

MESOAMERICAN AND CARIBBEAN SEA HYDROGRAPHIC COMMISSION
16th Meeting, St. John's, Antigua and Barbuda
7 to 12 December 2015

NATIONAL REPORT – COLOMBIA



1. Hydrographic Office/Service.

Dirección General Marítima - DIMAR

Centro de Investigaciones Oceanográficas e Hidrográficas – CIOH

Servicio Hidrográfico Nacional

2. Surveys

Caribbean Sea (9)

Ítem	No.	Title
1	200	Puerto de San Andrés
2	201	Isla de San Andrés
3	202	Rada el Cove
4	218	Isla de Providencia
5	253	Río Magdalena
6	262	Bahía de Cartagena
7	265	Aproximación a Coveñas y Santiago de Tolú
8	804	Bahía de Santa Marta
9	403	Cabo de la Vela a Punta Gallinas

With the support of Colombia Naval Aviation for the transport of personnel, and Colombia Diving and Rescue Corps for the delimitation and security of the place, the CIOH was able to locate a submerged boat in the Meta River.

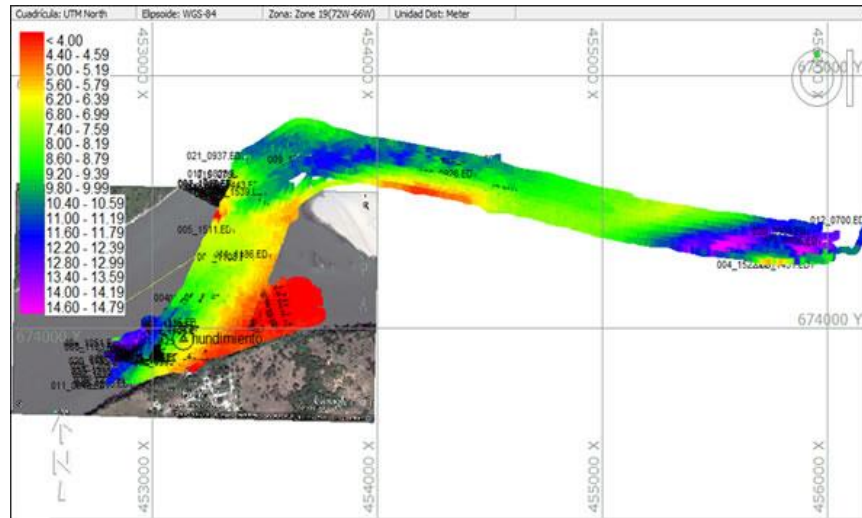


Figure 1. Survey in Meta River

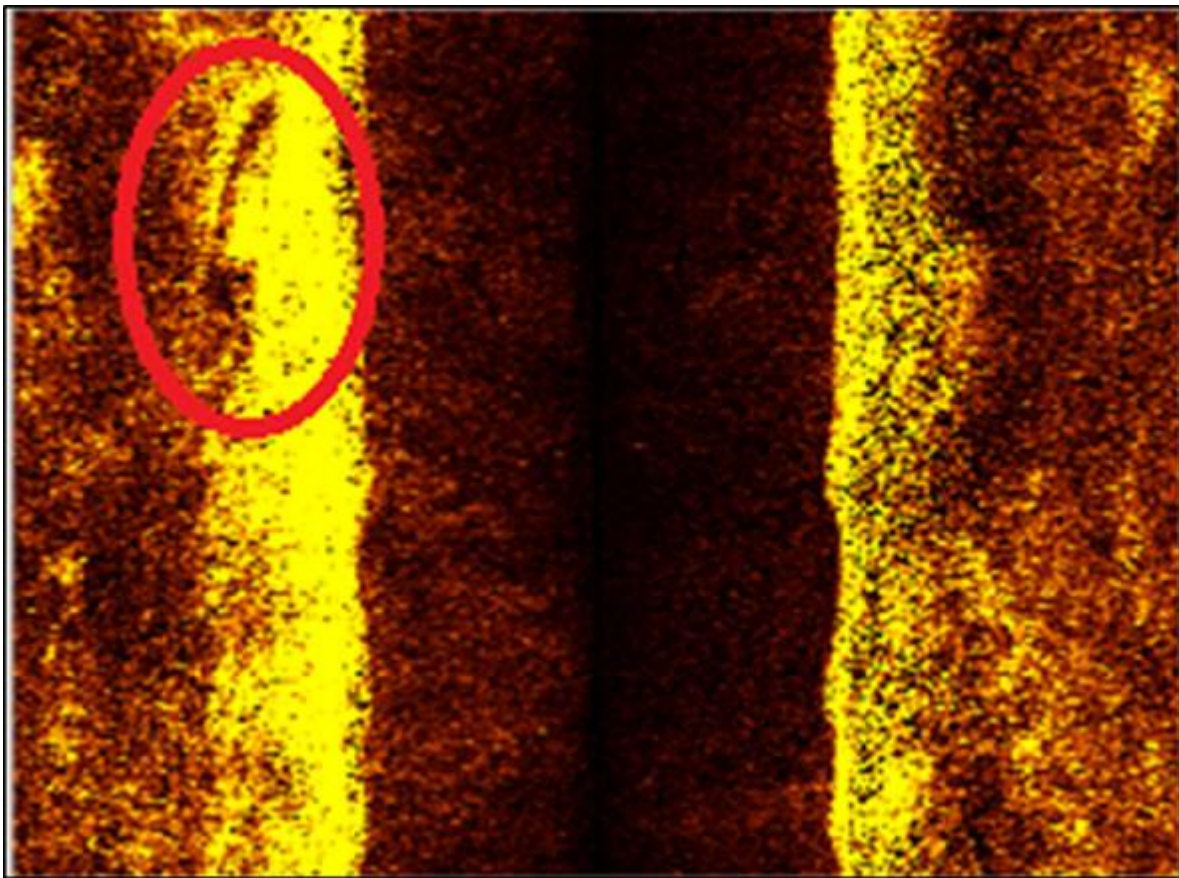


Figure 2. Viewing shipwrecked vessel detection with echo sounder EMK III

Pacific Ocean

Ítem	No.	Title
1	153	Bahía de Buenaventura
2	730	Puerto de Buenaventura

