



18th Conference of the EAtHC /
18^{ème} Conférence de la CHAtO

National Report / *Rapport National*

Portugal (IHPT)

João Vicente, IHPT Technical Director (dt.dir@hidrografico.pt)

Agenda Item EAtHC18-06.10

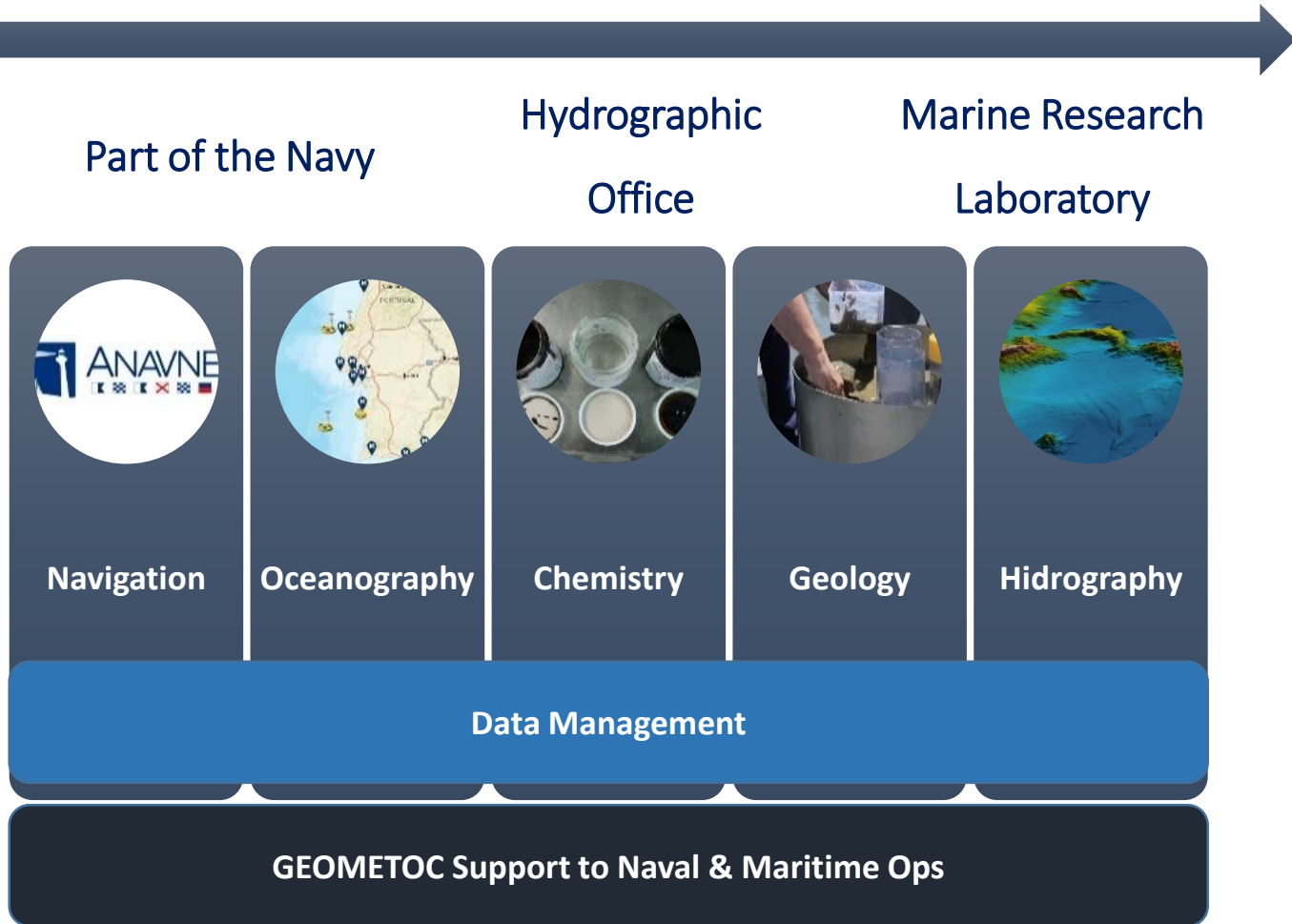


IHO

International Hydrographic Organization

FRAMEWORK / GENERAL INFORMATION

IHPT Technical Areas & Main Programs



Ocean Mapping

Hydrographic Surveys

Hydrographic and Nautical Cartography

Seafloor characterization, Seismic surveys & ROV

Ocean Observation

Observation & Environmental Monitoring

Marine Chemistry and Pollution

Ocean Forecasting

GEOMETOC maritime operations support

Support to mariners



IHO

Safety of the navigation and sustainable use of the sea

International
Hydrographic
Organization



Levantamentos hidrográficos
Hydrographic surveys



**Ajudas, planeamento
e apoio à navegação**
