

# Burst Advocates for dummies buddies

Colibri Meeting @Fréjus, 2023 May 9-12

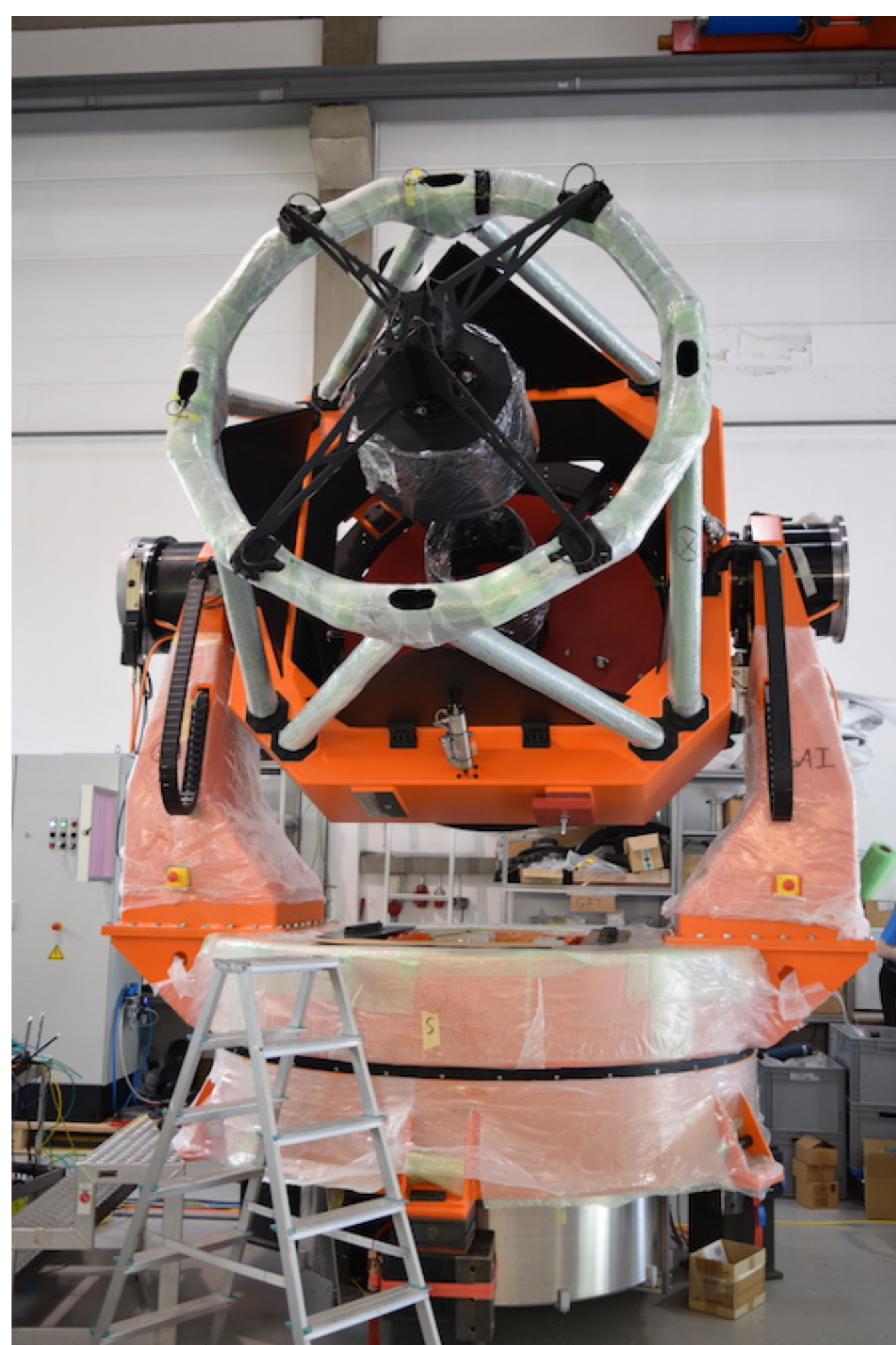
**Arnaud Claret, Damien Turpin and Damien Dornic**  
on behalf the SVOM ground segment team



# GOAL

Show the role of the BA using the F-GFT in the frame of the core program (GRB) of SVOM

