

Direction des missions institutionnelles et des  
relations internationales  
Division Relations extérieures

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N° 011 Shom/DMI/REX/NP

**FRENCH NATIONAL REPORT  
TO THE TO THE 17<sup>TH</sup> CONFERENCE OF THE NORTH INDIAN OCEAN  
HYDROGRAPHIC COMMISSION (NIOHC)**

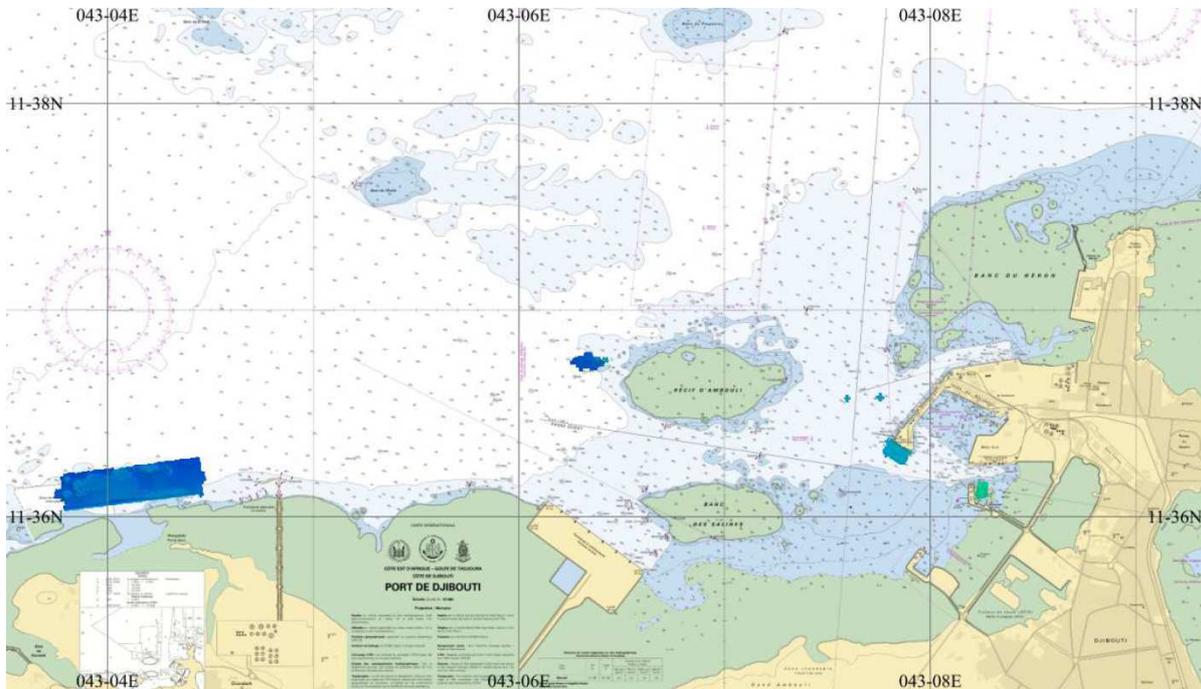
**1. Hydrographic Service: General**

Following up its targets and performance contract for the 2013-2016 period, Shom is pursuing the achievement of its different commitments based on the National Maritime Strategy and the Defence Policy according to a new 4 years target and performance contract covering the 2017-2020 period, which has recently been approved by Shom's Board. In addition to that, survey works are being conducted according to the prioritized 4-years survey plan for waters under French jurisdiction.

## 2. Surveys

### 2.1. Coverage of new surveys

Since the last Conference, Shom has conducted the he survey of the new terminal of Doralé and miscellaneous surveys were performed in the harbour of Djibouti by Shom in February 2017.



*Fig 1: Surveys in the Djibouti harbour - BHO Beautemps-Beaupré (February 2017)*

### 2.2. LIDAR Surveys

NTR.

### 2.3. French Survey programme for the region

Survey campaigns are planned by Shom on a regular basis in Djibouti and within the Bab-el-Mandeb Strait to improve the navigational safety. Their achievement level depends on the authorizations received from the concerned Coastal States.

