REPORT

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FRANCE NATIONAL REPORT
TO THE 19TH MEETING OF THE MESO AMERICAN AND CARIBBEAN SEA
HYDROGRAPHIC COMMISSION (MACHC)

1. Hydrographic Service: General

Shom is pursuing the achievement of its different commitments based on the National Maritime & Littoral Strategy and the Strategic Review of Defence and National Security according to a 4 years target and performance contract covering the 2017-2020 period, approved by Shom's Board.

In addition to that, survey works are being conducted according to the prioritized 4-years survey plan for waterways under French jurisdiction.

Detailed information to update IHO Publication P-5 is regularly transmitted to IHO secretariat.

2. Surveys

2.1. Coverage of new surveys

Shom conducted new surveys in the MACHC area in 2018 along the coast of French Guyana. They are located between Cayenne and the border with Brazil (approaches to Approuague and Oyapock rivers) and near the border with Suriname (approach to the mouth of Mana river).

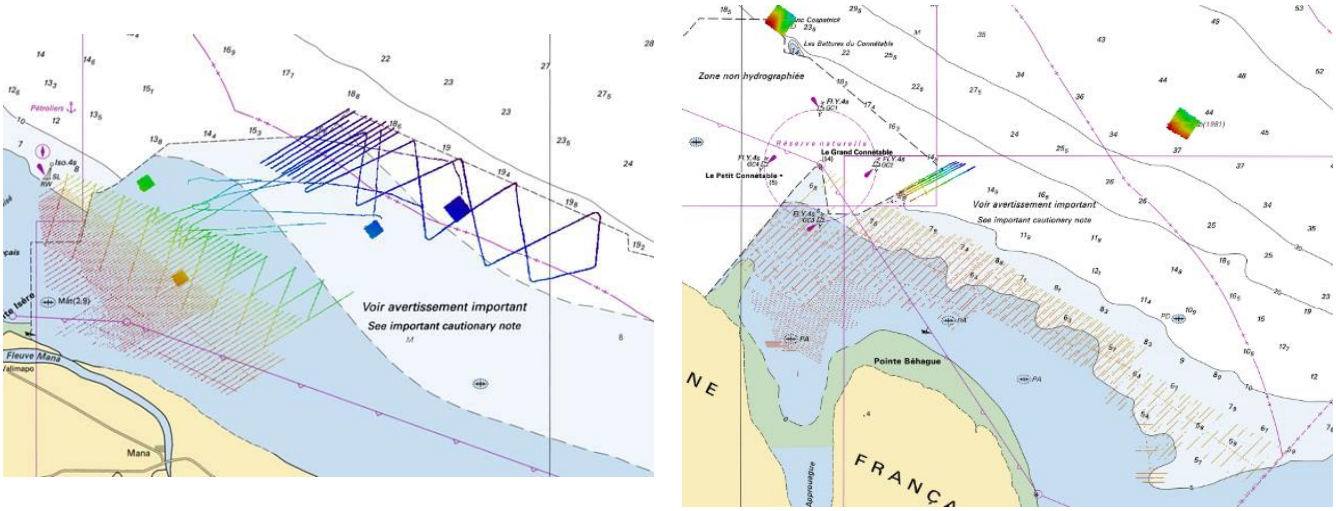


Fig.1 & 2 : Shom's surveys in French Guyana's EEZ (September-October 2018 – BH2 Borda)

Third parties' surveys have been communicated to Shom since the last conference:

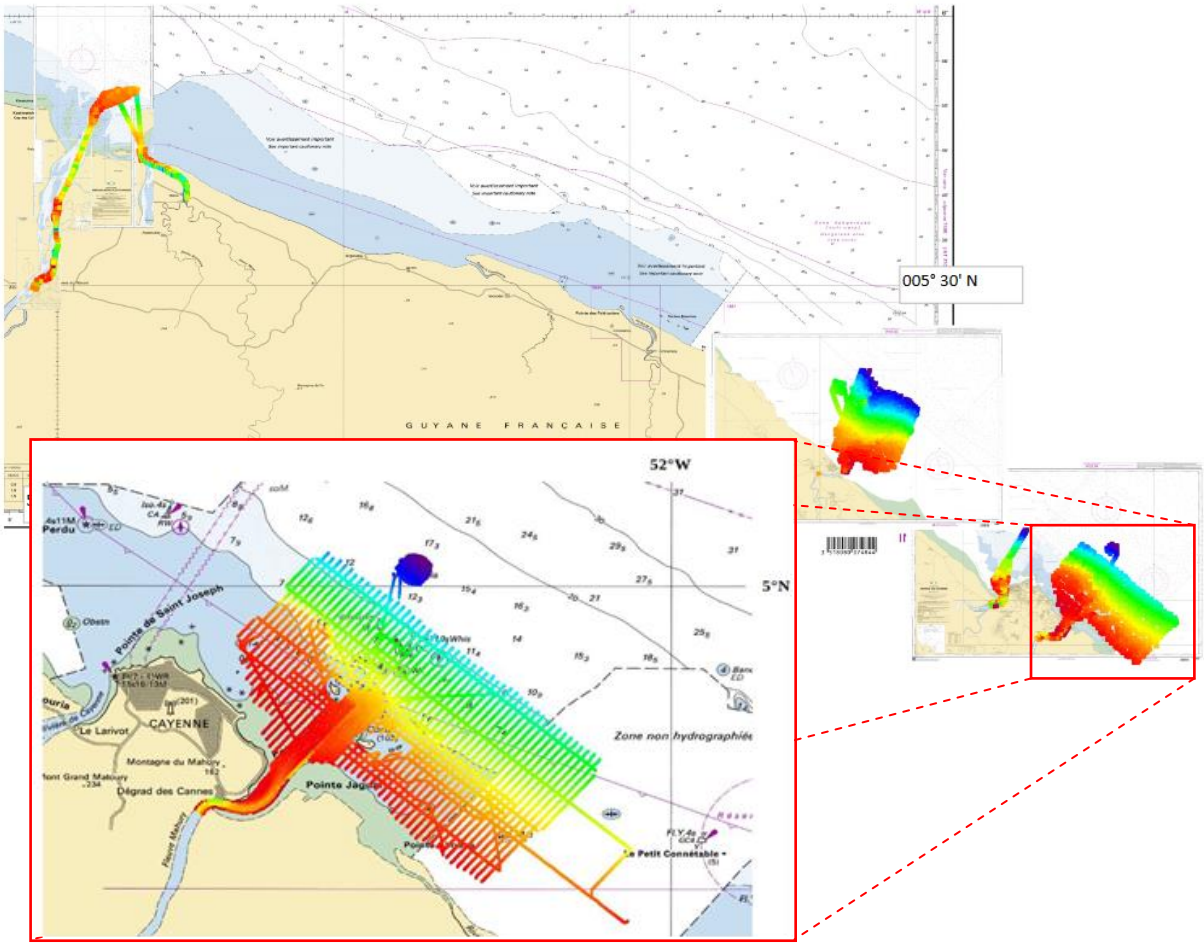


Fig.3 : Third parties' surveys in French Guyana's EEZ (E2018 014 00 & E2017 045 00) – DM Guyane

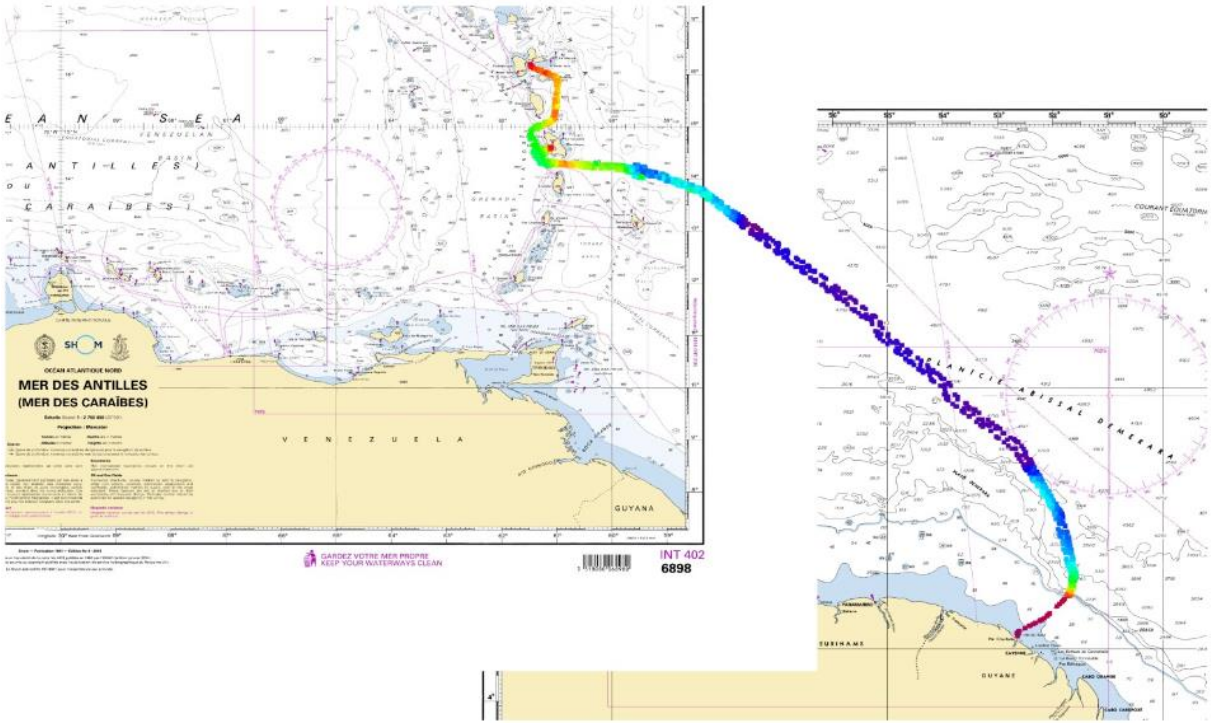


Fig.4 : Third parties' surveys in the EEZ of French Guyana & Antilla (E2017 027 00) – RV Ridley Thomas

2.2. LIDAR Surveys

LIDAR surveys are conducted within the framework of Litto3D® programme. This national programme, based on a partnership between Shom and the National Institute of Geographic and Forest Information (IGN), aims to provide a very high resolution Sea-Land digital terrain model (DTM) of metropolitan and overseas French coasts.

