

**20TH MEETING OF THE MESO AMERICAN – CARIBBEAN SEA
HYDROGRAPHIC COMMISSION (MACHC20)
Santo Domingo, Dominican Republic – 3-6 December 20189**

NATIONAL REPORTS FROM FRANCE TO THE MACHC20

References:

- A. IHO Resolution 2/1997 as amended (see doc. C3-04.2A, [Appendix to Annex A](#))
- B. IHO Circular Letter 20/2019, The IHO online form system for responses to Circular Letters and input to IHO Publications (P-5 and C-55): [link](#)
Online system for P-5 (Yearbook): [link](#)
Online system for C-55 (Status of Surveys and Charting Worldwide): [link](#)

Executive summary

1. Hydrographic Office / Service:

- a) Name of the institution: Shom.
- b) Description:

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

- c) Submitted by: Capt Laurent Kerleguer, Shom Chief Executive –
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Detailed information to update IHO Publication P-5 (*Yearbook*) have been submitted using the online system (reference B).

2. Surveys:

[Describe any significant developments since the last RHC meeting in surveys related to the items below]

- a) Coverage of new surveys:

Acoustic surveys:

No new Shom survey conducted in the MACHC area in 2019.

No third parties' survey has been communicated to Shom since the last conference.

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 programme¹ 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.

The survey work related to those areas for the next year 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 new survey currently planned for next year.
- **Clipperton Island:** No systematic surveys scheduled, only opportunity works.

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 took place in March 2019.

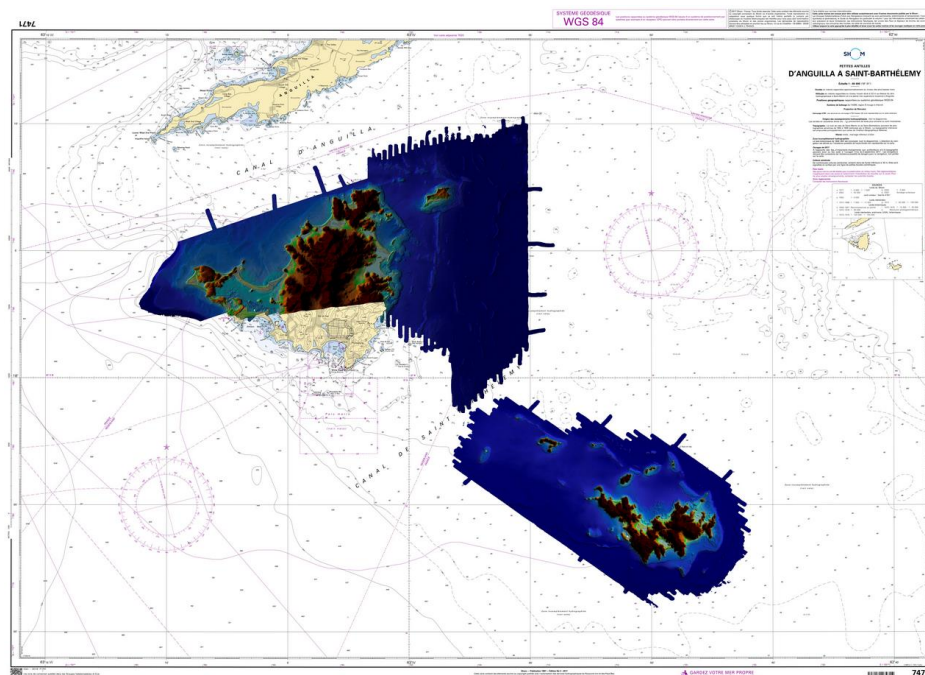


Fig.1: Lidar survey of Saint Barthélemy and Saint Martin (March 2019).

¹ <https://www.shom.fr/fr/qui-sommes-nous/programme-national-dhydrographie-pnh>

An agreement with the Hydrographic Service of the Royal Netherlands Navy to extend the survey to the Dutch part of the island could not be reached before the survey, so only the French part of Saint-Martin has been surveyed.

The Litto3D[®] products (Shom-IGN) have been delivered to the collectivities in September and October 2019. These products will be used in order to revise the Local Urbanism Plan and more broadly to study coastal phenomena such as erosion, submersion, flooding, sea level rising, etc. due to climate change and human activities.

b) New technologies and /or equipment: NTR.

c) New ships: NTR.

d) Crowdsourced and satellite-derived bathymetry - national policy

The Shom is currently conducting a research and development project in the field of SDB : Bathysat project.

The objective of the project is to improve performance and quantify vertical uncertainties in accordance with the specifications of the new version of the S-44. The results of the study should make it possible to extend the use of the SDB to remote areas for which there are no field data.

