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SERVICE HYDROGRAPHIQUE ET  
OcéANOGRAPHIQUE DE LA MARINE

Directorate of Policy, Plans &  
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## French national report to the 9<sup>th</sup> meeting of the Hydrographic Commission on Antarctica (HCA)

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### 1. Hydrographic Office: General

Since the 11<sup>th</sup> 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.

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The protocol of amendments to the IHO Convention was ratified by the French Parliament on the 28<sup>th</sup> 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

SHOM conducts or participates to different types of surveys worldwide:

- i. The first type aims at collecting geophysical information pertinent to defining the extent of the French continental shelves, in accordance with Art 76 of the UN Convention of the Law of the Sea (UNCLOS).
- 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 along the following lines:
  - cataloguing of all existing information;
  - hydrographic surveys (bathymetry, geophysics, sediments, etc.) and production of charts and nautical documents;
  - use of remote sensing (SPOT, ERS, airborne surveys, etc.) to improve the coastal cartography;
  - oceanographic modelling (tides, currents, swell, etc.), eventually in liaison with IOC initiatives if any.
- iii. A third type of surveys has been added to cater for scientific campaigns performed in the HCA area under the aegis of the French Polar Institute – *Institut Paul Emile Victor* (known as IPEV), that operates *Marion Dufresne II* and *L'Astrolabe* research vessels.



Research vessel "Marion Dufresne II"

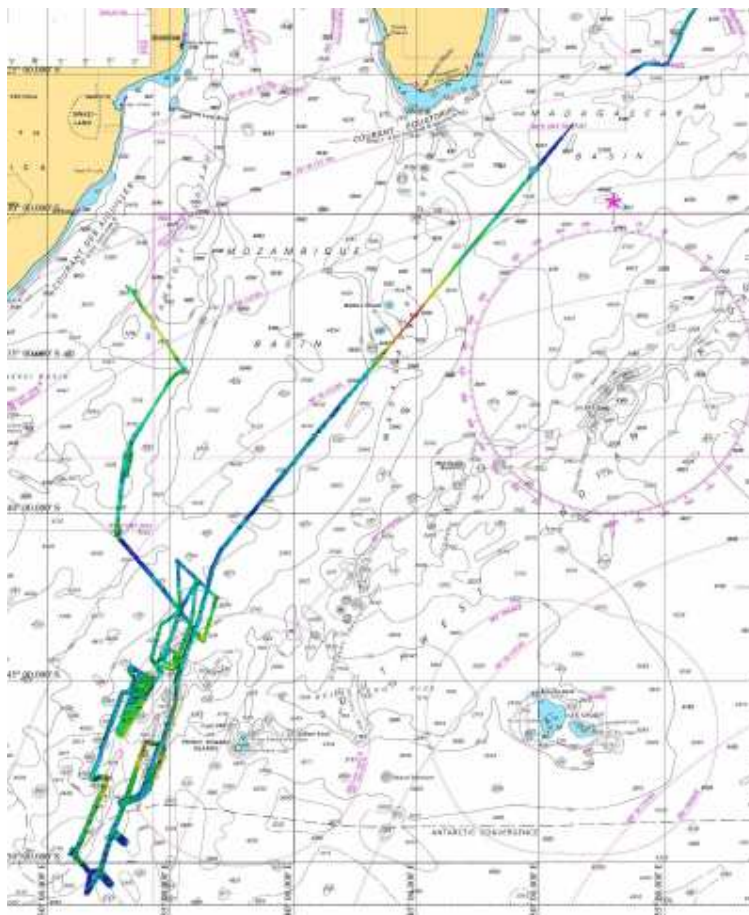


Supply vessel "L'Astrolabe"

#### 2.1.1 Surveys aimed at collecting geophysical information (UNCLOS)

There is nothing to report in the HCA area.

Nevertheless SHOM participated in the SWIR-2008 campaign in October 2008 in the SAIHC (Southern Africa and Islands Hydrographic Commission) area, adjacent to the HCA one. The survey, conducted in cooperation with South Africa, aimed at collecting geophysical information (MBES, seismic, sediments sampling...) pertinent to defining the maritime delimitations (baselines, territorial seas, EEZs, etc.). The tracks performed during this leg (conducted by the RV *Marion Dufresne II*) are represented hereafter.