- SVOM Ground Segment
- Burst Advocates
- F-GFT observations
- BA Tools

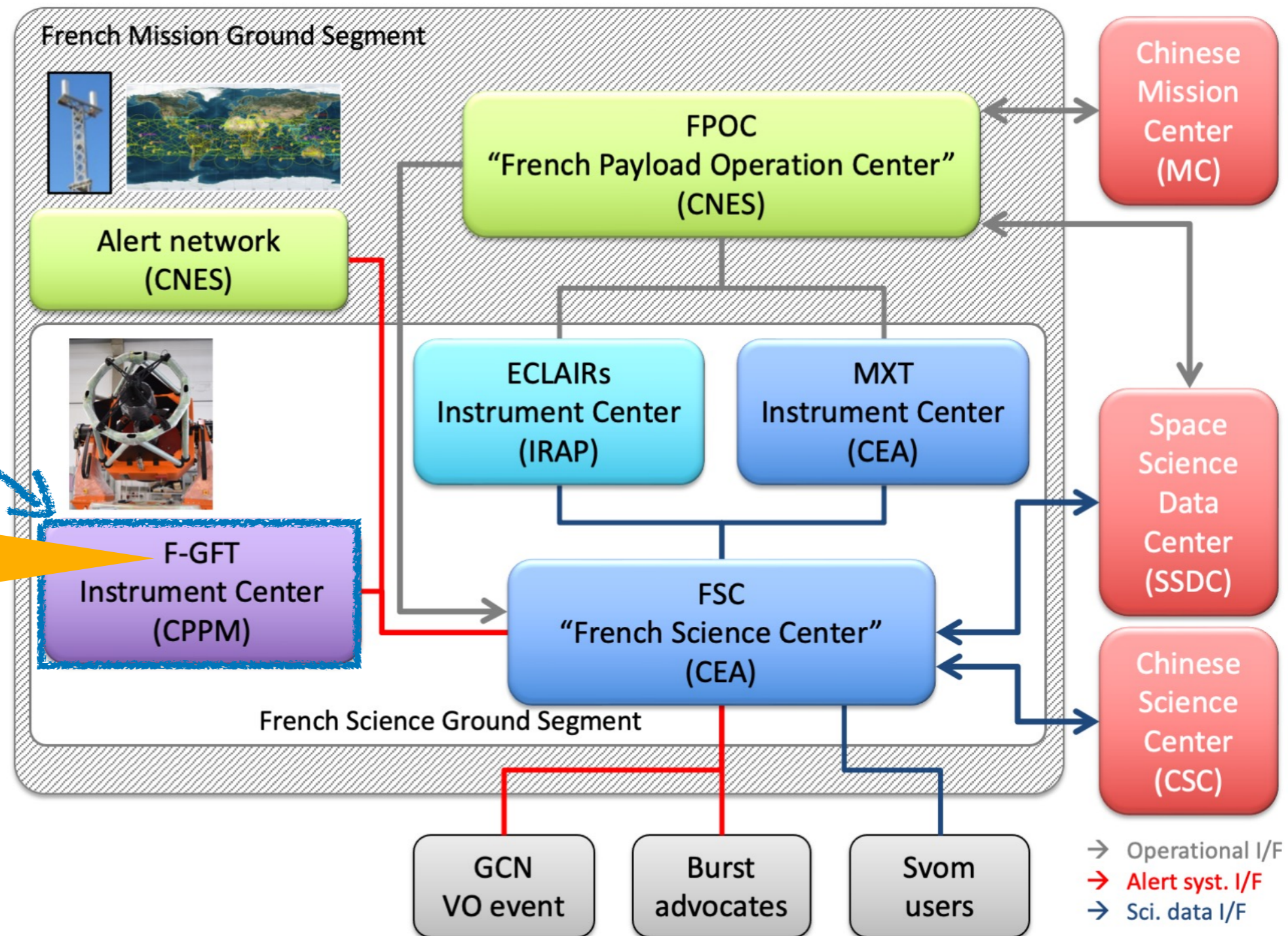


# The SVOM ground segment

## Colibri as F-GFT monitored at GIC

**Colibri Instrument Center** called **GIC (GFT-IC)**

In this presentation, **F-GFT** is the acronym (French Ground Follow-up Telescope) used to designate **Colibri activities for the core program (GRB) of SVOM**



# People involved in the alert loop

## Other acronyms to know BA, IS, IE

*Based on Swift/Fermi/Integral feedback*

\* The **Burst Advocate (BA)** has astronomical tasks:

- Validate the alert trigger and supervise the first results from the VHF data
- Identify the afterglow candidate
- Optimize the ground follow-up

ON SHIFT  
at FSC/CSC

ON CALL  
at GIC

Mexican team could  
contribute as IS

\* The **Instrument Scientist (IS)** is an expert about data analysis ; there is one IS for each instrument ECLAIRs, GRM, MXT, VT, **F-GFT**, C-GFT, GWAC

- Generates and validates the final scientific products of the highest confidence level elaborated from X band data
- May send a circular relative his instrument

ON CALL  
at GIC

\* The **Instrument Expert (IE)** has an engineering role ; there is one for each instrument ECLAIRs, GRM, MXT, VT, **F-GFT**, C-GFT, GWAC

- Reachable in case the BA faces something he does not understand about an instrument

How in practise the F-GFT observation sequence is managed? If there is HIL, then ON SHIFT is required!  
To be optimised with mixed team.



