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17th Conference of the EAthC /
17^{ème} Conférence de la CHAtO

National Report / *Rapport National*

**Instituto Hidrográfico de la Marina
Spain**

Agenda Item 06.8A



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FRAMEWORK / GENERAL INFORMATION

International
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<http://www.armada.mde.es/ihm>

28/09/2022

EAtHC17, Hybrid, Mindelo, 28 to September 2022



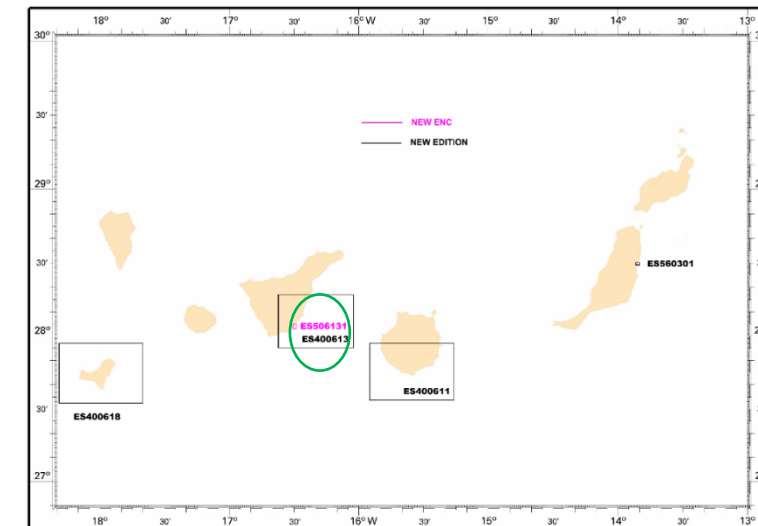
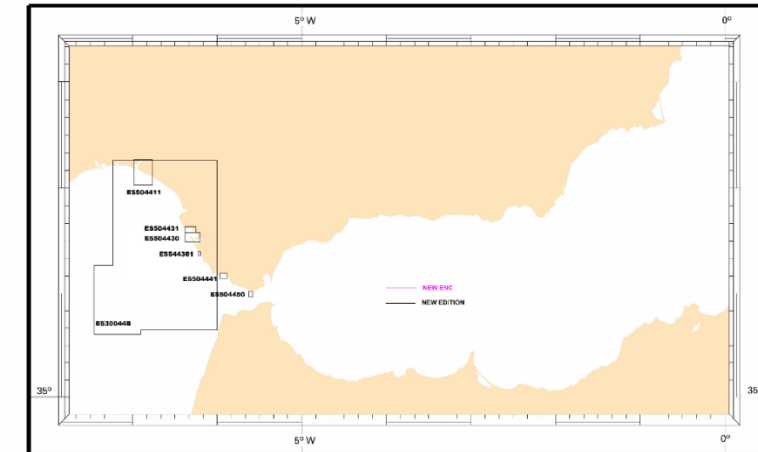
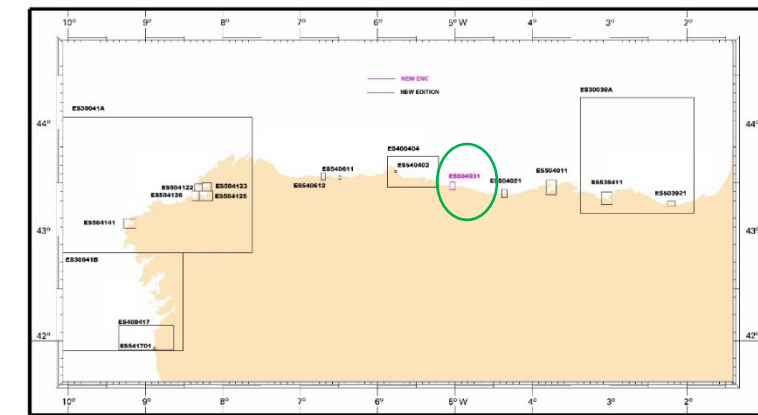
ENC Status

- 31 ENC's produced in this area
- Only 2 new ENC's & 29 new editions
- Workload associated with maintaining and updating ENC catalog, slows the production of new products

EAtHC ENC Production (until 2022/08/01)

Purpose	Total	Published	Pending	Since EAthC16
2 (General)	3	3 (100%)	0 (0%)	0
3 (Coastal)	11	11 (100%)	0 (0%)	4
4 (Approach)	38	38 (100%)	0 (0%)	5
5 (Harbour)	97	83 (85,5%)	14 /14,5%)	22
6 (Berthing)	14	1 (7%)	13 (93%)	0
Total	162	136 (82,7%)	29 (17.3%)	31

