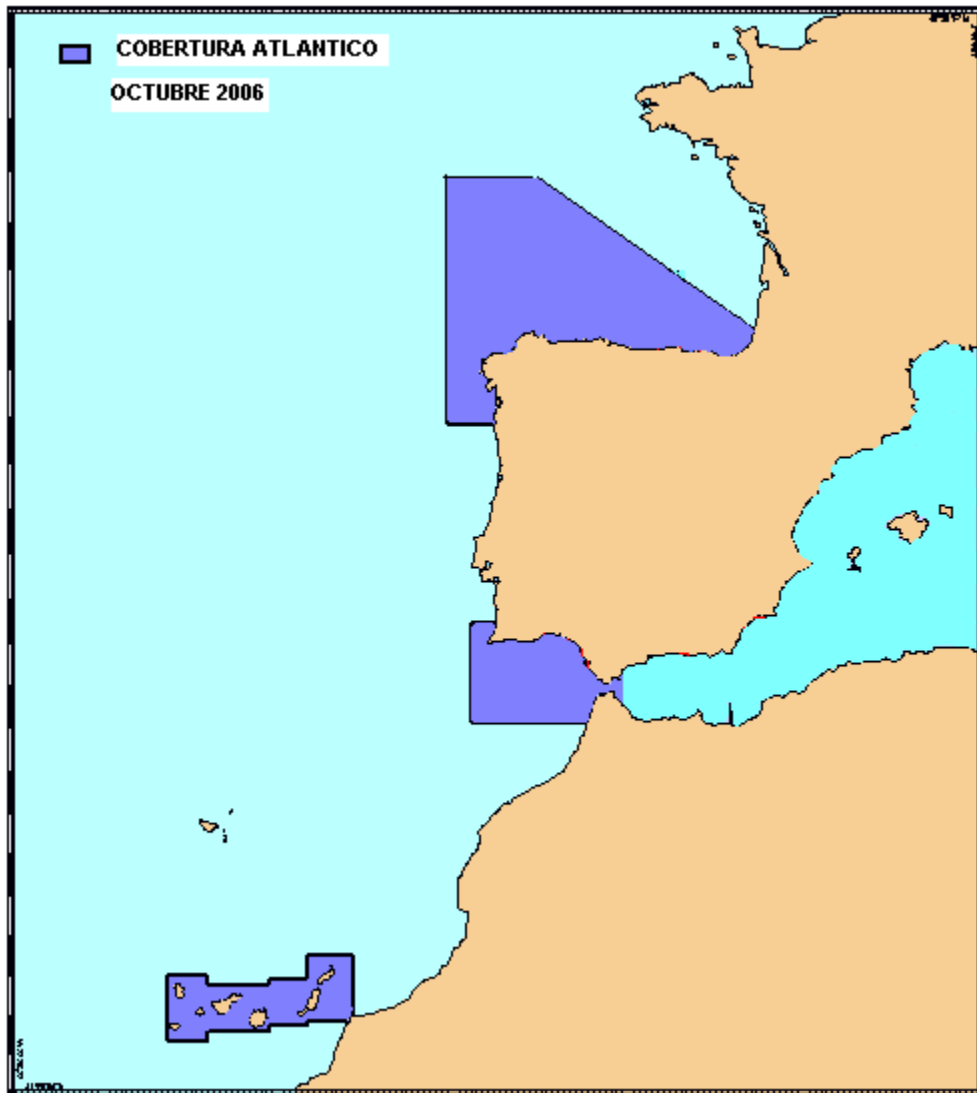
3.1. ENC's

- Production

Spain has produced up to date 100 ENC's distributed according to their navigational purposes as follows:

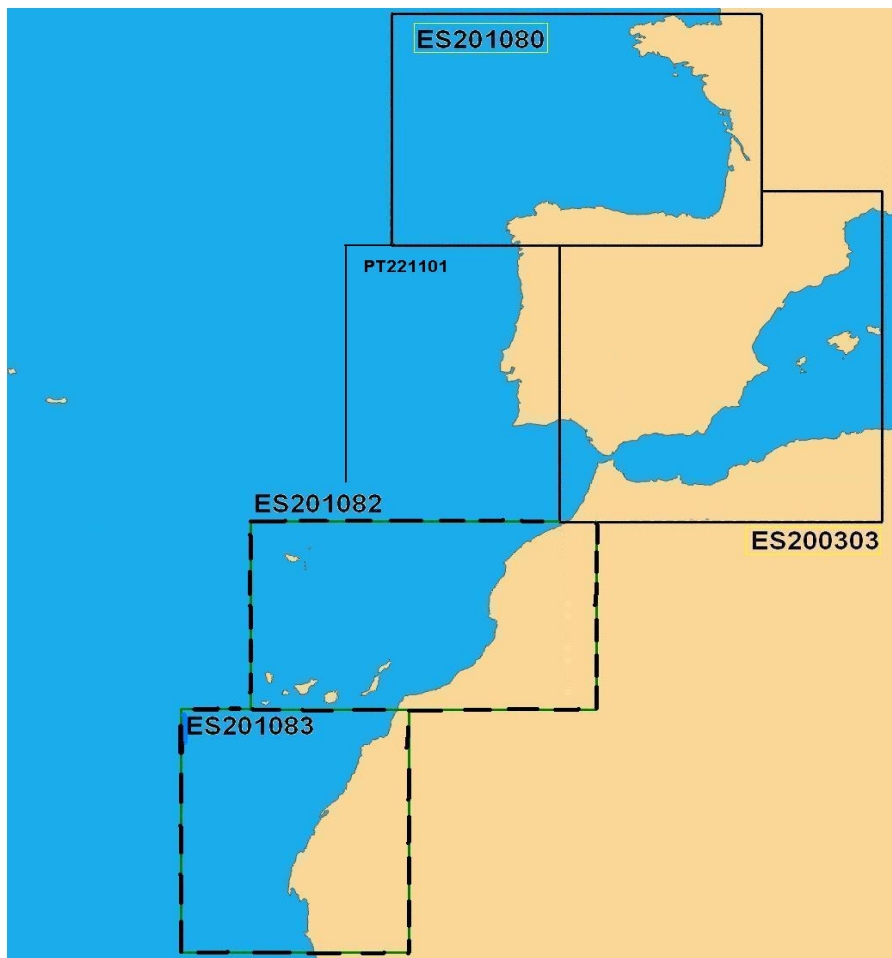
UB 2	UB3	UB4	UB5
2	17	35	46

With regards to ENC coverage in the area of the Commission it is shown in graphic 3aiii_1.



Since the last Conference and for the area of the Commission, 68 new editions have been produced, plus an average of 170 updates a year. This shows the increase in the workload that the maintenance and update of the ENC catalogue involves.

As a part of the small scale production plan, it is scheduled for the near future the production of cells ES201082 and ES201083 to complete scheduled production in UB2 (grafico 3aiii_2), linking the Iberian Peninsula to the Canary Island and providing coverage to the main navigational routes in the area.



-Cooperation.

Spain continues to work in production to fulfil IHO recommendations regarding the improvement of ENCs consistency, an issue considered as very important to prevent inconsistencies and thus improve the performance of ECDIS systems and their use by mariners.

On this subject, we should note the excellent cooperation with Portugal, with the exchange of ENCs of adjacent areas for data consistency