## 3. New charts & updates

With the use of CARIS HPD being fully operational in the production process, SHOM ENC's within the NIOHC region have been updated while being uploaded in CARIS HPD database, including minor changes due to connections of some ENC objects (cartographic objects) with hydrographic objects from the BDGS hydrographic database. These connections allow updating automatically the cartographic products ENC and paper charts.

### 3.1 ENCs

SHOM's collection of ENCs has now reached the number of 537 of which 5 cells within that region. In line with the WEND recommendations and guidelines, France produces its small scale ENCs cells as closely as possible to INT chart schemes.

Except for editions due to the migration into HPD, neither new cells nor new editions have been produced since the last conference.

The status of ENC production in the area is described by the following figures:

Usage Band	Produced Cells	Planned Cells	%
1	0	0	N/A
2	1	1	100
3	2	2	100
4	1	2	50
5	1	8	12,5
6	0		
Total	5	13	38

The eight planned cells to be produced in that region are listed below:

- Mouillage de Tadjoura (FR57519A)
- Mouillage des Boutres (FR57519B)
- Port d'Obock (FR57519C)
- Îles Seba (FR463260)
- Mouillage du Lac Salé (FR547921)
- Mouillage de l'île du Diable (FR547922)
- Mouillage de Khor Ambadu (FR547923)
- Mouillage de l'Etoile (FR547924)

The following figure is an extract of the online PRIMAR catalogue (<http://www.primar.org>) regarding the French ENCs available in the NIOHC region:

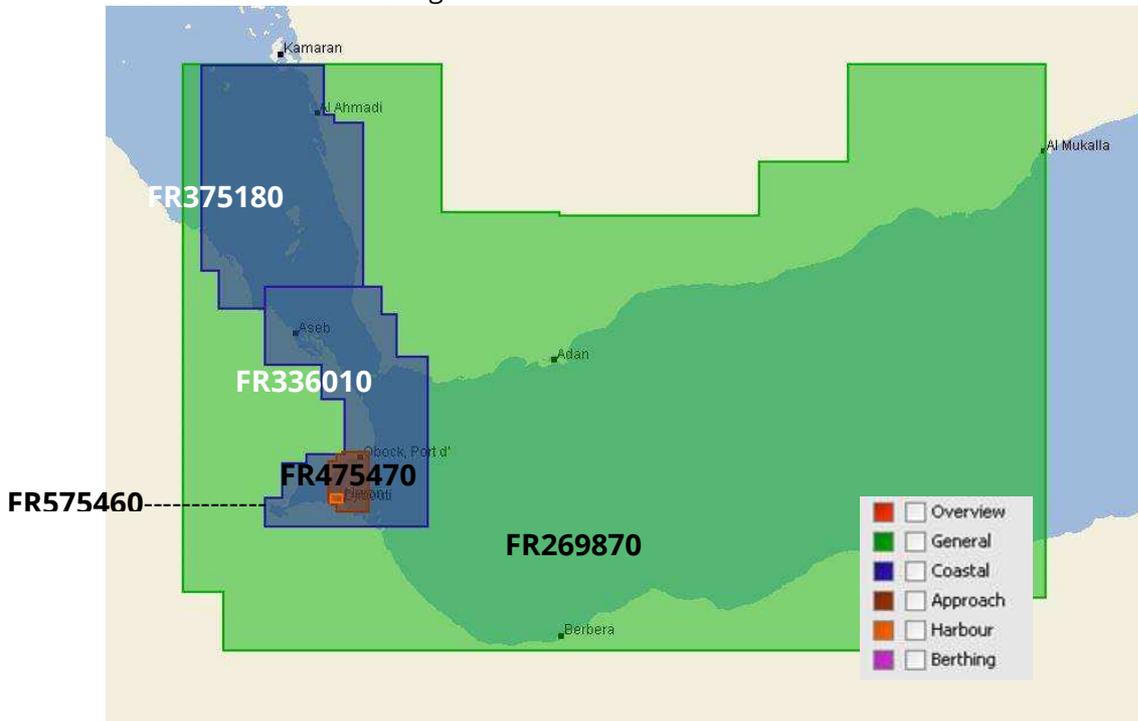


Fig.2: French ENC cells with the NIOHC region (source: [www.primar.org](http://www.primar.org)).