Distribution of ENC production and % in the EAtHC area





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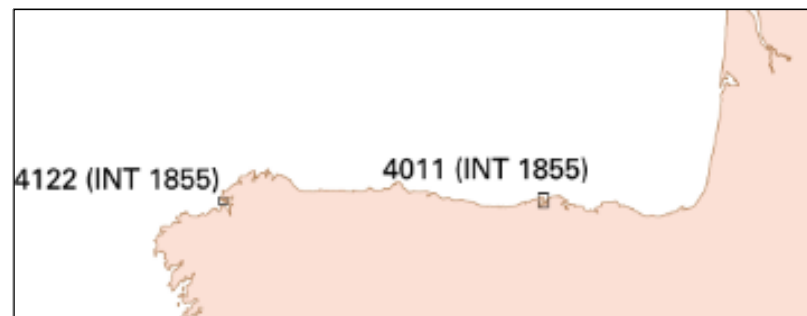
TOP ACHIEVEMENT SINCE EATHC16

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INT paper charts

2 new editions in the area EAtHC

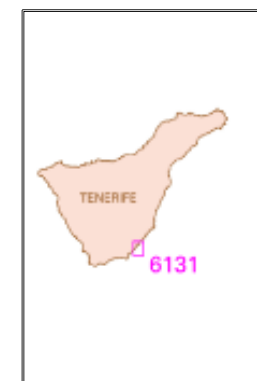
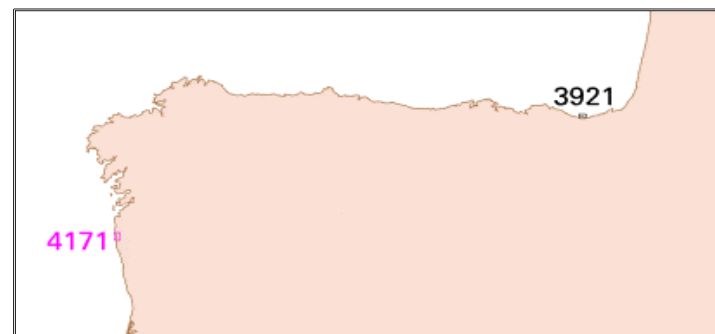
NUM (INT)	SCALE	TITLE
4122 (INT 1855) (NE)	1/10 000	Puerto Exterior y acceso a la ría de Ferrol
4011 (INT 1852) (NE)	1/15 000	Puerto de Santander



National paper charts

3 new editions and 1 new chart

NUM	SCALE	TITLE
4438 (NE)	1/5 000	Barra de Sancti-Petri
6131 (NC)	1/7 500	Puerto de Granadilla
4171 (NC)	1/10 000	Puertos de A Guarda y A Pasaxe (*)
3921 (NE)	1/10 000	Puertos de Getaria y Zumaia.



(*) with IHPT data



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TOP ACHIEVEMENT SINCE EATHC16

2nd Joint chart production with IHPT

- Portuguese nautical chart number 26409 and Spanish nautical chart 4171 were published in April 2022, corresponding to Miño River's mouth.
- Presentation during last bilateral meeting in Cádiz