French overseas departments of Martinique and Guadeloupe have been surveyed in 2012-2013. All Litto3D® products are freely available through Shom's data portals:

Data.shom.fr (Shom catalog / Master data / Coastal altimetry): data.shom.fr

Diffusion.shom.fr: http://diffusion.shom.fr/pro/risques/altimetrie-littorale.html

- For Martinique: http://diffusion.shom.fr/pro/risques/altimetrie-littorale/litto3d-mart2016.html
- For Guadeloupe: http://diffusion.shom.fr/pro/risques/altimetrie-littorale/litto3d-guad2016.html

and the French Government open platform for public data: data.gouv.fr.

A combined topo-bathymetric lidar survey of the French Collectivity of Saint-Martin and Saint Barthélemy will start in February 2019. Discussions were held with the Government of Sint Martin, the World Bank and the Hydrographic Service of the Royal Netherlands Navy to extend the survey to the Dutch part of the island. The specifications used by Shom for this survey were sent to the Netherlands Hydrographic Service, the objective being to have a complete lidar survey of the whole island to develop coastal sea state and storm surge models to support forecast and warning systems.

2.3. Shom's survey programme for the region

Survey campaigns are planned by Shom on a regular basis in French overseas territories to update nautical charts.

Shom's 2017-2020 national hydrographic survey programme[1] details the long-term targeted objectives of CATZOC compliant hydrographic surveying in French Antilles, French Guyana and Clipperton Island waters and the current surveys coverage for those three areas (fig.5).

[1] http://www.shom.fr/fileadmin/data-www/01-LE_SHOM/01-PRESENTATION_GENERALE/06-LE_PROGRAMME_ANNUEL/PNH_2017-2020_WEB_BD.pdf

The survey work related to those areas for the next two years is detailed hereafter:

- **French Antilles**: Pursue of survey works in coastal waters with main harbour access channels and anchorage areas of Saint-Martin and Saint-Barthélemy in 2020. Opportunity works around Martinique and Guadeloupe.
- **French Guyana**: Surveys were carried out along the coasts of French Guyana in 2018. No survey by Shom is planned for the next two years at this time.
- **Clipperton Island**: No systematic surveys scheduled, only opportunity works.

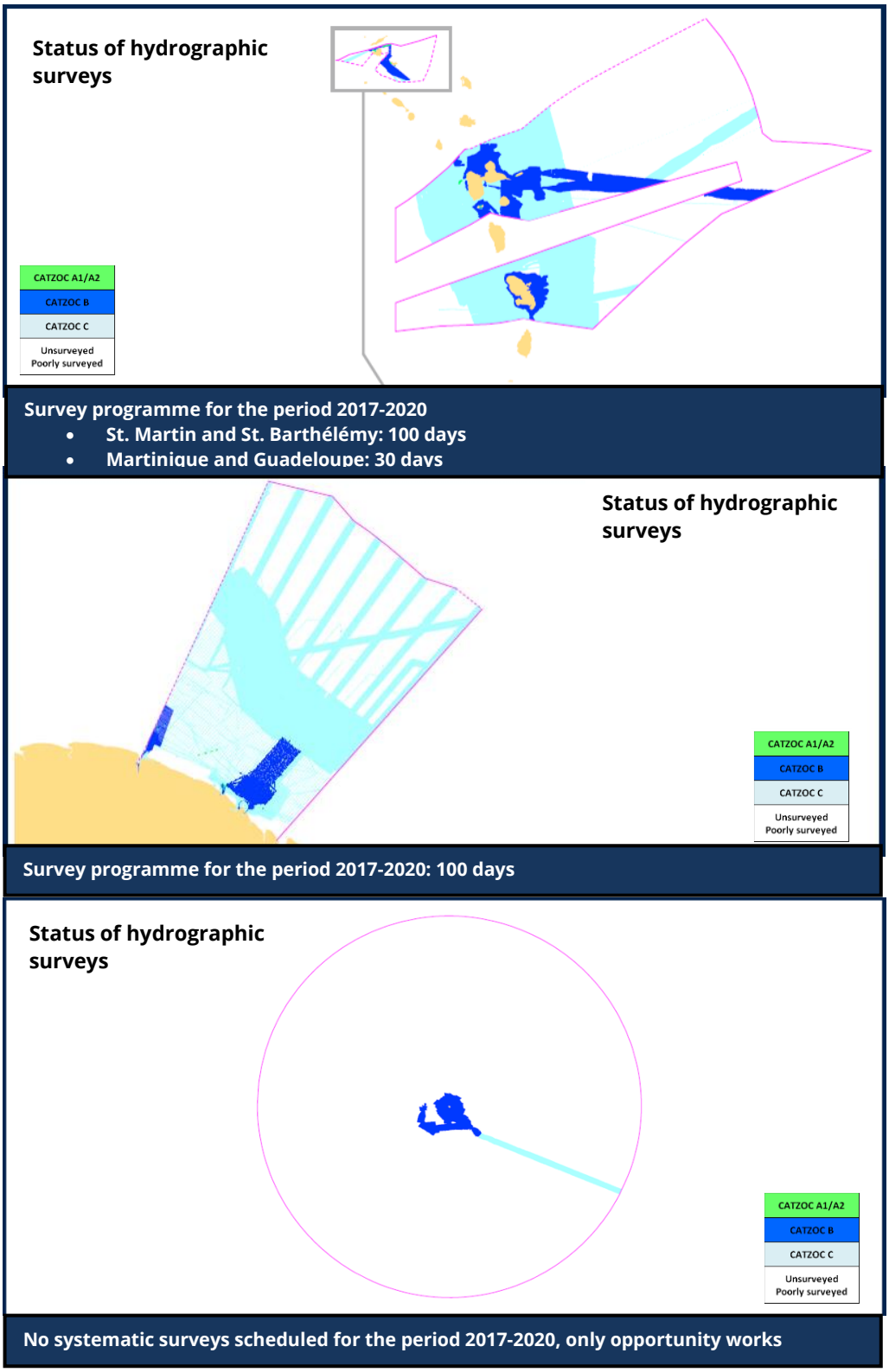


Fig.5-a/b/c : (top to bottom) Existing surveys for French Antilles, French Guyana and Clipperton Island waters

2.4. New technologies and / or equipment

Mid-life upgrade of BHO *Beautemps-Beaupré* has been conducted (between end 2017 and beginning 2018). During dry dock the following hydro-oceanographic systems have been installed: EM712 0,5x1° multibeam echo sounder, SBP27 sub bottom profiler and EA640 single beam echo sounder from Kongsberg Maritime, POSIDONIA-2 deep water & long range USBL system and HYDRINS inertial navigation system from iXblue, Ocean Surveyors 150kHz and 38 kHz vessel mounted ADCP and RapidCast profiling system from Teledyne RDI, SBE21 thermosalinograph and SBE38 temperature sensor from Seabird, MK21 Ethernet data acquisition system from LM Sippican KSS32M marine gravity meter from BGGS, CG5 portable gravity meter from MicroG Lacoste, ACXC80 video monitoring system from Black Box, a complete network system from Hewlett Packard and Quantum, a deployment system for the Kullenberg piston corer from CNNMCO, Bretagne Hydraulique and ENAG.

After sea-trials in February 2018, BHO *Beautemps-Beaupré* is operational to conduct surveys.

2.5. New ships

NTR.

2.6. Problems encountered

NTR.

3. New charts & updates

3.1. ENCs

As of 1st November 2018, Shom has produced 654 ENCs, of which 49 ENCs within region B.

The full collection should eventually reach around 900 ENCs, with an approximate rate of 50 new cells per year.

In line with the WEND recommendations and guidelines, France produces its small scale ENC cells as closely as possible to INT chart schemes.

The ENC schema is now complete in region B. Details are provided in the table below:

Usage Band	Produced Cells	Planned Cells	Percentage
1	0	0	N/A
2	3	3	100%
3	4	4	100%
4	10	10	100%
5	27	32	100%
6	5		
Total	49	49	100%

The following figures are extracts from the online PRIMAR catalogue http://www.primar.org showing Shom ENC coverage within the MACHC (region B) area:

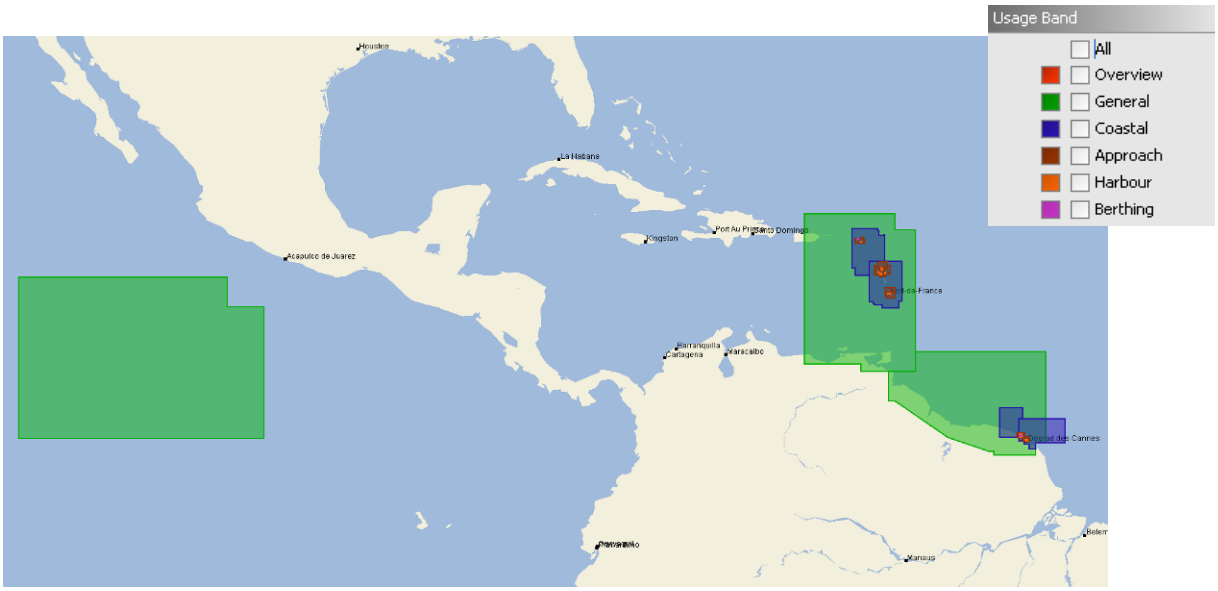


Fig.6 : Shom' ENC coverage within Region B area.