### 3.2.ENC Distribution method

All French ENCs (S-63 encrypted format) are distributed to End User Service Providers by PRIMAR RENC. France provides 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

See next section for details.

French charts now include a QR Code to direct access to NTM applicable to that chart. Moreover, all up to date SHOM charts are now available by 'Print On Demand' to French Defence users.

All INT charts under responsibility of SHOM in the region have all been produced, as detailed in the following table:

Scale	Produced INT charts	Planned INT charts	%
Small (<1/1 000 000)	0	0	N/A
Medium	3	3	100
Large (>1/100 000)	2	2	100
Total	5	5	100

### 3.5.National paper charts

No national chart has been produced since the last conference, and none is planned for 2017.

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

Since 2014, 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 2 types of licences according to the purpose of use (internal or commercial). These data can be used with GIS or cartographic software for commercial or private purposes. A S-57 licence allows unlimited download of updated versions for 12 months from the date of purchase.



*Fig.3: S-57 data purchase on Shom's online store diffusion.shom.fr.*

### 3.7. Problems encountered

NTR.

## 4. New publications & updates

### 4.1 New Publications

NTR.

### 4.2. Updated publications

NTR.

### 4.3. Means of delivery

Since the end of 2016, all nautical publications have been available in digital format (pdf files) on Shom's online shop (diffusion.shom.fr). Most publications are still available on paper, but from now on, new editions of nearly all publications will be only digital.

### 4.4. Problems encountered

NTR.

## 5. MSI Existing infrastructure for transmission

Since January 1st 2014, Shom's notices to mariners (GAN) are exclusively available under digital formats, either downloadable on shom.fr or by annual subscription (CD-rom).

### 5.1. New infrastructure in accordance with GMDSS Master Plan

NTR.

### 5.2. Problems encountered

NTR.

## 6. C-55 Latest update

The latest overall C-55 update has been transmitted to the IHO Secretariat on June 30<sup>th</sup> 2017. With the issue of Shom's survey programme for the 2017-2020 period, survey status values are now derived from survey GIS polygonal surfaces method combined with survey classification.

Survey status		Depth < 200m			Depth > 200m		
		A	B	C	A	B	C
J	Djibouti	3,4	21,9	74,7	0,1	32,1	67,8

Charting status		Small (<1 M)			Medium (1M < / < 100 000)			Large (> 100 000)			Metric	WGS84
		A	B	C	A	B	C	A	B	C		
J	Djibouti	100	0	NA	100	0	100	81	0	50	100	100

Fig. 4: C-55 updated values for survey status (top table) and charting status (down table)

## 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-IHO-ACI courses: category A & B for hydrographic surveyors and category B for nautical cartographers. So far, those courses are provided in French and are open to francophone foreign applicants.

**SHOM**  
L'océan à la carte

### TRAINING COURSES PROVIDED BY SHOM SCHOOL

- BS HYDRO<sup>®</sup>**
  - Average number of students: 8 petty officers / 2 foreign military officers
  - Duration: 14 months
  - Admission: based on application file
  - Curriculum:
    - maneuver and navigation Training
    - specific course on hydrography and oceanography
    - on board end-study project
- C SYSREB-HOM**
  - Average number of students: 3 to 5 hydrographers petty officers
  - Duration: 9 months
  - Admission: based on application file
  - Curriculum:
    - information technology theoretical and practical training (application to hydrography IT)
    - Practical internships in SHOM IT department and survey unit (GHOA)
- C SUP HYDRO**
  - Average number of students: 2 to 5 hydrographers petty officers
  - Duration: 3 months
  - Admission: based on application file
  - Curriculum:
    - advanced technical training on hydrography
    - team management training
- NAUTICAL CARTOGRAPHER TRAINING COURSE<sup>®</sup>**
  - Average number of students: 1 to 8 trainees
  - Duration: 9 months
  - Admission: based on diplomas or competitive exam
  - Curriculum:
    - general training on hydrography and geosciences
    - specific training on nautical cartography
    - end-study technical project