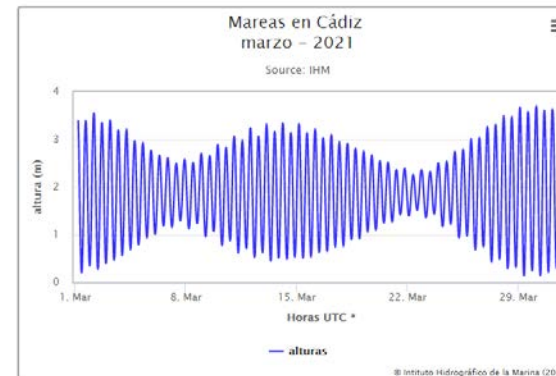
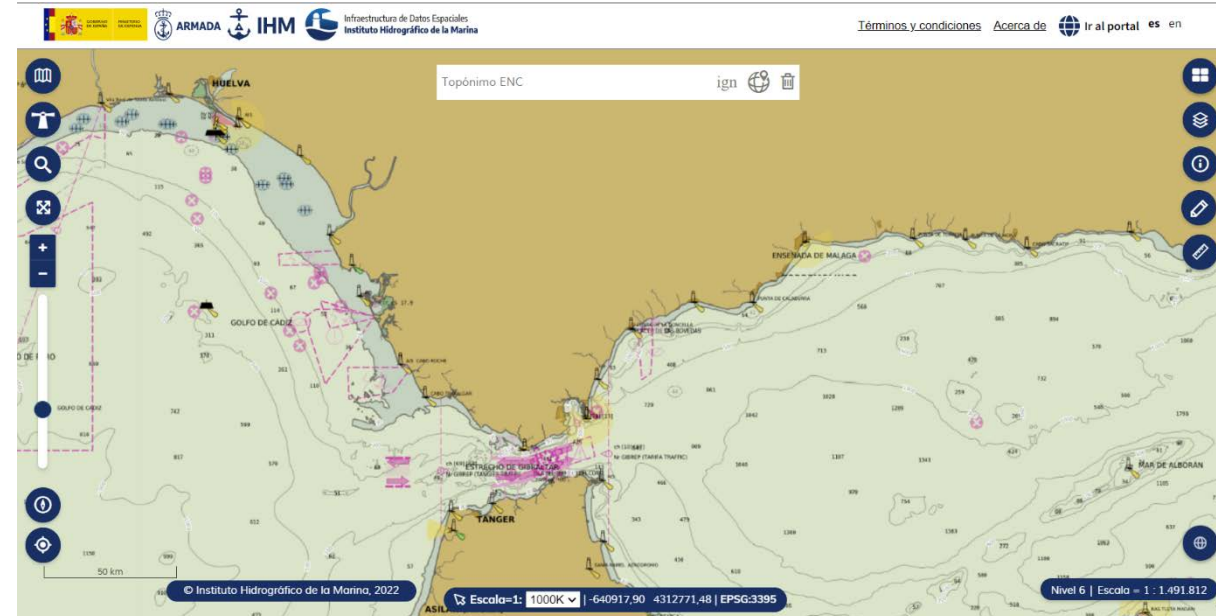


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TOP ACHIEVEMENT SINCE EATHC16

MSDI improved

- Web service
- Data assignment licenses to request a wide variety of information, such as:
 - Digital terrain models
 - Tides data
 - Geospatial objects contained in electronical nautical charts, downloaded through WFS in the spatial data infrastructure, created in the IHM, such as:
 - ✓ Soundings in the ENC
 - ✓ Depth lines
 - ✓ Lights and buoys
 - ✓ Traffic separation scheme
 - ✓ Military exercise permanent areas