Hydrographic survey in Gerlache Strait for INT 9103 Markmann Bay to Andvord Bay

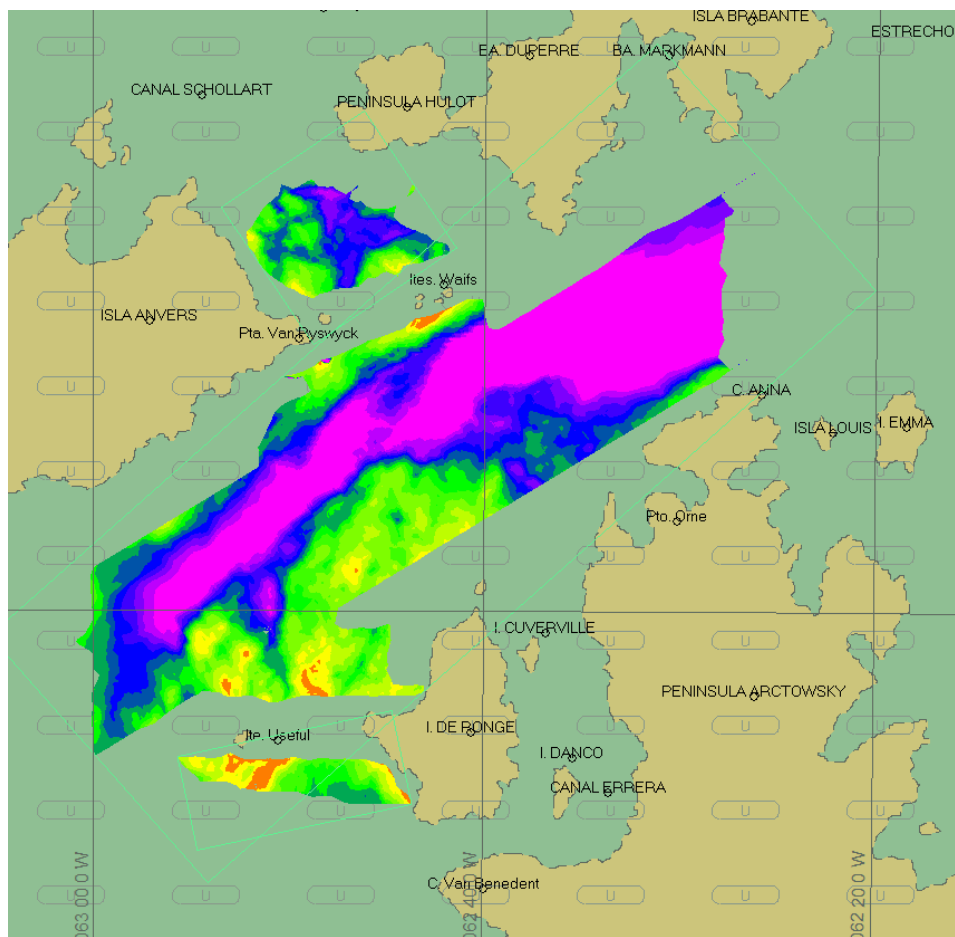


Figure 3. Survey in Gerlache Strait

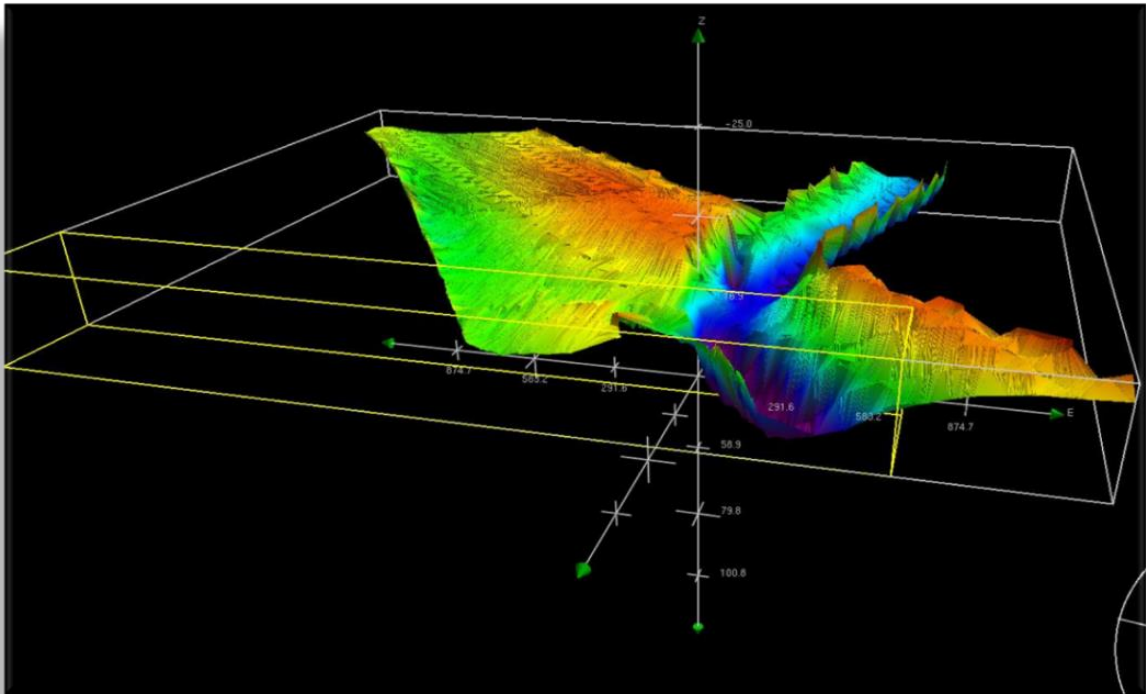


Figure 4. Survey in Amazonas River

3. New Charts, new edition and updates

2015 (08 nautical charts)

Paper Chart

Caribbean Sea

- 403 Cabo de la Vela a Punta Gallinas (Nueva Carta)
- 603 Aproximación a Bahía Portete
- 229 Bahía Portete
- 253 Rio Magdalena
- 804 Bahía de Santa Marta
- 833 Canal de Acceso a Cartagena

Pacific Ocean

- 153 Bahía de Buenaventura
- 730. Puerto de Buenaventura.

