



Saint-Mandé, the 22 of July 2009

N° 029 SHOM/DSPRE/REX/NP

SERVICE HYDROGRAPHIQUE ET
Océanographique DE LA MARINE

Directorate of Policy, Plans &
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French national report to the 7th Southern Africa and Islands Hydrographic Commission (SAIHC) meeting

1. Hydrographic Office: General

Since the 11th of May 2007 SHOM, whilst keeping its name, has become an *Établissement Public*, i.e. a national establishment endowed with a legal personality distinct from the French Administration. SHOM's new organisation, missions and responsibilities were developed in the previous national report.

2008 was the first full financial year during which SHOM was operated as a Public Establishment. This annual report confirms the positive appreciation on the change of statute as foreseen in 2007.

2008 was a very active period for SHOM which focused on meeting the objectives set out for surveys, research, development and production in SHOM's three core missions, i.e. national hydrographic service, environmental support to defence and support to maritime and coastal public policies.

All the year round, no efforts were spared to improve the visibility of SHOM's capabilities and activities as well as to strengthen our partnerships, with the steadfast will to meet the many and various requirements.

The strategic vision which was approved by the SHOM's Board of Directors at the end of the year and the related strategic objectives which were endorsed by its two advisory committees (the users' advisory committee of SHOM's products, surveys and services, and the steering committee on military oceanography) have the ambition to respond to these expectations. The course bearing for a new passage is set up from now on. However, the speed remains to be determined through the "objectives and means" contract, the construction of which takes longer than expected in this difficult period marked by a comprehensive review of public policies and the current financial crisis.

SHOM remains devoted to seafarers, civilian and military, and to all categories of sea users, far beyond our national boundaries, with the shared objective to contribute at its level and in its domains of excellence to the sustainable development and the protection of Planet Ocean.

.../...

The protocol of amendments to the IHO Convention was ratified by the French Parliament on the 28th of July 2007.

For information, a list of SHOM's involvement in IHO activities is provided in the Annex.

2. Surveys

2.1 Coverage of new surveys

Since the 6th conference (August 2007), SHOM has conducted or participated in two types of surveys in the SAIHC area:

- i. The first type aims at collecting geophysical information pertinent to defining the extent of the French continental shelves in the Kerguelen area, in accordance with Art 76 of the UN Convention of the Law of the Sea (UNCLOS).

France is expected to share a border with South Africa and has coordinated actively with the RSA to share information and plan joint surveys, amongst other co-operation issues.

- ii. The second type of surveys is related to SHOM's long term commitment in those areas where France has overseas territories and/or historical links. It is aimed at collecting nautical information with a view to improve SHOM's chart portfolio. By comparing what exists in the bathymetric database, requirements and operational constraints, a long term survey plan is being drafted for approval by SHOM's Board of Directors and the French authorities. This plan is articulated along the following lines:

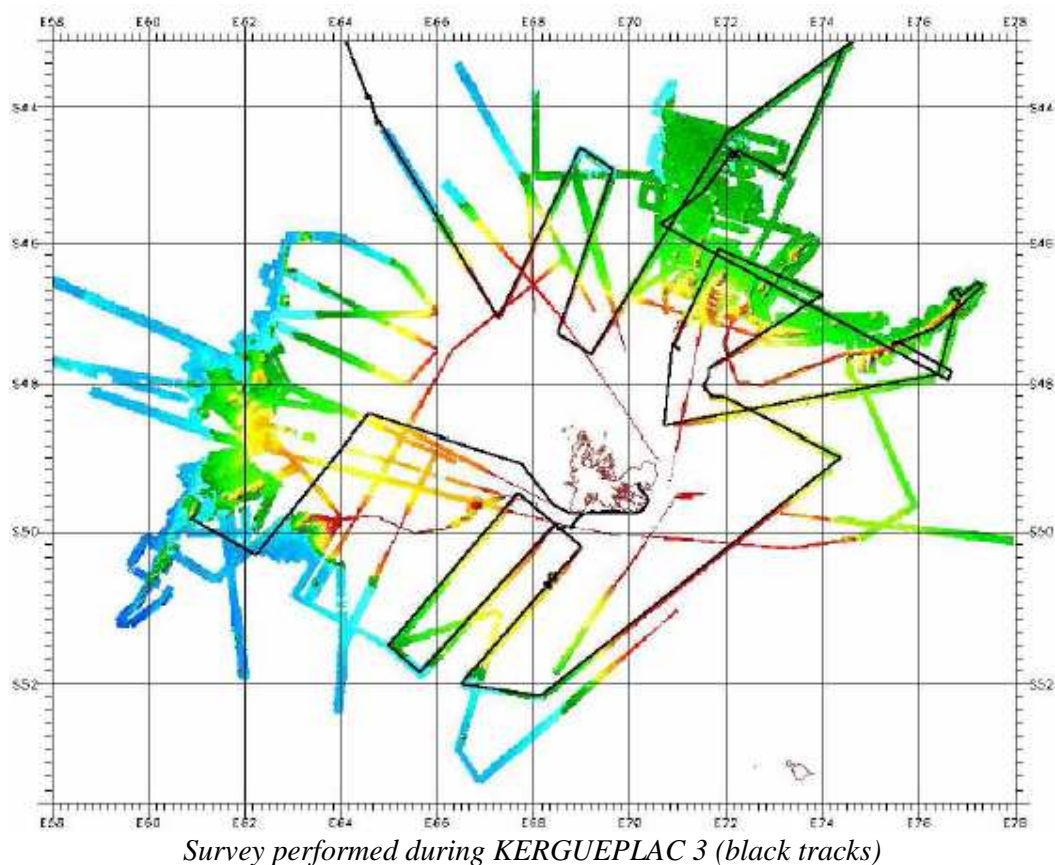
- Cataloguing of all existing information.
- Hydrographic surveys (bathymetry, geophysics, sediments...) and production of charts and nautical documents.
- Use of remote sensing (SPOT, ERS, airborne surveys...) to improve the coastal cartography.
- Oceanographic modelling (tides, currents, swell...), eventually in liaison with IOC initiatives if any.