**SHOM school support to ENSTA Bretagne<sup>®</sup>**

- HYDROGRAPHIC ENGINEER**
  - Average number of students: 2 French military engineers and 20 civil students
  - Duration: 36 months (+12 months for French military students)
  - Admission: based on diplomas or competitive exam
  - Curriculum: see [www.ensta-bretagne.fr](http://www.ensta-bretagne.fr)
- MASTER ON HYDROGRAPHY**
  - Average number of students: 5 French or foreign civilian students
  - Duration: 24 months
  - Admission: based on diplomas
  - Curriculum: see [www.ensta-bretagne.fr](http://www.ensta-bretagne.fr)

Logo: SHOM - Ecole Nationale Supérieure des Techniciens Supérieurs - PO 218 ACI - Fédération internationale des hydrographes - Organisation hydrographique internationale - Association internationale des hydrographes professionnels  
 SHOM Bretagne - 13 rue du Chatellier - CS 92803 - 29228 Brest CEDEX 2  
 BCRM de Brest - Shom - CC 08 - 29240 Brest CEDEX 9  
 N° SIRET : 130 003 981 000 11  
 www.shom.fr

\*Recognized training course of category B level by FIG-IHO-ACI International Board  
 \*\*Recognized training course of category A level by FIG-IHO-ACI International Board

Fig.5: 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

For the countries benefiting from Shom support to meet their hydrographic services obligations spelled out by the SOLAS convention, France fosters a mechanism of gradual transfer of responsibilities through State-to-State administrative arrangements. This mechanism relies on training at Shom facilities and the formalisation of the respective responsibilities for maritime safety information, hydrographic and charting activities.

## 7.3. Definition of bids to IHO CB Work Programme

NTR.

## 8. Oceanographic activities

### 8.1. GEBCO/IBC's activities

### 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. This mission is carried out under the REFMAR programme. All real time and processed tide gauge measurements collected under that programme are now accessible on web <http://data.shom.fr/#donnees/refmar> in areas under French jurisdiction.

