

Technical specification for FOF vessel scheduling

March 2017

Preamble

For the Research Ministry, the point of unifying the FOF is to guarantee French research capability in oceanography, within a restricted funding context in terms of operating and renewing the infrastructure. With steady resources, this should allow scheduling to be optimised and attempt to expand the number of days given over to research.

The French Oceanographic Fleet (FOF) currently runs several missions: oceanographic research and teaching, public service, research-industry partnerships. These different missions are covered whilst also meeting other commitments made elsewhere with third parties (the French Navy, joint-owner of the *Pourquoi pas?*, and the TAAF (French Southern and Antarctic Lands), owners of the *Marion Dufresne*).

This technical specification therefore aims to lock down how vessel time is divided between the fleet's different missions. It specifically defines minimum times for offshore and coastal vessels that should be made available to the research communities (in days/year on average over several years).

It comes as a complement to the fleet mission report dated January 2017, that describes how the unified FOF works and is governed.

This introduction will provide a brief recap recalling that:

- **the national scientific community** comes up with research campaigns regarding scientific aims for organisations using the FOF, the FOF long-range planning carried out by the TGIR scientific council, and certain scheduling commitments such as returning regularly to certain oceans.
- **the national assessment commissions** oversee scientific assessment of research campaign applications and *a posteriori* assessment of good scientific use made of the research campaigns programmed by the TGIR. The fleet management associates them with fleet users' feedback to be able to suggest possible improvements.
- **The fleet management** draws up the scheduling, and the associated budget, and sends it to the steering committee.

Introduction

The technical specification for scheduling aims to produce **unified, multi-year, optimised scheduling for all FOF vessels**.

It was drawn up with research operators so as to agree on:

- the values in **minimum number of days at sea dedicated to the scientific community for oceanographic open ocean and coastal research and for teaching (needs mentioned below)**.
- the principles (such as frequency of return in different oceans).

The content of the technical specification is defined here for the new structure overseeing the FOF *ab initio*. It will be reassessed **every three years** by the FOF steering committee.

Annual feedback to the FOF steering committee will ensure that balances are respected (see fleet mission report, January 2017).

The values being proposed will be **reviewed in the event of a social-economic context change** (decrease in the subsidy, or variation in fuel prices, or changes in staff salaries, etc.), as the FOF scheduling definition is bound to the budget available to fund campaigns.

Finally, any modifications to application envelopes on the different types of open ocean/coastal campaigns, and any consequent changes to other FOF missions (such as modification of public service missions, establishing DRC (domestic resource costs) that affect how the scheduling technical specification is followed), will be discussed within the FOF steering committee.

The vessel scheduling activity also includes a “work permit application” section in territorial waters and EEZ in foreign countries, and also in French waters. This section, and relations with the MAEDI, are centralised and tackled, for FOF vessels, by the new fleet management, that could rely on the network of IRD and/or CNRS representatives abroad in order to make the most of existing scientific partnerships.

Other sole operator commitments, involving implementation of vessels and vehicles, are tackled in the fleet mission report, such as coordination of French actions in terms of access to opportunity resources and foreign or international platforms (OFEG, IRSO, ...), support funds devoted to oceanographic research campaign logistics.

The technical specification for the scheduling is organised in three parts:

- I. Scheduling of research-teaching days
- II. List of commitments to the State
- III. List of specific missions for TGIR FOF partners

The appendix provides a list of commitments made to the French Navy and the TAAF.

I. Scheduling of research-teaching days

The technical specification here only includes **commitments** to be followed by Ifremer, sole operator, when establishing the unified FOF vessel scheduling. These commitments are necessarily associated with **indicators** that the sole operator must set up to successfully monitor that this technical specification is being followed.