2.1.1 Surveys aimed at collecting geophysical information (UNCLOS)

Along with other French Public Agencies (IFREMER, IFP, IPEV...), SHOM has participated to the KERGUEPLAC campaign started in 2004 with the view to collect geophysical information pertinent to defining the extent of the continental shelf in the Kerguelen.

Other surveys were conducted by the RV *Marion Dufresne II*:

MD 163 MOBAMASIS	Sept 2007	Seismic experiment in the Mozambique Strait.
MD 164 EUROPA	Oct 2007	Collection of geophysical information in the Mozambique Strait.
MD 165 KERGUEPLAC 3	Jan 2008	Collection of geophysical information in the Kerguelen area.
MD 170 SWIR-08	Oct 2008	Collection of geophysical information for the South African Petroleum Agency with the participation of SHOM.

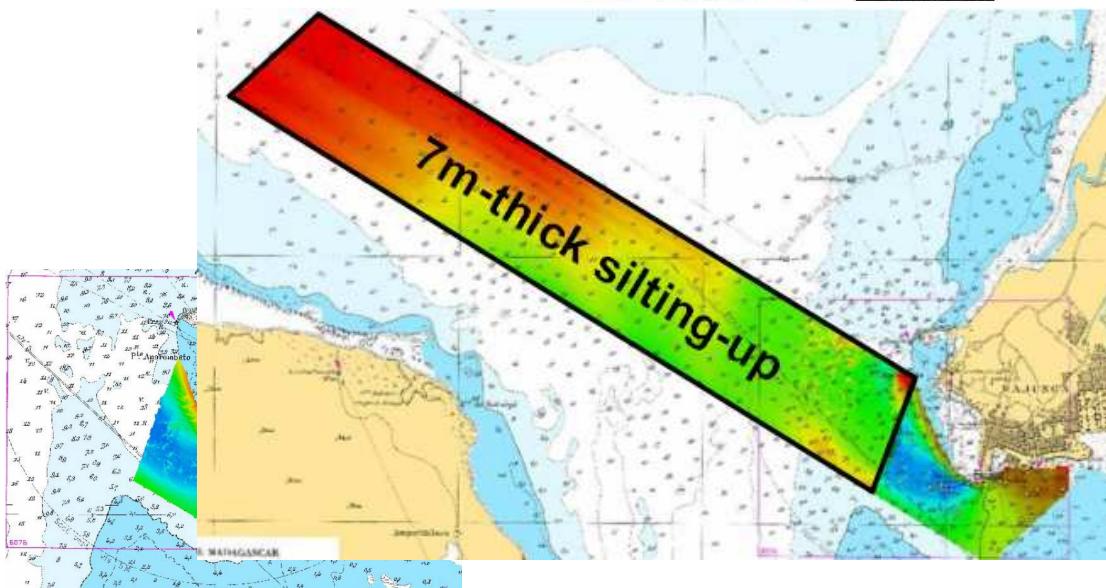
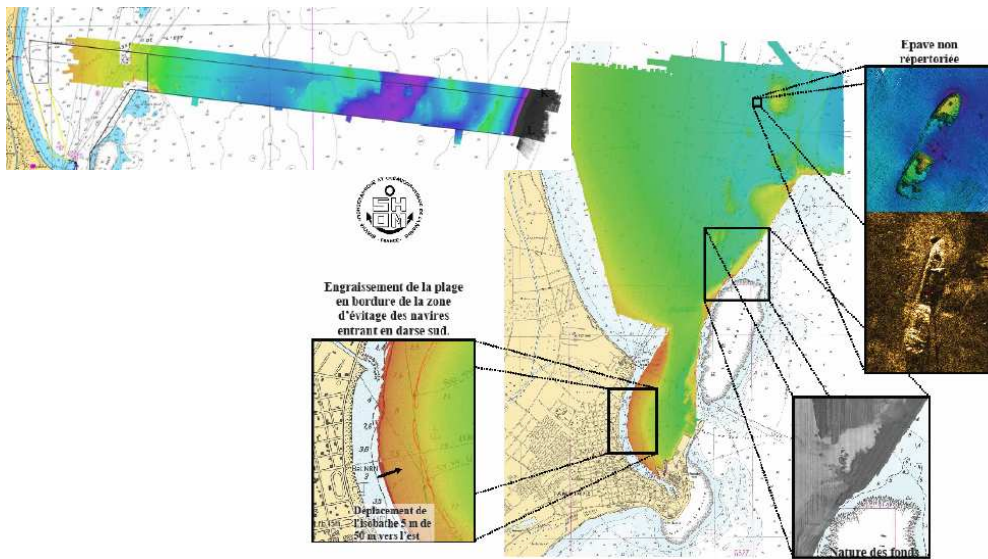
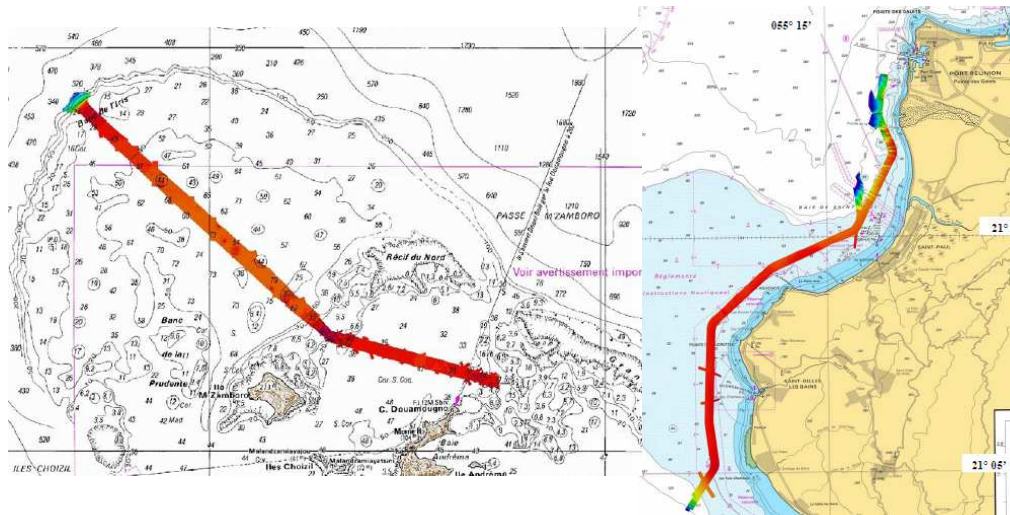