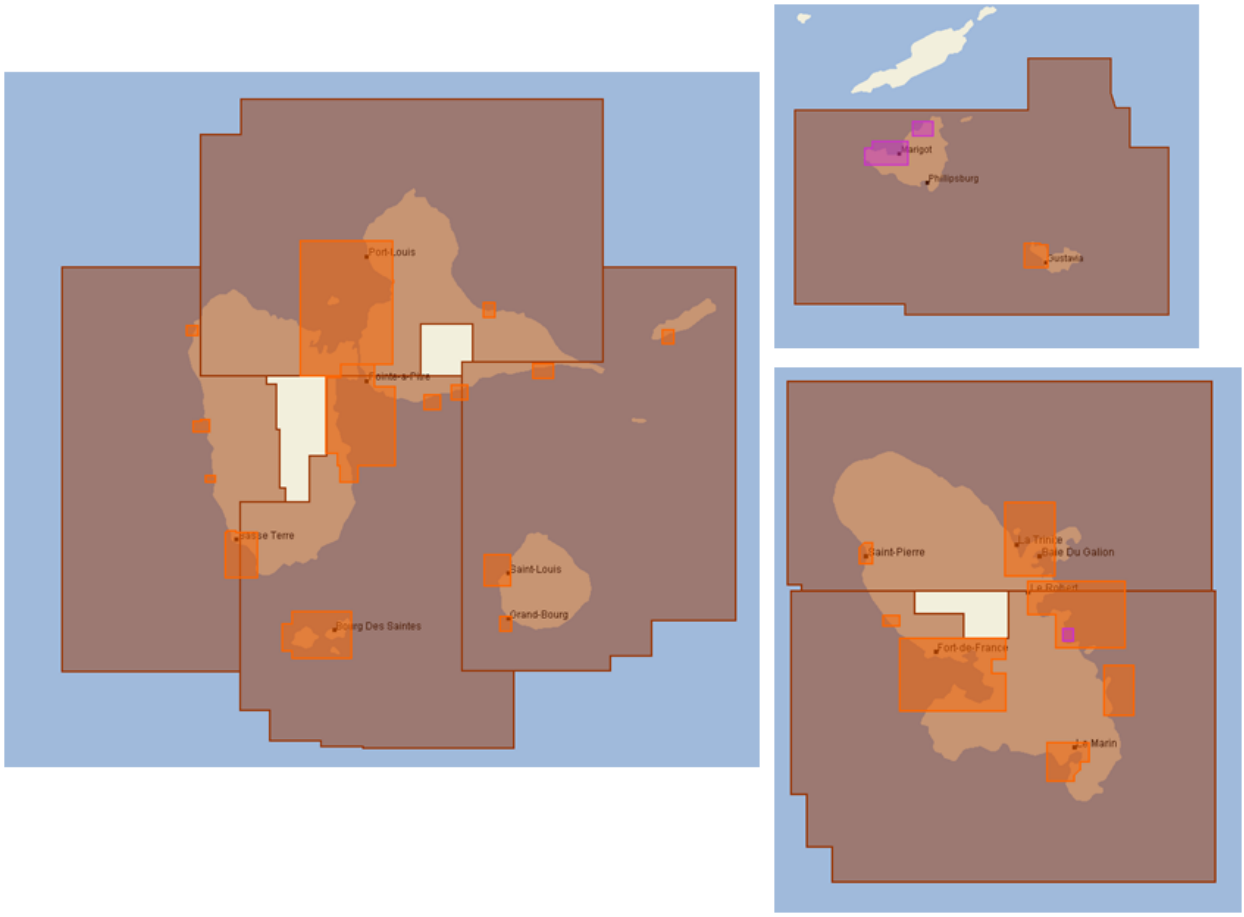


Fig.7: Shom ENC coverage focus (UB 4-6) in French Antilles (Guadeloupe, left – St Martin & St Barthélemy, top right – Martinique, bottom right).

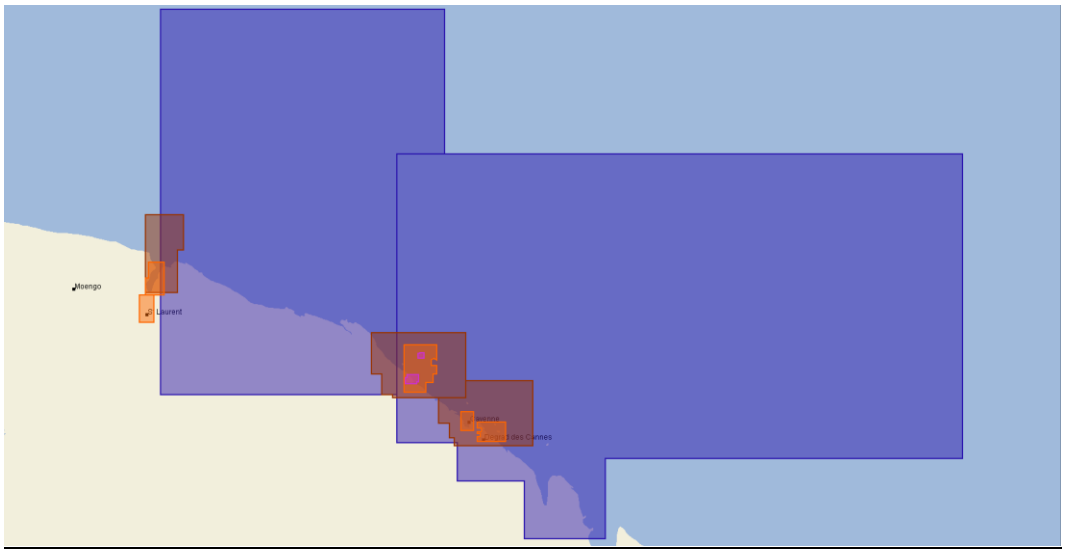


Fig.8 : Shom ENC coverage focus (UB 3-6) in French Guyana.

Some ENCs were produced since the last conference:

Number	Scale 1:	Title
FR57472E	12 000	*Petites Antilles – Saint Barthélémy : Gustavia Harbour*
FR57102A	8 000	*Grande Terre – Le Moule*
FR57102C	8 000	*Grande Terre – Sainte Anne and Anse Accul*
FR57102D	8 000	*Grande terre – Saint François*

3.2. ENC Distribution method

All French ENCs (S-63 encrypted format) are distributed to End User Service Providers by PRIMAR RENC. France is providing its support to the work plan of the WEND working group for improving the implementation of WEND principles.

3.3. RNCs

NTR.

3.4. INT charts

Here are the INT charts produced since the last conference:

INT	Scale 1:	Title	Comment
4070	1 010 000	De Trinidad à Cabo Orange	FR7625
4184	304 400	Petites Antilles – Partie Centrale (De Montserrat à Saint Lucia)	FR7631
4182	300 000	Petites Antilles – Partie Nord (De Anguilla à la Guadeloupe)	FR7630

No new INT charts are included in the production plan for the period 2019-2020.

Here the overall INT chart production status for the region B (*changes in red*):

Scale	Produced INT charts	Planned INT charts	Percentage
Small (<1/1 000 000)	1	1	100
Medium	4	4	100
Large (>1/100 000)	0	0	/
Total	5	5	100

3.5. National paper charts

Since the last MACHC meeting, the following charts have been edited:

National	INT	Scale 1:	Title
6892	/	15 000	Baie de Fort-de-France
7101	/	15 000	Les Saintes
7102	/	Various	Ports et mouillages de Grande-Terre, de Marie-Galante et de la Désirade
7377	/	10 000	Ports du Larivot et de Cayenne

Following charts are planned to be issued in 2018/2019:

National	INT	Scale 1:	Title
7480	/	10 000	Accès au fleuve Kourou – Port de Pariacabo
7481	/	25 000	Approches de Kourou – Iles du Salut
7379	/	15 000	Abords de Cayenne
7376	/	60 000	Embouchure du fleuve Maroni
7471	/	60 000	D'Antigua à Saint-Barthélemy

3.6. Other charts, e.g. for pleasure craft

Shom provides georeferenced marine charts in GeoTiff and S-57 format when produced. These digital marine charts are now available through Shom's online store http://diffusion.shom.fr under various licenses[2] according to the purpose of use. These data can be used with GIS or cartographic software for commercial or private purposes.

A S-57 license[3] allows unlimited download of updated versions for 12 months from the date of purchase.

3.7. Problems encountered

Following hurricane Irma on September 5th 2017, several actions have been conducted on French charts and ENCs:

[2] Internal reuse, commercial reuse, documentary use or end user.