Aids, planning and navigation support



**Monitorização oceanográfica
e ambiental**
Environmental & oceanographic monitoring



Laboratórios
Laboratories



**Cartografia Náutica e Cartografia
Hidrográfica Oficial**
Nautical Cartography and Official Hydrographic
Cartography



Geologia e química marinha
Marine geology & chemistry



Formação
Hydrography and oceanography school



Previsão operacional
Operational forecast



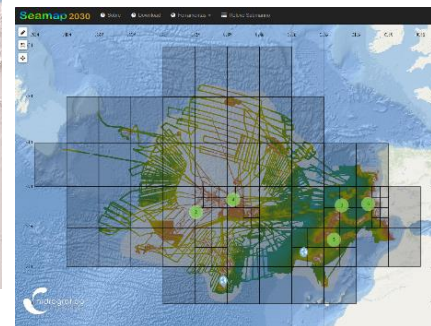
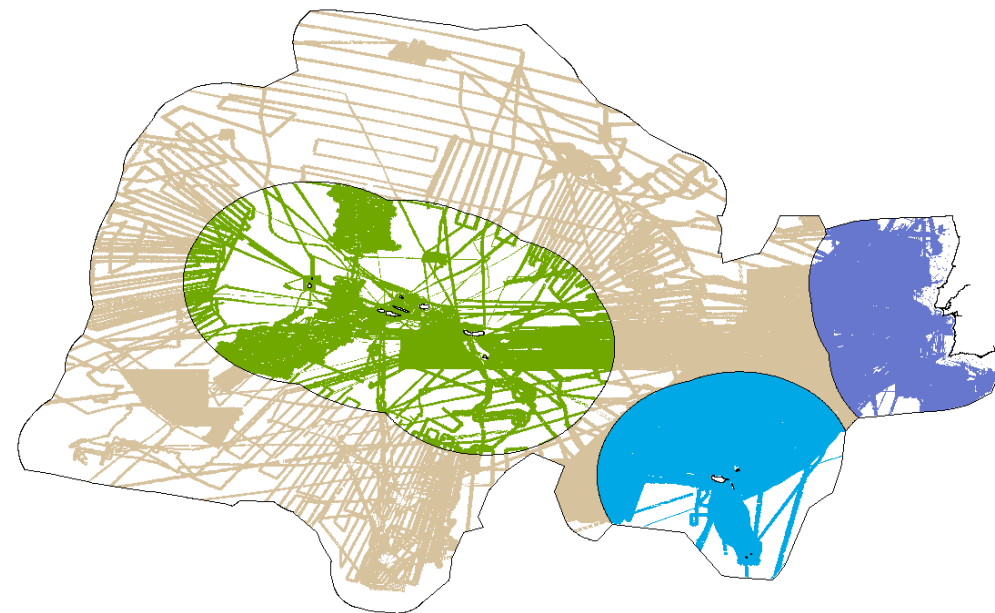
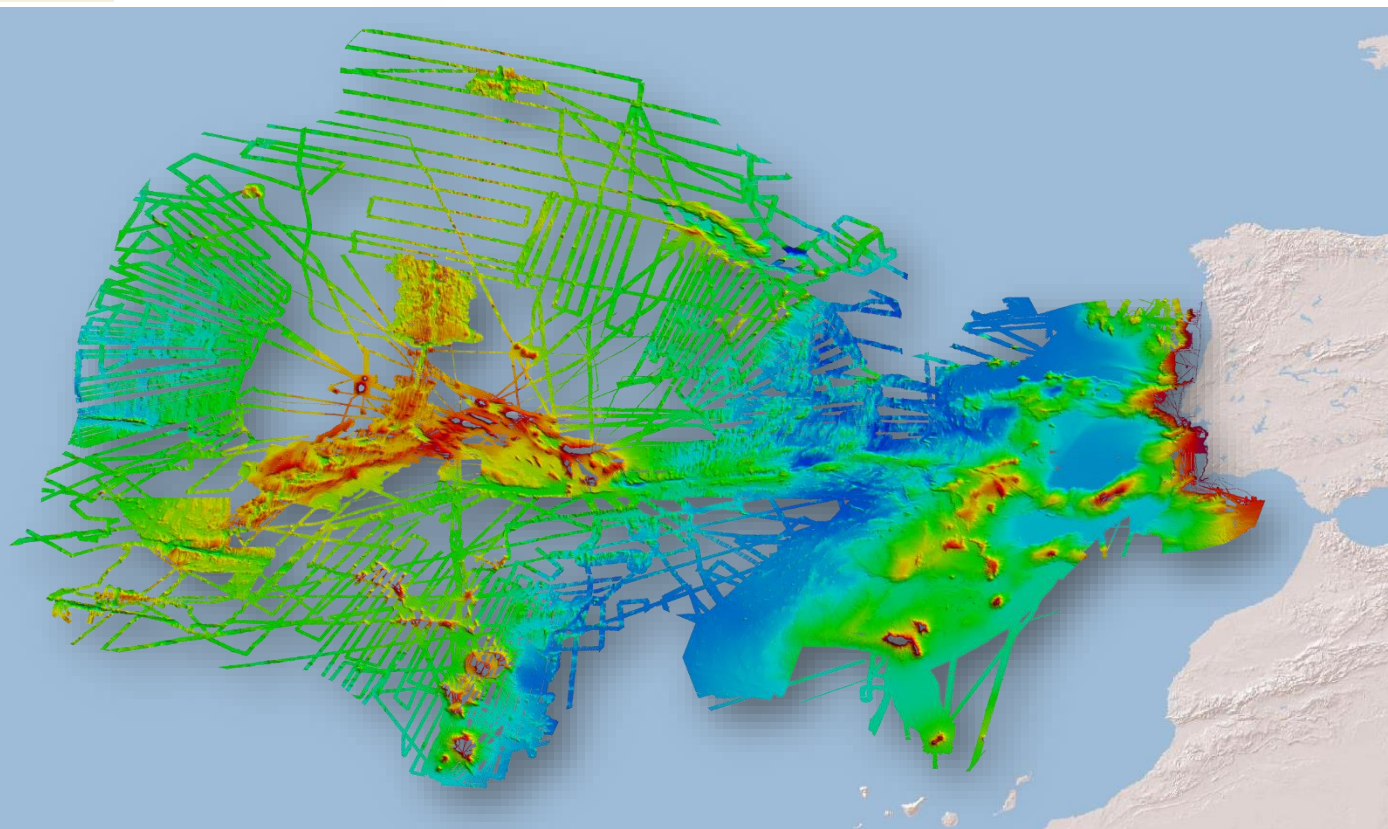
IHO

TOP ACHIEVEMENT: SURVEYS

SEAMAP 2030: MAPPING OF THE PORTUGUESE SEA PROGRAM

<https://www.hidrografico.pt/iprojeto/16>

International
Hydrographic
Organization



RESOLUTION(S)

- Depth 50m-250m – Res. 32m
- Depth 250m-1000m – Res. 64m
- Depth 1000m-2000m – Res. 128m
- Depth 2000m-4000m – Res. 256m
- Depth +4000m – Res. 512m