Infraestructura de Datos Espaciales
Instituto Hidrográfico de la Marina

<http://ideihm.covam.es>

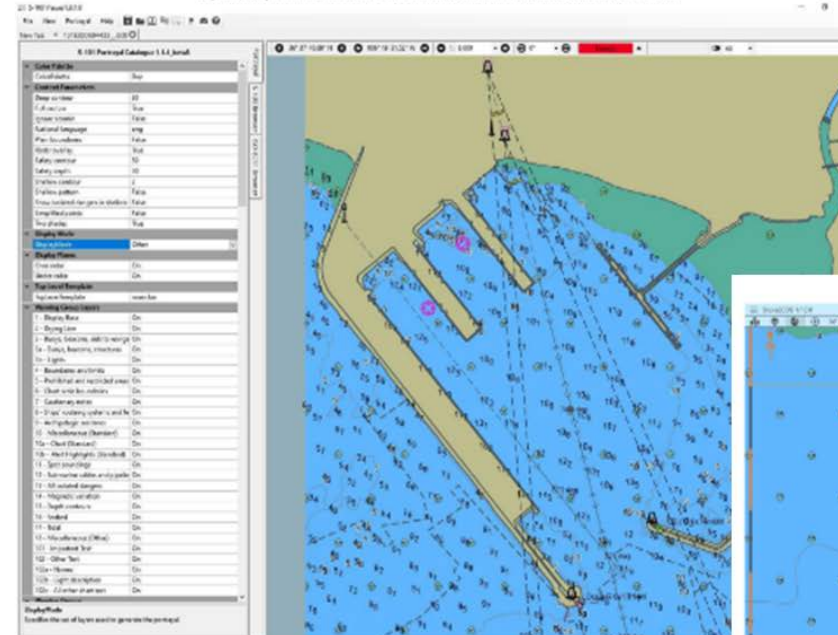


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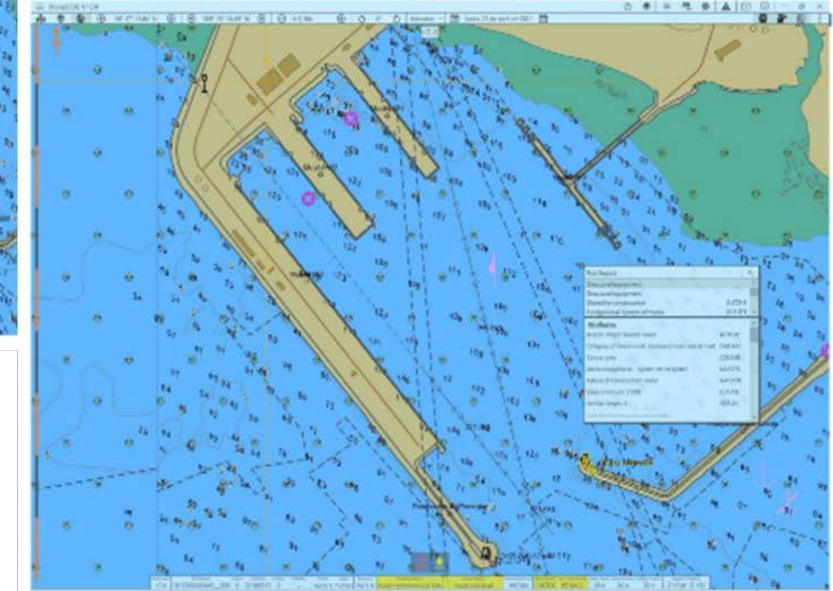
S-101 tests

- Test of S-101 production
- Conversion tools S-57 to S-101

Captura de pantalla de la S101 de la base Naval de Rota con el Visor "NIWC S-100"



Captura de pantalla de la S101 de la base Naval de Rota con el Simulador de ECDIS "ShoreECDIS" de NIWC

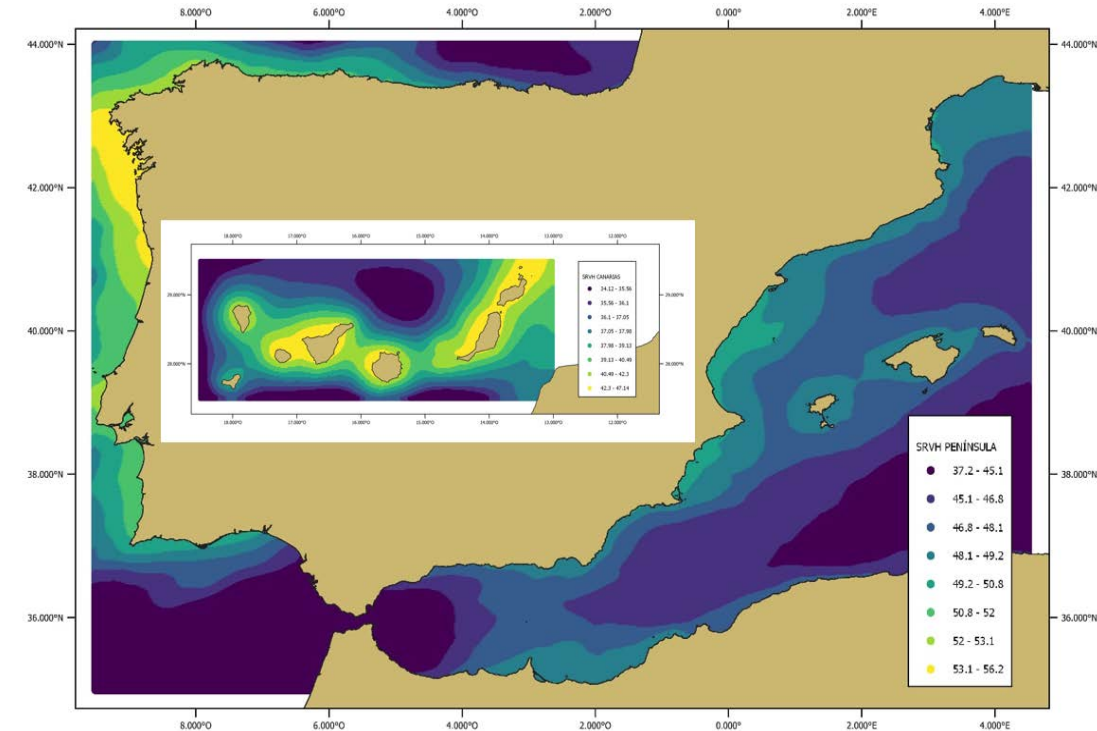
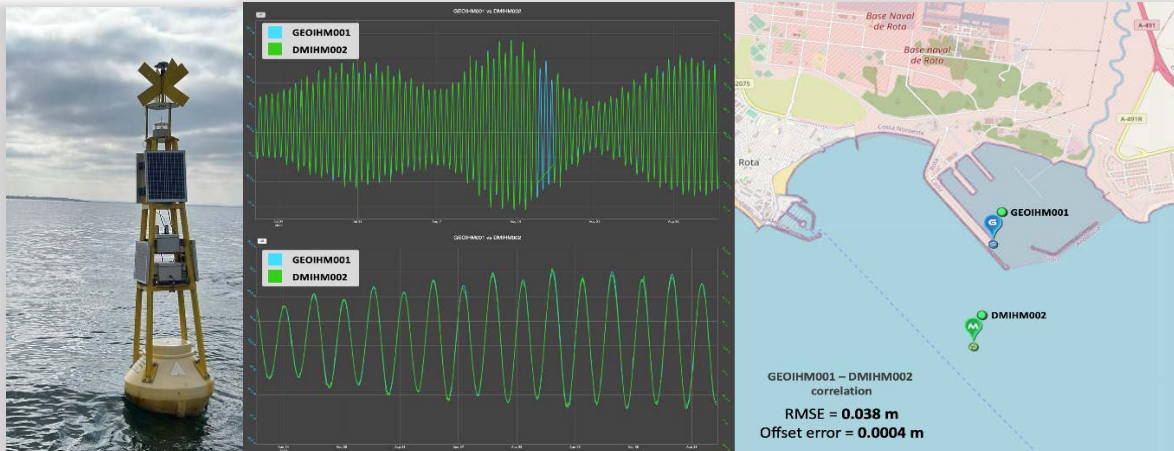




