



EAtHC11-09.1C

PORTUGUESE NATIONAL REPORT

To the

11th Meeting of the

Eastern Atlantic Hydrographic Commission

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INTRODUCTION

This report describes the main technical activities and developments at the Portuguese Hydrographic Institute (IHPT) from January 2009 to December 2010. It was prepared in order to be presented to the 11th Conference of the EAthC, and covers specifically the following areas: Hydrography, Cartography, Information Technologies and GIS, Marine Safety and Technical Assistance and Training.

1- HYDROGRAPHIC OFFICE

This information is presented in Annex A.

2- SURVEYS

The hydrographic surveys within the IHPT are carried out with both singlebeam and multibeam echosounders, using GPS for positioning (Differential or RTK/OTF mode).

The singlebeam echosounders with digital output (ATLAS DESO 20/22/25, MARIMATECH E206, KONGSBERG EA600, and KNUDSEN 320 M) are used with automated data acquisition systems (currently the HYPACK). The values of sound speed in the water column are collected by sound speed profilers (APPLIED MICROSYSTEMS SVP-16 and SVP PLUS). ATLAS calibration transducers are also used. The heave is measured with inertial motion sensors (TSS 320/333/335, SEATEX MRU5 or MRU H).

Data processing is carried out with the same application used for the data acquisition (HYPACK). The data is transferred to CARIS GIS for presentation and archive purposes. The CARIS files are the layout used to store the hydrographic data that can be readily used for cartographic production.

The IHPT is presently operating several multibeam echosounder systems (MBES): two portable systems for shallow waters (KONGSBERG EM 3002), one for coastal waters (KONGSBERG EM 710) and two for deep waters (KONGSBERG EM 120) on the hydrographic ships NRP "D. Carlos I" and NRP "Almirante Gago Coutinho".

All the referred multibeam systems include one SEATEX SEAPATH 200 or SEAPATH 200 RTK (for positioning, heading, pitch, roll and heave measurements), one sound speed sensor at the transducer draft (APPLIED MICROSYSTEMS SMART PROBE) and a sound speed profiler (APPLIED MICROSYSTEMS SVP-16 or SVP PLUS). Data processing is carried out with the Hydrographic Information Processing System (CARIS HIPS).

The coastal topography and horizontal control is achieved, for the most part, with geodetic GPS methods, including kinematic positioning and RTK/OTF (with TRIMBLE 4000/5700/5800 series). Sometimes hydrographic surveys are complemented with GPS surveys on-shore, done by surveyors on foot or with a moto-quad. Nevertheless, to complement GPS observations, topographic total stations (LEICA TC 305 and LEICA TC 1800) are also used. Data processing is performed with TRIMBLE software (TRIMBLE Geomatics Office), AutoCAD MAP and in-house software COORD (for pure traditional measurements - angles and distances).

GPS RTK/OTF techniques for tide measurements are still on evaluation. For the areas surveyed on a regular basis, the local geoidal height was computed, in order to have a geoid model with adequate accuracy.

The procedures (planning, execution and processing) of hydrographic surveys within IHPT are in accordance with the IHO Special Publication S-44 (5th Edition, 2008). Special attention has been paid to the development of procedures for Quality Control (QC) and Quality Assurance (QA) of hydrographic data. These include: error budgets, analysis of the digital terrain model from the raw data, statistical analysis per beam, and analysis of the spatial and temporal variation of sound speed profiles on depth measurement and positioning.

A side scan sonar system (KLEIN 5000) is also used with a digital processing software package (TRITON ELICS).

During the last two years, most of the hydrographic surveys for cartographic update were focused on the Açores Archipelago. The geological continental shelf of Continental Portugal is completely surveyed with echo sounders and electronic positioning systems, as well as the more critical areas of the Archipelagos of Açores and Madeira.

Both the hydrographic ships “D. Carlos I” and “Almirante Gago Coutinho” are being employed on surveys for the project of the Extension of the Portuguese Continental Shelf. Despite the presentation of the Portuguese proposal to the United Nations Organization on May 2009, there are still works on progress. So far, more than 1,7 million square kilometres on deep sea were already surveyed, with full bottom search.

The hydrographic ships have also been used in several research projects in cooperation with national and international universities and other research institutions.

Some surveys, for environmental studies and coastal protection, were also carried out. In these surveys, hydrographic and topographic integrated methods were used and, commonly, simultaneous wave, tidal and current data were acquired. In some cases, these surveys include light seismic geological methods and sediment and water chemical analysis.