<https://gridmar.hidrografico.pt>

Multibeam coverage: 57%

EEZ coverage: 66%

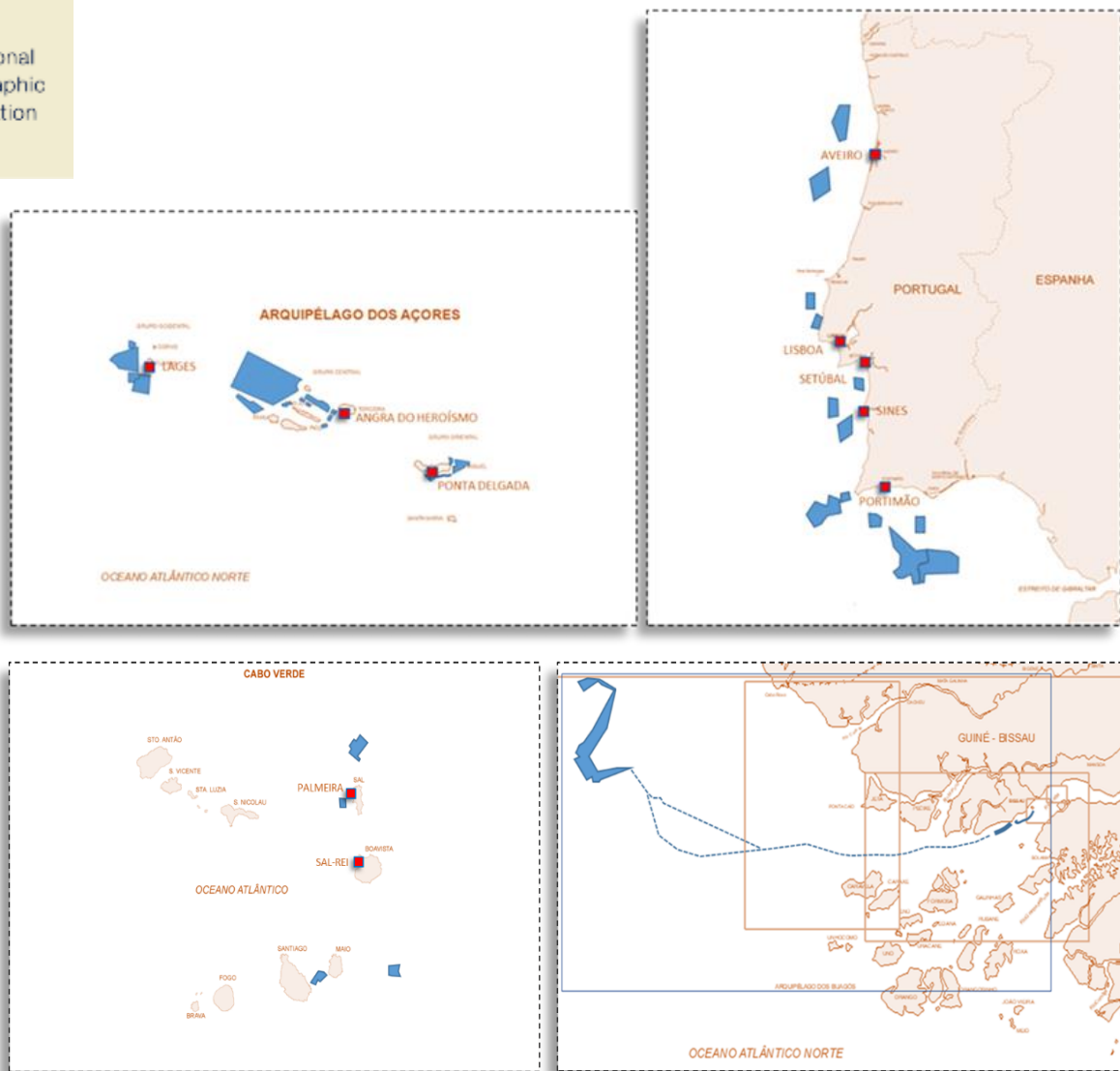


IHO

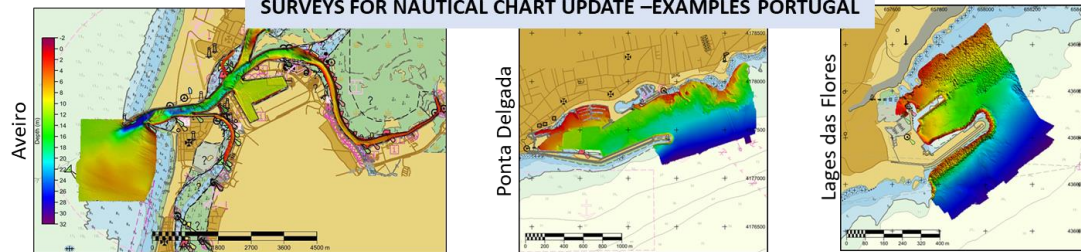
TOP ACHIEVEMENT: SURVEYS

30 campaigns, in harbors and port entrances, coastal and deep-sea areas and for specific projects