Hydrographic Vertical Reference Surface

Provisional version available at IdelHM end 2022.

Goal: to have unique official hydrographic datum for Spanish nautical cartography.





New sensors incorporated

- MBES for survey vessels/boats (EM 304, RESON T20P, EM2040 MKII, EM2040P)
- Side scan sonars (Klein 4000 & 4900)
- Sub-bottom profiler «Innomar compact» for shallow waters



Unmanned Surface Vehicles

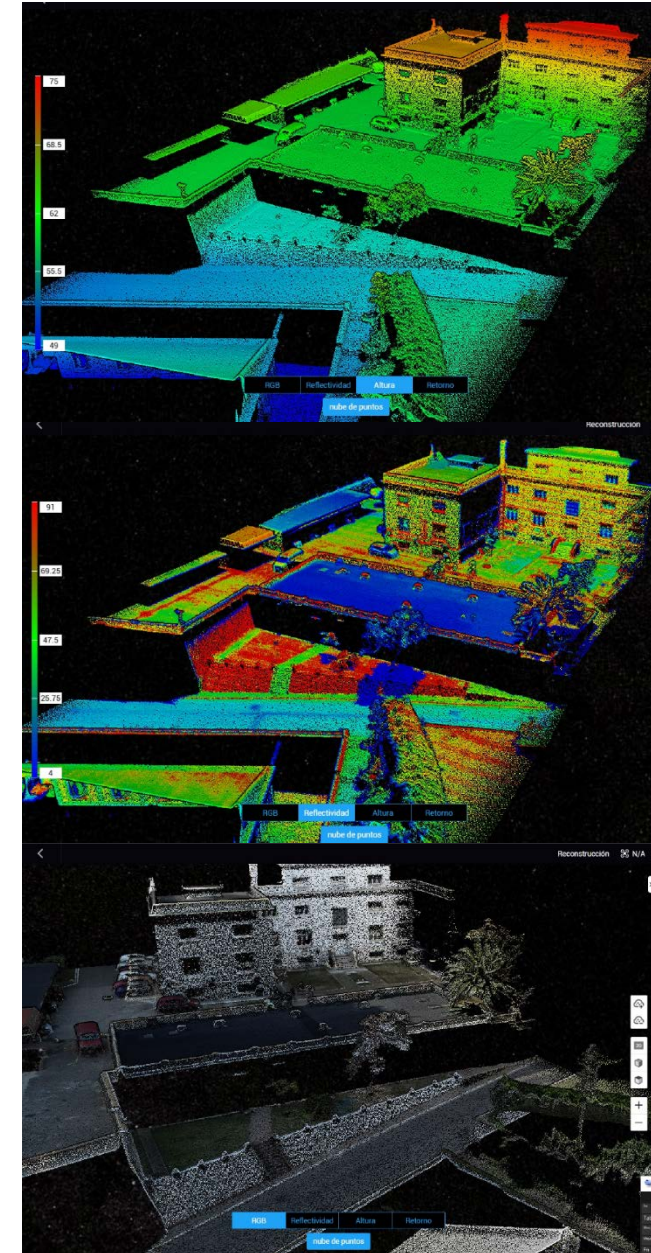
- (1 + 1) Otter pro with EM2040 & seapatch 30 OEM
- 1 Maritime Robotics Mariner with EM2040 & seapatch 30 OEM





Drone «RPAS MATRICE 300 RTK»

- Positioning system & 3 sensors:
 - Topographic Lidar
 - Multispectral sensor
 - HD camera
- Use: DTM, beach profiles & estimate bathymetry in very shallow waters.