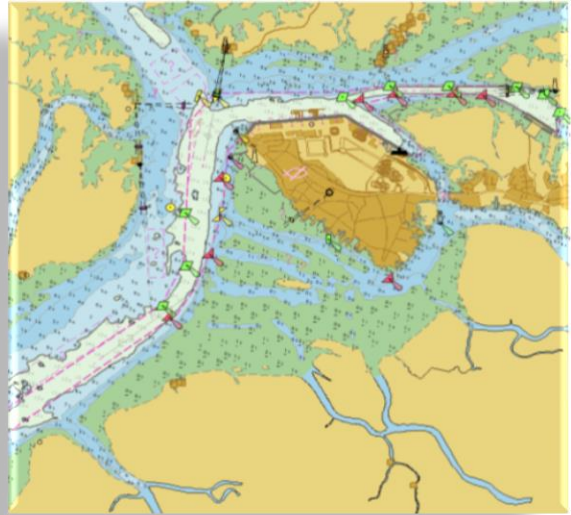
ENCs (08)

Caribbean Sea

- CO500246 Puerto Zúñiga.
- CO400418 Aproximación a Isla Cayos de Bajo Nuevo.
- CO400416 Aproximación a Isla Cayos de Quitasueño.
- CO400608 Aproximación a Puerto Brisa.
- CO400615 Punta Gigante a Punta Canoas
- CO500808 Puerto Brisa

Pacific Ocean

- CO400514 Isla Caruma a Punta Mulatos.
- CO400515 Punta Mulatos a Pasacaballos.



56 ENCs Cell updates

Digital updates of 28 nautical charts

Caribbean Sea

- 407 Puerto Colombia a Santa Marta
- 612 Aproximación a Barranquilla
- 253 Río Magdalena
- 254 Río Magdalena (Puente Laureano Gómez a Puerto Pinza)
- 244 Bahía Taganga a Punta Barro Blanco
- 804 Bahía de Santa Marta
- 245 Ciénaga
- 409 Bajo Tortuguilla a Punta Canoas
- 616 Punta Comisario a Punta Gigante
- 262 Bahía de Cartagena
- 263 Bahía Interna de Cartagena
- 264 Entrada a la Bahía de Cartagena
- 833 Canal de Acceso a la Bahía de Cartagena
- 410 Isla Fuerte a Punta Comisario
- 618 Golfo de Morrosquillo
- 626 Archipiélago de San Bernardo
- 265 Aproximación a Coveñas y Santiago de Tolú
- 625 Bahía Colombia
- 231 Cabo de la Vela
- 280 Cabo Tiburón a Isla Terrón de Azúcar

Pacific Ocean

306 Río San Juan a Boca Yurumanguí
153 Bahía de Buenaventura
730 Puerto de Buenaventura
150 Bahía Málaga
302 Golfo de Tribugá
107 Bahía de Cupica a Chirichiri
109 Aproximación a Bahía Solano
116 Bahía Solano

4. New Publications and Updates

- a) Digital Sailing Directions
- b) List of lights 2015
- c) Colombia Oceanographic Atlas. Agreement between Defence Minister–Dirección General Marítima DIMAR, Institute Colombiano de Petróleos ICP and the Colombian Association for the development science ACAC. It is a compilation, organization, debugging, systematization and analysis of oceanographic data collected by DIMAR for consultation via analogue and digital means, by the national maritime community.