The concepts of operation targeted are:

- to develop, on a case-by-case basis, charting products in remote areas (in the absence of conventional hydrographic surveys),
- generate seabed morphology products (DTMs) useful for hydrodynamic modelling in particular,
- to have a tool for rapid coastal environment reconnaissance: estimation of bathymetric characteristics, seabed types, turbidity, coastline,
- detect morphological changes in the seabed in the coastal strip (high revisit rates) in order to prioritize hydrographic surveys (decision support tool).

The Caribbean area provides a favourable context for the implementation of the SDB. A first application test was carried out in the St Martin area using the method currently in use.

e) Challenges and achievements

Following hurricane Irma on September 5th 2017, that affected the islands of Saint Martin and Saint Barthélemy, it is necessary to update the hydrographic knowledge of the impacted areas to meet the needs related to the safety of navigation.

This update is carried out in three steps:

- first of all, emergency surveys in support of post-cyclone operations conducted in October 2017;
- then, a topo-bathymetric lidar survey of the two islands, conducted in March 2019, in order to have a complete view in support of the recovery effort;
- and finally, conventional hydrographic surveys, scheduled for 2020, to provide bathymetric data that meet the most stringent IHO standards in critical areas.

Detailed information about surveys to update IHO Publications P-5 (*Yearbook*) and C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) have been submitted using the online system (reference B).

3. New charts & updates:

[Describe any significant developments since the last RHC meeting in charting related to the items below]

a) ENC coverage, gaps and overlaps

As of 1st October 2019, Shom has produced 703 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:

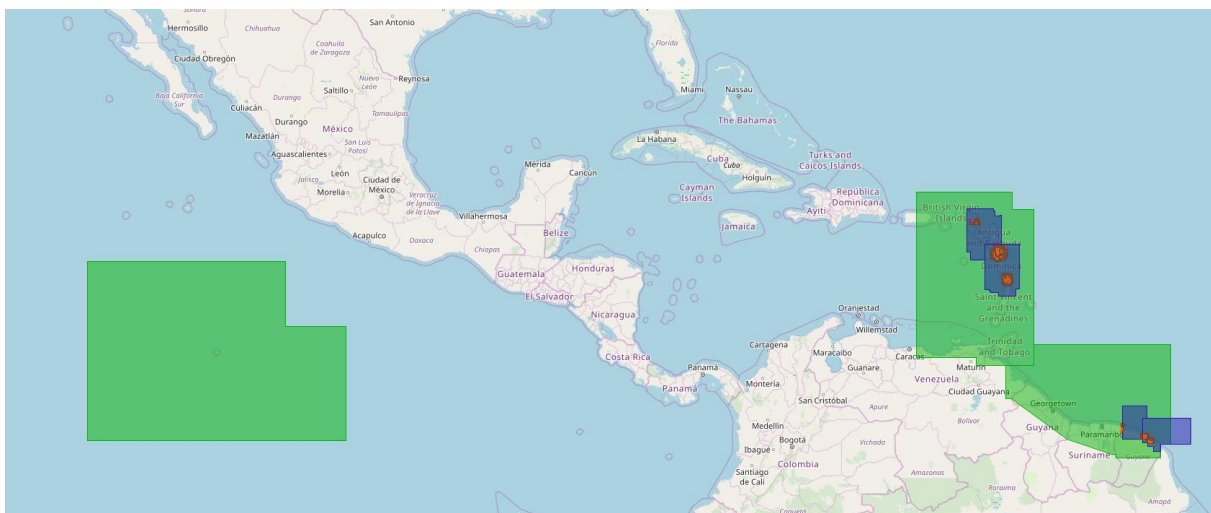


Fig.2: Shom' ENC coverage within Region B area.

c) RNCs : NTR.

d) INT charts

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

Overall INT chart production status for the region B (*no change*):

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

e) National paper charts

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

National	INT	Scale 1:	Title
7480	/	10 000	Accès au fleuve Kourou – Port de Pariacabo
7378	/	15 000	Accès au Dégrad des Cannes
7377	/	10 000	Ports du Larivot et de Cayenne

Following charts are planned to be issued in 2019/2020:

National	INT	Scale 1:	Title
7379	/	15 000	Abords de Cayenne
7376	/	60 000	Embouchure du fleuve Maroni
7471	/	60 000	D'Antigua à Saint-Barthélemy
7750	/	150 000	Approches de l'île Clipperton

f) 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 licenses² according to the purpose of use. These data can be used with GIS or cartographic software for commercial or private purposes.

A S-57 license³ allows unlimited download of updated versions for 12 months from the date of purchase.

g) Challenges and achievements: NTR

Detailed information about charting to update IHO Publications P-5 (*Yearbook*) and C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) have been submitted using the online system (reference B).

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

4. New publications & updates:

[Describe any significant developments since the last MACHC meeting in nautical publications related to the items below]

a) New Publications: NTR.

b) Updated publications

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

c) Means of delivery, e.g. paper, digital

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

d) Challenges and achievements: NTR.