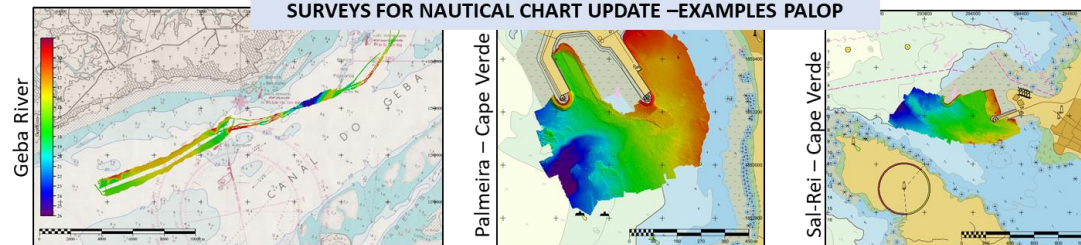
International Hydrographic Organization



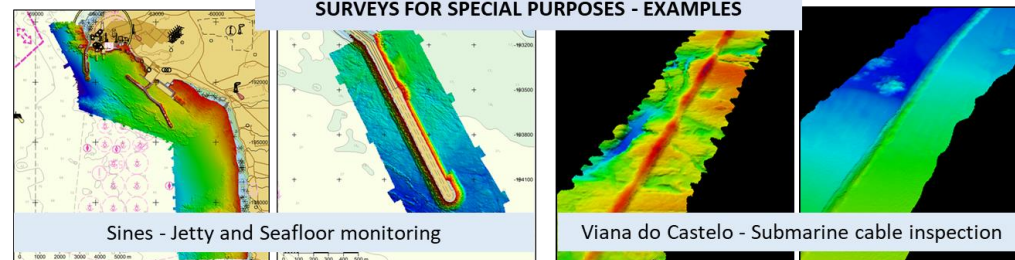
SURVEYS FOR NAUTICAL CHART UPDATE –EXAMPLES PORTUGAL



SURVEYS FOR NAUTICAL CHART UPDATE –EXAMPLES PALOP



SURVEYS FOR SPECIAL PURPOSES - EXAMPLES



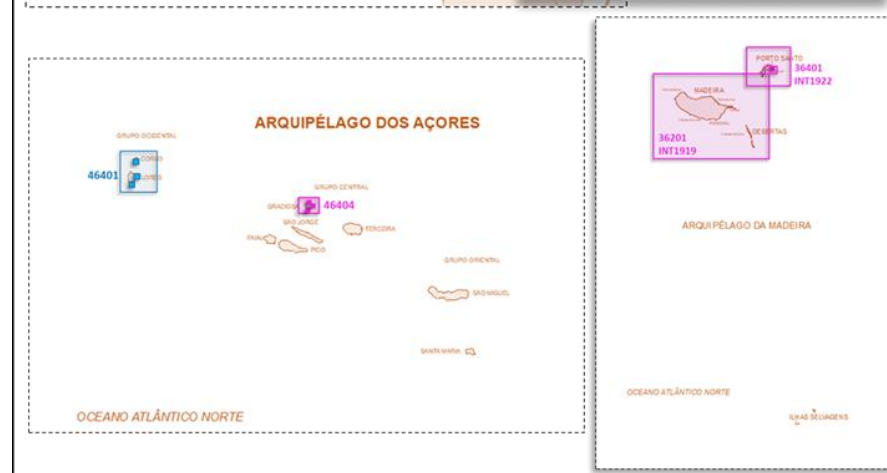
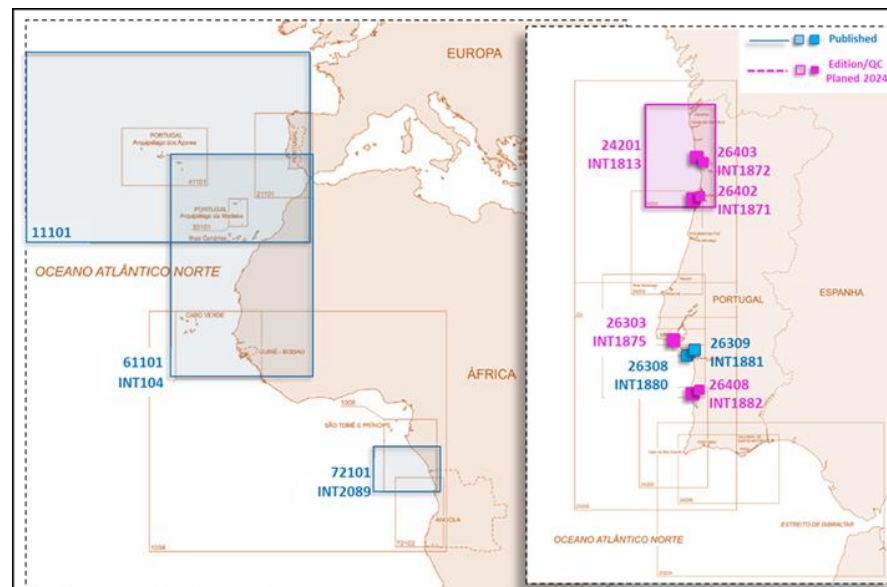
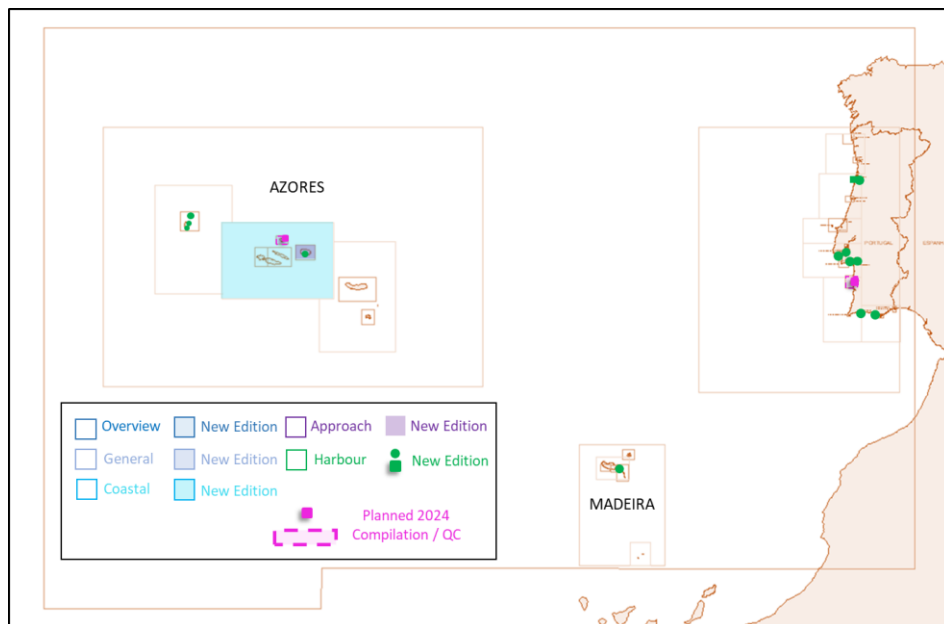


IHO

TOP ACHIEVEMENT: NAUTICAL CARTOGRAPHY

New Editions: 21 ENC's; 6 INT charts and 2 National paper charts
PORTUGAL (Mainland; Azores and Madeira)

International Hydrographic Organization



	UB1	UB2	UB3	UB4	UB5	
	Overview	General	Coastal	Approach	Harbour	
Sep2022-Dec2022	0	0	1	1	0	2
Jan2023-Dec2023	0	0	0	1	7	8
Jan2024-Apr2024	0	0	2	2	7	11
TOTAL	0	0	3	4	14	21

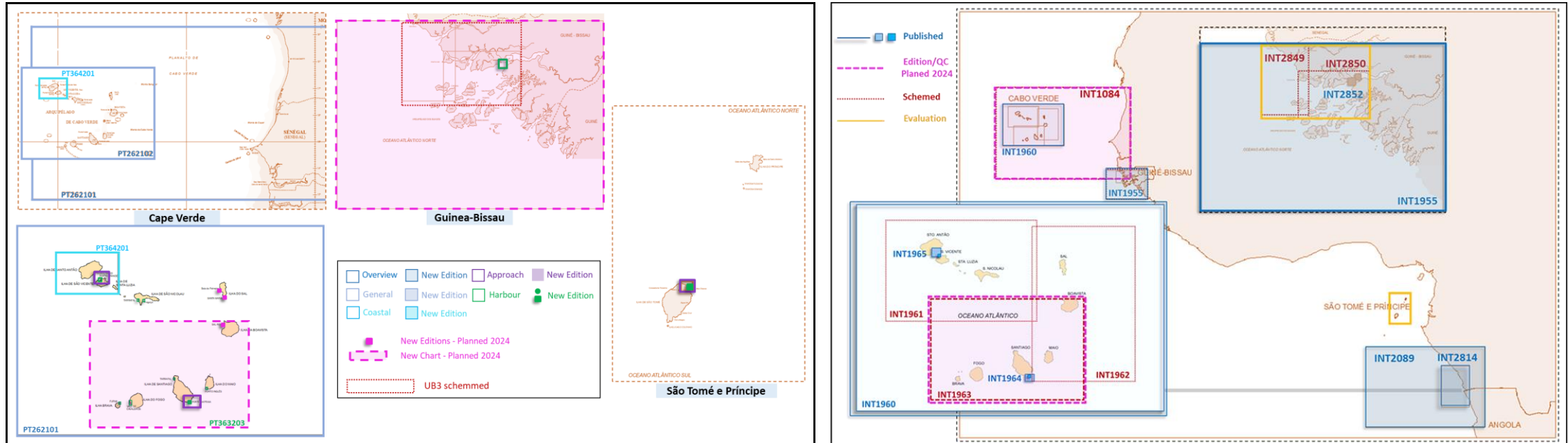


IHO

TOP ACHIEVEMENT: NAUTICAL CARTOGRAPHY

International Hydrographic Organization

New Charts: 2 ENCs and 2 INT charts expected to be produced during 2024 Cape Verde and Guinea-Bissau



As a result of the TV (Feb2024) to Guinea-Bissau, a new scheme for the cartographic coverage of that territory is being analysed/drafted - For proposal/analysis by the ICCWG-EAtHC in the near future.



IHO

NAUTICAL CARTOGRAPHY GENERAL STATUS

International
Hydrographic
Organization

	Portugal	Cape Verde	Guiné-Bissau	São Tomé e Príncipe	Angola
ENC	78	21 produced			
ENC% done	100%	70%	25%	50%	40%
INT	34	14 (7 produced + 7 planned)			
INT% done	100%	67%	50%	0%	100%
INT% gaps	0%	33%	50%	100%	0%

ENC	Produced					Total	Planned					Total	% done	
	UB1	UB2	UB3	UB4	UB5		UB1	UB2	UB3	UB4	UB5			
Continente	1	1	6	7	25	40								
Madeira	0	1	2	4	6	13	78	0	0	0	0	0	0	100%
Açores	0	1	3	7	14	25								
	1	3	11	18	45	78			0					
Cabo Verde	0	2	1	2	12	17		0	0	3	4	0	7	70%
Guiné-Bissau	0	0	0	0	1	1	22	0	0	1	2	0	3	25%
São Tomé e Príncipe	0	0	0	1	1	2		0	0	2	0	0	2	50%
Angola	0	1	0	0	1	2		0	0	0	0	3	3	40%
Moçambique	0	0	0	0	0	0		0	0	0	0	0	0	NIL
	0	3	1	3	15	22		0	0	6	6	3		
	1	6	12	21	60	100		0	0	6	6	3	15	
ENC% PALOP done	100%	100%	15%	33%	84%									