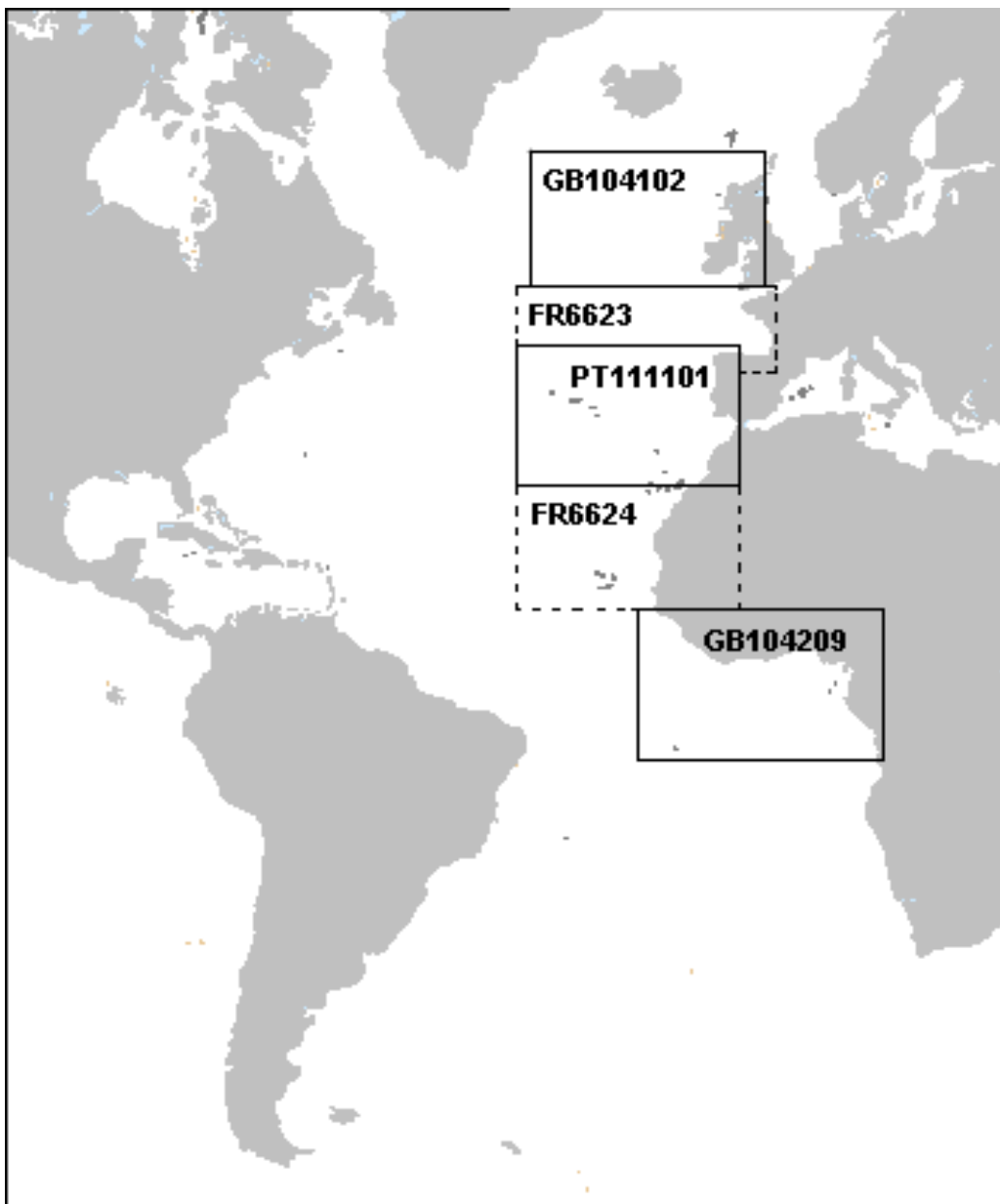
before submission to the RENC. Also, this issue has been developed in this period with France.

- Small Scale ENC Chart Scheme.
- Usage Band (UB) 1

The ENC Chart Scheme, UB 1 based on the INT chart scheme, assigned the following cells:

FR100103, FR100104, y GB100209. Nevertheless, ENC PT111101 had already been produced in the area.

Currently, small scale ENC coverage of the Atlantic Ocean is as depicted in graphic 3aiii_3. There remains a gap still uncovered between cells GB104102 and PT111101, and also between the latter and GB104209.



To solve these issues and improve coverage, and considering the availability of already produced ENC PT111101, and so as to adapt the INT scheme adopted in the last Conference as basis for small scale ENC production according to WEND principles, plus reservations by Portugal to the proposed scheme and to avoid duplicity of effort, we propose the following:

Portugal to produce their current PT111101 with full coverage within those limits.

France to produce a cell based on INT 103 (FR 6623), cut off at its South and West limits to the limits of existing PT111101.

Also, France to produce the cell corresponding to INT 104(FR6624), from the South limit of PT111101 up to the limit with the one assigned to UK corresponding to INT 209.

-- Usage Band (UB) 2

Also, we should note that we agreed with Portugal that the West limit of ENC ES200303 corresponding to INT 203 in the MEDINTCHART scheme would be meridian 7° 15,'00W, which would be as well the East limit of the ENC assigned to Portugal corresponding to INT 1081 in the area of this Commission. Consequently, it is suggested that the same limit is designated as East limit of EAtHC charts UB1 and thus also as East limit of Mediterranean and Black Seas Hydrographic Commission UB1 charts.