Detailed information to update IHO Publication P-5 (*Yearbook*) have been submitted using the online system (reference B).

5. MSI

[Describe the status of Maritime Safety Information (MSI) related to the items below]

a) Existing infrastructure for MSI dissemination

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

b) Statistics on work of the National Coordinator

See appendix C

The Shom only plays a control and coordination role of local and coastal warnings issued by its national delegated coordinators (maritime zone commands and JRCC mentioned in § c)).

c) 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.

French overseas territories POCs for NAVAREA IV and XII:

AREA	COUNTRY	NAME	TELEPHONE	FACSIMILE
IV	French Antilles	Commandant de Zone Maritime Antilles	+596 (0)5 96 39 50 87 +596 (0)6 96 39 57 20	+596 (0)5 96 39 51 65
		EMAIL	emia-antilles.ccmoh24.fct@def.gouv.fr	
IV	French Guyana	Commandant de Zone Maritime Guyane	+594 (0)5 94 39 56 69 +594 (0)6 94 39 56 46	+594 (0)5 94 39 57 20
		EMAIL	info-nautique.charge-com.fct@def.gouv.fr	
XII	Clipperton (Île)	JRCC Tahiti	+689 (0) 40 54 16 16 +689 (0) 40 54 16 15	+689 (0) 40 42 39 15
		EMAIL	contact@jrcc.pf jrcc-tahiti.cdq.fct@intradef.gouv.fr	

d) Challenges and achievements: NTR.

Detailed information about MSI to update IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) have been submitted using the online system (reference B). The national self-assessment of MSI is submitted in Annex C.

6. C-55

The table with the latest information to update IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*) have been provided using the online system (reference B).

Survey Status Updated November 2019		Depth < 200m			Depth > 200m		
		A	B	C	A	B	C
A	France - Clipperton Island	77.7	5.6	16.7	3.3	0	96.7
B	France - French Antilles	27	44.5	28.6	35.4	10.9	53.7
	France - Guyane	0.2	42.4	57.3	58.6	0	41.3

Charting Status Updated November 2019		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

7. Capacity Building

[Describe the need for or ability to offer Capacity Building in relation to the items below]

a) Offer of and/or demand for Capacity Building

SHOM L'océan en référence

TRAINING COURSES PROVIDED BY SHOM SCHOOL

Course	Average number of students	Duration	Admission	Curriculum
BS/L3+ HYDRO*	2 to 8 petty officers/ 2 foreign students/10 students UBO	14 months	based on application file	manoeuver and navigation Training specific course on hydrography and oceanography on board end-study project
C SYSRES-HOM	2 to 5 hydrographers petty officers	9 months	based on application file	information technology theoretical and practical training (application to hydrography IT) Practical internships in SHOM IT department and survey unit (GHOA)
C SUP HYDRO***	2 to 5 hydrographers petty officers	4 months	based on application file	advanced technical training on hydrography team management training
NAUTICAL CARTOGRAPHER TRAINING COURSE*	2 to 8 trainees	9 months	based on diplomas or competitive exam	general training on hydrography and geosciences specific training on nautical cartography end-study technical project

SHOM school support to L'ENSTA Bretagne

HYDROGRAPHIC ENGINEER**

Average number of students: 36 months (+12 months for French military students)
Duration: based on diplomas or competitive exam
Admission: see: www.ensta-bretagne.fr

Logos: Cti, European Union, EUR-ACE, FIG, ICA, ACT, CAP

www.shom.fr
@shom_fr | shom.fr | shom_fr

Fig.5: Courses and training provided at the Shom hydrographic school (source: shom.fr)

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 courses⁴ are provided in French and are open to francophone foreign applicants.

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

- b) Training received, needed, offered: NTR
- c) Status of national, bilateral, multilateral or regional development projects with a hydrographic component. (In progress, planned, under evaluation or study): NTR
- d) Description of proposals and requests to the IHO/CBSC: NTR.

8. Oceanographic activities

[Describe any significant developments in oceanographic activity since the last MACHC meeting related to the items below]

- a) General: NTR.
- b) GEBCO/IBC's activities, GEBCO Seabed 2030 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>

Along with the DTM mentioned above, all bathymetric datasets (historically held in the Shom's bathymetric database up to end of 2018) in international waters have been provided for integration in the GEBCO 2019 product. This mainly concerns, in the area of interests, bathymetric data acquired in transit.

Note that the distribution of coverage survey polygons along with associated metadata on the IHO DCDB website, is ensured for Shom, through the EMODnet Bathymetry WFS webservice. An update of all this bathymetric resources is planned for early 2020.

- c) Tide gauge network

Shom is the national coordinator and reference authority for the observation of the sea level, collecting, processing and distributing the data from its own network as well as other bodies'. 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.