The in-house Hydrographic Data Warehouse (HDW), using an ORACLE database management system, is being uploaded with all the collected bathymetric data. The older survey fair sheets to integrate the HDW are all vectorized.

3- NEW CHARTS AND UPDATES

The paper chart production in the IHPT is fully done by the Computer Assisted Cartography system (CAC), since mid 2004. All charts are stored in digital files, which are then used for Electronic Navigational Chart (ENC) production.

The CAC is based on CARIS GIS, running in MS Windows workstations. Some topographic data processing and import/export are also carried out using AutoCAD MAP.

The IHPT also produces nautical charts for special purposes, for instance: charts for fishermen, charts for recreational navigation and special charts for training purposes. All those charts are in accordance with IHO specifications and were very well accepted by the end users.

All the IHPT new charts and new editions are bilingual (Portuguese and English) and follow the INT specifications, whether or not they belong to the INT series. A list of the paper charts produced by the IHPT since 2009 is presented in Annex B.

The production of ENC cells started with some CARIS software modules (HOM) but the main work is done using software produced by Seven-C's (ENC Tools) and HydroServices (dKart Inspector). The IHPT cells format is S-57/Edition 3.1. Each of the IHPT ENC is broadly equivalent to a paper chart both in terms of its area of coverage and its content.

The final validation of the ENC cells is made with the ECDIS software ECPINS-M. The Portuguese Navy ships equipped with ECDIS continuously verify the IHPT ENC cells in real navigation conditions.

The IHPT is a member and participates actively in the works of the International Centre for ENCs (IC-ENC), including the IC-ENC Technical Experts Working Group. Presently, 69 Portuguese ENC cells are available for distribution through IC-ENC, charting all the oceanic and coastal waters of Portugal, as well as the main harbours and their approaches. A list of the ENC cells produced by the IHPT is presented in Annex B.

The issuing of Notices to Mariners (NtM), which affect the paper charts and the corresponding ENC cells, is coordinated with the issue of the ENC CDs by the IC-ENC. It should be noted that the number of ENC updates increased enormously and so the production and validation of updates continues to be one of the major works of the IHPT ENC production team.

The second generation of the Computer Assisted Cartography, the CARIS – Hydrographic Production Database (HPD), which allows a full integration of the cartographic production, to produce both paper charts and ENC cells is implemented. Two nautical charts and four ENC cells were already produced with the HPD.

IHPT is using a Print-on-Demand (PoD) system to print the nautical charts, as well as their sub products, since middle 2005. About 78% of the nautical paper charts, from the Portuguese folio, are already in the PoD print system.

4- NEW PUBLICATIONS AND UPDATES

Since January 2009, the IHPT published the following nautical publications:

- Annual Group of Notices to Mariners (2009);

- Annual Group of Notices to Mariners (2010);
- Sailing Directions of Portugal – Madeira Archipelago – “Arquipélago da Madeira” – 4th Edition (2010).

Annually, the IHPT also publishes the Tide Tables for the main harbours of Continental Portugal and of the Archipelagos of Açores and Madeira. During the last years some of the tidal constituents continued to be recalculated using more recent tidal observations. In 2002 IHPT started a project to automate the tidal stations, in order to provide remote access to their data from the IHPT web site.

Tide Tables are also published annually, by the IHPT, for African Portuguese Speaking Countries and Macau.

On June 2010, IHPT finished the translation to Portuguese of the IHO Manual on Hydrography. This manual is available on IHPT website (www.hidrografico.pt).

5- MARITIME SAFETY INFORMATION

The IHPT, as national coordinator for the Maritime Safety Information, provides a 24h service of Navigational Warnings, in cooperation with the NAVAREA II coordinator.

NAVTEX broadcast is made both in English and Portuguese and it is transmitted from Monsanto (near Lisbon) and from Horta (in the Açores Archipelago) stations. Madeira Archipelago NAVTEX will be established in the near future.

The GMDSS coverage is yet not completed due to some delays on the establishment of the Digital Selective Call capability, which are expected to be solved in a near future.

Monthly the IHPT publishes a Group of Notices to Mariners, containing all the permanent, preliminary, and temporary warnings in force for the corresponding period. This information, covering all navigation charts and publications of Portugal, Angola, Cabo Verde, Guiné and São Tomé e Príncipe, is also available on the web site.