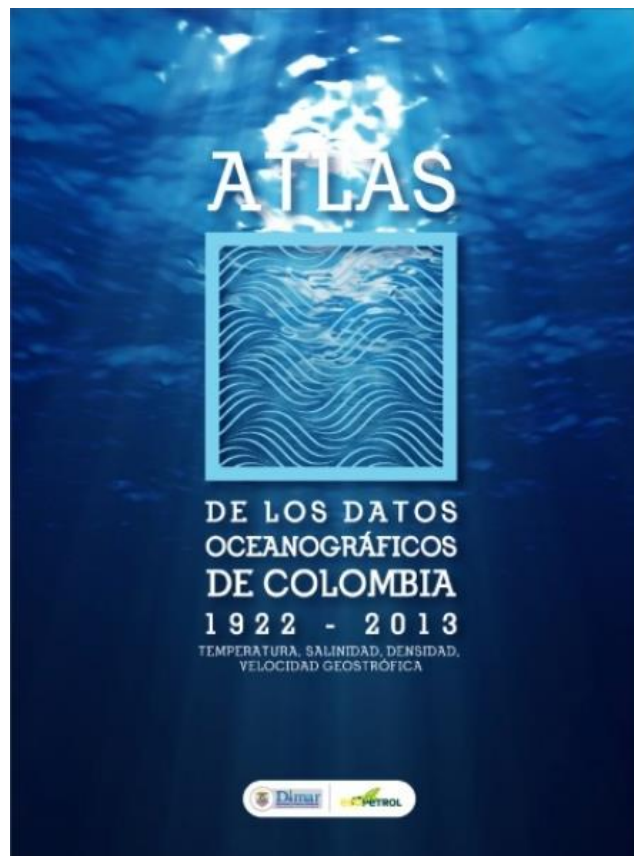
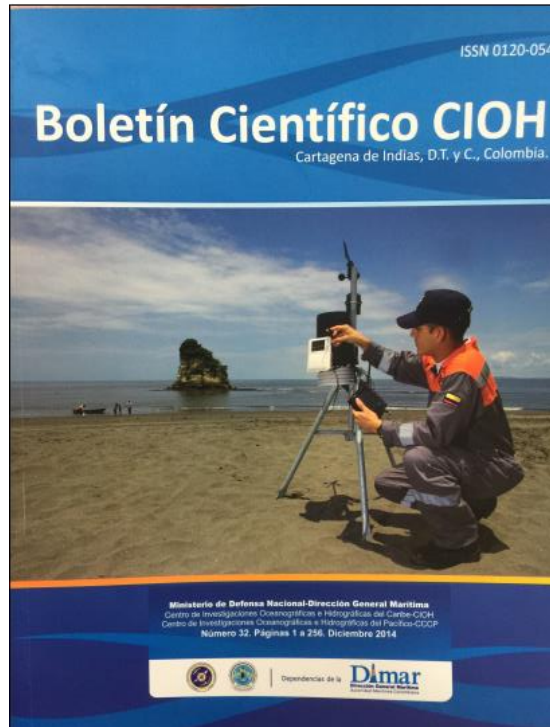
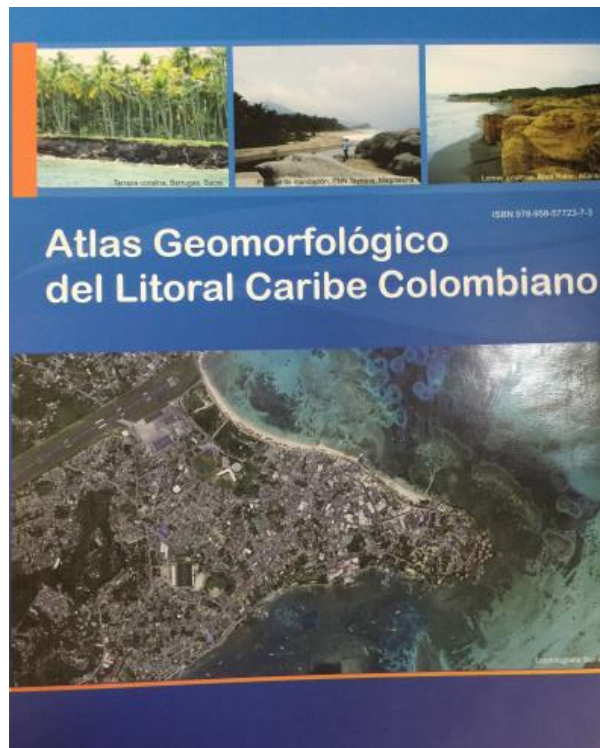


Figure 5. Book cover image

Scientific Bulletin No. 32 of the Centre for Oceanographic and Hydrographic Research Caribbean.



Geomorphologic Atlas Colombia Caribbean



Under the XXII Latin American Contest of Graphic Products “Theobaldo de Nigris” the recognition ‘Golden Graphics’ -first place- the ‘Atlas of Oceanographic Data Colombia 1922-2013’ will be awarded.