[3] Each license allows internal reuse of the data for up to 5 workstations. For more information, contact *bps@shom.fr*

➢ ENCs

Chapter 2.2.3.1. of the UOC (S57 – Appendix B.1, Annex A), Quality of bathymetric data, has the following :

- As a result of some disasters, e.g. earthquakes, tsunamis, hurricanes, it is possible that large areas of seafloor have moved and/or become cluttered with dangerous obstructions. Emergency surveys may subsequently be conducted over essential shipping routes and inside harbours. Outside these surveys, all existing detail is now suspect, whatever the quality of the previous surveys. In such cases, the CATZOC value should be reclassified to value *5* (zone of confidence D) in the affected areas outside the area covered by emergency surveys.

In accordance with this rule, Shom changed the CATZOC value on the large scale ENCs of Saint-Martin and Saint-Barthélemy.

In addition, a CNTARE has been created, with INFORM ="*Major changes to depths and topography in the area covered by this chart may have occurred as a result of hurricane Irma on 5 September 2017. Mariners must be aware of possible uncharted dangers to navigation and contact the harbour authority for access conditions*."

Surveys scheduled for 2019 (lidar surveys) and 2020 (MBES surveys in critical areas for navigation, in addition to lidar surveys) will update hydrographic knowledge and revert to better CATZOC values.

➢ Paper charts

Notes have been added to FR7471 and FR7472 to warn the mariner.

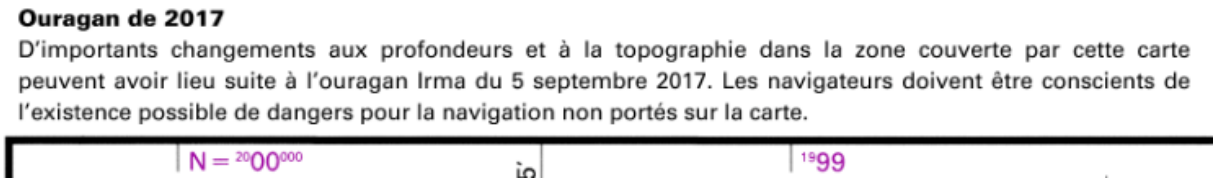


Fig.9 : Note added to FR7472 by NTM/Block.

4. New publications & updates

4.1. New Publications

NTR.

4.2. Updated publications

Publications are updated weekly in accordance with the Shom Notices to Mariners.

4.3. Means of delivery

All nautical publications are available in digital format only (pdf files) on Shom's online shop (diffusion.shom.fr).

5. MSI

5.1. Existing infrastructure for transmission

Shom's notices to mariners (GAN) are exclusively available under digital formats on Shom website: http://diffusion.shom.fr/gan.

5.2. New infrastructure in accordance with GMDSS Master Plan

There is no NAVTEX station related to French overseas territories, MSI warnings are broadcast through SafetyNet network.

Hereafter are listed the French overseas territories POCs for NAVAREA IV and XII:

AREA	COUNTRY	NAME	TELEPHONE	FACSIMILE	EMAIL
IV	French Antilles	Commandant de Zone Maritime Antilles	+596 (0)5 96 39 50 59 +596 (0)6 96 28 40 82	+596 (0)5 96 39 51 65	opsmer.faa@wanadoo.fr
IV	French Guyana	Commandant de Zone Maritime Guyane	+594 (0)5 94 39 56 69 +594 (0)6 94 26 88 05	+594 (0)5 94 39 57 20	nauticinfo.guyane@netfag.fr
XII	Clipperton (Île)	JRCC Tahiti	+689 (0) 40 54 16 16 +689 (0) 40 54 16 15	+689 (0) 40 42 39 15	contact@jrcc.pf tahiti.cdq.fct@intradef.gouv.fr

5.3. Problems encountered

NTR.

6. C-55 Latest update

C-55 charting and surveying status updated values regarding Region B areas under Shom responsibility are summed up in the following tables :

Survey Status Updated November 2018		Depth < 200m			Depth > 200m		
		A	**B**	**C**	**A**	**B**	**C**
A	France - Clipperton Island	0	83.8	16.2	3.3	0	96.7
B	France - French Antilles	23.0	50.6	26.4	36.3	10.9	52.8
	France - Guyane	0,1	42.1	57.8	58.3	0	41.7

Charting Status Updated November 2018		Small (<1 M)			Medium (1M < / < 100 000)			Large (> 100 000)			Metric	WGS84
		A	**B**	**C**	**A**	**B**	**C**	**A**	**B**	**C**		
A	France - Clipperton Island	100	0	100	NA	0	0	NA	0	0	100	100
B	France - French Antilles	100	0	NA	100	0	100	100	0	100	100	100
	France - Guyane	100	0	100	100	0	100	100	0	100	100	100

C-55 values for survey status (top table) and charting status (down table). Updated values are highlighted in red.

7. Capacity Building Offer of and/or demand for Capacity Building

7.1. Training received, needed, offered

Initial training capabilities provided by Shom include the following FIG-OHI-ACI courses: category B for hydrographic surveyors and category B for nautical cartographers. So far, those courses[4] are provided in French and are open to francophone foreign applicants.

A category A course for hydrographic surveyors is provided at ENSTA Bretagne.

[4] Training offer:http://www.shom.fr/fileadmin/data/DRH/FOR/Ecole/Catalogue_de_formation/2017-2018/catalogue_formations_2017-2018_WEB.pdf /
Modalities: drh-for-eco@shom.fr

Fig.10 : Courses and training provided at the Shom hydrographic school (source: shom.fr)

7.2. Status of national, bilateral, multilateral or regional development projects with hydrographic component

Within the MACHC region, an agreement has been established in 2014 between the Maritime Authority Suriname (MAS) and the Shom in the field of hydrographic surveys, exchange of hydrographic information and data, and training in hydrography and cartography.

Taking advantage of the French survey ship *Borda*'s port-call in Paramaribo on October 13th, a MAS delegation was invited on board to review the cooperation actions.

BH2 *Borda* surveys in French Guyana made it possible to offer a one day on-board training to two MAS hydrographers. This training took place near Mana (East of the Maroni River) on October 24th, attended. During this day, they had the opportunity to participate to a shallow water survey on-board one of the hydrographic launches (MBES, SBES, SVP), to visit the BH2 *Borda*, and to process the MBES data collected.

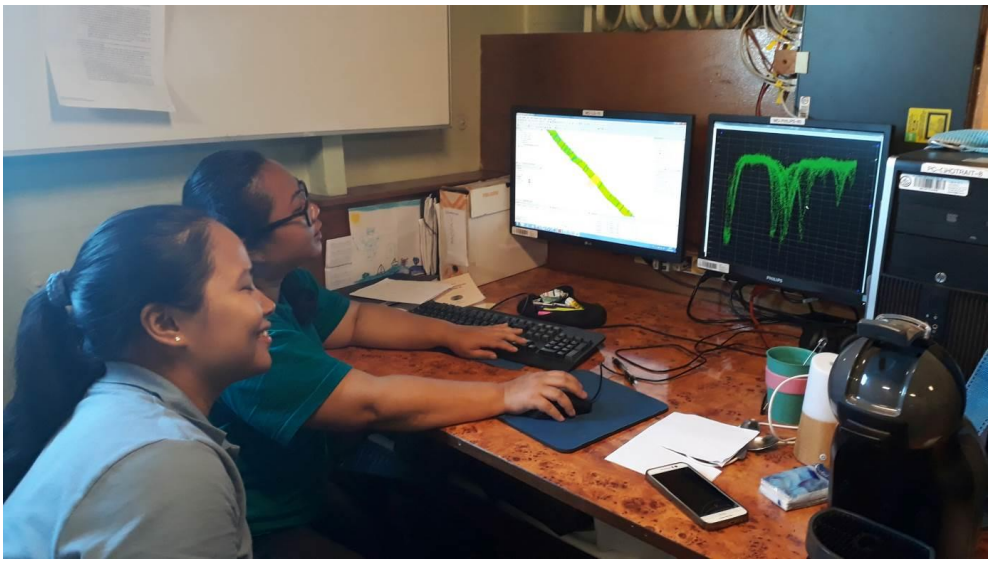


Fig.11: Training for 2 MAS hydrographers onboard BH2 Borda during Mana survey

7.3. Definition of bids to IHO CB Work Programme

NTR.

8. Oceanographic activities

8.1. GEBCO/IBC's activities

On waters under French jurisdiction in the MACHC region, Shom's bathymetric data are accessible:

- in the form of regional or coastal bathymetric DTMs: http://diffusion.shom.fr/pro/risques/bathymetrie.html?p=1
- in the form of bathymetric datasets (soundings): http://diffusion.shom.fr/pro/amenagement/bathymetrie/lots-bathy.html

8.2. Tide gauge network

Shom is the national coordinator and reference authority for the observation of the sea level, managing and issuing the resulting data. Besides, including these produced by Shom tidal network, RONIM. These missions are carried out under the REFMAR programme. All real time and processed tide gauge measurements collected under that programme are freely accessible on the web http://data.shom.fr/#donnees/refmar for all areas under French jurisdiction.

This network is recognized as an important tool for coastal operational oceanography, risk assessment, studies on the evolution of the mean sea level, etc.