ENC and NC Folios – Portuguese and Foreign Waters

		Total			
ENC	Mainland	40	78	Region G 98	
	Madeira	13			
	Azores	25			
	Cape Verde	17	20		
	Guinea-Bissau	1			
	São Tomé and Príncipe	2			
	Angola	2	2		Region H
	Mozambique	0			
INLAND	Douro and Guadiana River		66	Region G	

		Total	INT (produced)		shemed	INT shemed		
NC	Portugal	1	0	Region G	NIL No Gaps	NIL No Gaps		
	Continente	53	24					
	Madeira	8	4					
	Açores	13	6					
	General-Atlântico Norte	3	0		0	1	1	1 QC (2024)
	Cape Verde	9	3			15	6	1 QC (2024)
	Guinea-Bissau	20	2		7	under revision	4	
	São Tomé and Príncipe	8	0			under revision	2	
	Angola	46	2G/6H		18	under revision	2G/10H	
	Moçambique	33	15			MZ folio	18	



IHO

TOP ACHIEVEMENT: *HIDROGRAFICO+* & MSDI Current Developments

International Hydrographic Organization

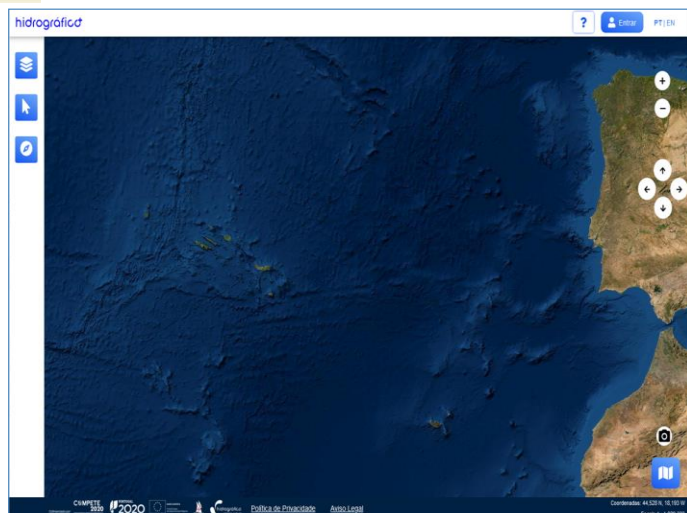
hidrográfico

Cofinanciado por:



UNIÃO EUROPEIA
Fundo Europeu de Desenvolvimento Regional

HIDROGRÁFICO+



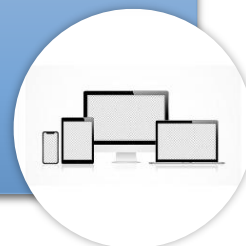
GeoPortal H+
Downloads
Web services (OGC)
API



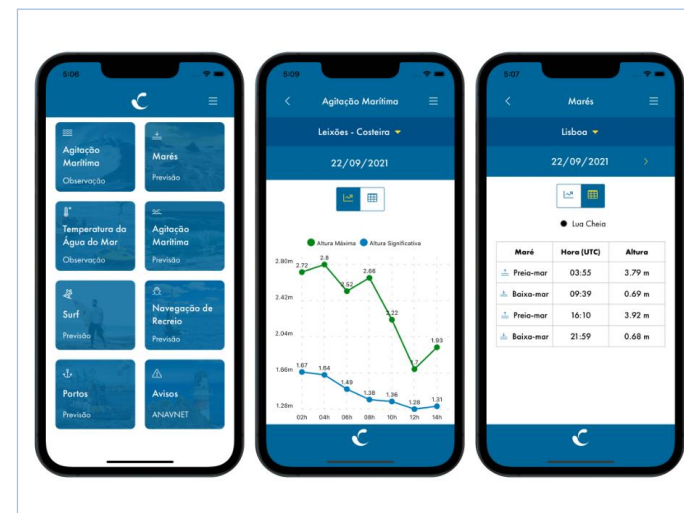
<https://geomar.hidrografico.pt>



AnavNet
Notice to mariners
Meteo warnings



<https://geoanavnet.hidrografico.pt>



App H+
Tide
Sea temperature
Sea state





IHO

TOP ACHIEVEMENT: *HIDROGRAFICO+* & MSDI Current Developments

IHO Strategic Plan - GOAL 1

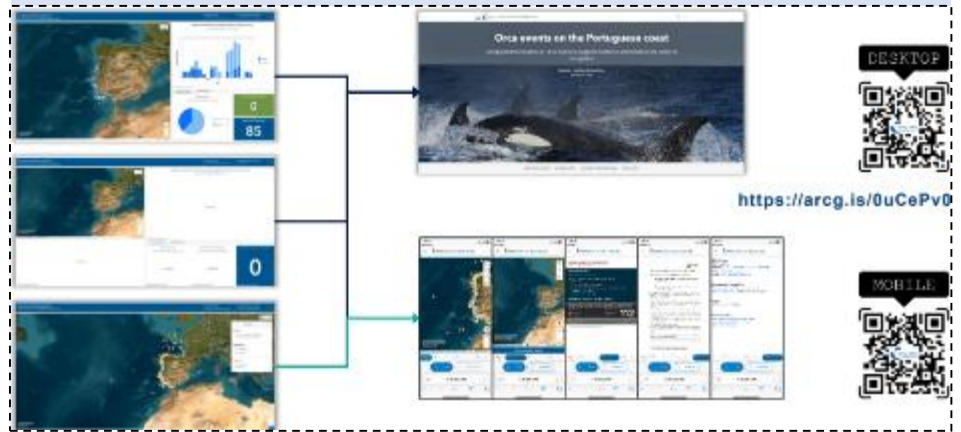
(Evolving Hydrographic support for **safty** and **efficiency** of maritime navigation, undergoing profound transformation)

International Hydrographic Organization

ANAVNET -> S-124



Orca events on the Portuguese coast



Sailing Directions (Pilots) -> WebGIS publication -> Mobile App

The collage shows the digital transformation of Sailing Directions. On the left is a page from a printed 'NOTIZIO DA COSTA DE PORTUGAL' book. In the center is a screenshot of a webGIS interface displaying a map and a list of sailing directions. On the right is the 'INAVPilot' mobile app interface, which includes a list of features: AnavNet, Landmarks, Meteo, Tide, Marisas, Anchorages, Navigation, and Aids to Navigation. Below the app interface are three smaller screenshots showing the app's performance on a mobile device.

Aids to Navigation -> Digital publication -> Web Feature Service -> OGC API Features

This block displays the digital publication of Aids to Navigation. On the left is the cover of the book 'AJUDAS À NAVEGAÇÃO LISTA DE LUZES' (Aids to Navigation - List of Lights, Buoys and Fog Signals) for the Atlantic I - Portugal, January 2024. On the right is a screenshot of the 'OGC API FEATURES' web interface, showing a list of features and a map. The URL <https://api-features.hidrografico.pt> is visible.



