



Organización Hidrográfica  
Internacional

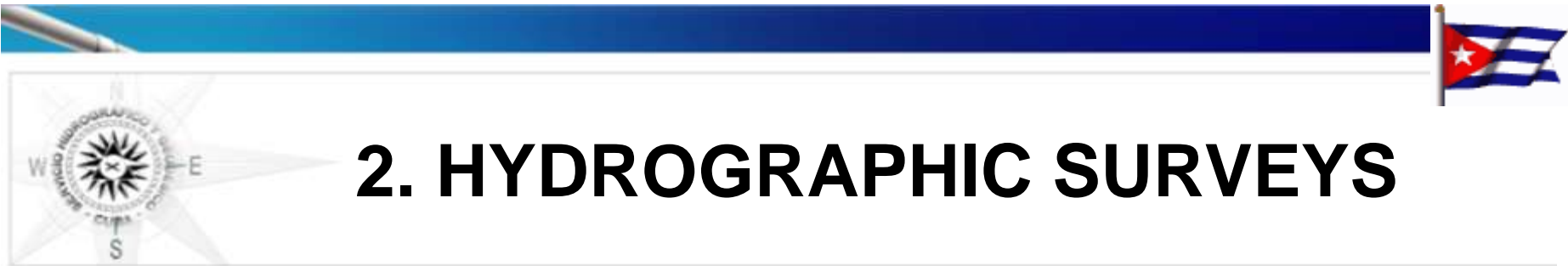


# REPORT OF HYDROGRAPHIC AND GEODETIC SERVICE OF THE REPUBLIC OF CUBA

XVII MESO AMERICAN AND CARIBBEAN SEA HYDROGRAPHIC  
COMMISSION MEETING,

BELEM, BRASIL

2016



# 2. HYDROGRAPHIC SURVEYS

## NEW HYDROGRAPHIC SURVEYS WITH CARTOGRAPHIC PURPOSES

EQUIPMENT	ORDER OF PRECISION (S44)	REGION OR PLACE	NEW BATYMETRIC DATA FOR NAUTICAL CHARTS
Single beam echosounders	I y II	Tract of coastal sailing from Bay of Nuevitas to Punta Maisí	11431, 11432, 11433
Single beam echosounders Sonar	I	Jetties and berthing in Bay of Cienfuegos	11937, 11938, 11939
Swath Echo Sounders (EM-2040C)	Special and I	Bay of Mariel and approaches	11823, 11825
Swath Echo Sounders (EM-2040C)	Special	Access channels and anchorages in Bay of Cienfuegos	11937, 11938, 11939



## 2. HYDROGRAPHIC SURVEYS

### OTHER NEW HYDROGRAPHIC SURVEYS

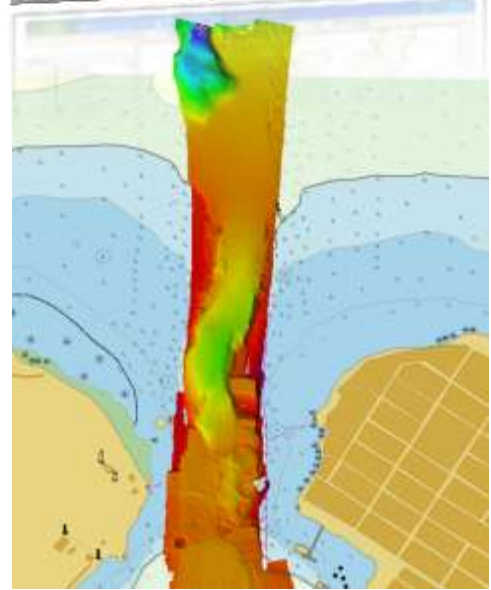
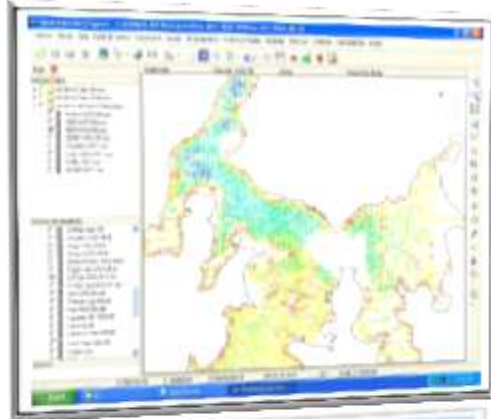
EQUIPMENT	PURPOSES	REGION OR PLACE	NEW BATYMETRIC DATA FOR NAUTICAL CHARTS
Swath Echo Sounders (EM-2040C)	Dredging and navigations	Bay of Moa	11885
Single beams	Dredging and navigations	Port of Felton	11880
Single beams	Dredging and navigations	Port of Santa lucia	11816
Single beams and sonar	Engineer	Bay of Mariel (Ensenada de Laza and berthing Antonio Maceo )	11825
Single beams and sonar	Navigations	Surgidero de Batabanó	11955
Single beams	Engineer	Guanabo Beach	11425