The IHPT built a friendly on-line application – ANAVnet (websig.hidrografico.pt/idamar/anavnet), supported by robust and secure databases, capable of providing either entire NtM publications, or single NtM affecting individual

documents; allowing in any case consultation and printing, including entire correction pages of nautical publications and graphical annexes to glue on charts.

In matters of Navigational Warnings, ANAVnet allows consultation of warnings broadcasted by any of the Portuguese NAVTEX stations (coastal and local), both in Portuguese and English languages.

Regarding the Broadcast Stations (BS) from the national differential GPS network, the Continental Portugal component consists of two DGPS BS, with redundancy and integrity monitoring, located at Cape Carvoeiro and Sagres.

There are also two BS in the Portuguese Archipelagos: One in the Açores Archipelago (Horta station) and another one in Madeira Archipelago (Porto Santo station).

AIS coastal stations are operational since the summer of 2006 both in Açores and Madeira Archipelagos. For the continental coast of Portugal, this system started this year in parallel with the coastal VTS. The new mandatory ship reporting system "Off the Coast of Portugal - COPREP" was approved by the Maritime Safety Committee from the International Maritime Organization (IMO-MSC) on the end of 2008. Is in force since July 2009.

6- C-55

Updates are listed in Annex C.

7- CAPACITY BUILDING

The IHPT continues to compute and publish annually the Tide Tables for the Portuguese Speaking African Countries, including, within the EAtHC area, Cabo Verde, Guiné-Bissau and S. Tomé e Príncipe.

In 2009 and 2010, under the existing Cooperation Agreement Portugal – Cape Verde, IHPT carried hydrographic surveys in: Baía de Santa Maria (Sal Island), Porto Inglês (Maio Island), Porto Vale de Cavaleiros (Fogo Island), Porto da Furna (Brava Island),

Porto do Tarrafal (Santiago Island), Porto Novo (Santo Antão Island) and Preguiça (São Nicolau Island).

8- OCEANOGRAPHIC ACTIVITIES

a. Tide Gauge Network

The Portuguese tide gauge network consists of 24 tidal stations spread over continental Portugal, Açores and Madeira Archipelagos. Most of the stations belong to the IHPT which is in charge of the installation, maintenance and data collection. Cascais and Lagos stations are property of the Portuguese Geographic Institute and Horta and Angra do Heroísmo tidal stations have gauges installed by the Department of Fisheries of the Açores University, although IHPT also collects and processes the data from these stations. The Portuguese tide gauge network has installed the following tide gauge technologies: radar (10 stations with VegaPuls and Krohne gauges), acoustic (3 stations with Next Generation Water Level Measurement Systems) and also pressure (from Druck, Valeport and LevellTroll) and float and stilling well gauges (from A.OTT). Annex D depicts the Portuguese tide gauge network.

Portugal is a member of the Global Sea Level Observing System (GLOSS) contributing with seal level data from Cascais, Ponta Delgada, Santa Cruz das Flores and Funchal. As a GLOSS member, mean sea level data is regularly sent to the Permanent Service for Mean Sea Level (PSMSL).

9- OTHER ACTIVITIES

a. Information technologies and GIS

The IHPT has an Internet site (www.hidrografico.pt) presenting information about its organization, main activities, products offered and specific on-line data.

The Notices to Mariners and Navigational Warnings issued by the IHPT are also available in the IHPT Internet site, as well as general information on the Portuguese Nautical Charts and Nautical Publications.

Databases and related applications are being developed using ORACLE spatial. They include not only hydrographic and cartographic applications but also environmental and coastal management products. The basis of these is IDAMAR (Geospatial Data Infrastructure for the Marine Environment).

IDAMAR is an information infrastructure for the marine environment under development at IHPT and deals with technical and scientific data within IHPT. The main goals are to improve and facilitate the internal production processes and to support the operational, planning and strategic decision-making. Its core is an Oracle Spatial database management system that is explored in several ways producing tables, charts, web pages and reports, and feeding several GIS packages.

This system is also being used to support IC-ENC by providing a world ENC availability catalogue (independent of maker or distributor) for mariners to use.