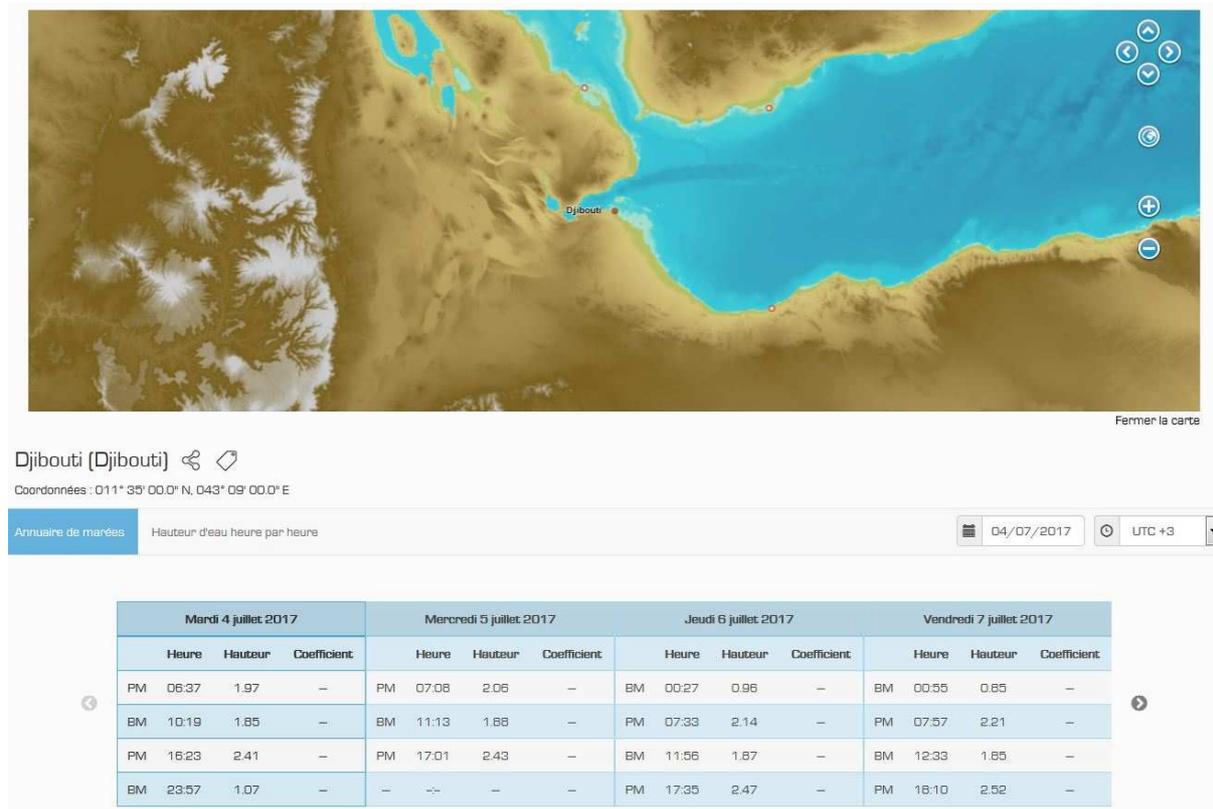
Like REFMAR's other partner organizations, Shom contributes by providing data from its own global tidal network, the RONIM network.

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.6: Shom global tidal network, REFMAR (source shom.fr).*

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



*Fig.7: Tide predictions for Djibouti available through Shom's web portal (source: maree.shom.fr)*

### 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

- **Tsunami :**

SHOM is maintaining a large real time tide gauge network RONIM, an important tool for coastal operational oceanography, risk assessment, studies on the evolution of the mean sea level, etc. Having tide gauges in Europe and in the French overseas territories, SHOM is contributing to Tsunami warning in Pacific Ocean, Indian Ocean, Caribbean Sea and Mediterranean Sea.

France may also have Navy ships deployed in the NIOHC region, ready to provide support in case of an emergency. France also provides technical support and has a rapid response survey capacity in case of a disaster.

The point of contact at SHOM in case of a 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](mailto:coord.navarea2@shom.fr).

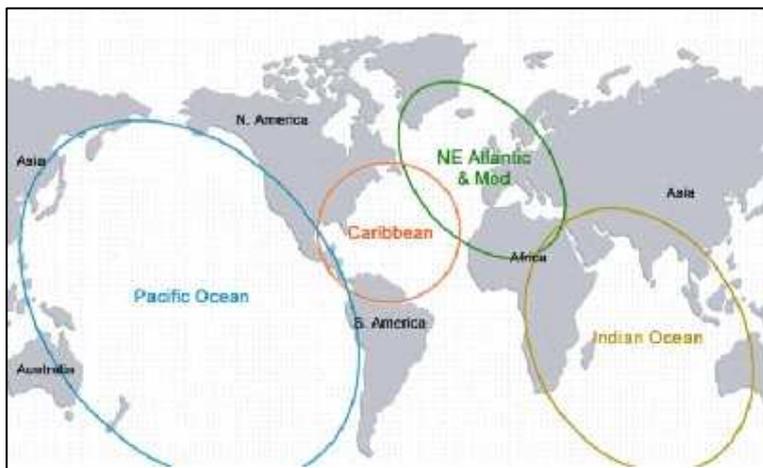


Fig. 8: Cooperation areas on tsunami warning system (source COI ; UNESCO).