3.2. ENC Distribution method

Spain is integrated in the IC-ENC, which performs validations and consistency checks before distribution. These is a close relation of collaboration and research with that centre, aimed at the improvement and optimisation of production processes and consequent validation.

3.3. RNCs

N/A.

3.4. INT Charts

This information has been included in next paragraph 3.5.

3.5. National paper charts

Production

Since the last Conference, charts published covering areas of the Commission are listed in the following table, including INT number if applicable:

Table 3.5_1

NUM (INT)	SCALE 1:	TITLE
4431 (INT 1904)	12.500	Puertos de Rota, Base Naval y El Puerto de Santa María
404	50.000	Del cabo Lastres al cabo Peña
405	50.000	Del cabo San Lorenzo al cabo Vidio
443B	25.000	Aproches del puerto de Cádiz-zona sur
443A	25.000	Aproches del puerto de Cádiz-zona norte
601A	25.000	Estrecho de la Bocayna
6140	3.500	Puerto de Los Cristianos
416A	25.000	Ría de Pontevedra
4421	12.500	Broa de Sanlúcar de Barrameda y fondeadero de Bonanza
443	50.000	De Chipiona al cabo Roche
441A	25.000	Río de las Piedras
5A (INT 1082)	1.000.000	De Casablanca a cabo Yubi con las islas Canarias.Madeira y Selvagens
44B (INT 1819)	175.000	De isla Canela al cabo Trafalgar
3942	12.500	Ría de Santoña
4126 (INT 1857)	10.000	Ría y puerto de La Coruña
44A	150.000	Del cabo de San Vicente al río Guadiana
415B	25.000	Aproches de la ría de Arousa
417	60.000	Delas islas Cíes al río Miño
4052	7.500	Ría de Avilés
613	60.000	Del puerto de Los Cristianos al puerto de Güimar
416	60.000	De la península de O Grove al cabo Silleiro
412A	25.000	Rías de Ferrol, Ares, Betanzos y La Coruña
4167	10.000	Puertos de Panzón y Baiona
391	50.000	De Bayonne a San Sebastián
392	50.000	De Pasajes-Pasaia al cabo de Santa Catalina
41	350.000	Del cabo de la Estaca de Bares al río Lima
402	50.000	De punta Calderón al puerto de Llanes
610	60.000	Del cabo Descojonado a la península de Gando
6100 (INT 1928)	12.500	Puerto de Las Palmas
87A	175.000	Del río de Oro al cabo Barbas
411	50.000	Del cabo Ortegá al cabo Prior
617	60.000	Isla de La Gomera

- Reproductions and Adoptions

Since the last Conference, the following charts have been reproduced or adopted into our national series:

Table 3.5_2

NUM. (INT)	SCALE 1 :	TITLE
42A	150.000	De Caminha a Aveiro
43	300.000	De Lisboa al cabo de San Vicente
43A	150.000	De Nazaré a Lisboa
4 (INT 21)	10.000.000	Océano Atlántico Sur-Parte Oriental
3 (INT 14)	10.000.000	Océano Atlántico Norte-Parte Oriental
42B	150.000	De Aveiro a Peniche
43B	150.000	Del cabo da Roca al cabo de Sines
9 (INT 209)	3.500.000	De Freetown a Luanda
49C	150.000	Del cabo de Sines a Lagos

Cancellation of national charts covering the Gulf of Guinea.

IHM considered the following issues:

- Lack of staff, with the consequence of having to reduce the chart catalogue and focus on waters of national responsibility.
- The age of surveys included in Spanish charts.
- The fact that no surveys in the area by Spain can be expected.
- IHM Sailing Directions and List of Lights not covering this area.
- Lack of direct information resulting in Warnings, which are derived instead from Warnings broadcasted by France or United Kingdom.