2.1.2 Surveys aimed at collecting nautical information (Improvement of the chart portfolio)

The hydrographic and oceanographic vessel *Beautemps-Beaupré* was deployed in the SAIHC area during four months in 2008 and proceeded with the following surveys:

- March 2008: oceanographic and geophysic deep research survey Fanindien between Mauritius/Île de la Réunion and Madagascar (currents, sediments...).
- March 2008: bathymetric survey along the western coast of Île de la Réunion.
- February to May 2008: several surveys of harbours, recommended routes and passages in and outside the lagoon of Toamasina and the approaches to Mahajanga in Madagascar.
- May 2008: surveys of Mayotte approaches and in the Mozambique Strait in the frame of the West Indian Ocean Marine Highways project.

Beautemps-Beaupré and SHOM survey and environmental support capabilities have been involved in the IY626 crash research operations in the Comoros.

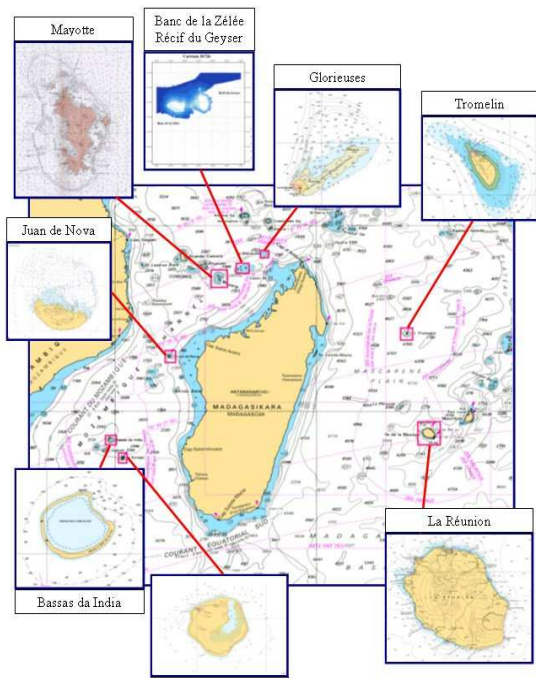


Top: survey of approaches in Île de Mayotte (left) and Île de la Réunion (right).
Middle: bathymetric survey in Toamasina (Madagascar).
Down: bathymetric survey in Mahajanga (Madagascar).