Training

- Spanish Hydrography School has been certified for a period of six years for category "A", until April 2025, and for category "B", until July 2026.

Academic year	Category A course	Category B course
2021-2022	2 Officers from Spanish Navy 1 Officer from Argentina 1 Officer from Tunisia	3 Petty Officers from Spanish Navy
2022-2023	3 Officers from Spanish Navy 1 Officer from Argentina 1 Officer from Tunisia 1 Officer from Perú 1 Officer from Dominican Rep.	4 Petty Officers from Spanish Navy

FIG/IHO/ICA International Board on Standards of Competence for
Hydrographic Surveyors and Nautical Cartographers (IBSC)



Certificate of Recognition

Spanish Hydrographic Institute (Spain)

The FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers, having reviewed the Programme "Specialization Course in Hydrography and Oceanography for Naval Petty Officers" against the Standards of Competence for Category "B" Hydrographic Surveyors, S-5B, Edition 1.0.1, and being satisfied that it meets the requirements prescribed for a Category "B" programme hereby awards this certificate of recognition for a period of six (6) years.

Signed at Monaco

Ron Furness
Chair of the Board
This day the 27 July 2020

FIG/IHO/ICA International Board on Standards of Competence for
Hydrographic Surveyors and Nautical Cartographers (IBSC)



Certificate of Recognition

Spanish Hydrographic Institute (Spain)

The FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers, having reviewed the Programme "Specialization Course in Hydrography and Oceanography for Naval Officers" against the Standards of Competence for Category "A" Hydrographic Surveyors, S-5A, Edition 1.0.2, and being satisfied that it meets the requirements prescribed for a Category "A" programme hereby awards this certificate of recognition for a period of six (6) years.

Signed at Monaco

Ron Furness
Chair of the Board
This day the 5 April 2019



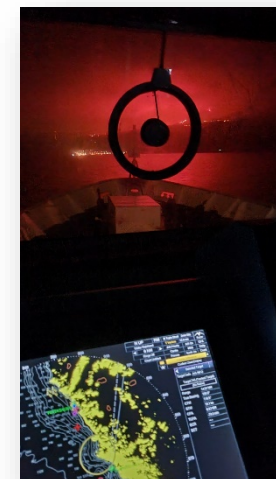
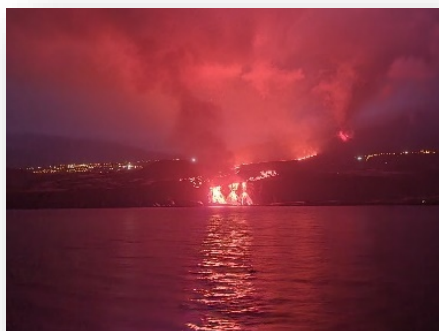
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TOP PLANS THAT AFFECT THE REGION