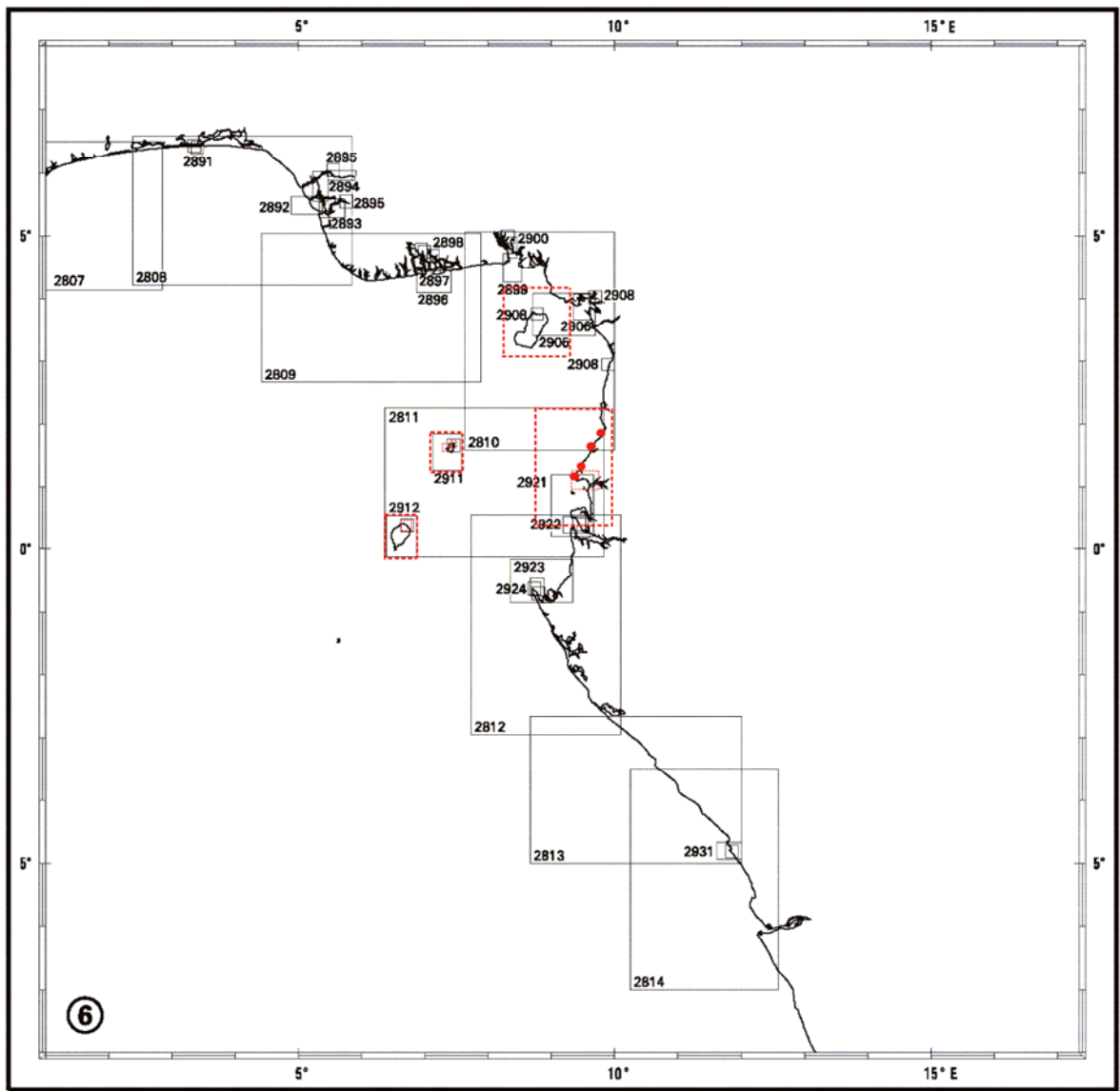
Also:

- Back in the day, Spain was not assigned any chart in the CHATINTCHART scheme.
- This INT Chart Scheme covers adequately the needs of navigation in the relevant area.
- Current charts of the area produced by United Kingdom, France and Portugal cover the needs until INT Charts are produced.

