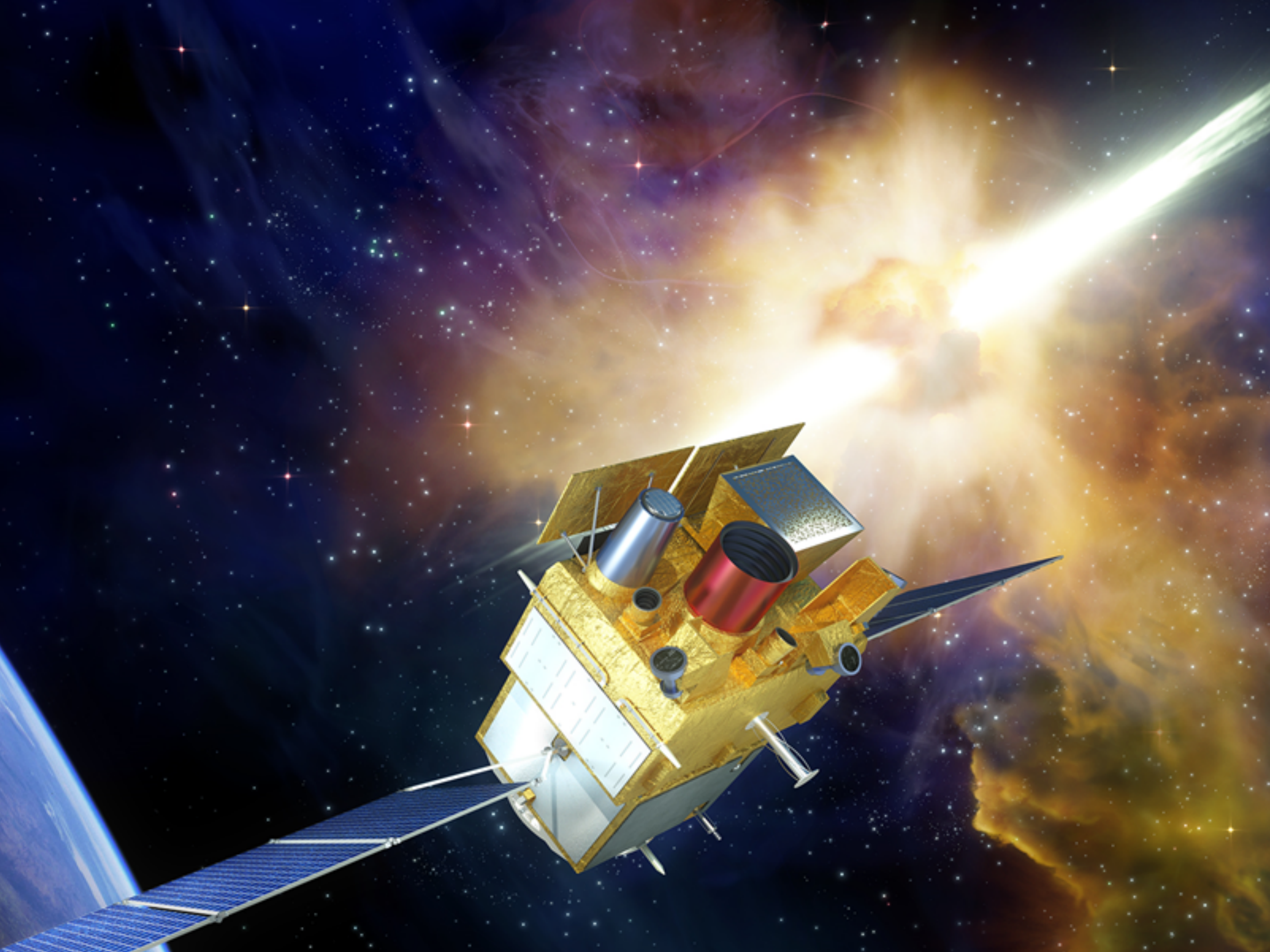


The SVOM mission

« Space-based multi-band astronomical Variable Objects Monitor »
Launch mid-2023, for 3+2 years