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Cooperation

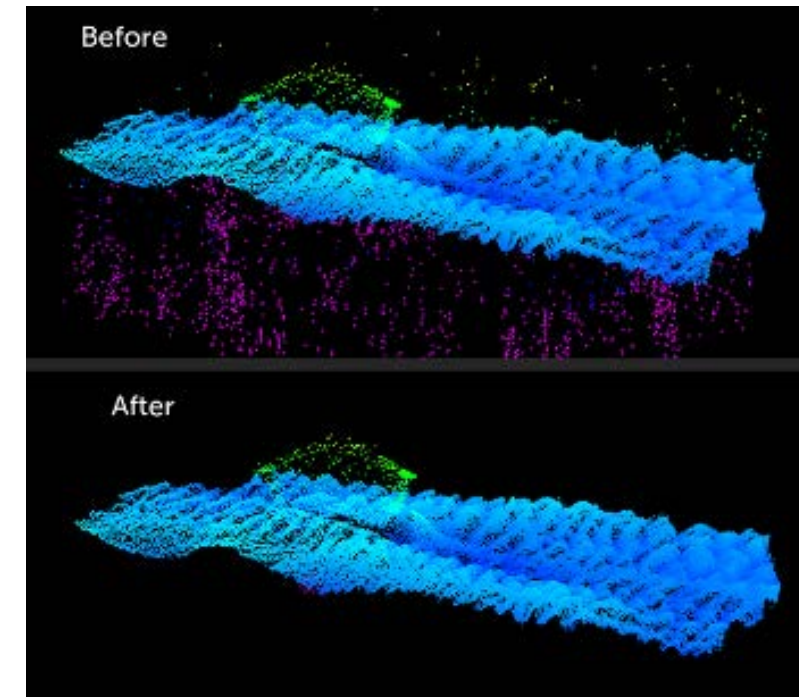
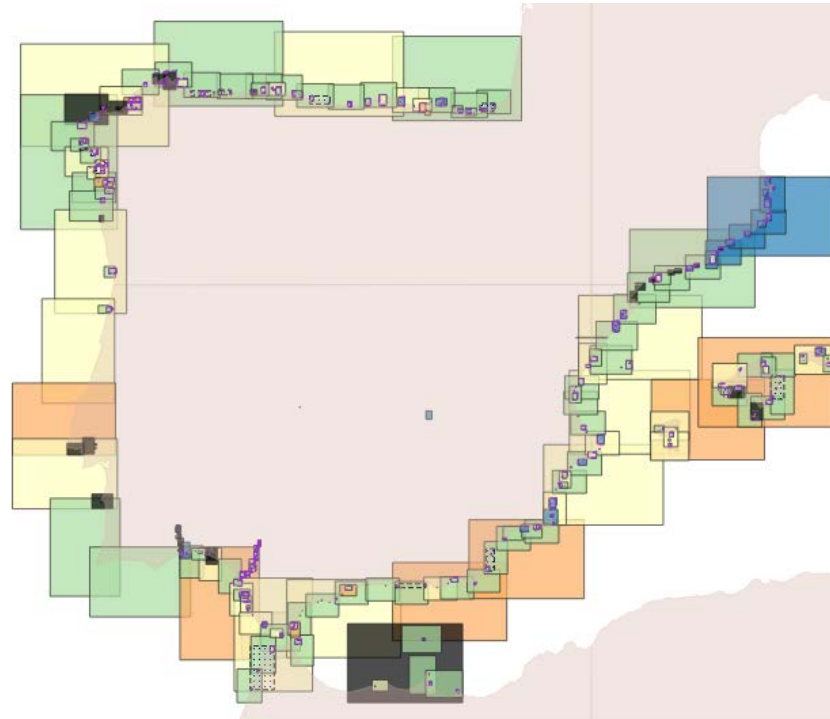
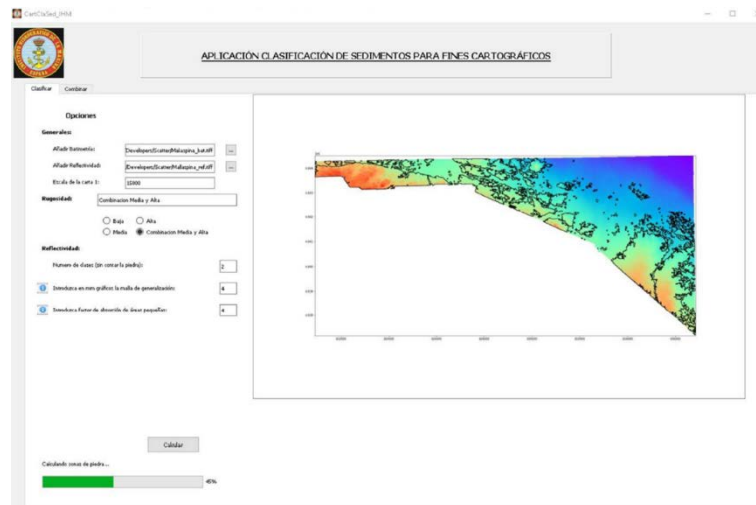
- Survey in Mauritania with a deployable team
 - Requested by the Mauritanian government in the Joint Defense Committee
 - Nouadhibou and Nouakchott ports
 - Planned for November 2022
- Survey vessel Tofiño will conduct survey around La Palma island, in area affected by Volcano eruption «Cumbre vieja»