The IHM decided to cancel the following charts:

Table 3.5_3

Num.	TITLE	SCALE
54 A	Isla de Bioko (Fernando Póo)	175 000
	<i>Planos insertos:</i> Puerto de Malabo (Santa Isabel)	20 000
	Puerto de Malabo (Santa Isabel)	7 500
	Puerto de Luba (San Carlos)	15 000
	Fondeadero de Avendaño	5 000
	Paso de Leven	5 000
	Ensenada de Cacariaca	10 000
	Bahía de Riaba (Concepción)	20 000
	Fondeadero de punta Sitina	5 000
Fondeadero de Ureka	10 000	
55 A	De punta Mbonda a cabo Santa Clara	175 000
244	Islas do Principe, Pagalu (Annobón) y Sao Tomé	
	Isla do Príncipe	
	Isla do Príncipe, Bahía de Santo Antonio	218 000
	Isla do Príncipe. Bahía das Agulhas	25 000
	Isla Pagalu (Annobón)	50 000
	Isla de Sao Tomé	48 000
Isla de Sao Tomé, Bahía de Ana Chaves y Puerto de Fernão Días	216 000	
551	Accesos a los fondeaderos de Guinea Ecuatorial	
	Acceso al fondeadero de Bata	30000
	Río Muni. De cabo San Juan a punta N'Dombo	100000
	<i>Plano inserto:</i> Fondeadero de Cogo	30000
	Acceso al fondeadero de río Benito	30000
	Acceso al fondeadero de Etembue	30000
Acceso al fondeadero de cabo San Juan	30000	



Which is hereby reported to the Conference.

3.6. Other charts (leisure craft charts)

N/A.

3.7. Problems encountered.

N/A.

4. NEW PUBLICATIONS AND UPDATES

4.1. Updated publications

NAUTICAL INSTRUCTIONS Num. 2, Volume II . Coast of Portugal and SW Spain, from Río Miño to Cabo Trafalgar. Distribution: paper copy.
2004 EDITION.

NAUTICAL INSTRUCTIONS NUM. 2, Volume I. NW Spain, from Cabo de la Estaca de Bares to Río Miño. Distribution: paper copy
2005 EDITION.

NAUTICAL INSTRUCTIONS NUM. 4. Africa West Coast from Cabo Espartel to Cabo Verde including Dakar, Islas Azores, Madeira, Selvagens, Canarias and Cabo Verde. Distribution: paper copy.
2006 EDITION.

BOOK OF LIGHTS AND FOG SIGNALS, VOLUME I. Coasts of Spain and Portugal on the Atlantic Ocean, Africa West Coast from Cabo Espartel to Cabo Verde including Dakar, Islas Azores, Madeira, Selvagens, Canarias and Cabo Verde. Distribution: paper copy and CD-ROM.
2005 and 2006 EDITIONS.

RADIO SIGNALS BOOK. Coasts of Spain and Portugal, Balearic Islands, N Coast of Algeria and Morocco, Canary Islands, Madeira, Azores and Cabo Verde Islands, and Africa West Coast up to Cabo Verde. Distribution: paper copy.
2004 EDITION.

4.2. Means of delivery e.g. paper, digital

See paragraph 4.1.

4.3. Problems encountered

N/A.

5. MSI

5.1. Existing infrastructure for transmission

The current situation of the dissemination of Maritime Safety Information can be summarized as follows:

Notices to Mariners

Co-ordinator: IHM is the Co-ordinator for coastal and local radio navigational warnings.

Means: NAVTEX Stations (under SASEMAR)

OM and VHF Stations (under TELEFÓNICA)

NAVTEX stations broadcasting in the NAVAREA II area are the following: La Coruña, Tarifa and Las Palmas. They broadcast in English and Spanish over 518 and 490 Khz frequencies respectively.

Any information considered by this Instituto Hidrográfico (as the National Co-ordinator for Radio Warnings) as relevant for vessels in transit of the Navarea II Zone and French coastal waters is submitted via FAX to FRANAUT (Navarea II Zone Co-ordinator); likewise, they as ETABHYDROC BREST send us via TELEX over the SACOMAR net, any maritime safety information affecting Spanish coastal waters and the Navarea III area of coverage. Thus, there is a fluid exchange of information between both Co-ordinators.

Likewise, if the Instituto Hidrográfico knows of any event of interest for the Maritime Safety in seas belonging to some other country in the Navarea II Zone, both the relevant country and the Navarea II Co-ordinator are duly informed.

SAR

Co-ordinator: SASEMAR through its National Centre and its Area, Regional and Local Centres.

Means: NAVTEX stations and SASEMAR Centres communication stations, as well as coastal OM and VHF stations under TELEFÓNICA.

The report remains mostly unchanged from the previous one dated in 2004, the only modification is the addition of the list of NAVTEX stations, the rest remains unchanged.

5.2. New infrastructure in accordance with GMDSS Master Plan

N/A.