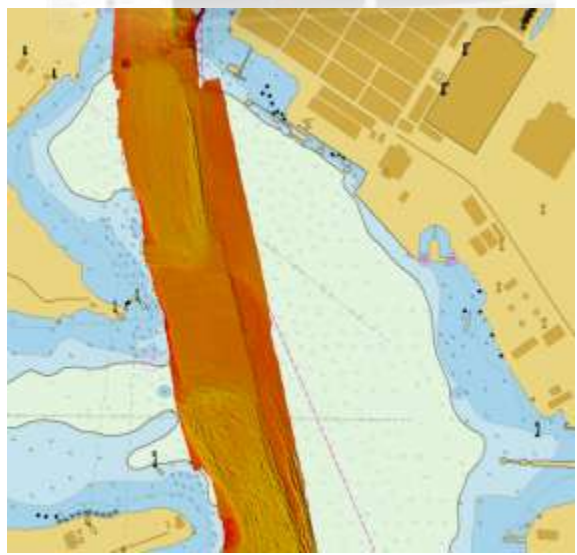
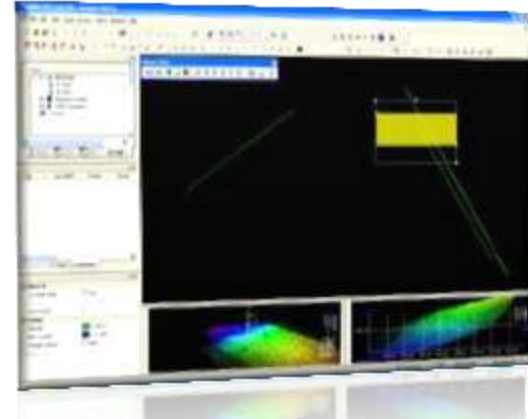
# 2. HYDROGRAPHIC SURVEYS



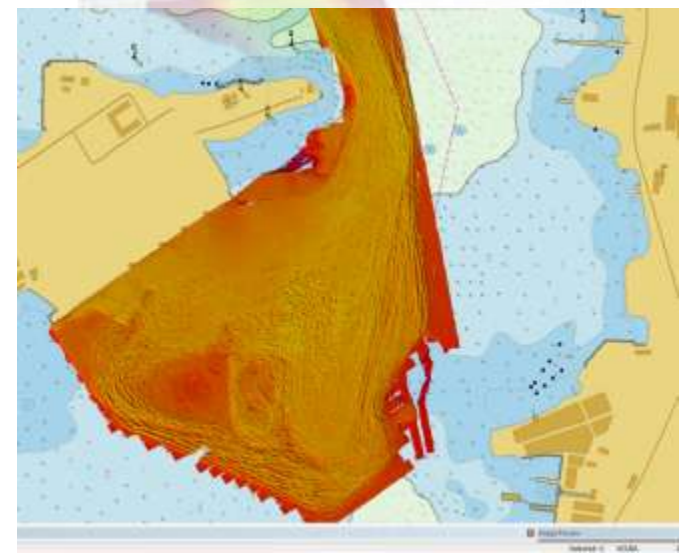
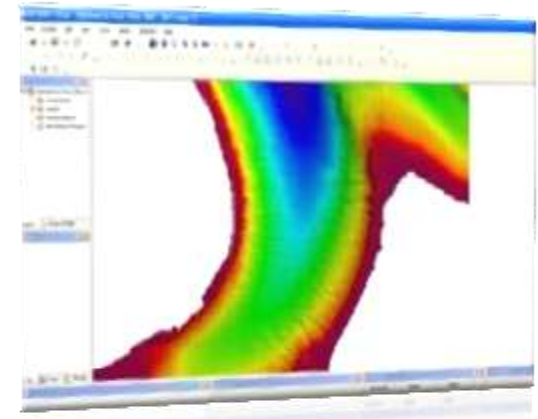
**HYDROGRAPHIC ACQUISITION  
HYPACK LITE**