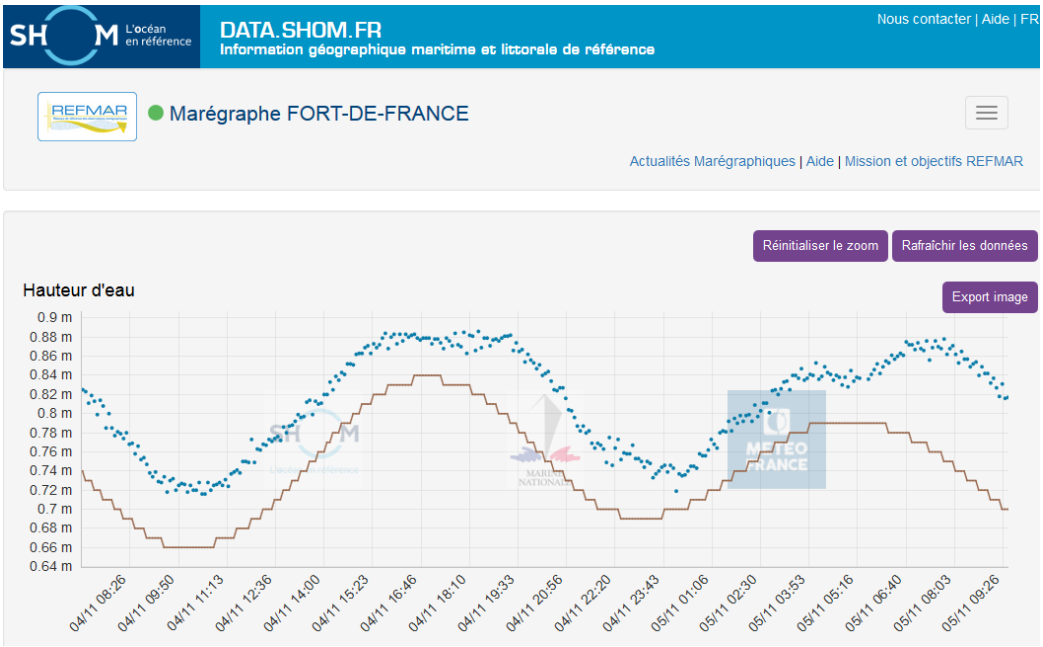


Fig.12 : Real time measurements from REFMAR tidal network on Shom's web portal (data.shom.fr)

Since May 2016, Shom's tidal predictions are available through a web/smartphone/tablet-friendly online service named maree.shom.fr. This service provides free access of one year of tidal predictions from over 1,000 harbours worldwide.

Within the REFMAR network, 10 French permanents tide gauges are located in the region:

- Guadeloupe : Pointe-à-Pitre (Shom/Météo-France/DM Guadeloupe), Deshaies (IPGP) and La Désirade Island (IPGP) ;
- Martinique : Fort-de-France (Shom/Météo-France/marine nationale), Le prêcheur (CG Martinique), Le Robert (CG Martinique) ;
- Saint-Martin : Le Marigot (CT Saint-Martin) ;
- French Guyana : Îles du Salut (Shom/DM Guyane), Îlet La Mère (DM Guyane) and Dégrad des Cannes (DM Guyane).

More information about Shom's involvement can be found through the following link :

http://refmar.shom.fr/fr/sea_level_news_2012/t2/coordonner-l-alerte-aux-tsunamis-dans-les-petites-antilles-source-deal-guadeloupe

During 2017 cyclonic season, tide gauges of northern Antilla were decisive in providing authorities with first-hand recordings of sea level rises, allowing quick assessment of storm surges. Saint-Martin tide station was directly hit by Irma cat. 5 Hurricane and suffered minor damages while being able to record the 2m surge.

In 2018, hydrographic surveys were carried out by Shom in Guyana, on which occasion several sea level observatories were controlled.

8.3. New equipment

NTR.

8.4. Problems encountered

NTR.

9. Other activities

9.1. Meteorological data collection

NTR.

9.2. Geospatial studies

NTR.

9.3. Disaster prevention

France may have Navy ships in the MACHC region ready to provide support in case of an emergency. France also provides technical support and has a rapid response capacity for environmental data in case of a disaster.

The point of contact at Shom in case of a marine disaster is the head of the maritime safety information division. This division can be reached 24/7 by fax +33 298 221 665 or email coord.navarea2@shom.fr.

- **Tsunami :**
  Shom contributes to tsunami warning for the Caribbean via the Pacific Tsunami Warning Centre (PTWC) which issues, on an interim basis, threat information for the Caribbean. The importance of the development of real-time tide gauges on French coast and operated by Shom, IPGP, CG Martinique, is recognised as a key component for the development of a regional tsunami warning system.

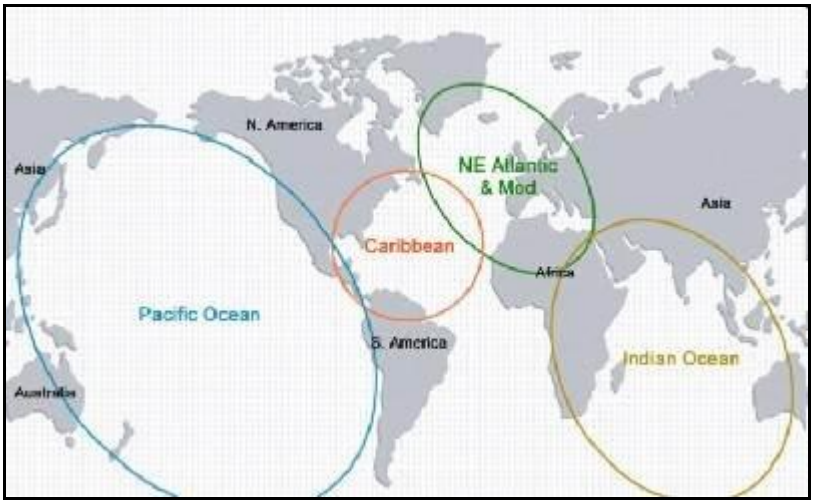


Fig.13 : Cooperation areas on tsunami warning system (source COI; UNESCO).

- **Coastal flooding :**

Shom is associated with *Météo-France* in the provision and improvement of an alert system against storm surges and tides named *Vigilance Vagues Submersion (VVS).* This allows for a better anticipation of flooding and protection of the populations living in the littoral area of Metropolitan France. An extension of that alert system towards French overseas departments is currently under work.

Shom provides the tidal predictions, development and expertise on coastal hydrodynamic and wave models,real time tide gauge observations as well as information relative to extreme sea levels and bathymetry. *Météo-France*'s marine forecasters perform a comprehensive analysis of observation and model outputs to produce a forecast, summarized on a map depicting the level of awareness to adopt along French metropolitan department.

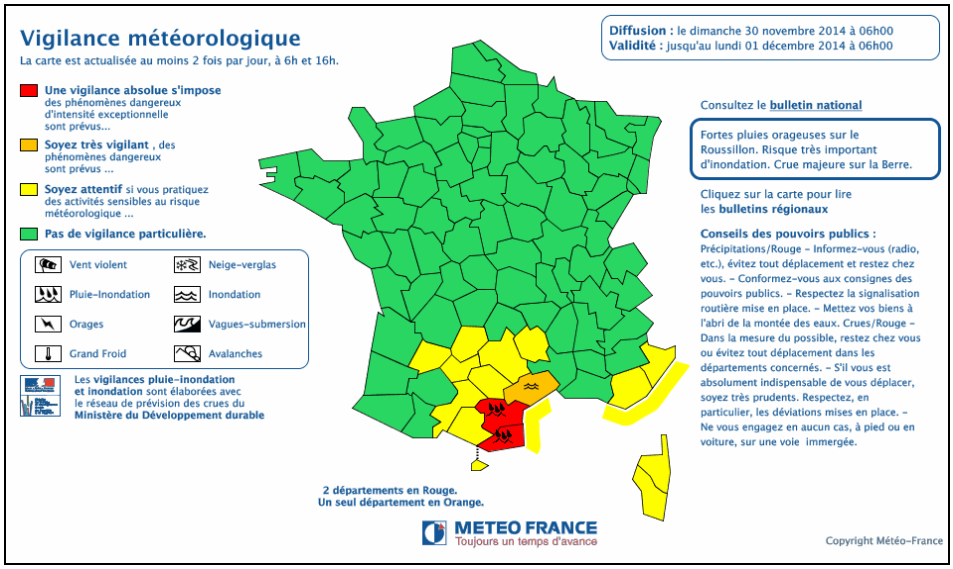


Fig.14: An example of coastal flooding alert (yellow level).
Costs subject to alert are underlined according to the alert level (source www.meteo.fr).

Improvements on surges and waves modelling capacities, wherever it is required along domestic or overseas coasts, are achieved in the framework of the HOMONIM Project conducted in close partnership with Météo-France. The on-going works already succeeded in:

- the production of a first range of multi-scale bathymetric digital terrain models, crucial to improve coastal hydrodynamics modelling,
- a fully operational implementation, at Météo-France, of a regional storm surge forecast model and coastal wave models over French Antilles and French Guyana.

Storm surge configurations are based on a 2D barotropic version of the HyCom model implemented on a curvilinear grid with varying resolution of 2,5 km in French Guyana and 900 m around Caribbean islands.

The wave configurations rely on the spectral wave model WW3 implemented on various computational grids with roughly 200 m resolution at shore.