5.3. Problems encountered

N/A.

6. S-55

6.1. Latest update (Tables)

6.1.1 Country: SPAIN Charting Region G

Date of validity of information: 25 OCTOBER 2006

6.1.1.1. HYDROGRAPHIC SURVEYING

A = percentage which is adequately surveyed.

B = percentage which requires re-survey at larger scale or to modern standards.

C = percentage which has never been systematically surveyed.

	A	B	C
Depths < 200m	92	8	0
Depths > 200m	20	0	80

6.1.1.2. NAUTICAL CHARTING

Status of nautical charting within the limits of the EEZ

A = percentage covered by INT series, or a paper chart series meeting the standards in M-4.

B = percentage covered by Raster Navigational Charts (RNCs) meeting the standards in S-61.

C = percentage covered by ENC's meeting the standards in S-57.

Purpose/Scale	A	B	C
Offshore passage/Small	100	0	100
Landfall and Coastal passage/Medium	100	0	80
Approaches and Ports/Large	100	0	70

6.1.1.3. MARITIME SAFETY INFORMATION (MSI)

NAVIGATIONAL INFORMATION (S-53)

SERVICE	Yes	No	Partial	NOTES
LOCAL WARNINGS	X			
COASTAL WARNINGS	X			

NAVAREA WARNINGS	X			
INFORMATION ON PORTS AND HARBOURS	X			Agreements in place with all Port Authorities

GMDSS IMPLEMENTATION (IMO Publication 970 - GMDSS Handbook)

SERVICE	Yes	No	Partial	NOTES
Master Plan	X			
A1 Area	X			
A2 Area	X			
A3 Area	X			
NAVTEX	X			
SafetyNET	X			Only for NAVAREA warnings

6.1.2. Country: **SPAIN** Canary Islands (Region G)

Date of validity of information: 25 OCTOBER 2006

6.1.2.1. HYDROGRAPHIC SURVEYING

A = percentage which is adequately surveyed.

B = percentage which requires re-survey at larger scale or to modern standards.

C = percentage which has never been systematically surveyed.

	A	B	C
Depths < 200m	55	45	0
Depths > 200m	40	0	60

6.1.2.2. NAUTICAL CHARTING

A = percentage covered by INT series, or a paper chart series meeting the standards in M-4.

B = percentage covered by Raster Navigational Charts (RNCs) meeting the standards in S-61.

C = percentage covered by ENC's meeting the standards in S-57.

Purpose/Scale	A	B	C
Offshore passage/Small	100	0	20
Landfall and Coastal passage/Medium	100	0	100
Approaches and Ports/Large	100	0	80

6.1.2.3. MARITIME SAFETY INFORMATION (MSI)

NAVIGATIONAL INFORMATION (S-53)

SERVICE	Yes	No	Partial	NOTES
LOCAL WARNINGS	X			
COASTAL WARNINGS	X			
NAVAREA WARNINGS	X			
INFORMATION ON PORTS AND HARBOURS	X			Agreements in place with all Port Authorities

GMDSS IMPLEMENTATION (IMO Publication 970 - GMDSS Handbook)

SERVICE	Yes	No	Partial	NOTES
Master Plan	X			
A1 Area	X			
A2 Area	X			
A3 Area		X		
NAVTEX	X			
SafetyNET	X			Via NAVAREA II Coordinator

7. CAPACITY BUILDING

7.1. Offer and/or demand for Capacity Building

N/A.

7.2. Training received, needed, offered

N/A.

7.3. Status of national, bilateral, multilateral or regional development projects with Hydrographic component. (In progress, planned under evaluation or study).

SEMINAR ON MARITIME SAFETY HELD IN TRIESTE (ITALY) 10-14 OCTOBER 2005

This initiative follows in the efforts by the International Hydrographic Organization for hydrographic capacity building / improvement in East and Central Africa, after a specific request by several United Nations resolutions.

The area of the Gulf of Guinea is severely lacking in maritime safety provisions, both regarding hydrographic surveys and GMDSS communication facilities.

The aim of the WAAT (West African Action Team, composed by highly qualified staff from the Hydrographic Offices of France, Portugal and United Kingdom, who visited the countries in the area) was to make those countries aware of such deficiencies. The WAAT charged the IHO with the organization of a one week long Seminar funded by the IHO "Capacity Building" for staff related to the aforementioned issues from countries in the area.