- **Coastal flooding :**

Shom is associated with *Météo-France* in the provision of an alert system against coastal flooding named *Vigilance Vagues Submersion (VVS)*. This allows for a better anticipation of this destructive phenomenon 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, expertise and models in coastal hydrodynamics and real time tide gauge observations as well as information relative to extreme sea levels and bathymetry. *Météo-France's* marine forecasters examine and compile the data and produce a map depicting the level of coastal flooding threat together with the risk of tall waves for each French metropolitan department.

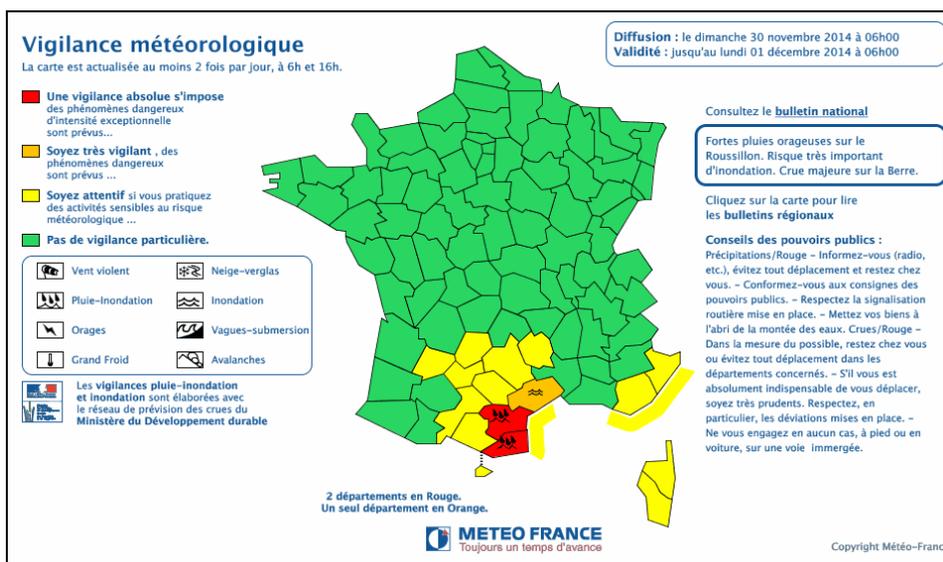


Fig.9: An example of coastal flooding alert (yellow level).

Costs subject to alert are underlined according to the alert level (source [www.meteo.fr](http://www.meteo.fr)).

Besides, the HOMONIM Project in partnership between Shom and Météo-France, launched in 2011 aims at improving the VVS alert system through 3 axis:

- Extension of real time sea level observation capability,
- Production of a first range of multi-scale bathymetric digital terrain models, crucial to improve coastal hydrodynamics modeling,
- Improvement of wave and surge modeling with the implementation of new modeling chain based on HYCOM and WAVEWATCH III models.

After a first phase (2011-2015) focused on France mainland coasts, a second phase of that project was initiated at the end of 2015, to end in 2019. One of its main axis consists of completing and improving storm surge forecast capabilities on French overseas Territories of the **SouthWest Indian Ocean**. This phase includes specific the development of surge and waves modeling configurations on those territories.

- **Oil spills:**

SHOM is an active member of the inter-agency drifting committee which is activated by the maritime prefecture every time there is an oil spill. The POLMAR safety plan for the sea was signed on 23<sup>rd</sup> November 2004 and aims at enabling France to face in a reactive manor a potential wide spread of marine pollution, by ensuring the efficient coordination of national operations and support from public services.

#### **9.4. Environmental protection**

NTR.

#### **9.5. Astronomical observations**

NTR.

#### **9.6. Magnetic/Gravity surveys**

NTR.

#### **9.7. MSDI Progress**

New products and services are available on Shom's maritime and coastal geographic information portal (data.shom.fr). Hereafter are listed some of the latest ones:

- Maritime archives: old charts and survey sheets have been scanned and are now available on the web site,
- New service on oceanography: 4 days forecast (on a harbour or a specific location).