Shom's own network RONIM is present in the MACH region in the French Antilles and in French Guyana.

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

⁴ Training offer: http://www.shom.fr/fileadmin/data/DRH/FOR/Ecole/Catalogue_de_formation/2017-2018/catalogue_formation_2017-2018_WEB.pdf/
Modalities: drh-for-eco@shom.fr

Within the REFMAR network, 10 French permanent 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 pêcheur (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).



Fig.6: French tide gauges in the MACS region (source: data.shom.fr)

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

The third edition of “Journées REFMAR”, an international conference on the observation of the sea level, mainly aiming at French-speaking countries, was held from 27 to 29 March 2019 in Paris. This symposium, funded in part by the French Ministry of the Environment was organized in collaboration.

The program of the 3-day event was the following:

- Sea level and coastline
- Sea-level observation for research
- Thematic workshops
- Observation technology.

The event was widely acclaimed for the quality of presentations and the opportunities it gave for multilateral exchanges. Many African representatives expressed their interest in sea-level issues and their will to accelerate their own national capacities in this area.

The conference was followed by a 3-day course on sea-level observation, including basics in tide gauge operation theory and field station controls activities. 50 participants were involved; the course was free of charge except for travelling and accommodation.

d) New equipment: NTR.

e) Challenges and achievements

Shom tide gauge located in French Guyana suffers from transmission defects, affecting real-time data transmission.

Shom tide gauge network will be renovated from the beginning of 2020: data loggers, transmission equipments and supervision software will be renewed. The expected results are: a better reliability, improved transmission rates and lower maintenance requirements.

9. Spatial data infrastructures

a) Status of MSDI

The shom develops and maintains a MSDI covering all maritime areas under French jurisdiction. The information thus compiled is accessible through 3 portals:

- data.shom.fr
- diffusion.shom.fr
- limitesmaritimes.gouv.fr/

b) Relationship with the NSDI

The various maritime geographical information produced by the Shom are referenced on the French NSDI (<https://www.data.gouv.fr/>)

c) Involvement in regional or global MSDI efforts

Shom contributes to the MSDI WG. As part of the MSDI Data audit, the different layers available on the Shom portal for the region were referenced.

d) National implementation of the Shared Data Principles – including any national data policy and impact on marine data.

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.

Fig.7: open data (diffusion.shom.fr)

e) MSDI national portal

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

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

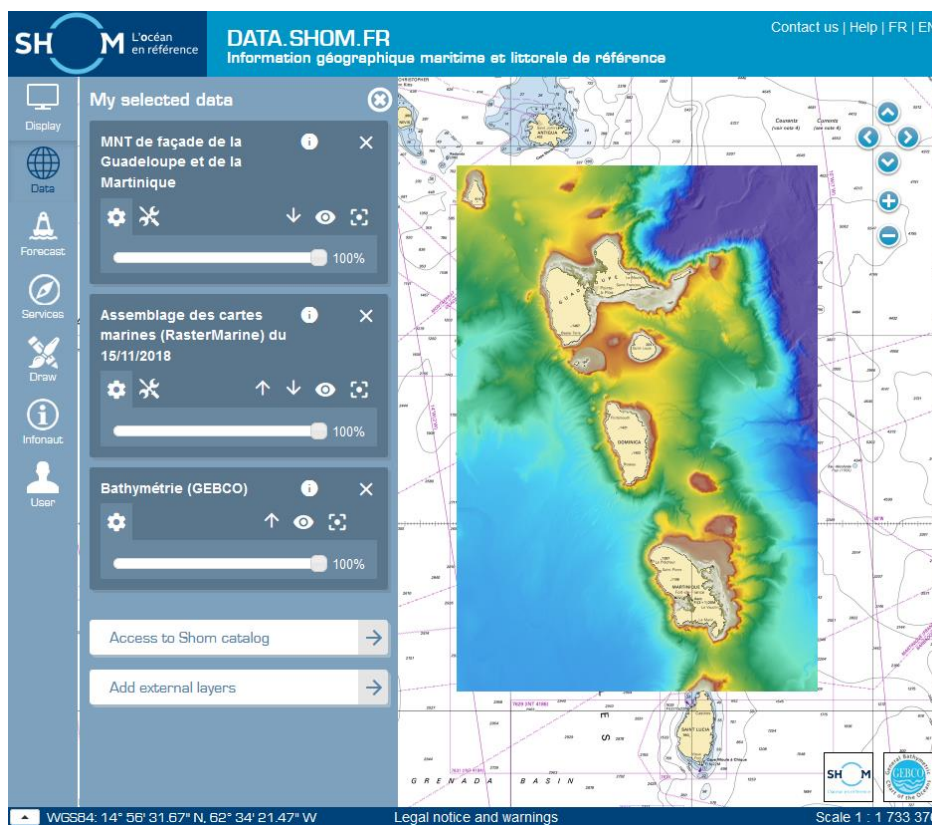


Fig.8: 100m global bathymetric DTM of Martinique and Guadeloupe islands (data.shom.fr)