ANNEX A

HYDROGRAPHIC OFFICE GENERAL INFORMATION PORTUGAL (PORTUGUESE REPUBLIC)

INSTITUTO HIDROGRAFICO Rua das Trinas – 49 1249-093 LISBOA	
Department of which the Hydrographic Office is part <i>Ministère dont dépend le Service Hydrographique Ministerio del que depende el Servicio Hidrográfico</i>	Ministry of National Defense – Navy.
Principal functions of the H.O. - <i>Attributions principales du S.H.</i> <i>Principales funciones del S.H.</i>	Hydrographic Surveys, Analogue and Digital Nautical Charts, Sailing Directions, Lights and Radio Signals Lists, Notices to Mariners (monthly), Immediate Navigational Warnings, Tide Tables, Tidal Currents, Magnetic Compass Certification and Adjustment. Aids to Navigation Plans. DGPS, AIS projects. Oceanography. Provision of geophysical and environmental information for scientific and defense issues
National day - Fête nationale – Fiesta nacional	10 June
Telephone : Fax : E-mails : WEB site:	+ 351 21 094 3000 + 351 21 094 3299 dirgeral@hidrografico.pt dirtecnica@hidrografico.pt hidrografia@hidrografico.pt http://www.hidrografico.pt
Date of establishment and Relevant National Legislation – <i>Date de fondation et législation nationale concernée – Fecha de establecimiento y Leyes nacionales de referencia</i>	22 September 1960 • Territorial Sea: Law n° 34/2006 • Baseline: Laws n° 2130/66 and 495/85 • EEZ: Laws n° 34/2006, n° 119/78 and n° 52/85
Name and rank of the Director or Head - <i>Nom et grade du directeur –</i> <i>Apellidos y graduación del Director</i>	Vice-admiral Agostinho Ramos da Silva, Director General
Tonnage – Tonelaje	2007 = 1,271,004
Total Budget - Budget total – Presupuesto Total	7 million Euros
Staff employed - Effectifs – Plantilla	For details, consult the WEB site: http://www.hidrografico.pt
N° of charts published - Nombres de cartes publiées – <i>N° de cartas publicadas</i>	221
N° of INT charts published – Nombres de cartes INT publiées - N° de cartas INT publicadas. N° of ENC cells published – Nombres de cellules ENC publiées - N° de células ENC publicadas.	34 69
Type of publications produced (e.g. Tide Tables, Sailing Directions, List of Lights etc.) – Type de publications produites (par ex: Tables des marées, Instructions nautiques, Livres des Feux, etc. - Tipo de publicaciones producidas (por ej: Tablas de mareas, Derroteros, Libros de Faros etc.)	<ul style="list-style-type: none"> - Catalogue of Charts and Nautical Publications; - Catalogue of Nautical Charts of Portugal; - Tide Tables – Volume I – Portugal; - Tide Tables – Volume II – African Portuguese Speaking Countries; - List of Radio Aids and Services; - List of Lights – Volume I – Portugal; - List of Lights – Volume II – African Portuguese Speaking Countries; - Sailing Directions – Continental Portugal – Volumes I to III; - Sailing Directions – Azores Archipelago; - Sailing Directions – Madeira Archipelago;

	<ul style="list-style-type: none"> - Sailing Directions - Angola and São Tomé e Príncipe Ports Pilot; - Sailing Directions - Cabo Verde – Volumes I to V; - Sailing Directions (Pleasure Craft) – Continental Portugal (Portuguese/English); 		
Surveying vessels/ Aircraft – Bâtiments <i>hydrographiques/aéronefs – Buques</i> <i>hidrográficos/ Aeronaves</i> Almirante GAGO COUTINHO D. CARLOS I ANDRÓMEDA AURIGA ATLANTA CORAL FISÁLIA	Displacement	Date Launched	Crew
	2285	1985	49
	2285	1989	49
	245	1985	24
	245	1987	24
	38.7	1981	3
	38.7	1981	3
	38.7	1981	3
Other information of interest – Autres <i>informations utiles - Otra información de interés.</i>	Own coast and harbours plus main traffic routes linking the Portuguese speaking countries in Africa. Hydrography and Oceanography level A and B course		