5. MSI – Maritime Safety Information.

Colombia Navigation aids are agree to IALA standards, organization to which Colombia belong.

With navigational information produced is supporting:

- Harbourmaster Office
- Coast Guard Stations
- Surface Schools of Colombia Navy
- Units over surface and submarine for the Navy
- Academies of Officers and Petty officers
- Government entities. These entities are responsible for safeguarding life at sea.

6. C-55 – Update December 1st 2015

Hydrographics Surveys

	A	B	C
Depth < 200m	96,7	0	3,3
Depth > 200m	33,2	14,4	52,4

Nautical Charting

Purpose/Scale	A	B	C
Offshore passage/Small	100	0	100
Landfall and Coastal passage/Medium	100	0	100
Approaches and Ports/Large	90.4	0	62.7
Percentage of Group A showing depths in meters	100		
Percentage of Group A referenced to a satellite datum	100		

Sub-area Warning (S-53)

SERVICE	Yes	No	Partial	NOTES
Local Warning	X			
Coastal Warning	X			
Navarea Warning	X			In Cooperation to USA Area IV
Information on Ports and Harbours ¹	X			

¹ Confirma que existe un sistema para transmitir información sobre los cambios en puertos a la autoridad cartográfica responsable.

GMDSS IMPLEMENTATION (IMO 970 –GMDSS Handbook²)

SERVICIO	Sí	No	Parcial	NOTAS
Master Plan		X		On going
A1 Area ³			X	Cover the 70 % approximately
A2 Area ³			X	Cover the 90 % approximately
A3 Area ³		X		
NAVTEX			X	On 2017 hope cover 100 %
SafetyNET		X		

7. CAPACITY BUILDING

- a) Training on global positioning systems GPS RTK.
- b) Training under the project “Strengthening of the National Hydrographic Service”:
 - Caris Bathy Data Base
 - Base de datos Oracle
 - PostgreSQL
 - Training in digital cartographic in the ENAP.
 - Training in ECDIS
 - Article 76 UNCLOS –Continental Platform.
- c) ICEMAN Expedition (Marine Scientific Research for Maritime Safety in the Antarctic) in which different scientific activities as developed; hydrographic, oceanographic, sedimentological, monitoring drifting ice, biological, geomorphological, whale marine mammals, among others. The conditioning of OPB ARC 20 de Julio to navigate in Antarctic is relevant. This OPB was built by **COTECMAR** Colombia Navy. His construction guarantee proper operation at high latitudes.

In this expedition managed to run 100% of the planned activities, which reflects the preparation of the participant scientists, crew and operational capabilities of the ship, and of course, the effective support of friendly countries, especially Chile that through the Commander in Chief of the Navy, the Directorate of Maritime Territory and Merchant Marine (DIRECTEMAR) and the Chilean Navy Hydrographic and Oceanographic Service (SHOA), they constituted support and fundamental tools for the full implementation of the expedition.

² Ver también la orientación en las Publicaciones Náuticas publicadas por los Servicios Hidrográficos, pe. ALRS 5.

³ Para la descripción de las zonas marítimas A1, A2 y A3, ver la Publicación S-55: “Estado de la ISM”, en el sitio Web de la OHI.

- d) Installation of echosounder multibeam and system, Mono echosounder double frequency and subbottom profile in the research vessel ARC “Malpelo” and ARC Providencia
- e) Installation of ADCP in ARC Providencia.
- f) Acquisition of PILOT boat with hydrographic capacity Multibeam high resolution for work in the principal Colombia ports, San Andrés and Providencia Archipelagic Islands and Caribbean and Pacific Coast.
- g) Capacity in SSS survey in shallow water.

8. OCEANOGRAPHIC ACTIVITIES

2. 2015

a) National.