IHO

TOP ACHIEVEMENT: *HIDROGRAFICO PLUS* MSDI Current Developments

IHO Strategic Plan - GOAL 2

(Increasing the use of Hydrographic data for benefit of society)

High-value datasets

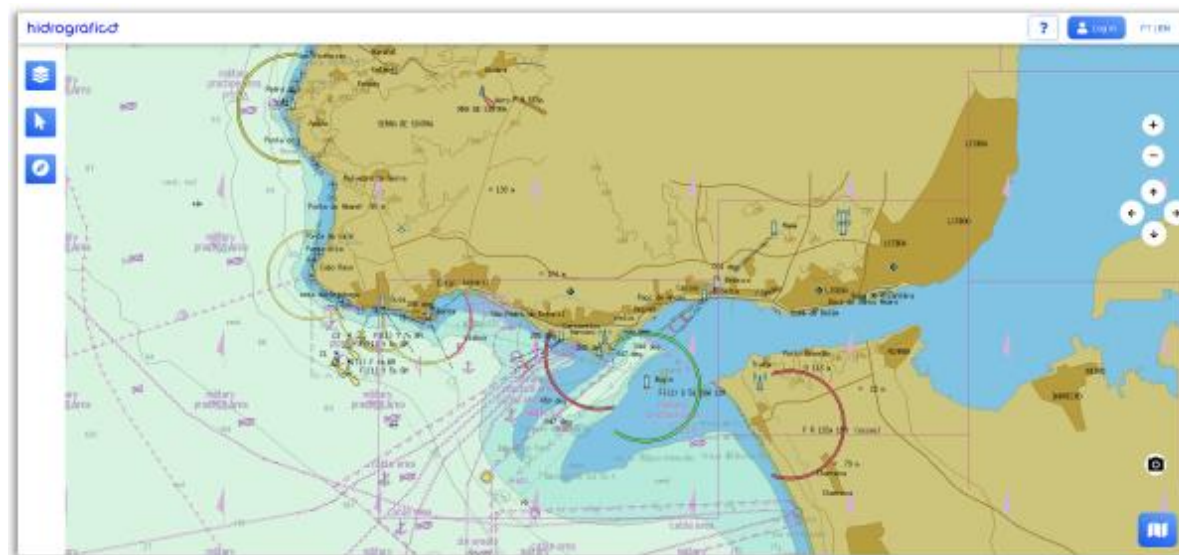
Alignment with: EU Directive 2019/1024 – Open data and the re-use of public sector information (20JUN2019) and EU Implementing Regulation 2023/138 – laying down a list of specific high-value datasets and the arrangements for their publication and re-use (21DEC2022).

Datasets shall be made **available for re-use**:

Under the conditions of the **Creative Commons BY 4.0** licence or any equivalent or less restrictive open licence; In a publicly documented, Union or internationally recognised open, **machine-readable** format; Through application **programming interfaces (API)** and bulk download; In their **most up-to-date** version.

Web Map Service (WMS) Electronic Navigational Chart (ENC) Server

SevenCs WMS ChartServer; Provide users a ENC basemap; Support marine and blue economy activities



IENC: Douro river <https://www.hidrografico.pt/vn.douro>

Guadiana river <https://www.hidrografico.pt/cart.guadiana>

Data re-usability

Spatial DB

1. Depth
2. Sound velocity
3. Water level (tide)
4. Attitude



IHO

TOP ACHIEVEMENT: INITIATIVES

Current Developments

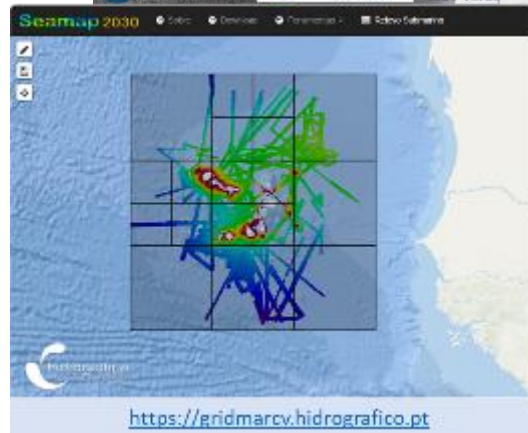
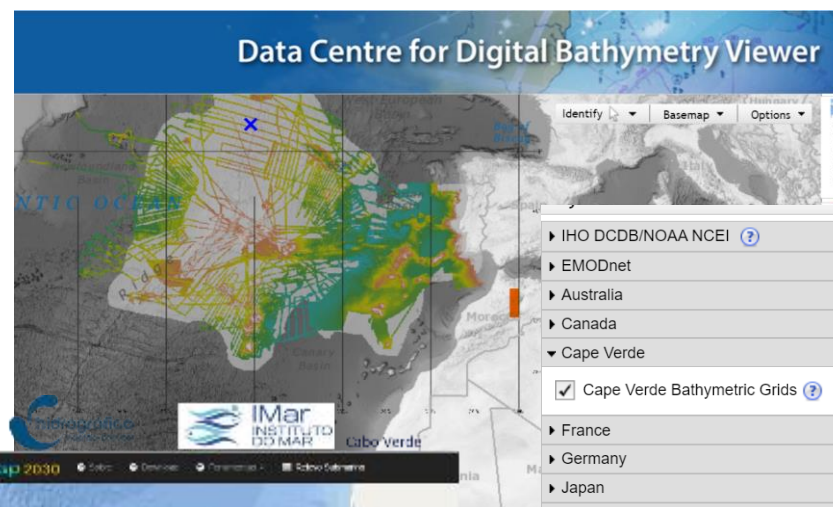
IHO Strategic Plan - GOAL 3

(Participating actively in international initiatives related to the **knowledge** and the sustainable use of the ocean)

International Hydrographic Organization



International Initiatives



RESOLUTION(S)

- Depth 50m-250m – Res. 32m
- Depth 250m-1000m – Res. 64m
- Depth 1000m-2000m – Res. 128m
- Depth 2000m-4000m – Res. 256m
- Depth +4000m – Res. 512m

National Oceanographic Data Centre



Lead institution:
Instituto Hidrográfico - Portugal



- Data Policy
- Data Strategy
- Data processes



IHO

TOP PLANS THAT AFFECT THE REGION

(CHARTS, SURVEYS, TRAINING, CAPACITY BUILDING, OTHER)

International
Hydrographic
Organization

- ❖ Keep effort in the Region related to:
 - **Hydrographic Surveys** namely via the Portuguese *Mar Aberto* Initiative
 - **Chart Production (INT chart/ENC)**
 - **Capacity building** namely through **Training**
 - **IHO-Capacity Building** working plan
- ❖ Transition process and production of **S-101 ENCs (S-100 Roadmap)**
- ❖ **Re-Equipment**
 - **Mapping of the Portuguese sea (full coverage until 2030) - SEAMAP 2030**
 - **Autonomous Vehicles**



School of Hydrography and Oceanography is a department of the IHPT <https://www.hidrografico.pt/op/23>