*Survey performed during SWIR-2008*

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

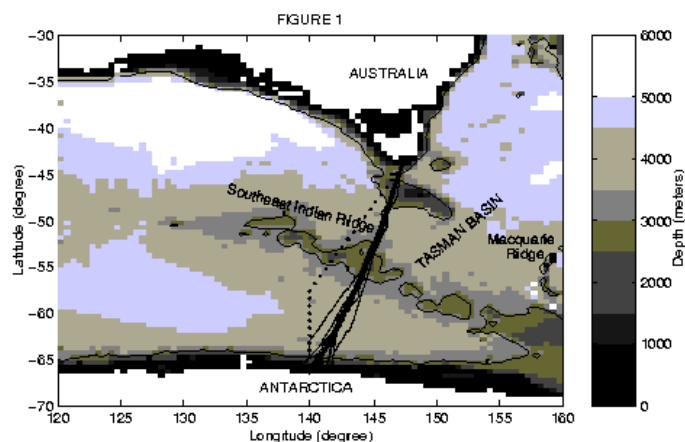
Since the previous meeting (October 2008), SHOM has not conducted any survey in the HCA area.

**2.1.3 Surveys performed by IPEV**

The table below compile a register of geophysical and oceanographic cruises performed in the HCA area by IPEV since the previous meeting.

Name	Dates	Objective	Remarks/Labs
SURVOSTRAL 2008	October 2008 – March 2009	Seasonal hydrology survey between Tasmania and the Antarctica	CNRS-LEGOS
MINERVE 2008-2009	October 2008 – March 2009	Seasonal hydrology survey between Tasmania and the Antarctica	BDSI
MD172 GEISER	February – March 2009	Ocean circulation in dynamic, Southern ocean	LOCEAN
VT104 KAVIAR-TABLE	February – March 2009	Ocean circulation in dynamic, Southern ocean	ISTO

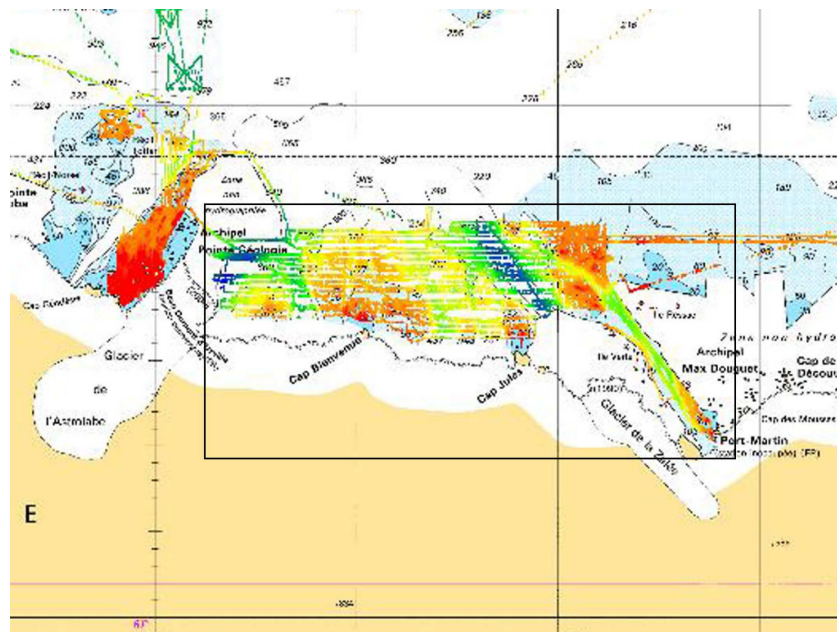
MD171 TRACK	January 2009	Collection of geophysical data (MBES, seismic, sediments sampling...) in Southern ocean, ocean dynamic, circulation, biogeochemistry in Southern ocean.	IUEM
NIVMER09	January 2009	Tide gauge maintenance, GPS and levelling measurements in Southern ocean (Dumont d'Urville base).	CNRS-LEGOS, INSU
ICOTA – KREVET 2009	January 2009	Physical oceanography, oceanic chemistry, biology (Dumont d'Urville base).	LOV – University of Paris VI
MD170 PASA – SWIR 08	October 2008	Collection of geophysical data (MBES, seismic, sediments sampling...).	Petroleum Agency of South Africa in collaboration with SHOM
GEOMAGNETISME	permanent	Earth magnetic field variation record	IPGS
Observatoires sismologiques globaux	permanent	Observation at broadband and high dynamics of the ground displacement in the high latitudes of the southern hemisphere	IPGS
GRACE	permanent	Satellite gravimetry, detection of water mass transfer	IPGS



*SURVOSTRAL survey between Tasmania and the Antarctica*

In the frame of ICOTA project (cf. the list above), SHOM received a request from the Australian Hydrographic Service for the delivery of bathymetric data in the vicinity of Dumont d'Urville base. ICOTA is a cooperation between the School of Earth and Environmental Sciences (James Cook University) and the Oceanology

Observatory of Villefranche (LOV - Paris VI University). SHOM already produced the metadata and should provide the ICOTA project manager with the corresponding bathymetric data soon.