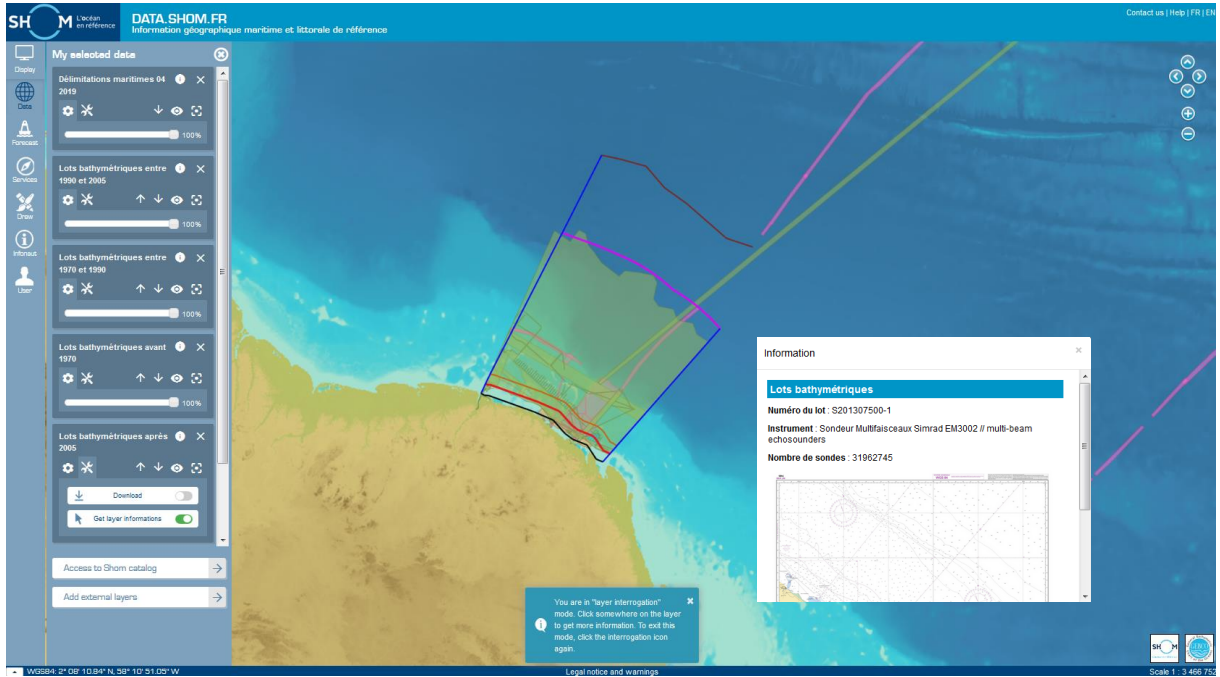


Fig.9: Bathymetric data (data.shom.fr)