1. Number of research days

- **minimal number of research days on vessels > 36m: 450 days**, for all four of the FOF's large global vessels (*Marion Dufresne*, *L'Atalante*, *Pourquoi pas?*, *Thalassa*), aware that this is a running average over three years; the load plan for the four vessels is divided according to scheduling constraints (geographic and technical). This base will be updated when the new structure has been running for the first 2 or 3 years, also according to changes in the pressure of scientific campaign applications.

- **minimal number of research-teaching days on vessels < 36m (not including station vessels): 960 days** for all FOF vessels < 36m (*Côtes de la Manche*, *Téthys*, *Thalia*, *Europe*, *Antéa*, *Alis*, *Haliotis*). This base should be updated when the new structure has been running for the first 2 or 3 years, also according to changes in the pressure of scientific campaign applications.

2. Pre-positioning of vessels (to guide scheduling whilst maintaining flexibility) :

- Presence of the ***Marion Dufresne* as a priority in the Indian Ocean**. If required by the scheduling, it can leave the Indian Ocean in the slot between mid-April and mid-August.
- Continuous presence of **a large vessel in the Atlantic**.
- *Thalassa*, due to the constraint of fishery campaigns, is accessible as a priority in the North Atlantic, the equatorial Atlantic and the Mediterranean.
- Intervention from a > 36m vessel in the Pacific (same geographic zone), subject to a minimum of **130 campaign days** in the zone. If this quota is not reached after four years, the FOF steering committee should explore the idea of a > 36m vessel in the Pacific. Furthermore, a request for access to an OFEG vessel could be envisaged, in the event of pressure to run a campaign quickly.
- **Four coastal vessels share the mainland shores** (*L'Europe*, *Thalia*, *Thétys*, *Côtes de la Manche*) with different technical specifics. This intervention capacity is completed by the *Haliotis* and 7 station vessels.
- Presence of **a coastal vessel (< 36m) overseas in the West Pacific** to meet scientific needs in **Nouméa, with regular interventions in Polynesia** subject to a number of programmable days equal to twice the minimum duration of all transits (return trips).

3. Principles for running calls for proposals

- For **offshore vessels**, calls for proposals will be annual, feature all oceans, and will be launched in the year **N-2** in relation to the scheduling year (year N). However, in reference to the scientific directions of the national research operators and the long-range planning that it will have produced, the Fleet Scientific Council could encourage the national community to send in campaign applications in target zones, with agreement from the fleet management.
- the calls for proposals for campaigns on global vessels should explicitly mention that **access to global vessels is open to projects on coastal topics as soon as the size of these campaigns deems this necessary** (required vessel time, size and multidisciplinary on-board scientific team, use of heavy equipment, etc.). A dual CNFH/CNFC assessment could be requested if required by the campaign topics. On the other hand, scheduling should work around the CNFH calendar (year N-2) in all cases.
- for **mainland coastal vessels (< 36m), and the Western Pacific**, calls for proposals will be annual and launched in the year **N-1**.
- as far as the **specific tropical zones and overseas territory** are concerned, they could be targeted to encourage a critical mass of applications, by means of calls for proposals (**targeted applications 2 to 4 years in advance**).

4. Scheduling deadline for an open ocean campaign should be properly assessed (by the commissions)

Within the limit of programmable days (bound to the FOF budget), the deadline is set **at a maximum of three years** (campaign assessed in N-2 and programmed in the year N or N+1).

II. *List of commitments to the State*

Public service missions:

- **Public service missions for fisheries data collection mainly on behalf of MEEM (DPMA) within the European Common Fishing Policy (CFP):** fisheries monitoring campaigns run by Ifremer on behalf of France as part of its duties within the Common Fishing Policy (currently EU-Map programme 2017-2019, financed by EMFF funds) correspond to a total of around 220 campaign days at sea, currently divided up into 120 days on *Thalassa*, 80 on *Europe* and 20 on *Côtes de la Manche*. Ifremer also carries out other public service fisheries campaigns (Comor, COSB, Nurse, etc.) on coastal vessels (particularly *Thalia*), currently without joint funding.
- **Public service missions on behalf of MEEM (DEB) within the range of the MSFD:** just one campaign per year lasting 8 to 10 days (Seliloire, Selimed, Seliseine) on a coastal vessel is currently envisaged in the MSFD surveillance programme and funded through the annual Ifremer – MEEM agreement (DEB). The other campaigns tied in with the MSFD currently involve methodology developments (sampling, etc.) associated with scientific questioning making them research campaigns, assessed by the CNFs.
- **Missions to support public power in terms of mining permits** held by Ifremer on behalf of France (“nodules” permit on Clarion-Clipperton zone until 2021 and “sulphide” permit on the mid-Atlantic ridge until 2029). Currently, it is envisaged to run a campaign in the zone (offshore vessel, around 40 days) over a period of five years within the framework of managing the “sulphide” permit, on the Ifremer budget (no joint funding). The first campaign is scheduled in 2017.

List of commitments from the State-Ifremer contractual memorandum of understanding (2014-2018) on the Ifremer fleet:

The commitments from the State-Ifremer contractual memorandum of understanding are compatible with the goals described in part I of this technical specification:

- Minimum volume **of 320 days of scientific campaign;**
- **150 days of partnership with the Navy** (cf. above);
- **120 days of public service campaign on Ifremer global vessels** particularly covering fishery campaigns;
- **100 days**, at the most, dedicated to partnerships run by Ifremer with the private sector (CRI). **This commitment is accompanied by a geographic scheduling priority for the current Ifremer fleet for these CRI. Furthermore, these partnerships should cover all associated direct running costs. Unified, optimised scheduling of global vessels should make it possible to meet this commitment from the State-Ifremer contractual memorandum of understanding without affecting scientific campaign scheduling (see above);**
- **average number of 700 days a year of manning and equipment of the Ifremer coastal vessels;**

- **once all the missions listed above in the memorandum are complete, make all TGIR FOF partners of the Ifremer offshore fleet available for partnership purposes (CRI), with financing in direct costs.**

III. List of specific missions for TGIR FOF partners

This is not an exhaustive list of the TGIR FOF partner missions; it recaps the information received from them concerning use of the FOF.

CNRS and University teaching missions:

- UMS statistics: on average 93 days/year on the CNRS coastal vessels over 2011-2016;
- the station vessels give over around 30% of their use to teaching. It is difficult to provide a more accurate figure because trips are short and frequent, and often combine research and teaching needs.
- in both cases, this essentially refers to practical work for master's courses plus engineer training from the main universities and establishments involved (UPMC, Bordeaux, UBO, Lille, ULCO, AMU, Grenoble, Lyon, Nice, IGP, Institut Lassalle Beauvais);
- teaching and training actions also took place on the *Marion Dufresne* ("floating universities"). They are generally included in the research or observation campaigns and are not subject to specific trips or campaigns.

"Observation" missions

Missions dedicated to "national observation services" (SNO) constitute a specific use of the TGIR by the research communities. They are a commitment to the extent that the SNO (or the research institutes federating them) are labelled nationally (by the organisations on recommendation from specialised commissions, or by the MENESR on recommendation from AllEnvi) and they are often the national range of international infrastructures. They aim to collect recurring observation data for at least several years. These missions are the subject of campaign applications (CNFH and CNFC). They are not completely reassessed every year (the "SNO" label is valid for 4 to 5 years); every year, the assessment only looks at certain aspects (amount of time, technical particularities, complementary opportunity operations, etc.).

These missions particularly involve station vessels, but also *Côtes de la Manche*, *Thetys*, *Europe*, *Antea*, *Thalassa*, *Atalante*, *Marion Dufresne* and *Astrolabe*.