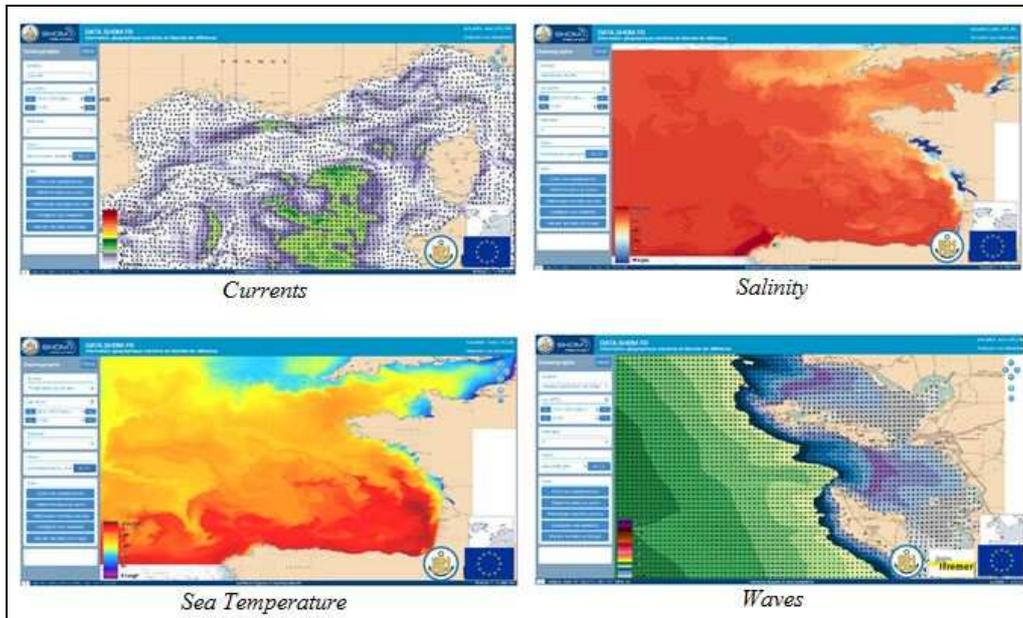


Fig.10: Oceanographic forecasts on Shom's data portal ([data.shom.fr](http://data.shom.fr))

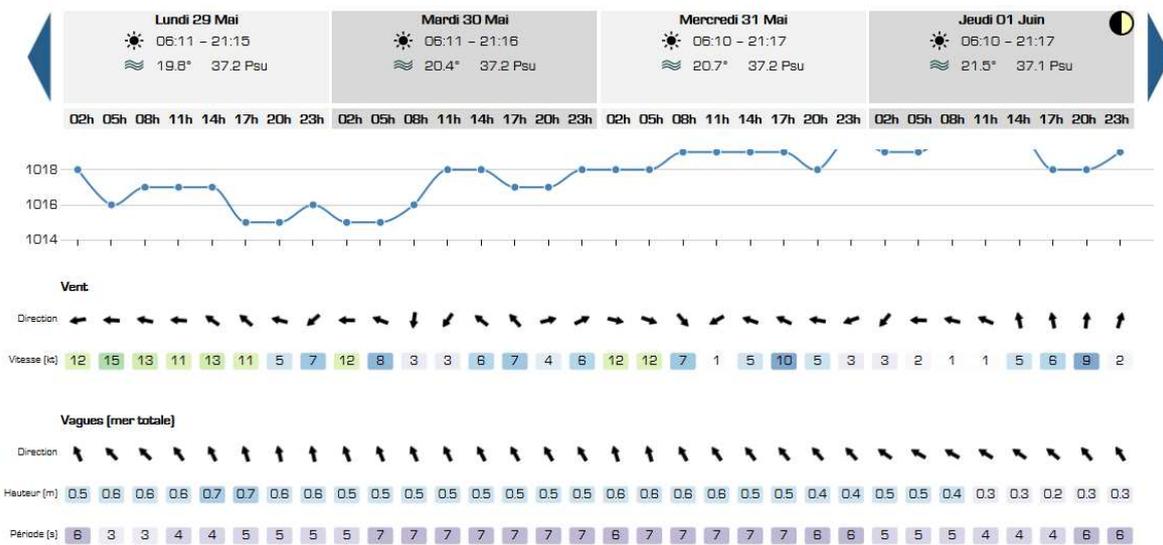


Fig.11: 4 days oceanographic forecast on a specific location ([data.shom.fr](http://data.shom.fr))