2.2 New technologies and / or equipment

i Lidar surveys

As mentioned at § 2.1.ii above, SHOM is making extensive use of remote sensing, both satellite and airborne, to improve its chart portfolio. One of its current projects that might be of interest in the SAIHC area is the Litto3D ® programme.



Litto3D survey in the SAIHC area

The main objective of Litto3D ® is to develop a high resolution DTM foundation, using a combination of MBES and lidar, for integrated coastal management applications. It is carried out by SHOM and the National Geographic Institute (IGN). Further to an agreement signed last June, the coasts of Île de la Réunion, Île de Mayotte and Îles Éparses will be surveyed in 2009.

The most tangible progress has been the decision to give an open access to the historical seamless data Histolitt ® covering the entire coastal areas of France. The detailed coastline is already accessible to the public on the French national Geoportal.

The historical data will be gradually improved by new, more accurate surveys, as the project unfolds over the coming years.

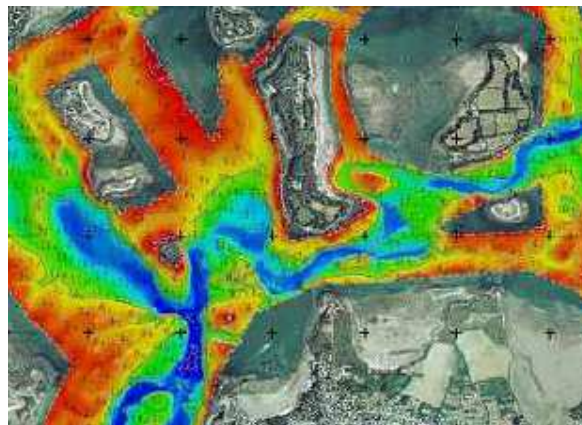
Many applications based on Litto3D® foundation are expected: impact of mean sea level raise, storm surges and tsunami warnings, integrated coastal zone management...

ii MSDI: the INFRAGEOS-H project

To meet the recommendations of the EU Blue Book on maritime spatial planning, SHOM is implementing a cross-cutting GIS to handle Navaid, tidal and bathymetric databases in compliance with international standards (INSPIRE, IHO...) and dissemination policies.

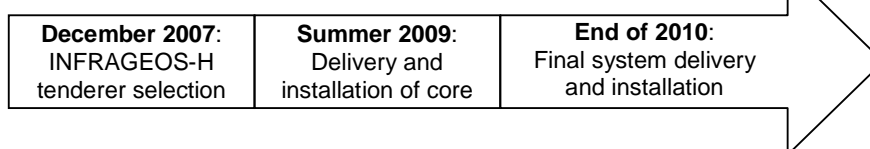
The INFRAGEOS-H functionalities comprise:

- a core of interoperable databases (GIS);
- a control and transfer system of hydrographic information;
- a workflow control system;
- a set of management and processing solutions (multilayer display, vector, raster data...);
- some tools to support web publication.



CARIS Bathy DataBase ®

The provisional schedule of implementation is as follows:



It is expected that the use of INFRAGEOS-H will boost data management 60 times faster.

INFRAGEOS-H will provide SHOM with a next-generation set of tools for tackling ever-changing information and products requirements. It is the first step in a broader process consisting of grouping together within a coherent Geospatial Infrastructure all SHOM databases.

2.3 New ships

NTR.

2.4 Problems encountered

As many other IHO member states, France is tasked with collecting nautical information and surveying areas that would otherwise remain uncharted. It happens from time to time that SHOM only learns by accident of surveys performed by private companies, or even other HOs, in its areas of charting responsibility, and has to insist to obtain communication of IHO-compliant data relevant to INT charts and nautical information.

In the interest of the international maritime community, it is reminded that survey results should be automatically communicated to the IHO recognised charting authority.

In addition, provision should be made in all contracts awarded to private survey companies to the effect that hydrographic data pertinent to the safety of navigation be communicated to the IHO recognised charting authority.

3. Charts and Publications:

a. Charts

a.1 New charts & updates

Produced since the 6th SAIHC conference:

N° Nat.	N° INT	New chart (NC) or new edition (NE)	Scale 1:	Date	Title
7350	/	NE	150 000	Oct 2008	Récif du Geyser – Banc de la Zélée (new surveys)
7604	/	NE	4 000 000	Aug 2008	De Prince Edward Islands à Heard Island – Îles Crozet, Kerguelen et Amsterdam (new surveys)

Planned in 2009 (second semester):

N° Nat.	N° INT	New chart (NC) or new edition (NE)	Scale 1:	Title
6054		NE	large scales (var.)	Abords de Fort-Dauphin (new plan for Ehoala harbour)

Planned in 2010-2012:

N° Nat.	N° INT	New chart (NC) or new edition (NE)	Scale 1:	Title
		NC	100 000	<i>Mayotte</i> (new surveys). Should eventually replace FR 6237.
6643	/	NE	Large scales (var.)	<i>Iles et récifs du Canal de Mozambique</i> (new surveys)
6741	/	NE	300 000	<i>Iles Kerguelen</i> (new surveys)
		NC	Large scales (var.)	<i>Ports et mouillages aux îles Kerguelen</i> (new surveys). Should eventually replace FR 5749.
		NC	Large scales (var.)	<i>Ports et mouillages aux îles Kerguelen</i> (new surveys). Should eventually replace FR 5750.
7490	7710	NC	350 000	<i>Des Comores au récif du Geysier</i> . Replaces FR 5983
7495		NC	150 000	<i>Comores</i>
	7064	NC	1 000 000	<i>Approches Sud-Est de Madagascar</i>
	7062	NC	1 000 000	<i>Approches Nord-Est de Madagascar</i>
	7063	NC	1 000 000	<i>De l'île de la Réunion à l'île Rodriguez</i>
		NC	100 000	<i>Moheli (Comores) et Anjouan</i>
	7737	NC	125 000	<i>Île Maurice</i> . Facsimile of UK 711. Replaces FR 7165.
7680		NC	40 000	<i>Baie de Diego Suarez</i> . Replaces FR 4696(Madagascar).
7681		NC	15 000	<i>Baie de Diego Suarez – Baie des Français – Port de la Nièvre – Port d'Antsiranana</i> . Replaces FR 4697 (Madagascar).

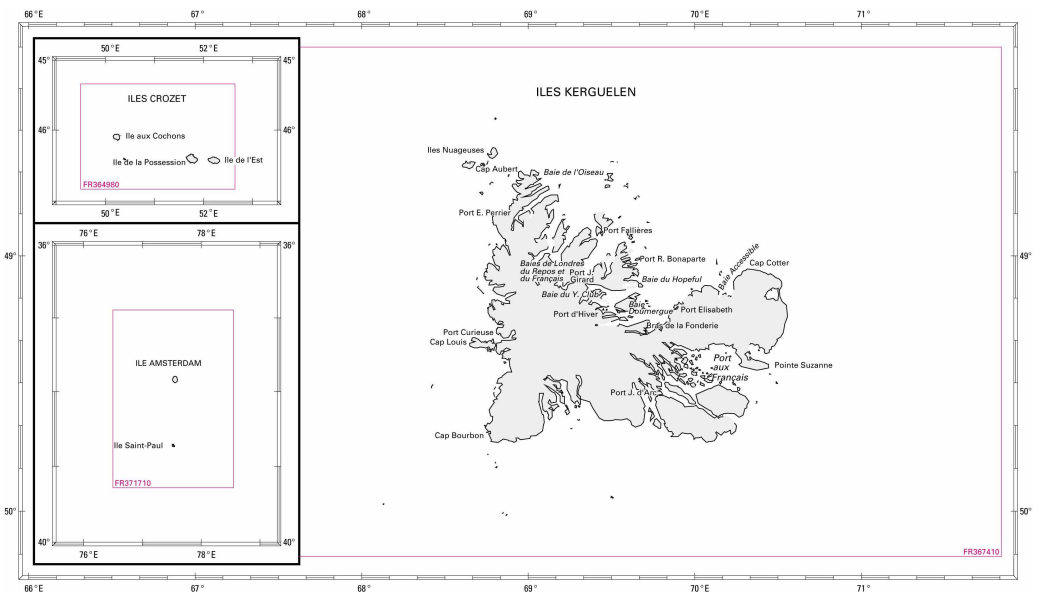
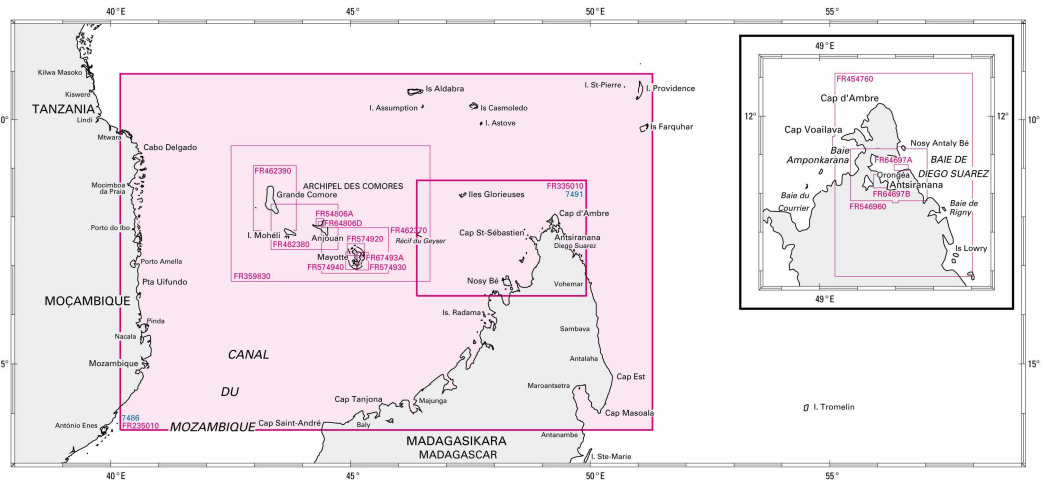
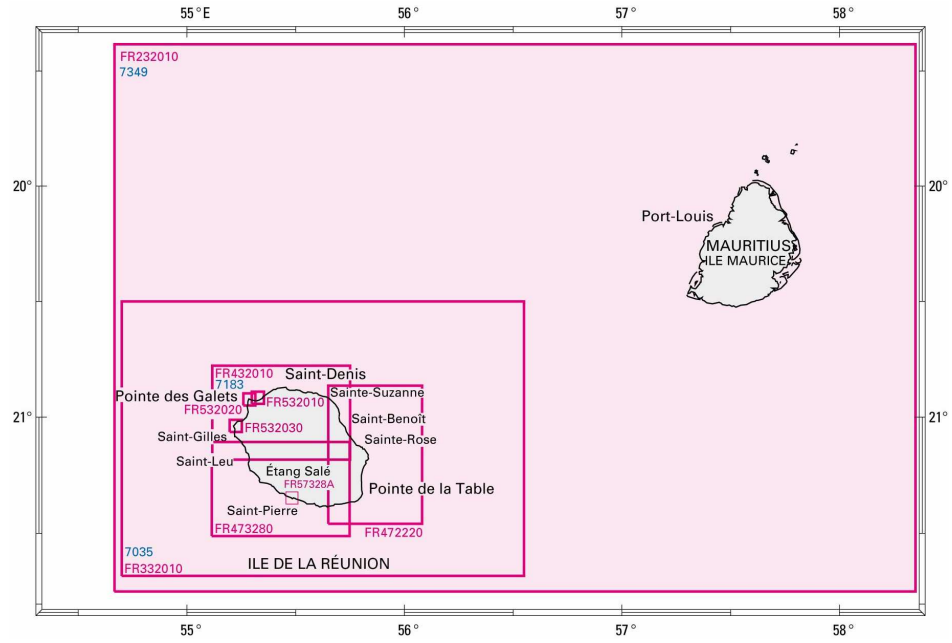
a.2 ENC's