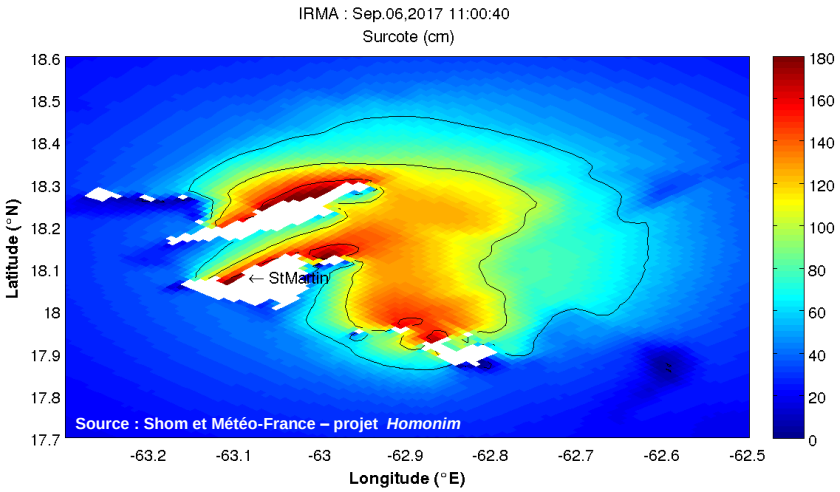


Fig.15 : Storm surge forecast during hurricane Irma on sept. 6 2017 at 11:00 AM (credit : Shom & Météo-France – Homonim project)

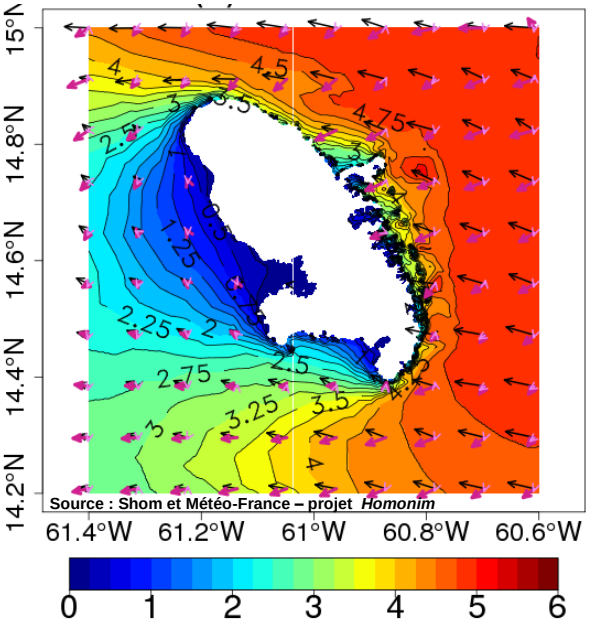


Fig.16 : Example of coastal wave forecast around Martinique island. (credit : Shom & Météo-France – Homonim project)

- **Oil spills:**

NTR.

9.4. Environmental protection

NTR.

9.5. Astronomical observations

NTR.

9.6. Magnetic/Gravity surveys

NTR.

9.7. MSDI Progress

Since the launch of Shom's maritime and coastal geographic information portal data.shom.fr, further developments have been implemented with new online services data layers on a regular basis. Hereafter are listed some of the latest evolutions:

- Improved content for oceanographic data : finer description of swell characteristics, automatic and tailored oceanographic report

- Improved cartographic tools
- Timeline function : time synchronisation of layers to produce animated features
- New layer on administrative limits
- New bathymetric terrain models: Clipperton island, Guadeloupe and Martinique islands, Saint-Martin and Saint-Barthélemy islands, French Guyana
- Maritime archives: old charts and survey sheets have been scanned and are now available on the web site

Since December 3rd 2017, in accordance with France open data policy, Shom has widely opened up access to its core data: bathymetric data, wrecks, cables, bottom types, maritime limits, and toponyms databases are distributed under Creative Commons « CC-BY-SA 4.0 » licence.

Those evolutions can all be followed via Shom's Twitter account (@shom_en & @shom_fr).

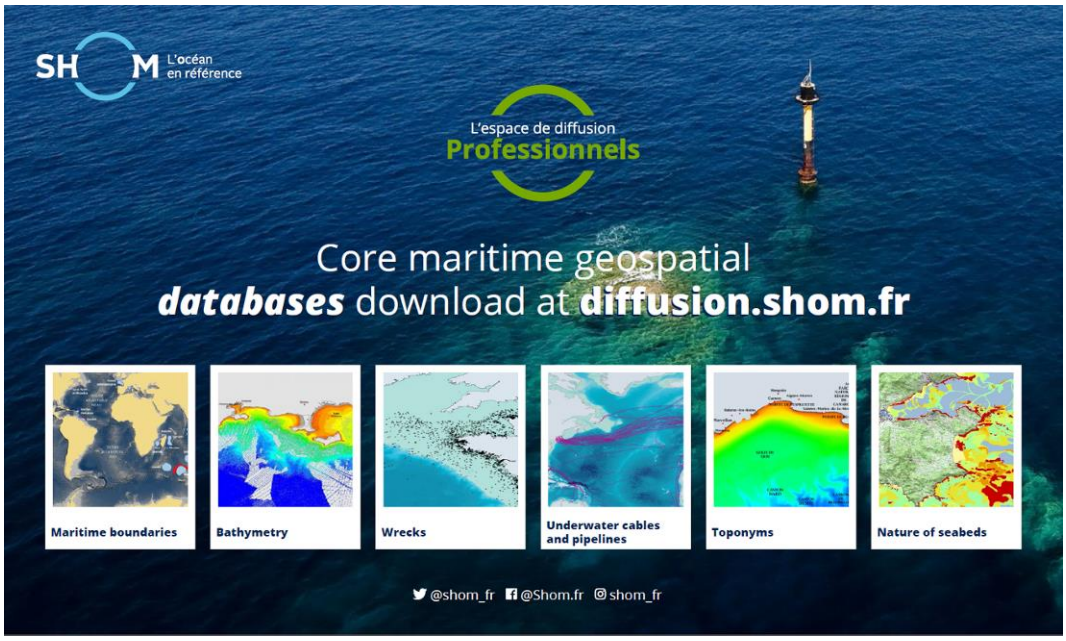


Fig.17 : open data (diffusion.shom.fr)

A detailed description of the portal functions and contents is available on Shom website (http://www.shom.fr/les-services-en-ligne/portail-datashomfr/).

Data available on that portal are organised according to the following topics:

- Master data: *charts, maritime boundaries, maritime and coastal databases, coastal altimetry , bathymetry, vertical datums, sedimentology, tides and currents and marine archives ;*
- Oceanographic forecast *: sea state, meteorology, sea level, hydrodynamic ;*
- Coastal observations *: HF radar and tide gauge data*

Not all these information are available on MACHC region.

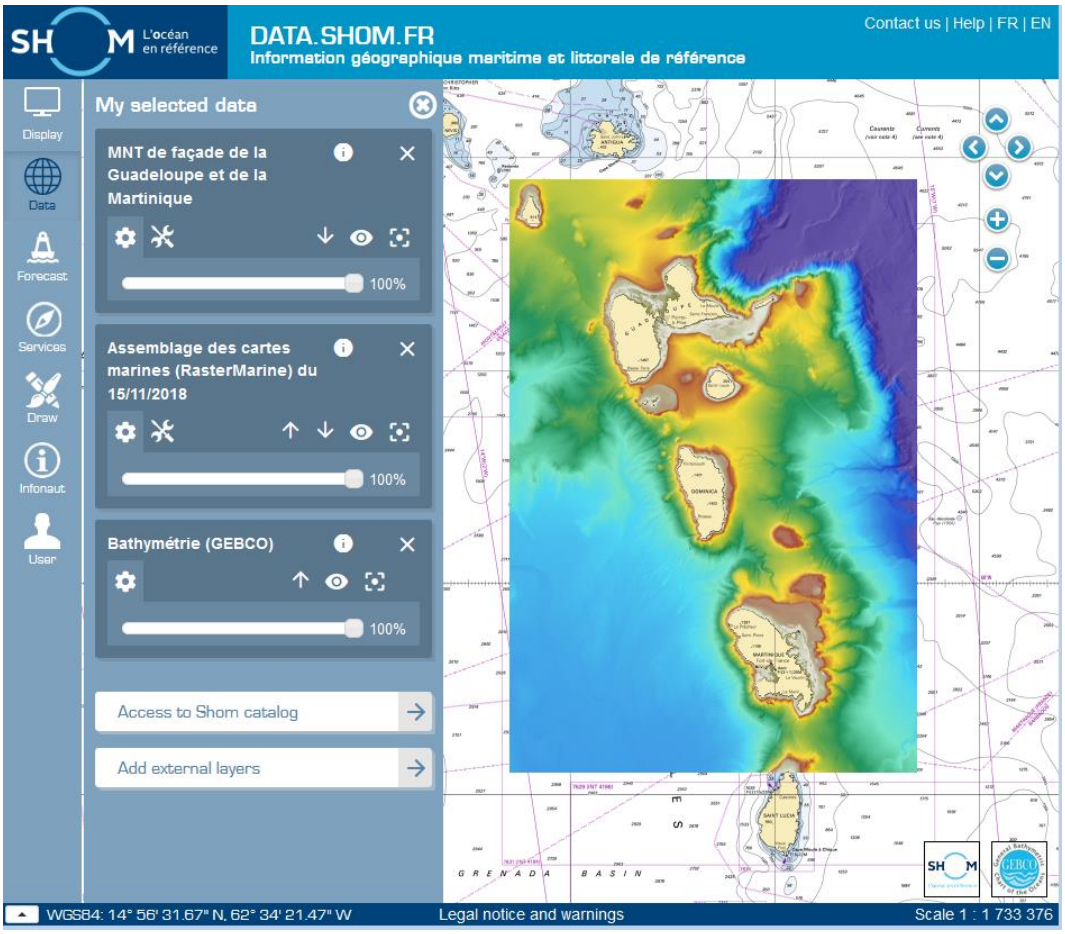


Fig.18 : 100m global bathymetric DTM of Martinique and Guadeloupe islands (data.shom.fr)