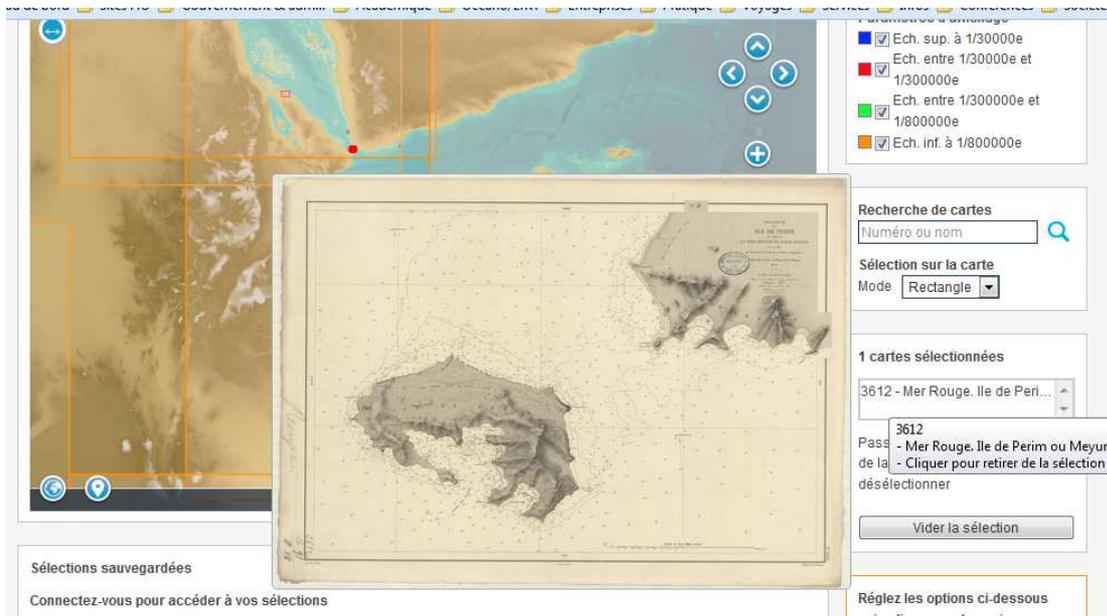


Fig.12: nautical charts and survey minutes ([diffusion.shom.fr](http://diffusion.shom.fr))

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 listed below: *tides, tidal currents, bathymetry, cartography, maritime and littoral databases.*

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/>).

## 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 (former CPSCWG)
ENCWG		✓	ENC Working Group ( former TSMADWG/DIPWG)
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, formerly known as the Committee on Hydrographic Requirements for Information Systems (CHRIS)
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 (former SNPWG)
NSHC		✓	North Sea Hydrographic Commission
RSAHC		✓	ROPME Hydrographic Commission
S100WG		✓	S-100 Working Group (former TSMADWG/DIPWG)
SAIHC		✓	Southern Africa and Islands Hydrographic Commission
<b>HSPT</b>	✓		<b>S-44 Hydrographic surveys Project Team</b>
SWPHC		✓	South-West Pacific Hydrographic Commission
TWCWG	✓	✓	Tidal, Water Level and Currents Working Group (former TWLWG/SCWG)
WEND		✓	World-Wide Electronic Navigational Chart Database
WWNWS	✓	✓	World-wide Navigational Warning Service Sub-Committee, formerly known as the Promulgation of Radio Navigational Warnings Sub-Committee (PRNW)

## 10. Conclusions

In line with the IHO Capacity Building Strategy, France supports Regional Hydrographic Commissions in considering larger capacity building projects opportunities, including the use of new technologies.

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Copies intérieures : DG - DMI/REX - Archives (DMIDSD/2.018)

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