On the 15th of July 2009, SHOM had produced some 283 ENC's at an approximate rate of 40 per year. The full collection should eventually reach a figure around 850 ENC's.

In line with the WEND task group recommendation, France produces its small scale ENC cells as closely as possible to INT chart schemes.

To comply with IMO regulations on ECDIS carriage requirements, France will ensure that all HSC lines in the SAIHC area are covered with ENC by 2010.

The SHOM ENC coverage of the SAIHC area is depicted in the chartlets below, where existing ENC are represented in dark pink and planned ENC's are in light pink (2010 – 2011):



Produced since the 6th SAIHC conference:

N°	Title
FR473280	Île de la Réunion – Partie Sud
FR472220	Île de la Réunion – Partie Est
FR67493A	Île de Mayotte – Mouillage de Dzaoudzi

Planned in 2009 (second semester):

N°	Title
FR574920	Île de Mayotte – Partie Nord
FR574930	Île de Mayotte – Partie Est
FR67493A	Île de Mayotte – Mouillage de Dzaoudzi

Planned in 2010-2011:

Area	Usage Band	FR paper chart Nr	Observations
Île de Mayotte - Comores	3	5983 (to be replaced by 7490)	High speed crafts
Île de Mayotte - Comores	4	6237 & 6238 (a new edition of 6237 is planned)	High speed crafts FR 6237 & 6238 Geodetic system unknown
Comores - Anjouan	5	4806 (inset)	
Comores - Anjouan	6	4806 (inset)	
Île de la Réunion	5	7328 (inset)	Saint-Pierre harbour
Madagascar - Antsiranana	4	5476	
Madagascar - Antsiranana	5	4696 (to be replaced by FR7680)	
Madagascar - Antsiranana	6	4697 (to be replaced by FR7681)	

a.3 RNCs

NTR.

a.4 INT Charts

See item a.1.

a.5 National paper charts

See item a.1.

a.6 Other charts e.g. for pleasure crafts

NTR.

a.7 ENC Distribution method

All French ENCs are distributed by PRIMAR RENC.

a.8 Problems encountered

NTR.