**PROCESSING  
HIPS AND SIPS**



**PROCESSING  
BATHY DATA BASE**



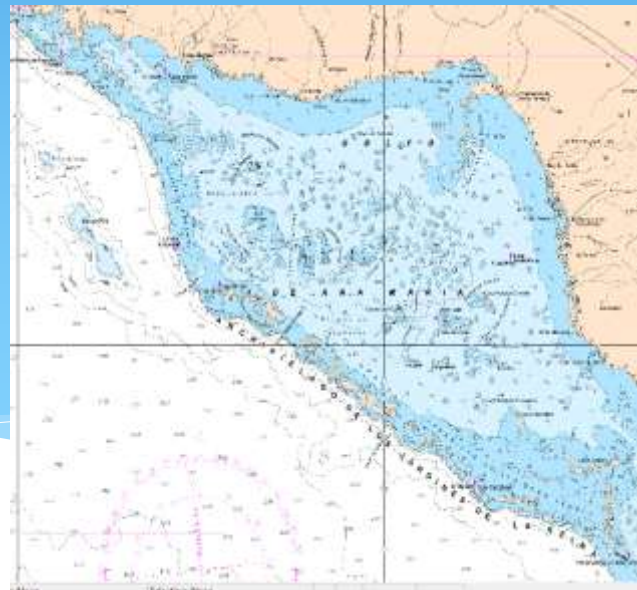




## 2. HYDROGRAPHIC SURVEYS

### CURRENT PROBLEMS

- WE DON'T HAVE THE APPROPRIATE TECHNOLOGY FOR THE HYDROGRAPHIC SURVEYS IN WATERS OF FEW DEPTHS AND MANY DANGERS. (MAYBE LIDAR)





### 3. ELECTRONIC NAUTICAL CHARTS

#### CURRENT STATUS OF THE PRODUCTION ENC

USAGE BAND	TITLES	STATUS			
		IC ENC		IN PRODUCTION	
		DISTRIBUTION	VALIDATION	2016	2017
2	2		2		
3	26	14	10		2
4	15	2	1	4	8
5	14	7		2	5
6	1				1
<b>TOTAL</b>	<b>58</b>	<b>23</b>	<b>13</b>	<b>6</b>	<b>16</b>