The main SNO users are as follows:

- SOMLIT (coastal water quality: station vessels and coastal vessels)
- MOOSE (hydrology, dynamics and contributions to the scale of the Gulf of Lion): station vessels, coastal vessels and occasionally global vessels.
- PIRATA (oceanic dynamics in the tropical Atlantic): global vessels (*Thalassa* or *Atalante*)
- ARGO (oceanic and biogeochemical dynamics of the global ocean): global vessels in general, included in open-sea campaigns with other goals.
- OISO (Indian Ocean Observation Service - CO₂ exchange between the Southern Indian Ocean and the atmosphere): programme run every year on the MD during the "Obs-Austral"

campaign (austral summer), with 6 specifically-dedicated campaign days at sea but above all, involving continuous measurements. There are also MINERVE observations (using transits) and the SO SURVOSTRAL on the Astrolabe (although therefore not included in the TGIR FOF since 2016).

- MOMARSAT on *Pourquoi Pas?* maintenance on the seabed observatory; MOMAR within the IR EMSO and HYDROMOMAR campaigns for acoustic measurements on the MOMAR zone
- SOERE ROSAME (network of tide gauges with recurring NIVMER campaigns on *Marion Dufresne*).

Missions “in the south” by the IRD

The IRD’s research, training and innovation activities aim to contribute to social, economic and cultural development in Southern countries and French overseas territory. In Overseas territory, these activities are formalised in UMRs. Abroad, these activities are sometimes formalised by Mixed International Laboratories (LMI), jointly put together with Southern partners, and combining all custodianship of stakeholder UMRs in the North.

IRD researchers regularly run campaigns in the South Pacific from Nouméa towards Indonesia to the west and as far as French Polynesia to the east. They also work in the Atlantic and the Tropical West Indian Ocean.

Servicing French Subantarctic islands to implement land-based scientific programmes in the Austral islands

Organisation of land-based scientific campaigns in the French Austral Islands implemented by the IPEV between November and February every year (austral summer) **requires the chance to partially relieve scientific personnel (up to 40 persons repatriated) in Kerguelen, and to a lesser extent in Crozet (rarely Amsterdam)**. This has been possible over the last few years during the OBS-AUSTRAL campaign (formerly LOGIPEV) comprising the SNO OISO and recurrent campaigns evaluated by the CNFH.

IV. Appendix: other commitments

The FOF scheduling regarding commitments made with the TAAF, in a sub-charter agreement for the *Marion Dufresne* and, on the other hand, regarding the agreement to use the *Beautemps-Beaupré* and the *Pourquoi pas?*

- **Sub-charter agreement for the *Marion Dufresne*, owned by the TAAF** (paragraph to be revised at the end of 2017, after the new sub-charter agreement for the *Marion Dufresne* has been signed):

The current agreement between the TAAF and IPEV (2012; in force at the time of writing this document) reserves **120 days of use per year of the Marion Dufresne for the TAAF to complete logistics missions** to supply provisions to the Austral and Scattered Islands according to the following draft calendar: **mid-March to mid-April, mid-August to mid-September, November, December.**

Because the TAAF take responsibility for transporting personnel and equipment for the IPEV to carry out land-based scientific programmes in the Austral Islands, this calendar is drawn up by working jointly with the TAAF and the IPEV.

A fifth rotation can also take place (Scattered Islands) and consequently, the number of days using the vessel by the TAAF might increase (currently within the IPEV-TAAF agreement, the decision is made in agreement with the IPEV in October of the year N-2).

- **Agreement with the Navy for the use of the *Pourquoi Pas* and the *Beautemps-Beaupré*:**
 - o the current Navy-Ifremer agreement (expiring end of 2017) envisages that, within a right to 150 days, the Navy finances 130 days at sea every year for the *Pourquoi pas?* for its own benefit. An equivalence table helps to distribute these days over other Ifremer vessels (*L'Atalante*, *Thalassa*, ...). For more flexibility, the equivalence table could be extended to other vessels and so relieve the pressure on the *Pourquoi pas?*
 - o in parallel, Ifremer funds 10 days of right to access the *Beautemps-Beaupré* every year. These days can be grouped together for oceanographic research campaigns, particularly in areas with security issues.