*Bathymetric data in the vicinity of Dumont d'Urville base*

## 2.2 New technologies and / or equipment

The two following technical programmes might be of interest in the HCA area.

The international POLENET consortium (Polar Earth Observing Network - [www.polenet.org](http://www.polenet.org)) will deploy an ambitious array of geophysical instruments across the polar regions in order to study the complex interplay between climate, ice sheets, geodynamics, and global sea level change. POLENET geodetic and seismic observations, paired with other types of geophysical measurements, will greatly improve our understanding of high latitude Earth systems. This international collaboration of 24 countries will involve scientists, students and educators at all levels, and will further advance our capability to deploy autonomous instruments in extreme environments.

The national research programme GRAVITE (gravity variation and vertical motion in polar regions - Constraints on post-glacial rebound and present-day ice melting) is devoted to perform absolute gravity measurements with the two national equipments in the Arctic (Spitzberg, Iceland) and Antarctica. The scientific objectives are to determine long term temporal changes in gravity and to bring, with the help of precise positioning observations, new constraints on the problem of past and present deglaciations.

## 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**

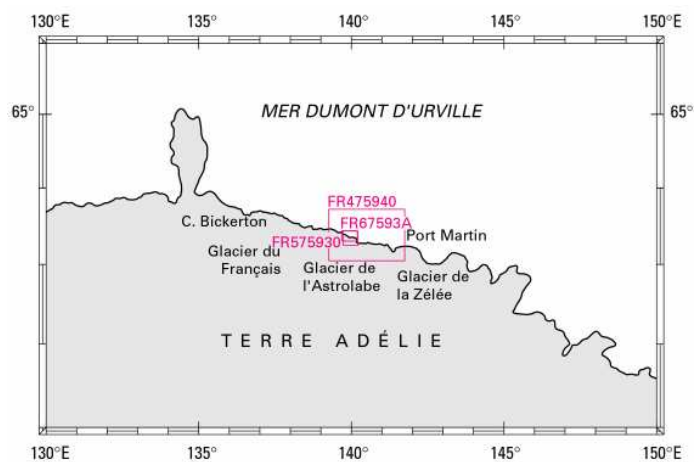
No paper charts have been produced since the last meeting. Charts covering Kerguelen, Crozet and Saint-Paul-Amsterdam islands are included in the SAIHC area.

##### **a.2 ENC**

No change to the prevision presented at the last meeting has occurred since then (no new ENC has been released in the area, and no supplementary ENC is planned to be produced for the next two years).

France is still ready to produce the ENC FR175910 corresponding to INT chart number 901 (scale 1:2000000). An agreement for boundaries shall be found because of an overlap with ENCs produced by other countries (Australia and New Zealand).

The French ENC coverage in the HCA area is summarised in the chartlet below:



*French ENC coverage in the HCA area*

##### **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**

Type	Title
DIV	Tide table 2009 – Vol 2 – Overseas ports
DIV	Tide table 2010 – Vol 2 – Overseas ports
RSX	92.3 Maritime radiocommunications : America and Antarctica (2008)

IN: Sailing directions

RSX: Radio stations

LL: List of Lights

DIV: Miscellaneous

**4. MSI**

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 (EAthC), 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).

**5.2 Training received, needed, offered**

Initial training capabilities provided by SHOM are described in its yearly report available on [www.shom.fr](http://www.shom.fr).

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

A brief raising the importance of hydrography and cartography in Antarctica was given by IHO on the occasion of the 31<sup>th</sup> Antarctic Treaty Consultative Meeting (ATCM).

## **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 NIVMER programme aims at maintaining the tide gauge network in the Southern ocean. In January 2009, tide gauge maintenance, GPS and levelling measurements were performed in Dumont d'Urville base.

## **8. Conclusions**

The 4<sup>th</sup> International Polar Year boosted the research in the polar regions and brought out the rapidity of ice melting which is one of the indicator of the global warming and has an important impact on the mean sea level elevation. As a consequence of this general awareness, the former French Prime Minister Michel Rocard was nominated as the French ambassador for Arctic and Antarctica regions.

Less than 1% of the sea area within the 200m contour has been adequately surveyed to meet the needs of contemporary shipping entering Antarctic waters. Resources for hydrographic surveying and nautical charting are expensive and sparse. Member states often have higher priority survey requirements within their own immediate territorial waters. Given the present inadequate chart coverage in the region and the exponential increase in marine traffic through Antarctic waters, the potential risks of harm to the maritime industry, persons and the fragile Antarctic environment, are great. In consequence, a compromise shall be found in the way to survey this region: on one hand, the objective is to ensure the safety of navigation in Antarctica, but on the other hand, a development of the cartography in the region will encourage the maritime traffic, which represents a potential risk for the environmental protection (establishment of infrastructures, pollution...).



## ANNEX

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

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

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