### 3. NATIONAL PAPER CHARTS



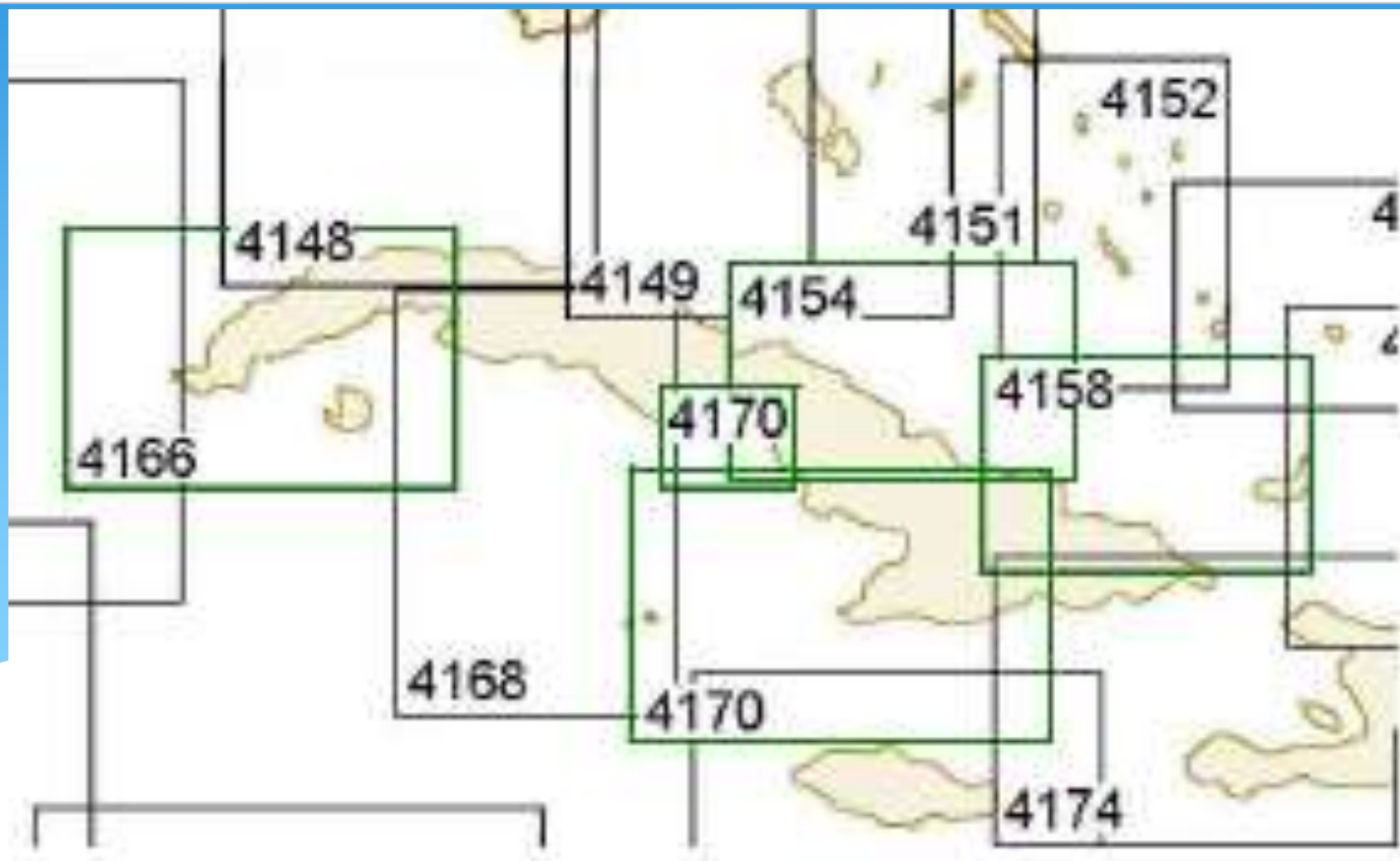
#### CURRENTS CARTOGRAPHIC COVERAGE

No.	Range of Scale 1:	Quantity Paper charts	Quantity BSB charts
1	Smaller than 300 000	10	10
2	200 000 - 100 000	51	40
3	75 000 - 30 000	43	12
4	Bigger than 25 000	72	58
<b>Total</b>		<b>176</b>	<b>120</b>