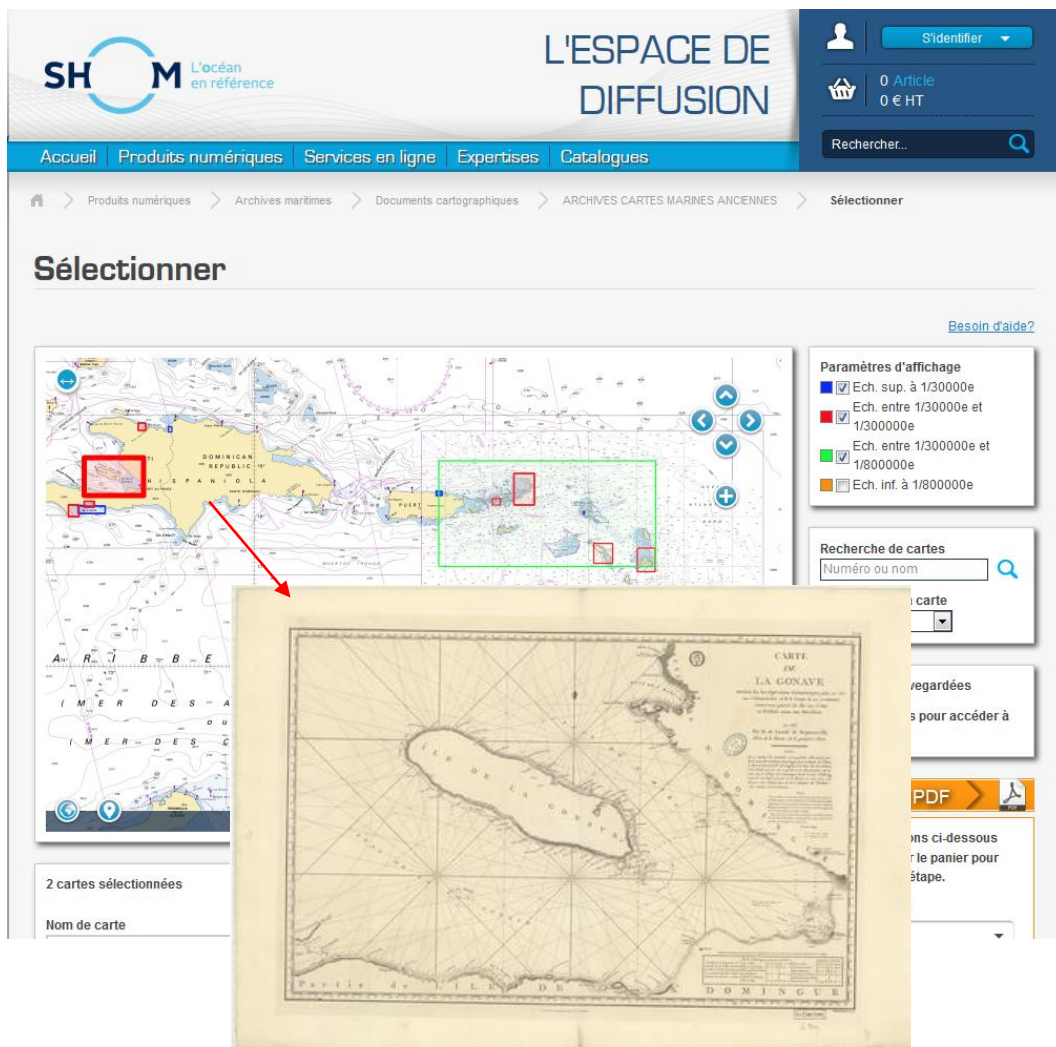


Fig.10: Archives: nautical charts and survey minutes (diffusion.shom.fr)

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.11: 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.

- f) Best practices and lessons learned: NTR.
- g) Challenges and achievement: NTR.

10. Innovation

- a) Use of new technologies: NTR.
- b) Risk assessment

A first study on the “expiration” of bathymetric information on nautical charts was carried out, using SDB to compare an up-to-date estimation of the bathymetry (derived from satellite imagery) to the soundings plotted on the chart. This type of analysis (concept of “chart adequacy”) is a decision support tool for defining and prioritizing new bathymetric surveys.

This first study was carried out on Saint-Martin as part of long-term efforts to restore adequate hydrographic knowledge in the area.

The Shom develops also the “*Deseasion* platform”, a multicriteria decision tool, for hydrographic risk assessment and cost-benefit analysis. The tool is currently under-development.

A workshop to raise awareness on hydrographic risk analysis, as well as a discovery of the *Deseasion* tool (prototype) was conducted as part of the IHO capacity building programme for the EAthC region (Rabat, October 2019).

On this occasion, a bibliographical inventory of risk analyses was carried out by the Shom. This bibliography and the presentation materials of the joint IHO-IALA workshop in Rabat are available online on the IHO website: https://www.iho.int/mtg_docs/rhc/EAthC/EAthC_Misc/2019/workshop.htm

- c) Policy matters: NTR.

11. Other activities

[Describe any other significant developments of interest to the MACHC since the last meeting related to the items below]

a) Participation in IHO meetings

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		✓	World-Wide Electronic Navigational Chart Database
WWNWS		✓	World-wide Navigational Warning Service Sub-Committee

b) Meteorological data collection: NTR.

c) Geospatial studies: NTR.

d) Preparation for responses to disasters

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.

Coastal flooding:

Shom is associated with Météo-France in the provision and improvement of the alert systems against storm surges and tides named *Vigilance Vagues Submersion (VVS)*. This allows for a better anticipation of flooding and protection of people living in French domestic and overseas coastal areas.

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.

Since 2018, storm surge and coastal waves forecasts rely on multiple runs of state-of-the-art models developed in the framework of the HOMONIM Project, conducted in close partnership with Météo-France:

- the storm surge configurations are based on a 2D shallow water 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 are based on the spectral wave model WW3 implemented on unstructured computational grids with roughly 200 m resolution on shore.

Upgrades of the wave model configurations are planned in 2020:

- over the Caribbean sea in order to extend the domain to Haiti, include an updated bathymetry issued by the project (sea upper) and set up hourly wind forcings;
- in Guyana, to take into account variable granulometry in bottom friction parameterization.