CAT A Hydrography Course **Ongoing - September 2024**



CAT A Hydrography Course **Planned - September 2025**



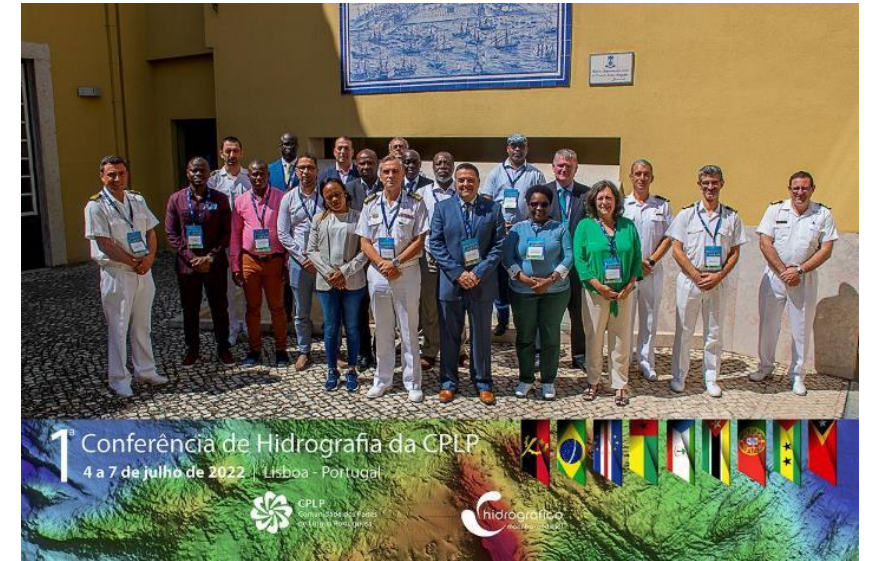
Date	Actions/Activities	Place	Status
IHO-CB Action			
Feb2024	Technical Visit (A-08 2024) (A-06 2022; A-10 2023)	Guinea-Bissau	Executed
Short Courses			
2023	MSDI online training for Angola	VTC Angola - IHPT	Executed
Long Courses			
2022/2023	CAT B (Hydrographic Surveys and Nautical Cartography) Two (2) Angolan Technicians; One (1) Cape Verde Navy	IHPT-EHO (Portugal)	Executed
2023/2024	CAT A (Hydrographic Surveys and Nautical Cartography) OBS: No PALOP-EAtHC students	IHPT-EHO (Portugal)	Started/Ongoing September 2024
Seminars and Conferences			
July 2022	1st HYDROGRAPHY CONFERENCE OF THE PORTUGUESE-SPEAKING COMMUNITY	IHPT (Lisbon)	Executed
November 2024	2nd HYDROGRAPHY CONFERENCE OF THE PORTUGUESE-SPEAKING COMMUNITY	Cape Verde - Mindelo	Scheduled

Date	Actions/Activities	Place	Status
On-job Training (IHPT Team)			
From 2022-	Raise Awareness - S-100. Particularly S-101 ENC	IHPT	Ongoing
From 2023-	Data Readiness	IHPT	Ongoing
Short Courses (IHPT Team)			
2022	CARIS S-101 (One person)	Cadiz-Spain Teledyn-CARIS	Done
Dec 2023	CARIS S-101 (Ten persons)	Lisbon-Portugal Teledyn-CARIS	Done
Seminars and Conferences (IHPT Team)			
Mar 2023	IC-ENC TC23_1	UK	Done
Mar 2024	IC-ENC TC24_1	Athens-Greece	Done

Technical Visit (A-02 2023)	S.Tomé and Príncipe	Team Not defined	Planned	During 2024; Eventually to be postponed to early 2025
--------------------------------	---------------------	------------------	---------	---

Capacity building CPLP Hydrographic Conference

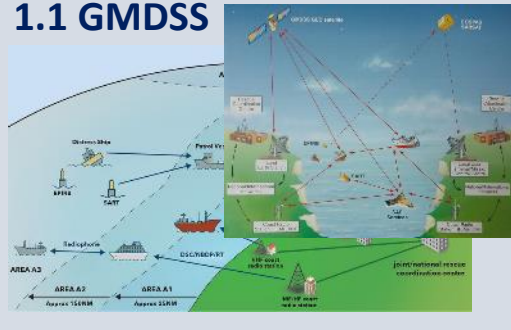
- 1st Hydrographic Conference for Portuguese-speaking Countries Community (CPLP) @ Lisbon (2022)
- 2nd Conference: 04 to 08 Nov 2024 @ Cabo Verde Vert (Mindelo) preceded by
 - MSI Course (VTC)
 - Mindelo Harbour Survey
- Multibeam survey demonstration



-  Angola
-  Brasil
-  Cabo Verde
-  Guiné-Bissau
-  Guiné Equatorial
-  Moçambique
-  Portugal
-  São Tomé e Príncipe
-  Timor-Leste

Capacity building MSI Short Course agenda

1.1 GMDSS



1.2 MSI



1.3 MSI-Broadcasting Services



1.4 Navigational Warnings



1.5 (GEO)ANAVNET



1.6 Notices to Mariners



1.7 Comunicados

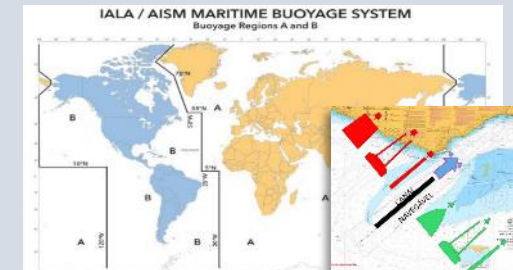
o <https://arcg.is/ifrc4> ou do QR Code.

COMUNICADO SEGURANÇA DA NAVEGAÇÃO

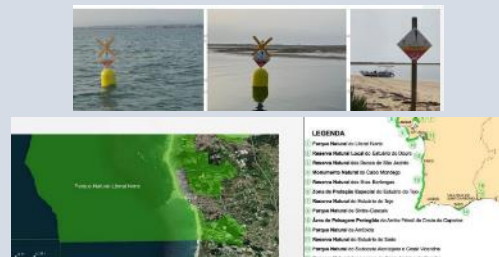
O comunicado inicial a ser radio-antecedido pelo sinal de segurança; breve e conter, pelo menos, os seguintes elementos:

- O QUÊ – Descrição do perigo
- QUANDO – Grupo data/hora da observação
- ONDE – Posição geográfica (com referência do Datum da carta)
- QUEM – Navio e observador

1.8 Maritime Buoyage



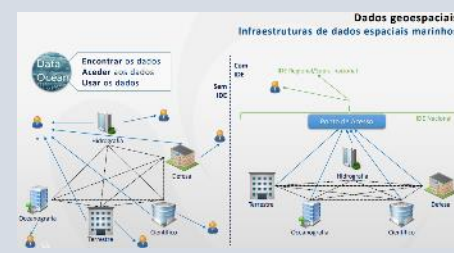
1.9 Special Areas



1.10 Nautical Cartography



1.11 Maritime Information



1.12 Conclusion



Conference Agenda

	04 NOV	05 NOV	06 NOV	07 NOV	08 NOV
	Demonstrations & Seminars		Conference	Conference	Conference
0900-1030	Survey & MSI project Presentation	Oceanographic and geophysical seminar (VTC)	Opening Actions list	Countries Presentations	Visits to local Institutions
Break					
1100-1230	MSI Seminar Debriefing & practice examples (VTC)	MSI practice examples (VTC)	IHO, IALA & other organizations presentations	Other organizations, industry presentations	Visits to local Institutions
Lunch					
1330-1500	Survey Seminar (VTC) (data acquisition)	Survey Seminar (VTC) (data processing)	Countries Presentations	S-100 Roadmap and challenges	List of Actions, Next Conference Closing
Break					
1530-1700	Survey Demonstration	Survey Demonstration	Visits to local institutions	Visits to local institutions	