# 3. INT CHARTS

## FOUR INT CHARTS CONLUDED

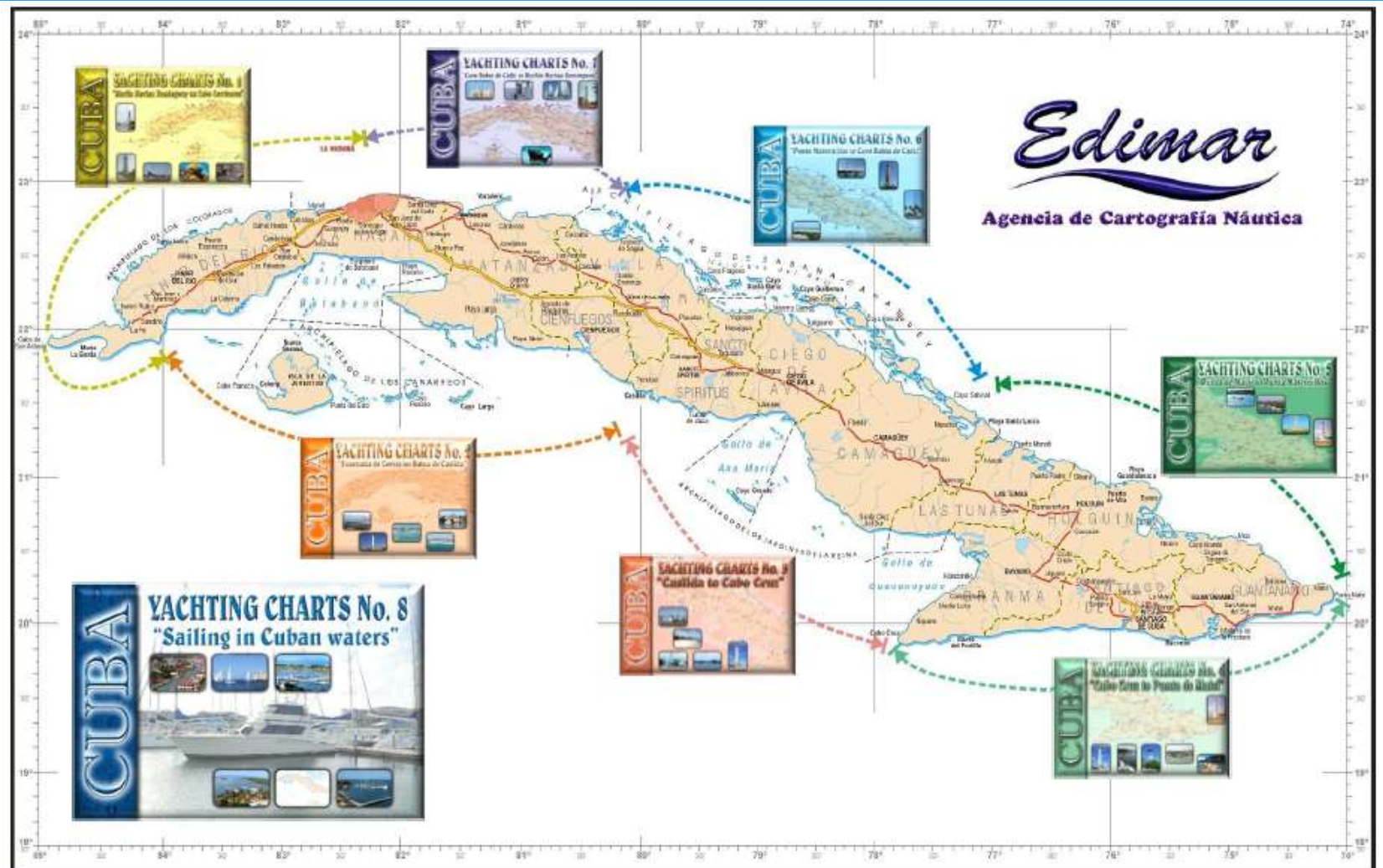






# 3. OTHER CHARTS

## STATUS YACHT CHARTS: EIGHT (8) ALBUMS





### **3. NAUTICAL CARTOGRAPHIC AND PUBLICATIONS**

#### **CURRENT PROBLEMS**

##### **WE DON'T HAVE:**

- ✓ **SOFTWARE FOR VALIDATION ENC.**
- ✓ **CARIS HPD SOFTWARE FOR THE APPROPRIATE MANAGEMENT BIG AND VARIED VOLUMES OF DATABASE FOR THE CARTOGRAPHIC APPLICATIONS AND MANY OTHERS.**
- ✓ **ACCES TO HIGH RESOLUTIONS SATELITAL IMAGES.**



## **5. MARITIME SAFETY INFORMATION (MSI)**

### **CURRENT STATUS**

- ✓ **PAPER MONTHLY NOTICE TO MARINER AND ANNUAL SUMMARY IS AVAILABLE ON THE WEBSITE [WWW.IDERC.CU](http://WWW.IDERC.CU).**

### **CURRENT PROBLEMS**

**WE DON'T HAVE INFRASTRUCTURE FOR :**

- ✓ **TRANSMISSION NAVIGATIONAL INFORMATION (S-53).**
- ✓ **GMDSS IMPLEMENTATION (IMO Publication 970 - GMDSS Handbook).**



## 7. CAPACITY BUILDING TRAINING RECEIVED

- ✓ Phase 2 of Category “B” Marine Geospatial Information Programme, sponsored by the Republic of Korea, (KHOA), Busan, ROK, 04 april-03 june 2016. (One representative).
- ✓ “IHO - Nippon Foundation CHART Project CAT-B Course in Marine Cartography and Data Assessment”. Held at the UKHO in Taunton, UK, from 5 September to 16 December 2016. (One representative).
- ✓ The 2016 Capacity Building Programme on Ocean Observation and Hydrographic Surveying on behalf of the Korea Hydrographic and Oceanographic Agency (KHOA), Busan, ROK, from 26 September to 14 October 2016. (Two representatives).