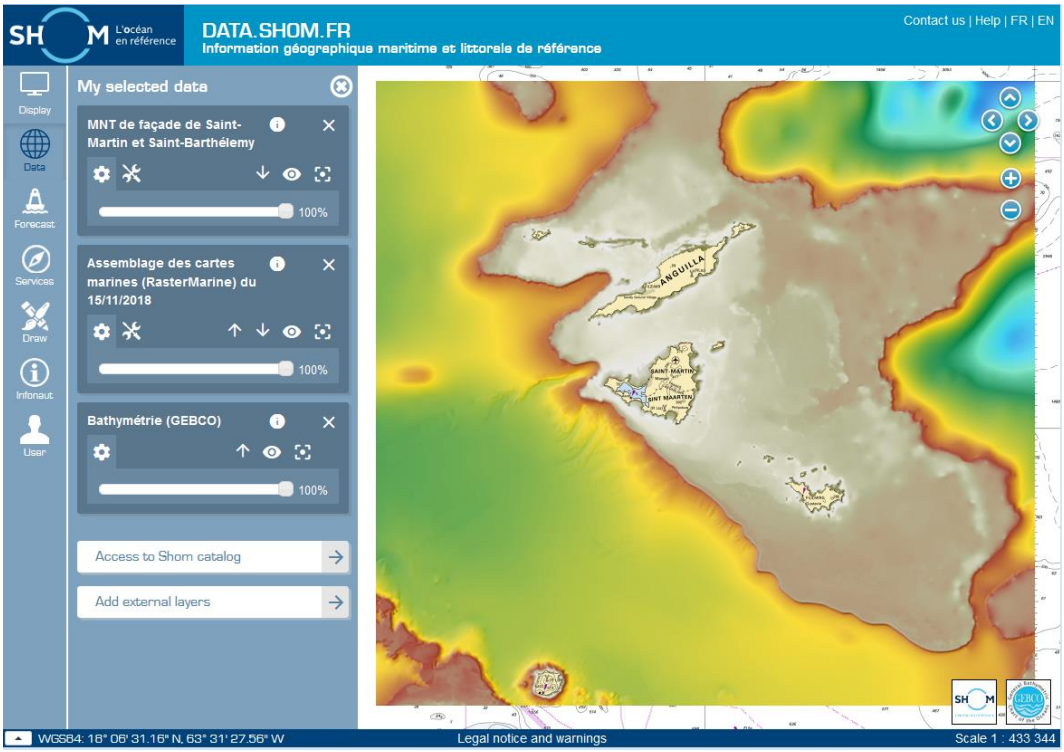


Fig.19 : 100m global bathymetric DTM of Saint-Martin and Saint-Barthélemy (data.shom.fr)

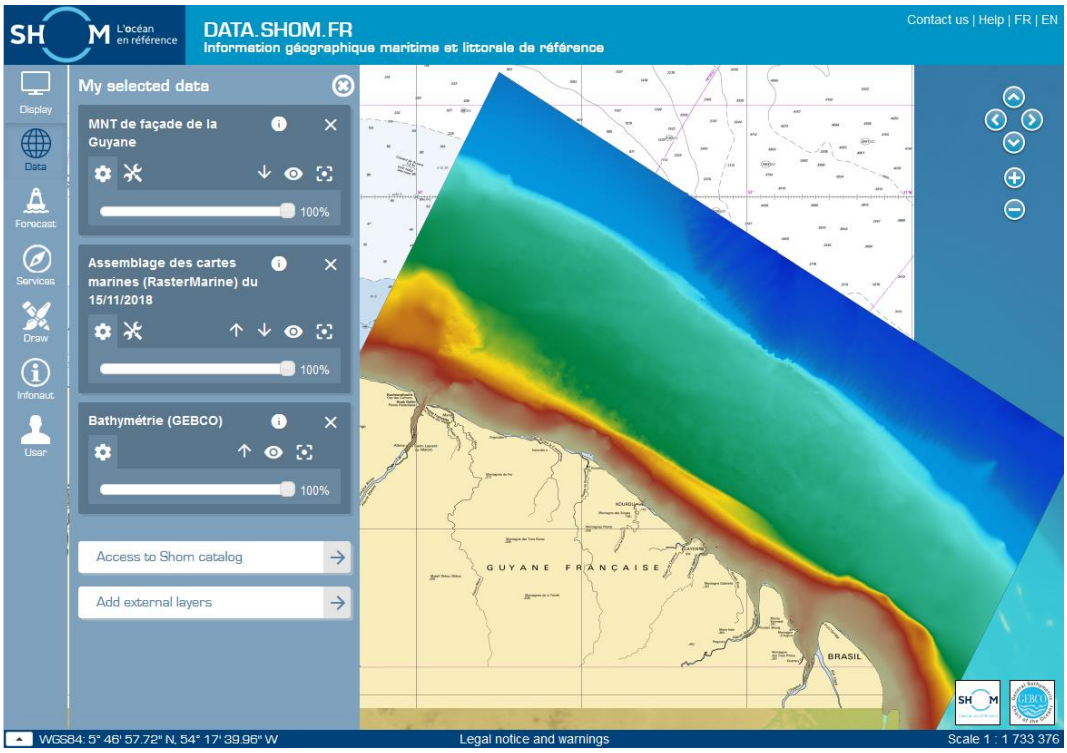


Fig.20 : 100m global bathymetric DTM of French Guyana (data.shom.fr)

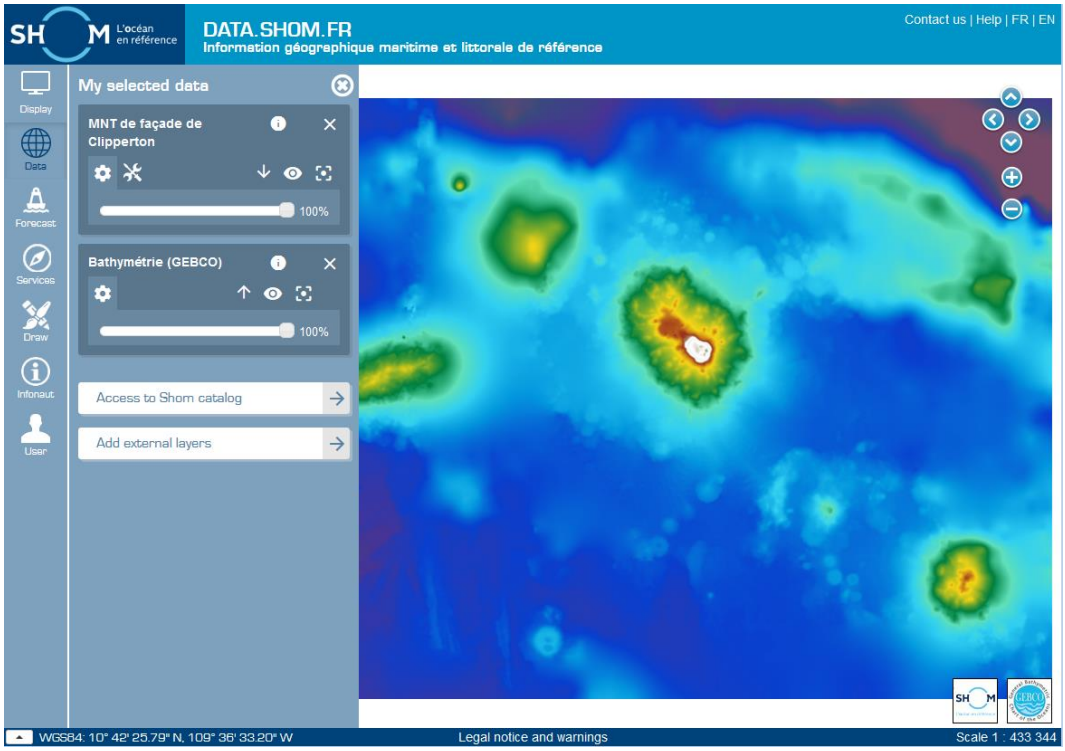
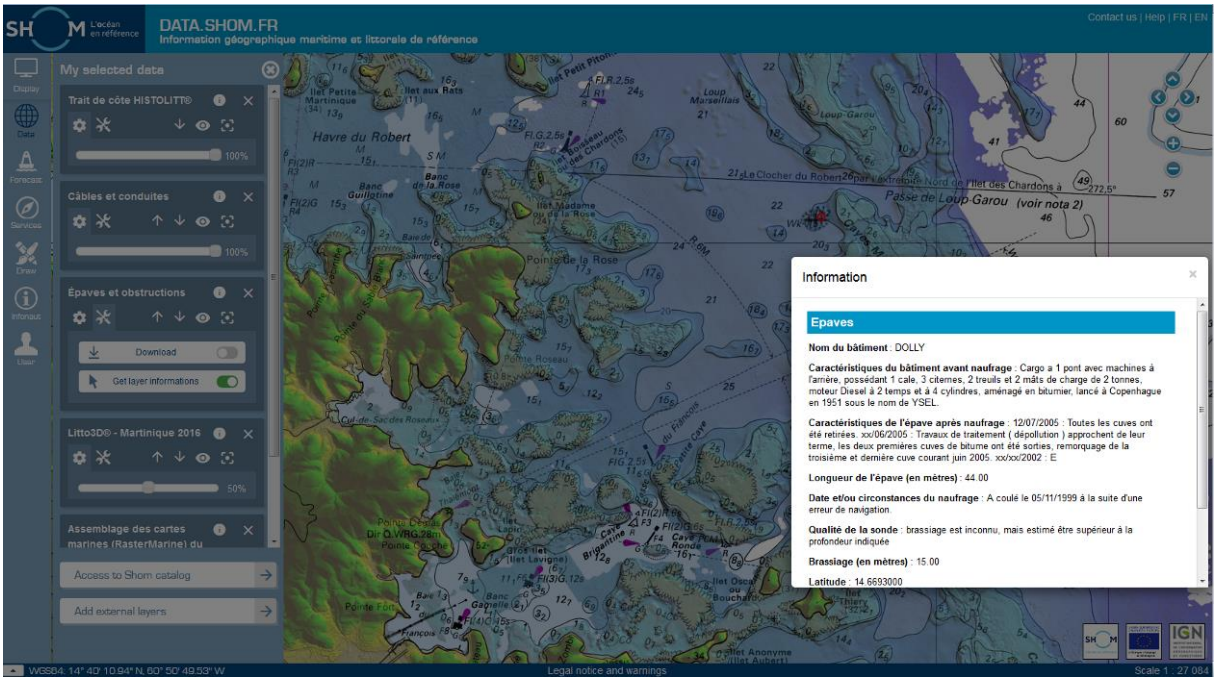
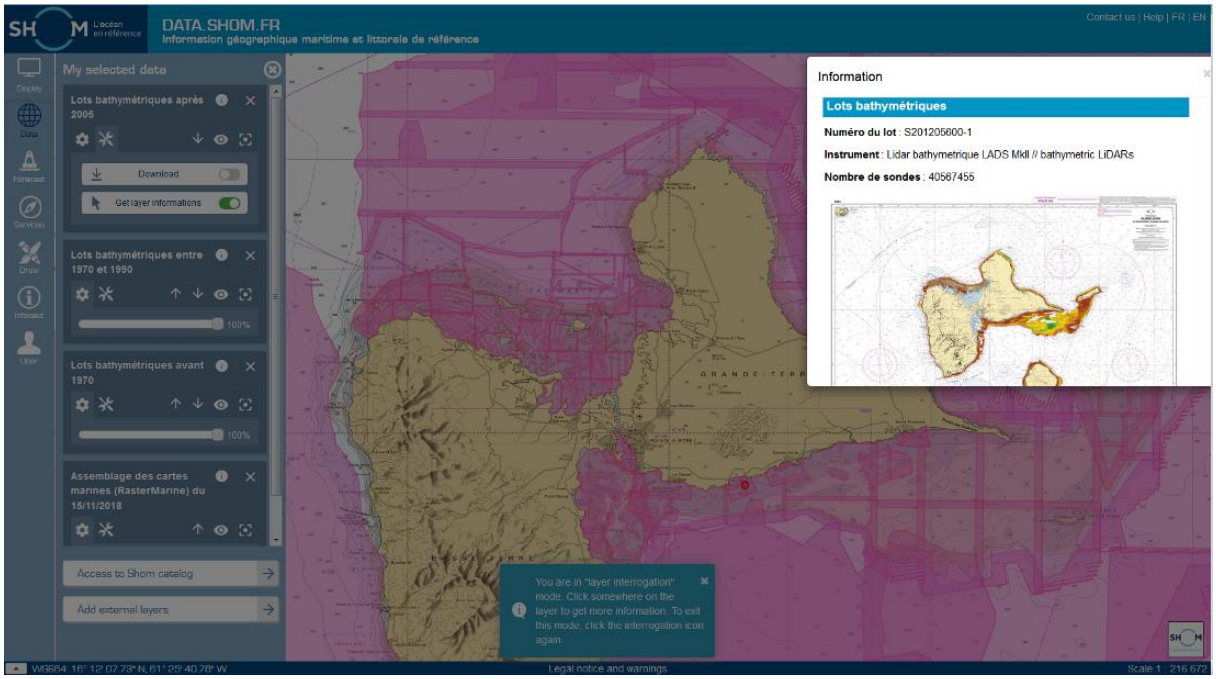