Automation of Cartographic Production Processes

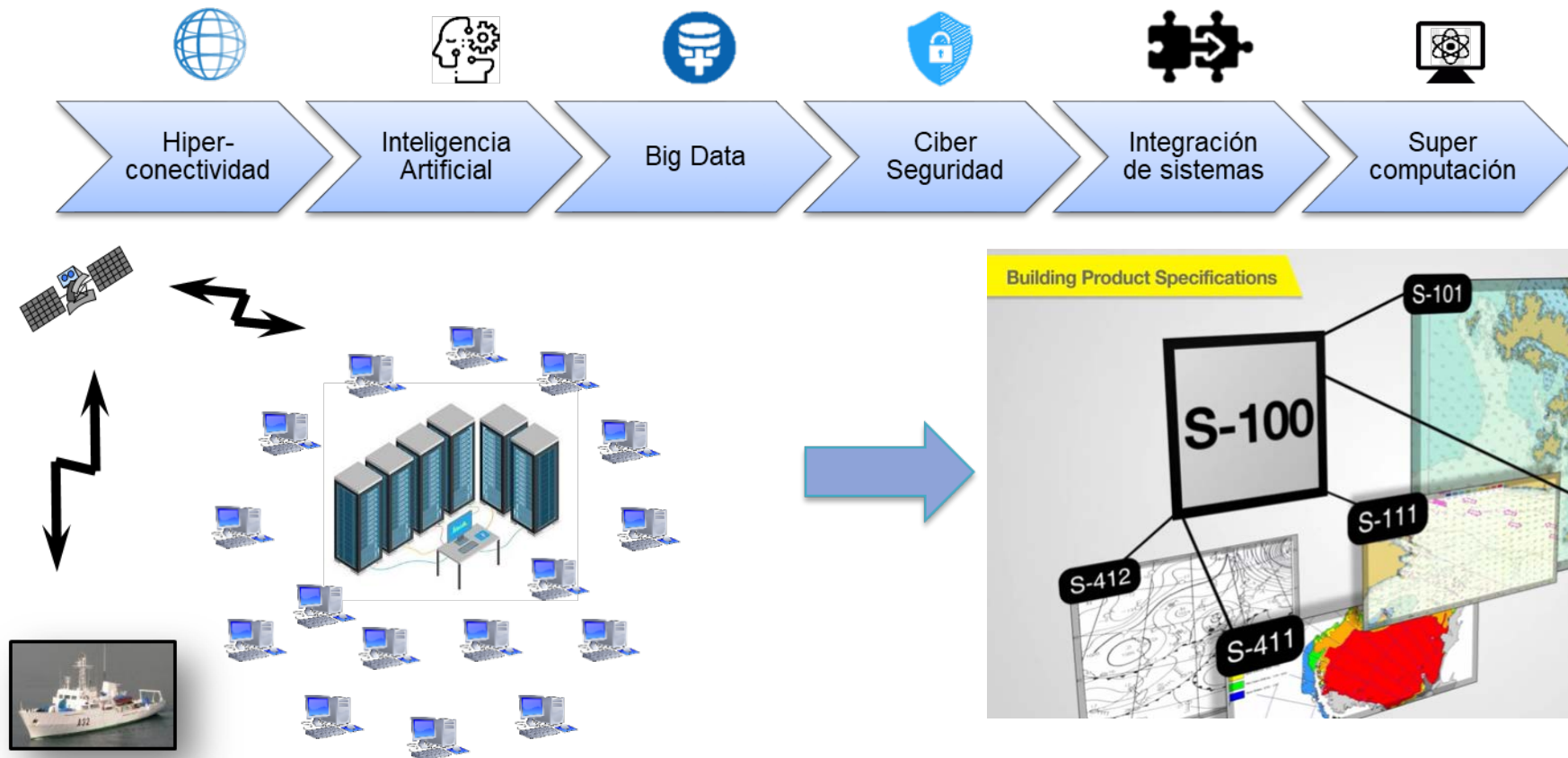
- Algorithm development
- Planning assistance tools
- Improvements in data acquisition and processing





Digital Transformation and the transition to S-100

- New organization of the personnel
- New HW & SW





Replace Hydrographic Fleet next years

Submitted proposal approved

Operational requirements documents nearly finished

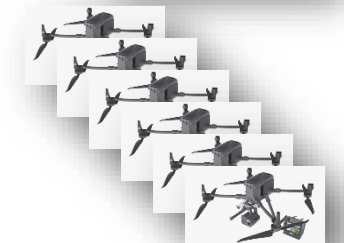
Construction to begin in 2023

- 2 coastal survey vessels (**priority 1**)

- 1 oceanic hydrographic vessel (REA cap.)

- 5 survey boats

- Autonomous vehicles (USV, UUV, RPAS)





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ACTIONS REQUESTED FROM EATHC17

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- EATHC is invited to:
Note this presentation

Thank you for your attention