b. Publications

b.1 New publications

Type	Nr	Title
IN	L8	NtM Africa (Eastern coast): from Cape Agulhas to Ras Hafun (2008)
IN	C5	NtM Africa (Western coast) : from Cape Palmas to Cape Agulhas (2008) Corrections manual n°3
IN	L9	NtM Indian Ocean Islands (Southern part)- Terre Adélie (2007) Corrections manual n°3
LL	L	Indian Ocean - Australia (2007)
LL	CB	Atlantic Ocean: from Spain to South Africa (2007)
RSX	922	Maritime radiocommunications – Volume 2 : Africa – Asia – Australasia (2008)
RSX	933	Radiocommunications for maritime traffic monitoring and piloting – Volume 3 : Africa – Asia - Australasia (2007)
RSX	961	Marine weather broadcast stations – Volume 1 : Europe, Africa and Asia (2008)
DIV	095	Tide table 2009 – Vol 2 – Overseas ports
DIV	105	Tide table 2010 – Vol 2 – Overseas ports

IN : Sailing directions

RSX : Radio stations

LL : List of Lights

DIV : Miscellaneous

b.2 Updated publications – Editions

NTR.

b.3 Means of delivery e.g. paper, digital

SHOM aims at generating by digital means its entire paper production. This should be achieved by using international standards such as XML and following closely the recommendations of experts such as the IHO Standardization of Nautical Publications Working Group (SNPWG) in which SHOM participates.

b.4 Problems encountered

An important regulation corpus has been developed for the establishment and use of ENC's while the equivalent standardisation for nautical books is still lagging. As a result, the rules of use of these documents are not clearly established.

4. MSI

Existing infrastructure for transmission –

New infrastructure in accordance with GMDSS Master Plan

Problems encountered

NTR.

5. Capacity Building

5.1 Offer of and/or demand for Capacity Building

France participates in the IHO Capacity Building sub-committee and supports the IHO Regional Hydrographic Commissions of which SHOM is a member, especially the Southern Africa and Islands Hydrographic Commission (SAIHC), the Eastern Atlantic Hydrographic Commission (EAHC), the South-West Pacific Hydrographic Commission (SWPHC), the Meso-American and Caribbean Sea Hydrographic Commission (MACHC) and the Mediterranean and Black Sea Hydrographic Commission (MBSHC).

i The Madagascar cooperation project

In spite of the 2009 unfortunate events which plunged Madagascar into grief and caused a nine month delay to the existing project, SHOM continues to support the Madagascan Geographic and Hydrographic Institute (FTM) on a strictly technical basis.

After much debate at the 6th CBSC conference, it was finally agreed to allocate the following CB funds to the Madagascar project. A proposal with the financial breaking down of the project will be presented at the 7th SAIHC conference in order to discuss the final details; applications for CBSC funds (according to CBSC procedures) will be forwarded to the SAIHC Chairman afterwards.

Task	Element of Working Programme (stage 1)	Funding	Responsible
2.3.2	New introduced activity h): Bridging advance Preparation of Project (SAIHC, Madagascar)	18 000 €	SAIHC Chair

In a following stage, conditional to results achieved during the first phase, some additional funding could be considered as follows:

Task	Element of Working Programme (stage 2)	Funding	Responsible
2.3.2	New activities g): Training (SAIHC, Madagascar). Conditional, depending on the results received from stage 1, if support is approved. Additional information to be requested on activities, costs...	38 000 €	SAIHC Chair

Understandably, the CBSC Chairman was concerned that a confusion could occur between resources provided, on the one hand, by CB funds, and on the other hand, by the GEF Marine Highway project (GEF-WIO/MHD/CMC).

Under the chairmanship of the South African Hydrographer, SHOM and the Regional Coordinator (RADM Neil Guy SAN) intend to clarify this issue at the 7th SAIHC conference.

ii The GEF - Western Indian Ocean Marine Highway Development and Coastal and Marine Contamination Prevention Project (GEF-WIO/MHD/CMCP)

The GEF pilot project includes several Capacity Building items.

Subject to a final agreement with the World Bank currently under discussion, SHOM intends to proceed with the survey of the entire Marine Highway and accesses to certain Madagascan ports. In 2010, the ocean survey ship *Beautemps-Beaupré* should be deployed during several months in and out the port of Mahajanga. This should provide an opportunity to offer extensive on-the-job training to up to 5/8 hydrographers from SAIHC member states and observers, both on board the ship for deep sea MBES surveys and onboard her two launches for MBES and sidescan surveys of port(s).

5.2 Training received, needed, offered

Initial training capabilities provided by SHOM are described in its yearly report available on www.shom.fr.

France is aware of the language barrier that can create obstacle to technically capable, non-French speakers. Rather than proposing to attend the full French hydrographic course, which lasts about 18 month for FIG/IHO/ICA level B (incl. practical experience at sea) and a minimum of 2 years for category A, SHOM in liaison with NAVFCO (governmental company dedicated to transfer the French Navy know-how) is preparing short modules in English on dedicated technical fields such as ENC, delineations, military oceanography...

Two Madagascan trainees have followed successfully the 18 months cat. B training course provided by SHOM school in Brest. The tuition and hosting were provided free of charge by SHOM whilst plane tickets, food and national health insurance expenses are expected to be covered by the GEF-WIO/MHD/CMC project upon Madagascar's demand.