Fig.21 : 100m global bathymetric DTM of Clipperton Island (data.shom.fr)



<u>Fig.22 :</u> Nautical charts (RasterMarine), coastline, topo-bathy lidar, wrecks (data.shom.fr)



<u>Fig.23 :</u> Bathymetric data (data.shom.fr)

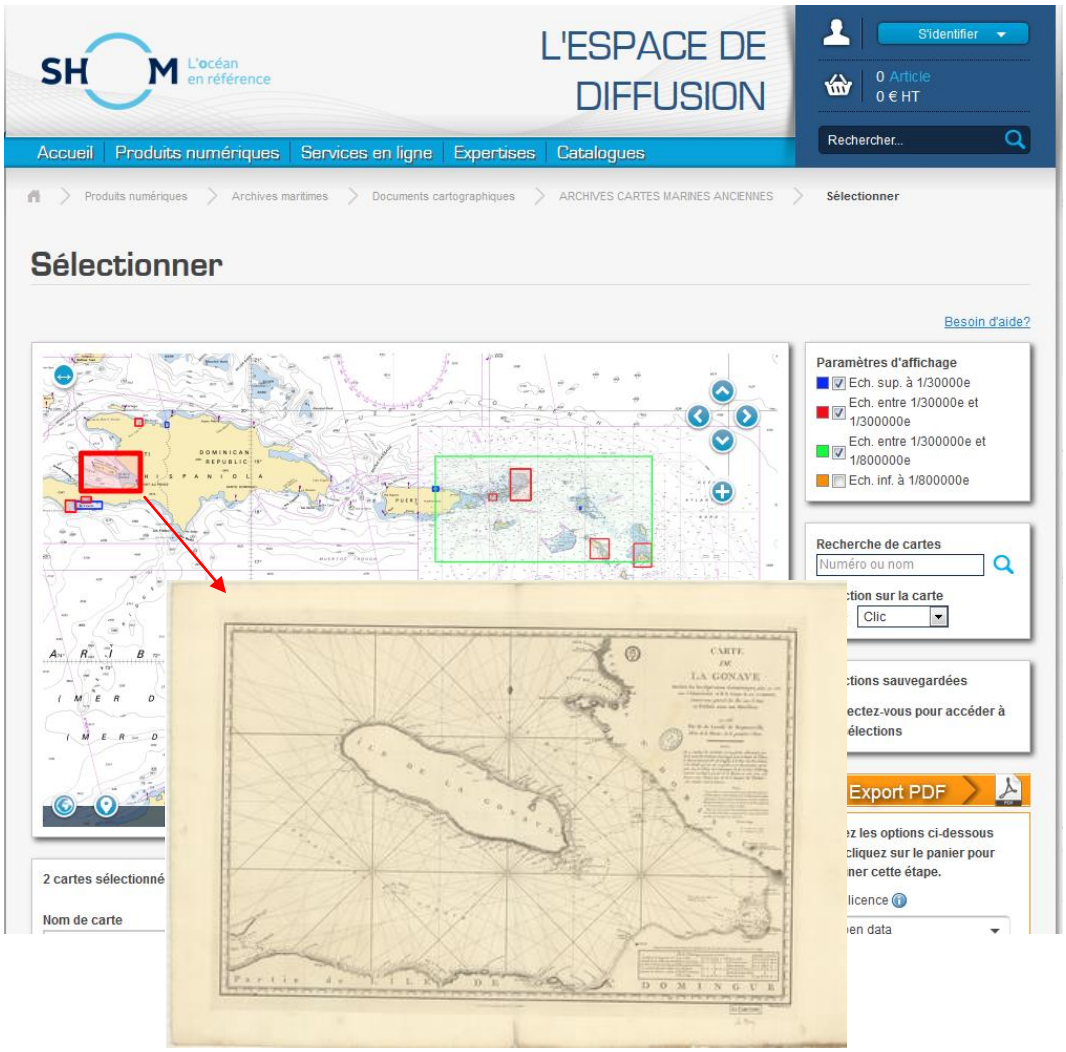


Fig.24 : Archives: nautical charts and survey minutes (diffusion.shom.fr)

On Friday 8th June 2018, on the occasion of World Ocean Day, the Shom and the General Secretariat for the Sea (SG Mer) opened the French maritime limits portal: https://limitesmaritimes.gouv.fr/

Fig.25 : French maritime limits portal

Operated by Shom as the national expert and reference body for maritime delimitation, this portal is coordinated under the umbrella of the SG Mer. It aims to be the national site for consultation and diffusion of the official information on the maritime delimitations of France, particularly the legal references and digital data.

9.8. International

Because of its overseas territories and primary charting responsibilities, France, represented by Shom, is a member or associate member in 9 regional hydrographic commissions.

The detail of Shom's involvement in other IHO activities is listed in the table hereafter:

Name	Chair / Vice chair	Member	Observations
CBSC		✓	Capacity Building Sub-Committee
NCWG		✓	Nautical Cartography Working Group
ENCWG		✓	ENC Standards Maintenance Working Group
DPSWG		✓	Data Protection Scheme Working Group
DQWG		✓	Data Quality Working Group -Last meeting in 1996
EAtHC		✓	Eastern Atlantic Hydrographic Commission
FC		✓	Vice-chairman of Finance Committee
GEBCO		✓	Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of Oceans (GEBCO)
HCA		✓	Hydrographic Commission on Antarctica
HDWG	✓	✓	Hydrographic Dictionary Working Group
HSSC		✓	Hydrographic Services and Standards Committee
IENWG	✓	✓	IHO-European Union Working group
IRCC		✓	Inter-Regional Coordination Committee
MACHC		✓	MESO American & Caribbean Sea Hydrographic Commission
MBSHC		✓	Mediterranean and Black Seas Hydrographic Commission
MSDIWG		✓	Marine Spatial Data Infrastructure Working Group
NIOHC		✓	North Indian Ocean Hydrographic Commission
NIPWG		✓	Nautical Information Provision Working Group
NSHC		✓	North Sea Hydrographic Commission
RSAHC		✓	ROPME Hydrographic Commission
S100WG		✓	S-100 Working Group
SAIHC		✓	Southern Africa and Islands Hydrographic Commission
HSPT	✓		S-44 Hydrographic surveys Project Team
SWPHC		✓	South-West Pacific Hydrographic Commission
TWCWG	✓	✓	Tidal, Water Level and Currents Working Group
WEND		✓	Wold-Wide Electronic Navigational Chart Database
WWNWS		✓	World-wide Navigational Warning Service Sub-Committee

10. Conclusions

Shom supports any initiatives aiming at improving the maritime knowledge and the navigation safety, as far as the data collected benefits the charting authorities and the update of nautical documentation of that region.

Destinataire	:	OHI.
Copies intérieures	:	DG – DMI - DMI/REX – Archives (DMIDSD 2.033).