VT

"The Visible Telescope"
Narrow-field visible telescope

Ritchey Chretien Φ=400mm
Localization accuracy < 1arcsec

ECLAIRs

« The trigger camera »
Wide-field X and Gamma rays telescope

Spectral range : 4 keV – 150 keV
Localization accuracy < 12arcmin

GRM

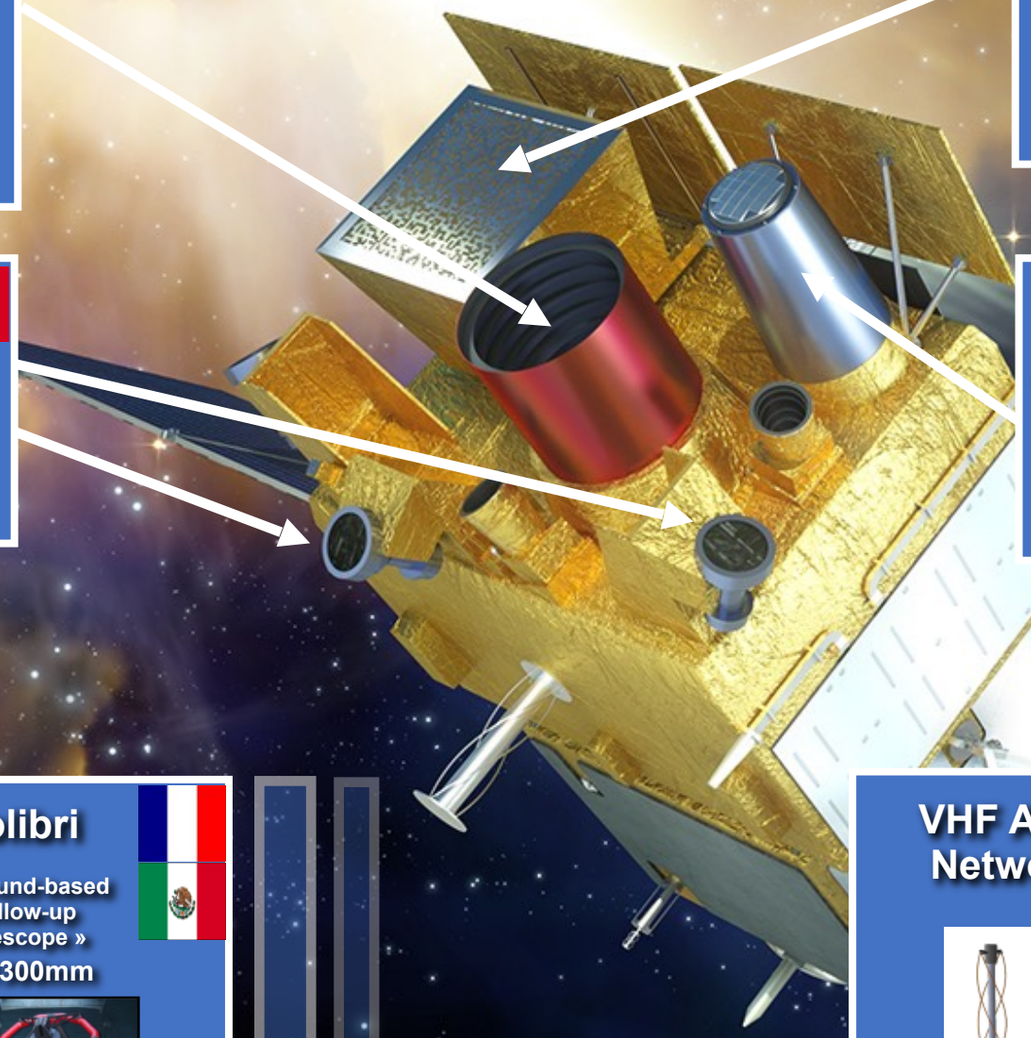
"The Gamma-Ray burst Monitor"
X-rays and Gamma-rays detectors

15 keV – 5 MeV
Localization accuracy < 5°

MXT

"The Micro-channel X-ray Telescope"
Narrow-field X-ray telescope

Spectral range : 0.2 keV – 10 keV
Localization accuracy < 1arcmin



GFT-1

« Ground-based Follow-up Telescope »
Φ>1000mm

GWAC

« Ground Wide-Angle Cameras »
Φ=180mm

Colibri

« Ground-based Follow-up Telescope »
Φ 1300mm

VHF Alert Network

… and more !