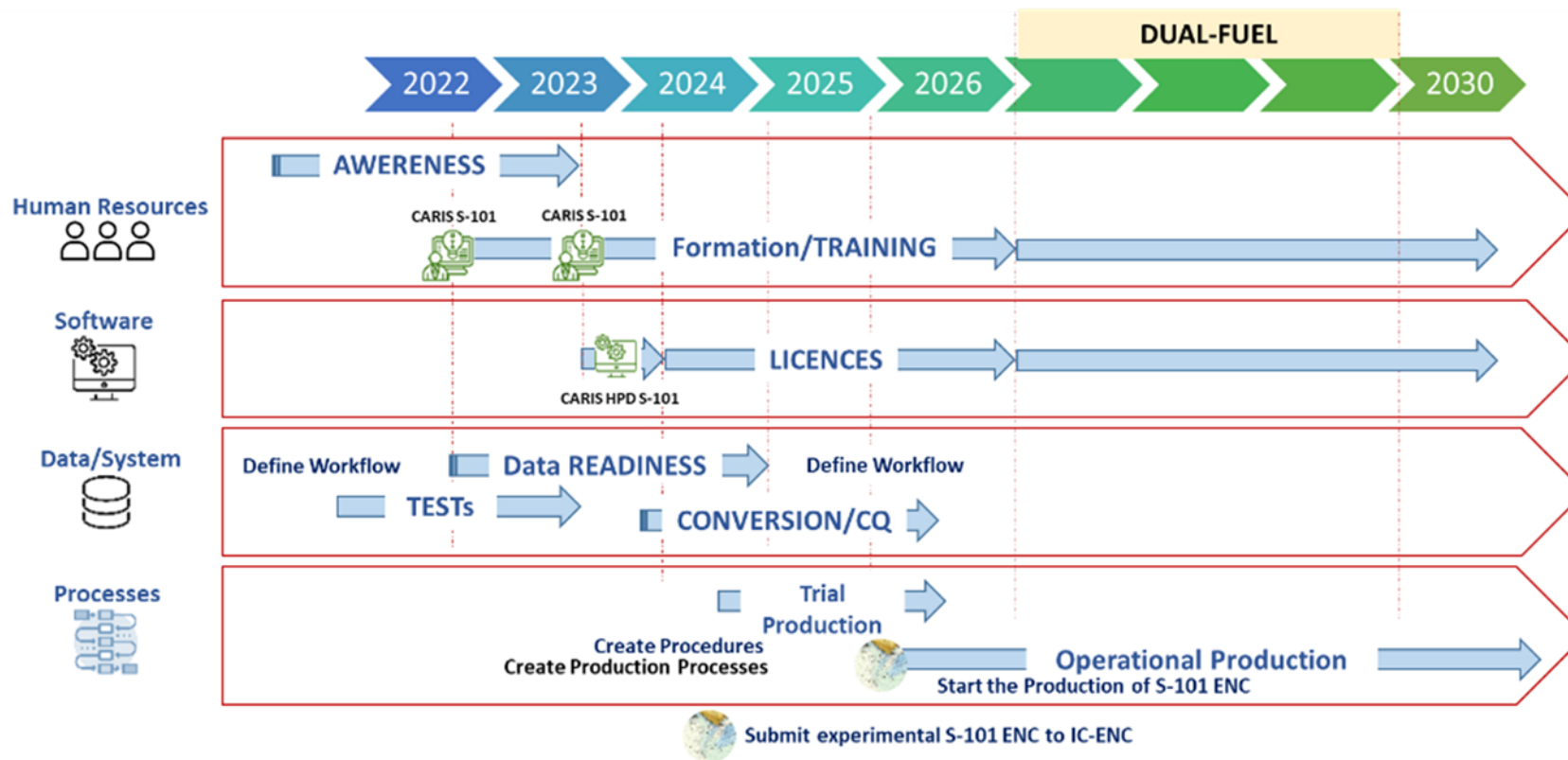
❖ Implementation of S-100

in IHPT - Transition process and production of S-101 ENC as a first step

Among various challenges faced by IHPT are:

The establishment of an **feasible** implementation plan; The **methodology** for converting S-57 into S-101; **Parallel production** “S-101 ENC”/”S-57 ENC”/”Paper Charts”; Resources: **Human**; Technologic; **Financial**; Production Processes – **adequacy**/integration/new processes/optimization existent processes

Balance: Time/Costs/
Specification Maturity





IHO

TOP CHALLENGES

A NEW CONCEPT OF OCEAN OBSERVATION

International
Hydrographic
Organization





IHO

International
Hydrographic
Organization

RE-EQUIPMENT NEW ORIGINAL VESSEL - MULTIFUNCTIONAL NAVAL PLATFORM

Knowledge, preservation and sustainable exploitation of the ocean

Strengthening operational and scientific capacity

Response to maritime accidents/incidents

Supporting populations

Crisis response

Surveillance

Search and rescue



Majority use of autonomous vehicles

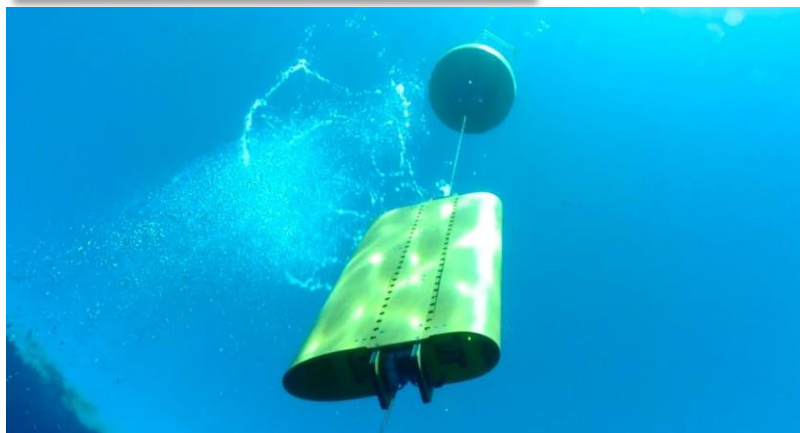


IHO

RE-EQUIPMENT

International

Orca and Roaz new manned survey vessels



IHPT AUV GraalTech X-300, fitted with CTD, camera and sidescan





IHO

International
Hydrographic
Organization

ACTIONS REQUESTED FROM EATHC18/CHAT018

1. The Commission is invited to take note of this report

Thank you for your attention