It is envisaged to extend this arrangement for a 9 months training in cartography and maritime matters, ending with the *Beautemps-Beaupré* final call in Mahajanga in 2010.

Comoros has already applied for six trainees. Final details shall be discussed during the 7th SAIHC conference. Comoros officially requested the assistance from France in March 2009 to meet SOLAS Chapter V Regulation 9 obligations.

5.3 Status of national, bilateral, multilateral or regional development projects with hydrographic component. (In progress, planned, under evaluation or study)

Pursuant to the cooperation project with Madagascar mentioned at § 5.1.i, it is expected to draft a bilateral agreement with the FTM to formalize the sharing of hydrographic responsibilities in accordance with the SOLAS Convention. A first round of discussions is expected to take place in October 2009 on the occasion of the first visit of SHOM Madagascan colleagues to Brest.

6. S-55 Latest update

The S-55 database for French areas of responsibilities is updated by SHOM on a yearly basis.

Separate entries are now available for France areas in each IHO region. A regular annual updating process has been put in place for periodic updates (last update in May 2009).

7. Oceanographic activities

As it can be seen at the Annex, SHOM is member of the GEBCO Directing Committee.

It is worth noting that SHOM is responsible in France for tide predictions, and collects all sea level data available. In support of this activity, it maintains a digital tide gauge network as part of the French contribution to the IOC Tsunami Alert System scheduled in a first phase for the Indian Ocean, and meant to be further extended to the rest of the world. Work is in progress to enhance the permanent SHOM's tide gauge performances (real-time data transmission) and to increase the network coverage in more appropriate locations. The tide gauges of Dzaoudzi (Île de Mayotte) and Pointe des Galets (Île de la Réunion) transmit their data in real-time.

Under the supervision of the Intergovernmental Oceanographic Commission of UNESCO, the French National Centre for Tsunami warning in the Indian Ocean (CNATOI) further intends to install a 3rd tide gauge in Île de la Réunion (Sainte-Marie) and a 4th tide gauge, either in the island of Tromelin or the port of Toamasina if an agreement can be reached with Madagascar.

The main considerations when setting up permanent tide observatories are the availability of on-site technical support and their usefulness with regards to tsunami warning, which precludes a location on the west coast of Madagascar.

8. Conclusions

The bathymetric surveys conducted in Madagascar, SHOM's participation in the Marine Highways project, its contribution to the Western Indian Ocean multi-hazard early warning systems through a real-time tide gauge network demonstrate SHOM's strong involvement in the SAIHC area. In parallel, the capacity building initiatives ongoing within the Region show that countries are now well aware of the importance of hydrography and maritime stakes in the SAIHC area. SHOM contributes to establish their own hydrographic capability in order to meet their SOLAS obligations and therefore fulfil their State responsibilities.

ANNEX

SHOM's participation to IHO Regional Hydrographic Commissions, Committees, Sub-Committees & Working Groups

Name	Chair Vice chair	Member	Observations
LAWG		✓	Legal Advisory Working Group
FC	✓	✓	Vice-chairman of Finance Committee
HSSC		✓	Hydrographic Services and Standards Committee, formerly known as the Committee on Hydrographic Requirements for Information Systems (CHRIS)
TSMAD		✓	Transfer Standard Maintenance and Application Development
DPSWG		✓	Data Protection Scheme Working Group
DIPWG		✓	Digital Information Portrayal Working Group, former CSMWH
SNPWG		✓	Standardisation of Nautical Publications Working Group
CSPCWG		✓	Chart Standardisation and Paper Chart Working Group
DQWG		✓	Data Quality Working Group -Last meeting in 1996
MSDIWG		✓	Marine Spatial Data Infrastructure Working Group
TWLWG	✓	✓	Tidal and Water Level Working Group
HDWG		✓	Hydrographic Dictionary Working Group
EUWG	✓	✓	ENC Updating Working Group
IRCC	✓	✓	SHOM director general has been elected first chairman of the Inter Regional Coordination Committee at the 4 th Extraordinary IH Conference
NSHC		✓	North Sea Hydrographic Commission
MBSHC		✓	Mediterranean and Black Seas Hydrographic Commission
EAHC		✓	Eastern Atlantic Hydrographic Commission
SWPHC	✓	✓	South-West Pacific Hydrographic Commission
MACHC		✓	MESO American & Caribbean Sea Hydrographic Commission

SAIHC		✓	7 th Conference of Southern Africa and Islands Hydrographic Commission to be held in the French Department of la Réunion
NIOHC		✓	North Indian Ocean Hydrographic Commission
HCA		✓	Hydrographic Commission on Antarctica
WWNWS		✓	World-wide Navigational Warning Service Sub-Committee, formerly known as the Promulgation of Radio Navigational Warnings Sub-Committee (PRNW)
CBSC		✓	Capacity Building Sub-Committee
GEBCO		✓	Joint IOC-IHO Guiding Committee for the General Bathymetric Chart of Oceans (GEBCO)