## 7. CAPACITY BUILDING TRAINING RECEIVED

- ✓ The Introduction to the Data Processing Bathymetric Workshop in Veracruz, México, at 13 to 15 July 2016. Invitation of SEMAR and AMEXCID under project FOCAHIMECA. (One representative).
- ✓ The Tide Workshop in Niteroi, Rio de Janeiro, Brazil 03-07 October 2016. Invitation from the South West Atlantic Hydrographic Commission (SWAtHC), for one MACHC member. (One representative).
- ✓ The course for Development of a Regional Marine Spatial Data Infrastructure (MSDI), Veracruz, Mexico; at 3 to 7 October 2016. Invitation of The Meso American and Caribbean Sea Hydrographic Commission (MACHC). (One representative).





## 7. CAPACITY BUILDING TRAINING NEEDED

- ✓ **MARITIME SAFETY INFORMATION (MSI):**
  - Creation of infrastructure for transmission navigational information and GMDSS implementation.
  
- ✓ **HYDROGRAPHIC:**
  - CAT-B Course in Hydrographic.
  
- ✓ **NAUTICAL CARTOGRAPHIC:**
  - Validation ENC.



# 8. OCEANOGRAPHIC ACTIVITIES

## THE TIDE GAUGE NETWORK



Mareógrafo DELTA y datalogger MDS 5 Light



Sensor de radar SEBAPULS 15



Sensor de presión DST 22 y datalogger DSR



# 8. OCEANOGRAPHIC ACTIVITIES

## PROGRAM FOR DEVELOP AND MODERNIZATION THE TIDE GAUGE NETWORK

- FIRST STAGE: TO REESTABLISH THE STATIONS WAS OF SERVICE AND ALL WITH DIGITAL SENSORS AND TRANSMISSION IN REAL TIME . (2017-2018)
- ■ - SECOND STAGE: TO COMPLET THE TRANSMISSION IN REAL TIME AND TO INCORPORATE SIX NEW STATIONS TO UNTIL AT 25. (2019-2020)





## 9. OTHER ACTIVITIES INTERNATIONAL

✓ Signature MOU between NOAA and ONHG in March 2016, about “COOPERATION IN THE AREAS OF HYDROGRAPHY AND GEODESY AND RELATED SERVICES OF MUTUAL INTEREST, TO IMPROVE MARITIME NAVIGATION SAFETY”.





## 9. OTHER ACTIVITIES INTERNATIONAL

- ✓ II TECHNICAL BILATERAL ENCOUNTER BETWEEN NOAA AND ONHG:
  - WASHINGTON, EUA, IN DECEMBER 2015







## 9. OTHER ACTIVITIES INTERNATIONAL

- ✓ III TECHNICAL BILATERAL ENCOUNTER BETWEEN NOAA AND ONHG:
  - HAVANA, CUBA, IN JUNE 2016.





## 9. OTHER ACTIVITIES INTERNATIONAL

- ✓ **IV TECHNICAL BILATERAL ENCOUNTER BETWEEN NOAA AND ONHG:**
- **WASHINGTON, EUA, IN NOVEMBER 2016.**





## 9. OTHER ACTIVITIES INTERNATIONAL

- ✓ PARTICIPATION IN IC-ENC STEERING COMMITTEE MEETING 17, AMSTERDAM, SEPTEMBER 2016.



*SC17 meeting, Amsterdam, 20. - 21. September 2016*





## 10. CONCLUSIONS

1. The Republic of Cuba has an area of hydrographic responsibility of 362 900 km<sup>2</sup>, the 92,5% are surveyed and the 49,5% requires re surveys to modern standars of IHO.
2. The series of nautical charts produced and printed by the Republic of Cuba cover the jurisdictional waters of its responsibility and fulfill the international standards of the IHO, for the paper charts, raster (BSB), electronic (S-57), and the INT charts.