A public release of the forecasts is also scheduled in 2020 through Shom (data.shom.fr) and Météo-France (<https://donneespubliques.meteofrance.fr>) web data portals.

e) Environmental protection: NTR.

f) Engagement with the Maritime Administration: NTR.

g) Aids to Navigation matters: NTR.

h) Magnetic and gravity surveys: NTR.

i) International engagements

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.

j) Others: NTR

12. Conclusions

[Provide a short summary statement that highlights any of the following:

a) Areas of significant achievement

Efforts to restore hydrographic knowledge on the islands of Saint Martin and Saint Barthélemy, affected by Cyclone Irma in September 2017, are being pursued:

- Immediate “Response Phase”:
 - cartographic actions : CATZOC values degraded, warnings
 - hydrographic actions : “expeditionary” surveys in support of post-cyclone operations conducted in October 2017;
- Longer term “Recovery Phase” :
 - topo-bathymetric lidar survey of the two islands, conducted in March 2019
 - “chart adequacy” study on Saint Martin island using SDB
 - conventional hydrographic surveys, scheduled for 2020

b) Areas of particular concern

c) Any other matters of interest to the MACHC]

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.

From November 19th 2019, the Shom celebrates 300 years of French hydrography. Various events will mark this commemoration, culminating in a Study Day at the musée du quai Branly - Jacques Chirac scheduled for November 19th 2020, under the patronage of the Minister of the French Armed Forces, Mrs Florence Parly, to which the directors of hydrographic services in the MACHC region have been invited.

More information : https://www.shom.fr/fr/300_ans.

https://agora.shom.fr/fileadmin/data/DMI/COMM/Supports/300_ans/video/300_ans_anglais.mp4



Input to the IHO Publication P-5 (*Yearbook*)*Country: France**Organization: Shom***Online system used to update P-5**

(Please provide the information in English)

Contact information/ Informations de contact / Información de contacto	
-National Hydrographer or equivalent -Directeur du service hydrographique ou équivalent -Director del Servicio Hidrográfico o equivalente	Post: Name: Postal address: Tel: Fax: Email:
-Head of the Hydrographic Office (if different from the person indicated above) -Directeur du Service Hydrographique (si différent de la personne indiquée ci-dessus) -Director del Servicio Hidrográfico (si diferente de la persona indicada anteriormente)	Post: Name: Postal address: Tel: Fax: Email:
-Other point(s) of contact -Autre(s) point(s) de contact -Otros punto(s) de contacto	
-Web site -site web -sitio web	
Country information / Informations sur le pays/ Información sobre el país	
-Declared National Tonnage -Tonnage national déclaré -Tonelaje Nacional Declarado	Tonnage: Date:
-National day -Fête nationale -Fiesta nacional	
-Date of establishment and Relevant National Legislation	

-Date de mise en place et législation nationale pertinente -Fecha de constitución y legislación nacional pertinente	
-Date first joined IHO -Date d'adhésion à l'OHI -Fecha de adhesión a la OHI	
-Date ratification Convention -Date de ratification de la Convention -Fecha de ratificación de la Convención	
-Remarks on membership -Remarques sur l'adhésion -Comentarios sobre la adhesión	
Agency information/ Information sur l'agence/ Información sobre la agencia	
-Top level parent organisation -Organisme mère -Organización asociada de nivel superior	
-Principal functions of the organisation or the department -Attribution principales de l'organisme ou du département -Principales funciones de la Organización o departamento	
-Annual operating budget -Budget annuel -presupuesto anual	
-Total number of staff employed -Effectifs totaux -Número total de personal empleado	
-Number of INT charts published -Nombres de cartes INT publiées -Número de cartas INT	

publicadas				
-Total number of paper charts published-Nombre total de cartes papier publiées-Número total de cartas de papel publicadas				
-Number of ENC cells published -Nombres de cellules ENC publiées -Número de células ENC publicadas				
-Number of Other charts -Nombre d'Autres cartes -Número de Otras cartas				
-Type of publications produced -Type d'ouvrages produits -Tipo de publicaciones producidas				
-Detail of surveying vessels/ aircraft -Détail des bâtiments hydrographiques / aéronefs -Detalle de los buques hidrográficos / aeronaves	-Name -Nom -Nombre	-Displacement -Déplacement -Desplazamiento	-Date Launched -Date de mise en service -Fecha de botado	-Number of crew -Nombre de l'équipage -Tripulación
-Other information of interest -Autres informations utiles -Otra información de interés				

Input to the IHO Publication C-55 (*Status of Hydrographic Surveying and Charting Worldwide*)

Country: FRANCE

Online system used to update P-5

(Please provide the information in English)

C-55 Summary for:				Comments on Charts:
Country:				
Country Iso Code:				
Country SubCode:				
INT Region:				
Country/Depend:				
Last updated:				
Provided by:				
Chart coverage	Passage (%)	Coastal (%)	Port (%)	Comments on Surveys:
INT				
RNC				
ENC				
Status of Paper Charts				
Paper charts with depths in meters (%)				
Paper charts referenced to a satellite datum (%)				
Status of surveys	Adequate (%)	Resurvey (%)	No survey (%)	
0-200m				
> 200m				