ANNEX B

Nautical and Electronic Navigational Charts Published by Portugal since 2009

NAUTICAL CHARTS					
Number	INT	Title	Edition	Reprint	Date
25R01	-	CAMINHA A LEÇA DA PALMEIRA	2 ^a		JAN 09
25R02	-	LEIXÕES A AVEIRO	2 ^a		JAN 09
25R03	-	AVEIRO À FIGUEIRA DA FOZ	2 ^a		JAN 09
26M01	-	BAÍA DE CASCAIS E BARRAS DO RIO TEJO	2 ^a		JAN 09
26403	1872	APROXIMAÇÕES A AVEIRO	2 ^a		MAY 09
67503	-	PORTOS DAS ILHAS DA BOAVISTA E DO SAL	1 ^a		JUN 09
24203	1815	NAZARÉ A LISBOA	1 ^a	1 ^a	JUL 09
43103	1894	ARQUIPÉLAGO DOS AÇORES – GRUPO ORIENTAL	1 ^a	1 ^a	AUG 09
165	-	VILA FRANCA DO CAMPO (S. MIGUEL)	1 ^a	Rep.	AUG 09
26311	1885	BARRA E PORTOS DE FARO E OLHÃO	2 ^a	1 ^a	SEP 09
27503	-	PORTOS E ENSEADAS (COSTA SUL – ZONA LESTE)	1 ^a		DEC 09
26408	1883	APROXIMAÇÕES A SINES	3 ^a		JAN 10
23204	1812	CABO DE S. VICENTE AO ESTREITO DE GIBRALTAR	2 ^a	1 ^a	FEB 10
27M01	-	PLANOS DE PORTOS MILITARES	1 ^a		APR 10
26310	1884	BARRA E PORTO DE PORTIMÃO	4 ^a		APR 10
26307	1879	RIO TEJO (DE SACAVÉM A VILA FRANCA DE XIRA)	3 ^a	1 ^a	APR 10
36407	-	ILHAS SELVAGENS	1 ^a		JUN 10
36406	-	ILHAS DESERTAS	1 ^a		SEP 10
<i>24P02</i>	-	<i>AVEIRO A PENICHE</i>	<i>1^a</i>		<i>NOV 10</i>
<i>46404</i>	-	<i>ILHA GRACIOSA</i>	<i>1^a</i>		<i>DEC 10</i>
<i>47501</i>	-	<i>PORTOS DAS ILHAS DE S. JORGE E DO PICO</i>	<i>1^a</i>		<i>DEC 10</i>
<i>47502</i>	-	<i>PORTOS DA ILHA DE S. MIGUEL</i>	<i>1^a</i>		<i>DEC 10</i>
<i>27501</i>	-	<i>PORTOS E ENSEADAS (COSTA OESTE – ZONA NORTE)</i>	<i>1^a</i>		<i>DEC 10</i>
<i>27504</i>	-	<i>PORTOS E ENSEADAS (COSTA OESTE – ZONA CENTRO)</i>	<i>1^a</i>		<i>DEC 10</i>

Note: This annex includes, in italics, the planned nautical charts and ENCs to be issued until the end of 2010.

ELECTRONIC NAVIGATIONAL CHARTS					
Number	NC	UB	Title	Edition	Date
PT 262101	1003	2	CABO VERDE AO SENEGAL	1	APR 10
PT 324201	24201	3	VILA PRAIA DE ÂNCORA AO FURADOURO	4	APR 09
PT 324202	24202	3	AVEIRO A PENICHE	4	APR 09
PT 324203	24203	3	PONTA DA CONSOLAÇÃO À PRAIA DAS MAÇÃS	3	APR 09
PT 324204	24204	3	CABO DA ROCA À PRAIA DA LAGOA	4	APR 09
PT 324205	24205	3	CABO DE SINES À PONTA DA ARRIFANA	5	APR 09
PT 324206	24206	3	PONTA DA ARRIFANA À ILHA CRISTINA (ESPANHA)	6	APR 09
PT 336407	36407	3	ILHAS SELVAGENS	1	OCT 10
PT 343101	43101	3	ARQUIPÉLAGO DOS AÇORES – GRUPO OCIDENTAL	2	APR 10
PT 343102	43102	3	ARQUIPÉLAGO DOS AÇORES – GRUPO CENTRAL	2	APR 10
PT 343103	43103	3	ARQUIPÉLAGO DOS AÇORES – GRUPO ORIENTAL	2	APR 10
PT 426403	26403	4	APROXIMAÇÕES A AVEIRO	2	MAR 10
PT 426405	26405	4	PENICHE E ILHAS BERLENGAS	1	APR 09
PT 426408	26408	4	APROXIMAÇÕES A SINES	4	SEP 10
<i>PT 427504</i>	<i>27504</i>	<i>4</i>	<i>CASCAIS</i>	<i>1</i>	<i>DEC 10</i>
<i>PT 436406</i>	<i>36406</i>	<i>4</i>	<i>ILHAS DESERTAS</i>	<i>1</i>	<i>DEC 10</i>
PT 446201	46201	4	ARQUIPÉLAGO DOS AÇORES – CANAL DE S. JORGE (ILHAS S. JORGE E PICO)	2	JUN 10
PT 446403	46403	4	ARQUIPÉLAGO DOS AÇORES – ILHA DO FAIAL E CANAL DO FAIAL	2	JUN 10
PT 446405	46405	4	ARQUIPÉLAGO DOS AÇORES – ILHA TERCEIRA	2	MAY 10
<i>PT 446406</i>	<i>46404</i>	<i>4</i>	<i>ARQUIPÉLAGO DOS AÇORES – ILHA GRACIOSA</i>	<i>1</i>	<i>DEC 10</i>
PT 526303	26303	5	BAÍA DE CASCAIS E BARRAS DO RIO TEJO (PORTO DE LISBOA)	7	SEP 09
PT 526304	26304	5	PORTO DE LISBOA (RIBEIRA DO JAMOR AO TERREIRO DO TRIGO)	5	SEP 09
PT 526305	26305	5	PORTO DE LISBOA (CANAL DO BARREIRO AO CANAL DO MONTIJO)	5	AUG 09