Tracking antennas

SVOM OBSERVATION PROGRAMS

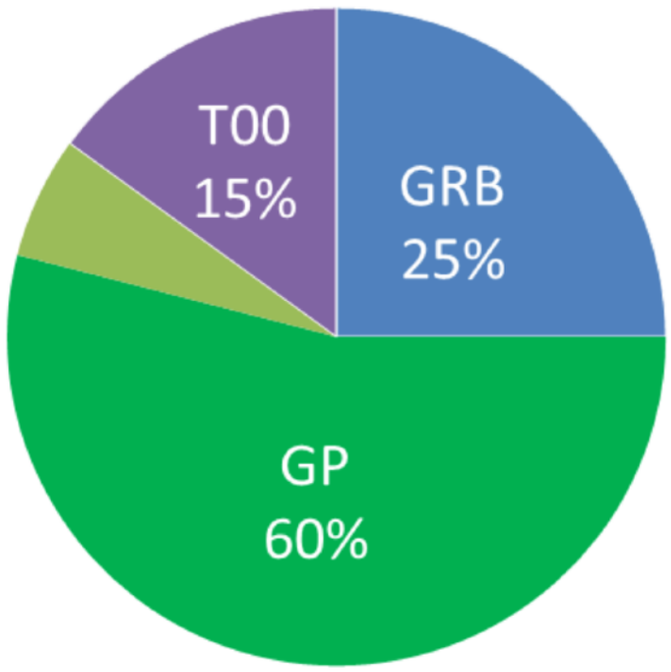
The Core Program (GRB). The first objective of the SVOM mission.
~50-60 ECLAIRs alerts/yr (loc. < 13 arcmin). **~90 GRM** only alerts (loc. < 5-10 deg).
~**30-40 GRBs/yr** with **prompt emission over 3 decades + X-ray and V/NIR afterglow + redshift.**

General Program (GP). SVOM will be an open observatory : observations will be awarded by a TAC (**a SVOM co-I needs to be part of your proposal**). 10% of the time can be spent on low Galactic latitude sources during the nominal mission (up to 50% during the extended mission).

Target of Opportunity (ToO) program : **alerts sent from the ground to the satellite**. Initially 1 ToO per day focussed on time domain astrophysics including multi-messengers. ToO program devoted time increases during extended mission.