Nineteen countries were invited (Benin, Cameroon, Cape Verde, Republic of the Congo, Democratic Republic of the Congo, Ivory Coast, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Mauritania, Morocco, Nigeria, Senegal, Sao Tome and Principe, Sierra Leone and Togo), but only six of them were in attendance.

Following a program composed by United Kingdom, France and the Bureau, the speakers were from the following countries and organizations: Chile (1), Croatia (2), France (3), Portugal (1), Spain (1), United Kingdom (3), Intergovernmental Oceanographic Commission (IOC) of UNESCO (1), Federation Internationale des Géomètres – FIG (1), PMAWCA (Association Gestion Ports Arique Ouest & Centre)

Ingenieur Général Michel Le Gouic (SHOM) as WAAT member presented the conclusions of the working group:

- Confirmation of the simultaneous conduction of three regional sub-projects: From Mauritania to Sierra Leone, from Ghana to Benin and from Nigeria to Equatorial Guinea.
- Next dates for the development of this project are the meeting of FIG commission 4 at Accra in March 2006, and the 9th EAHC Meeting in Autumn 2006.
- Meanwhile, it would be desirable that specific items in this project were considered during the meetings of national committees.

Capt. Hugo Gorziglia (IHB) wished to draw attention to the following main issues:

The development of maritime safety, specifically by means of a major project, will not succeed unless related African countries take over the direction of the project for submission to the funds of "Capacity Building". IHO and EAHC can be no more than "facilitators", and in no case may receive such funds.

- There should be a great work in consideration and decision at the national level for future meetings. The forthcoming visit of experts from the UKHO to English-speaking countries will be a most welcomed

occasion to further the awareness of what is at risk regarding maritime safety and draw the attention of the governments.

7.4. Definition of bids to IHOCBC

N/A.

8. OCEANOGRAPHIC ACTIVITIES

8.1. General

The staff of the Oceanographic section is carrying out the update of tide data for ports on the SE coast of the Peninsula and the Gulf of Biscay coast, using temporary tide meters.

8.2. GEBCO/IBC's activities

N/A.

8.3. Tide gauge network

N/A.

8.4. New equipment

Five VALEPORT 740 tide meters with tide data storage capabilities for over one year have been purchased, and they are being used to update the Spanish ports tide database.

Two new meteorological stations meteodata 3016 C with wind direction and speed sensors, temperature sensors, control unit, data storage and processing software. They will be used to record weather effects, specially for tide and current data.

One Nortek profiler current meter AquaPro 0,6 Mhz to research currents in the access into main Spanish ports and relevant anchorages.

8.5. Problems encountered

N/A.

9. OTHER ACTIVITIES

9.1. Meteorological data collection

N/A.

9.2. Geospatial studies

- The purchase of new digital photogrammetric equipment goes on. A new photogrammetric restitution workstation has been delivered, and an old digital restitutor is pending reception and replacement so as to have three digital photogrammetric workstations available.)
- The updating of the geodetic station database for the Hydrographic Control Network (RCH) goes on, aimed to the transfer of the old files to an ACCESS database.
- To complete the project "Subsystem for the capture of Geodetic Field Data and others with a Nautical Nature", a computer software on VISUAL BASIC to carry out geodetic and topographic calculations has been developed. This new software (still in testing phase) is named PROGEO and it is composed of mathematical calculation and database modules.
- The implementation of a new program to carry out Photogrammetric Aerial Triangulation has started.

9.3. Disaster prevention

N/A.

9.4. Environmental protection

N/A.

9.5. Astronomical observations

N/A.

9.6. Magnetic/gravity surveys

N/A.

9.7. International

In 2005 joint surveys with the Royal Moroccan Navy were continued for Nautical Chart 105 (Int 3150) started in 2001; Spain was designated as the leader of the Pilot Project, as a part of the collaborations agreed during the "Sea Power Symposium", held in Venice in 1.999.

10. CONCLUSIONS

This report has summarized the works developed by our H.O. during the last two years in which great efforts have been made trying to increase the coverage of ENC's in the area of this Hydrographic Regional Commission and, regrettably, communicates the cancellation of those nautical charts in the Gulf of Guinea mentioned in point 3.5 of this report due to the impossibility to keep them properly updated.