MSI	Y/N	Comments on MSI:
Local warning		
Coastal warning		
Nav warning		
Port warning		
GMDSS	Y/N	Comments on GMDSS:
Master Plan		

Area A1		
Area A2		
Area A3		
NAVTEX		
SafetyNet		

National MSI Self-Assessment

*Country: FRANCE**Organization: Shom*

(Please provide the information in English)

1. Maritime area

[Describe maritime area including details of the geographic boundaries]

The maritime area includes coastal waters (up to 250 NM) of French Guyana, coastal waters of the French West Indies (Martinique, Guadeloupe, St Martin et St Barthelemy), as well as Clipperton Island in Pacific.

2. Operational Points of Contact for the National Coordinator

INSTITUTION	TELEPHONE	FACSIMILE	EMAIL
Shom , overseas office (dops-psm-na-om@shom.fr) of the “Information and Nautical publication” department of the “Maritime Products and services” division : na-om-all@shom.fr	+33 2 56 312 312 +33 2 56 312 273 +33 2 56 312 303	/	na-om-all@shom.fr

3. GMDSS Master Plan

[Report on the status of the GMDSS Master Plan: Is it up to date? When was the last update?]

The French GMDSS Master Plan is compiled in the Shom publication “Maritime radiocommunications” reference n°924-RNC available on-line : <https://diffusion.shom.fr/pro/rsx-92-4-radiocommunications-maritimes-systeme-mondial-de-detresse-et-de-securite-en-mer-smdsm.html>

The publication is regularly updated (last version October 30th 2019).

[Specifics of equipment used and software version with date up-dated]

Equipment Type for Ports and Local Area	Software Version	Date of Up-date
No NAVTEX station in French overseas territories within the MACHC region. Coastal warnings broadcasted through SAFETYNET		
Terrestrial radiocommunications HF, MF and VHF means		

[Detail the number of warnings identified as immediate priority (requiring transmission within 30 minutes) and the average elapsed time for passing to NAVAREA coordinator, as reported to the last RHC meeting]:

Year Y-2		Year Y-1		Year Y	
Total	Average elapsed time	Total	Average elapsed time	Total	Average elapsed time
xx	xx.x Mins	xx	xx.x Mins	xx	xx.x Mins

4. NAVTEX Coverage:

[Diagram of NAVTEX stations and service areas within maritime area; Contact details for NAVTEX Stations; Confirm operational status has been validated.]

Not applicable.

Coastal warnings broadcasted by SafetyNET in French overseas territories.

5. Operational Issues:

[New infrastructure in accordance with GMDSS Master Plan; Problems encountered?]

No comment.

6. Contingency Planning

[Provide information regarding contingency plans that have been established and future plans where appropriate. Also report on any testing of the plan that has been conducted]

7. Capacity Building

[Demands for Capacity Building, Training requested or received, any offered, status of national, bilateral, multilateral or regional development projects with MSI component]

Not applicable.

8. Other Activities

[Participation in other IHO or IMO Working Groups, Regional Hydrographic Commissions, regional conferences related to MSI over past year]

Shom participates to IHO and IMO Working Groups, Régional Hydrographic Comissions and the regional conferences related to MSI over past year (SMAN11, MSC7).

9. National Maritime Website

[(Address, statistics (if permitted by national legislation; how often is the information on your web site updated? Do you display the date and time of the last update on your web site?)]

French overseas territories POCs for NAVAREA IV and XII:

AREA	COUNTRY	NAME	TELEPHONE	FACSIMILE
IV	French Antilles	Commandant de Zone Maritime Antilles	+596 (0)5 96 39 50 87 +596 (0)6 96 39 57 20	+596 (0)5 96 39 51 65
		EMAIL	emia-antilles.ccmoh24.fct@def.gouv.fr	
IV	French Guyana	Commandant de Zone Maritime Guyane	+594 (0)5 94 39 56 69 +594 (0)6 94 39 56 46	+594 (0)5 94 39 57 20
		EMAIL	info-nautique.charge-com.fct@def.gouv.fr	
XII	Clipperton (Île)	JRCC Tahiti	+689 (0) 40 54 16 16 +689 (0) 40 54 16 15	+689 (0) 40 42 39 15
		EMAIL	contact@jrcc.pf jrcc-tahiti.cdq.fct@intradef.gouv.fr	

10. Recommendations

[If any]

11. Summary

[Please provide a short summary of this paper which will be included in the final report of the meeting.]

Shom, as French national MSI coordinator, do not transmit MSI within the MACHC region.

The role of the Shom is limited to the control and coordination of the warning issued by its national delegated coordinators.