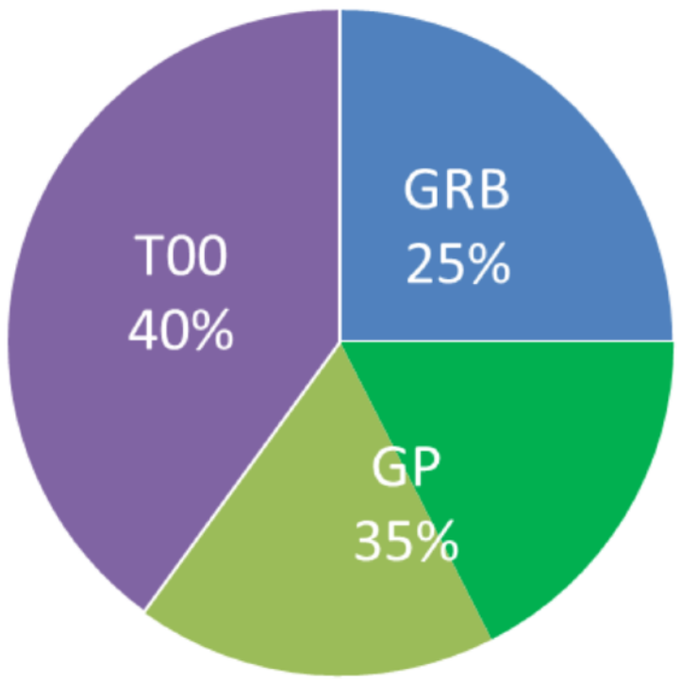
~3 first years

1 ToO per day, 10% of GP outside B1 law



After…

5 ToOs per day, 50% of GP outside B1 law

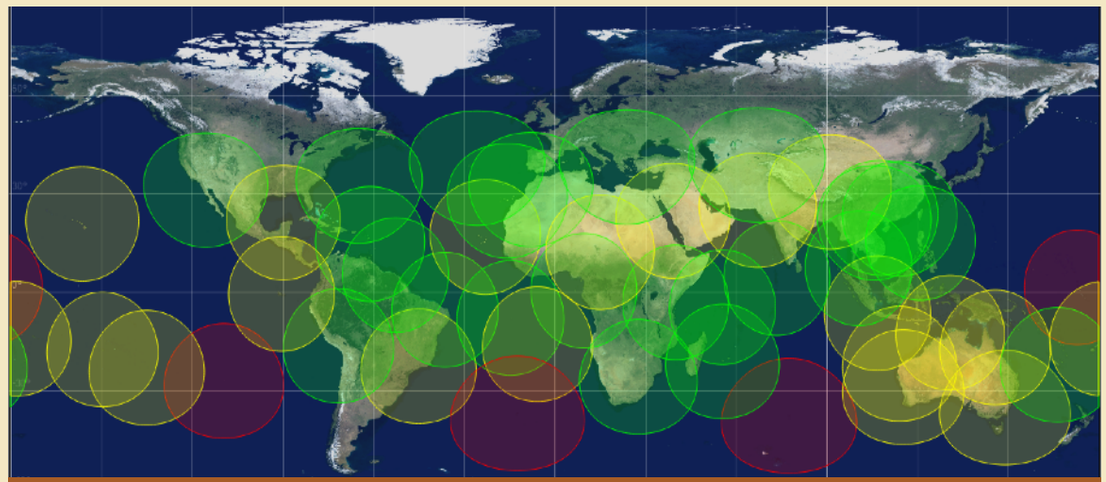


CORE PROGRAM (GRB) DOWNGOING TELEMETRY LINKS

VHF

Alert products (ECLAIRs, GRM then MXT, VT).

65% of the alerts received within 30s at the French Science Center.



Beidou

Beidou Navigation Satellite System (BDS).

For **VHF redundancy** and only for **high priority alert products**.

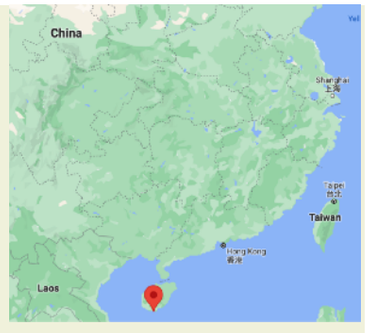
Fast but still under review (recent addition to the SVOM satellite).

First alert notices will be sent automatically within minutes after on-board GRB detection

X-band stations

All data are downloaded thanks to **X-band stations located in Sanya** (Hainan - China).

Time between 2 passages strongly depends on the orbit (max=12h).



Circulars with updated analysis will follow the data reception

UP-GOING TELECOMMANDS LINKS (GP & ToO)

GP & ToO-NOM	
S-band stations	Standard S-band stations are located in Sanya, Kashi, Qingdao (China). **GP** Work Plan is **uploaded one week in advance**. **ToO-NOM** are uploaded with a typical **48h delay** after decision.

ToO-EX & ToO-MM	
S-band stations	To reduce the latency for fast **ToO** (**ToO-EX** and **ToO-MM** for exceptional and multi-messenger alerts), Kourou (French Guyana) and Hartebeeshoek (South Africa) can be used as well. **We have a delay < 12h between alert and start of observations.**
Beidou	**Beidou system will be used to reduce the latency** with respect to S-band stations for **ToO-EX** and **ToO-MM**. Delays still under review. The typical delay between alerts and observations will be **~5 hours at start but will be drastically reduced later.**

GP & ToO DOWNGOING LINKS

GP &ToO-NOM	
X-band stations	Data downloaded through standard **X-band stations in China**.

ToO-EX	
X-band stations	ToO-EX will use **KUX** and **HBX** in addition to the **Chinese X-band stations.**

ToO-MM	
VHF (Beidou)	**MXT Position packet and photon packets** will be sent to the ground through **VHF for immediate analysis**. Beidou could be used for MXT position packet but it is not confirmed yet…

LATENCY SUMMARY

Core Program (GRB)

$t_{trigger}$ t_{FSC} *Notices* *Notices* *Notices* *Circulars*

VHF - Beidou (~1min) → *VHF* →

X-band (few hours) →

General Program (GP)

TAC selection →

GP Work Plan uploaded one week in advance

X-band (few hours) →

ToO Program

ToO-NOM	*48h delay between decision and observation*	*X-band (few hours)* →
ToO-EX	*<12h S-band | <5h Beidou delay between decision and observation*	*X-band (few hours)* →
ToO-MM	*<12h S-band | <5h Beidou delay between decision and observation*	*VHF* → *X-band (few hours)* →

ToO FOLLOW-UP AND COLIBRI

Up to now al the ToO preparation effort has been devoted to the space segment

(complex at operation level, Beidou changes a lot of things, shortens delay, secure informations).

We just start discussing the ToO ground follow-up during the OHP meeting last autumn.

A lot of points still to be discussed :

- *Telescope access (SVOM/Colibri Consortium follow-up of ToO-MM event ? ToO-EX ?)*
- *Time Constrained ToO : there is the possibility to ask for a ToO for spacecraft with coordinated observation on the ground (NIR).*
- *CGFT, GWAC, F60… asked IJCLab (N. Leroy) to provide Observations plan for their telescopes in case of MM Alert, what about Colibri*