Note: This annex includes, in italics, the planned nautical charts and ENCs to be issued until the end of 2010.

PT 526306	26306	5	PORTO DE LISBOA (SANTA APOLÓNIA A SACAVÉM)	5	SEP 09
PT 526307	26307	5	RIO TEJO (SACAVÉM A VILA FRANCA DE XIRA)	2	AUG 09
PT 526308	26308	5	BARRA E PORTO DE SETÚBAL	4	FEB 10
PT 526309	26309	5	PORTO DE SETÚBAL (CAIS DA SECIL À ILHA DO CAVALO)	2	FEB 10
PT 526310	26310	5	BARRA E PORTO DE PORTIMÃO	4	JUL 10
PT 526311	26311	5	BARRA E PORTOS DE FARO E OLHÃO	2	MAR 09
<i>PT528502</i>	<i>27501</i>	<i>5</i>	<i>BARRA DO RIO MINHO</i>	<i>1</i>	<i>DEC 10</i>
PT 528506	26403	5	BARRA E PORTO DE AVEIRO	2	FEB 10
PT 528510	26405	5	PORTO DE PENICHE	1	MAR 09
PT 528514	26408	5	PORTO DE SINES	4	SEP 10
PT 528518	27503	5	QUARTEIRA	1	FEB 10
PT 548501	46401	5	ILHA DO CORVO – PORTO DA CASA	2	OCT 09
<i>PT 548506</i>	<i>46404</i>	<i>5</i>	<i>ILHA GRACIOSA – PORTO DA VILA DA PRAIA</i>	<i>1</i>	<i>DEC 10</i>
<i>PT 548509</i>	<i>47501</i>	<i>5</i>	<i>ILHA DE S. JORGE – PORTO DAS VELAS</i>	<i>1</i>	<i>DEC 10</i>
<i>PT548513</i>	<i>47501</i>	<i>5</i>	<i>ILHA DO PICO – PORTO DE S. ROQUE</i>	<i>1</i>	<i>DEC 10</i>
PT 548515	46405	5	ILHA TERCEIRA – PORTO DA PRAIA DA VITÓRIA	3	AUG 09
PT 548519	46406	5	ILHA DE S. MIGUEL – PORTO DE PONTA DELGADA	4	SEP 09
PT 566302	66302		ARQUIPÉLAGO DE CABO VERDE – ILHA DE SÃO VICENTE – PORTO GRANDE	1	FEB 10

Note: This annex includes, in italics, the planned nautical charts and ENCs to be issued until the end of 2010.

ANNEX C

UPDATES TO C-55

Status of Hydrographic Surveys

		A	B	C
Portugal (Continental Portugal)	depths < 200 m	100	0	0
	depths > 200 m	99	0	1
Portugal (Madeira Archipleago)	depths < 200 m	65	0	35
	depths > 200 m	66	1	33
Portugal (Açores Archipelago)	depths < 200 m	54	46	0
	depths > 200 m	55	1	44

Status of Nautical Charting

		A	B	C
Portugal (Continental Portugal)	Offshore passage / Small	100	0	100
	Coastal passage / Medium	100	0	100
	Approaches Ports / Large	100	0	100
Portugal (Madeira Archipleago)	Offshore passage / Small	100	0	100
	Coastal passage / Medium	100	0	100
	Approaches Ports / Large	100	0	100
Portugal (Açores Archipelago)	Offshore passage / Small	100	0	100
	Coastal passage / Medium	100	0	100
	Approaches Ports / Large	100	0	100

ANNEX D

Portuguese Tide Gauge Network