- Ocean forecasting system for port operations POOP. (Mindefensa, Gobernación de Bolívar y DIMAR_CIOH)
- Integrated Forecast System for the Integral Maritime Safety “SIPSEM”
- Monitoring Antares oceanographic station. DIMAR-CIOH y ENAP

b). International:

ICEMAN research in Antarctic sea. Where the next scientific activities was made

1. Collection of plankton samples
2. Collection of water samples.

SAMPLES COLLECTED FOR ANALYSIS

STATION	20
DEPTH	1, 5, 50, 100 and 200 m
KIND OF ANALYSIS	HIDROCARBONS
	TOTAL SUSPENDED SOLIDS
	NUTRIENTS, CHLOROPHYLL, HEAVY METALS, ORGANOCHLORINES, DNA COMMUNITY, PLANKTON.

3. Measurement of oceanographic parameters.

4. Validation of hydrodynamic model for maritime safety
5. International database for climate change Extension (PH)
6. Thermal front
 - a. Evidence of low oxygen areas
 - b. Measurement and analysis of samples explain chemical and biological processes Analysis
7. Monitoring of drifting ice

GENERAL DATA

ICE QUANTITY MONITORING	40
TIME LAPSE	10 DAYS
FRECUENCY	EVERY 30 MINUTES
METEOROLOGICAL VARIATION.	WIND (VEL – DIR)
OCEANIC VARIATION	CURRENT PROFILE (1-50 m)

8. Nautical cartographic contribution. The Colombian surveys cover the 22, 18% of INT 9103 area. This Chart will be published by SHOA Chile With this contribution Colombia's commitment is demonstrated by the mission of the IHO associated with exploration and mapping generation seas and waterways that are not yet fully surveyed (*Our seas and waterways - yet to be fully charted and explored WHD 2015*)
9. Undersea features. With abundant data collected around is expected to work in coordination with SHOA to identify undersea features in the Gerlache Strait and around it
10. Monitoring of small bays in Gerlache Strait.
11. Getting sediment samples. Determination of heavy metals, hydrocarbons, organic matter, organisms, sedimentation processes
12. Studies coral samples. Taxonomy
13. Watching marine mammals

SAMPLES TAKEN FOR ANALYSIS

WORKING TIME	215 HOURS
WATCHING	124

WHALES IDENTIFIED	26
GENETIC SAMPLES	11

14. Monitoring propulsion system. Thermal contractions on alignment and dynamic behaviour (vibrations) of propellers and propeller shafts
15. Physiological monitoring crew and researchers

9. OTHER ACTIVITIES

1. MSDI workshop in Brazil.
2. Validation ENCS IC.ENC Panama.
3. IBRU Training workshop London UK. Archive Research for Boundary Dispute Resolution, October 2015
4. Participation in the Tedelyne Marine-Tecnology Workshop in San Diego, California, between 4th and 7th October.
5. Participation in the XXXVIII Antarctic Treaty Meeting in Sophia, Bulgaria between 1st and 10th June 2015 where Colombia showed the results of ICEMAN.
6. Under the Sixth International Festival of Science and Culture organized by the Network of Institutions of Higher Education in the Caribbean (RIESCAR) in the Cartagena city, recognition was performed at 40 years of work of the Centre for Oceanographic Research and Caribbean (CIOH).



Photography 1: 'Ramón de Zubiria' distinction to CIOH Director

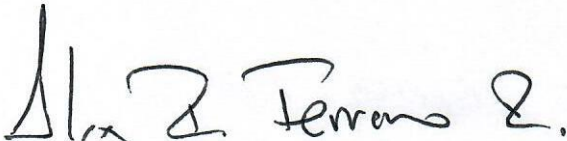
10. CONCLUSIONS

The Colombia HO continues growing, thanks to the support of our central government, institutional support, Antarctic programs and the support of the IHO MS who have selflessly worked with all our activities.

Without minimizing the importance of all water activities in our country, the ICEMAN Antarctic Expedition is our greatest achievement, the result of tireless scientific interest of Colombians who look beyond the warm ocean disposal, for contributing to science, the safety of navigation and the environmental protection

Just as in the Antarctic expedition, Colombia wishes to keep a close relation with the Member States to reiterate our will and desire to continue contributing decisively to the implementation of projects that contribute to generating new knowledge

Atte.



Capitán de Navío ALEX FERNANDO FERRERO RONQUILLO

Director Centro Investigaciones Oceanográficas e Hidrográficas del Caribe CIOH
Dirección General Marítima DIMAR

*We protect the blue of our flag
Science and sovereignty
Colombia Navy*