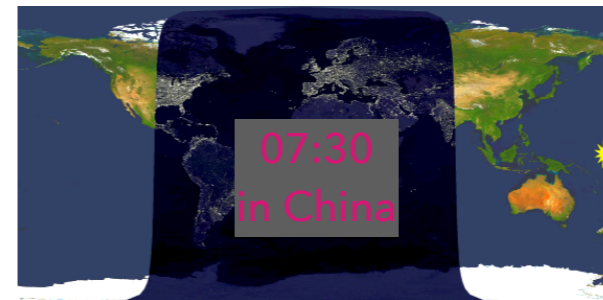
# Involvement for ground observations

## French/Chinese organisation for BA shifts

Fr/Ch agreement for BA time sharing between France/China is 60% / 40%

- ▶ Chinese BA shift (14.5 hrs duration)

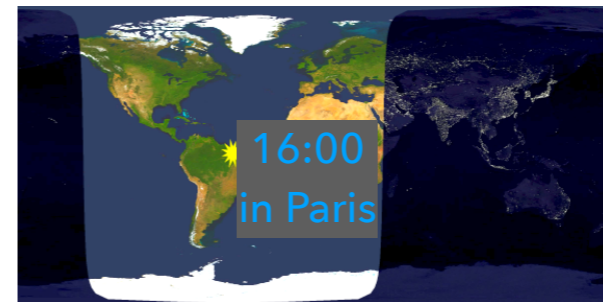
**7:00 - 21:30 LT in China**



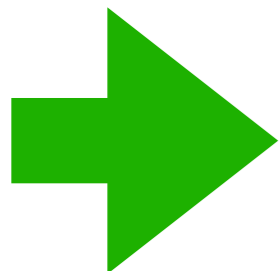
Chinese BA shifts occur  
when western telescopes are  
operating (eg. Colibri, VLT)

- ▶ French BA shift (9.5 hrs duration)

**15:30 - 01:00 LT in France**



French BA shifts occur  
when eastern telescopes are  
operating (eg. C-GFT, GWAC)

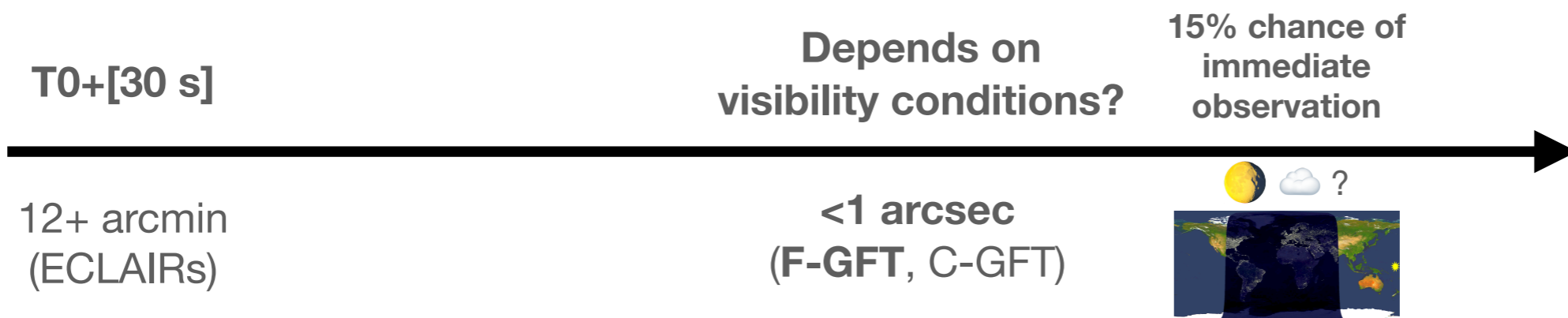


**French BA will deal with C-GFT observations**  
**Chinese BA will deal with F-GFT observations**

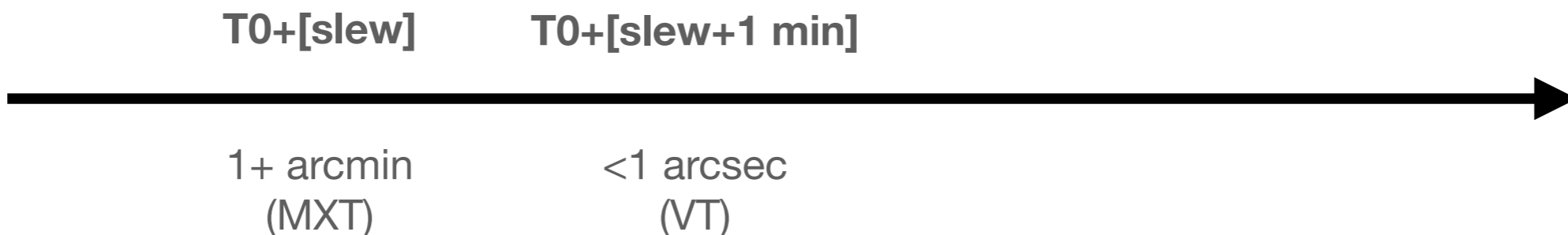
# Products expected from F-GFT (1)

## Identification (afterglow)

**Slew rejected**  
(or not even requested if SNR < threshold)



**Slew accepted**



# Products expected from F-GFT (2)

## Light curve and Photo-z

- The arrival of products in SDB (Science Data Base of FSC) depends on the **observation strategy** finally chosen
  - Already addressed during Alan Watson's talk
- What the BA needs is:
  - Position
  - Early **light curve**
  - A range or indication of **photo-z**, as soon as possible

F-GFT products are stored in the SDB and made available to the so-called "BA-tools"

# BA tools

## French/Chinese organisation

- One (French) tool for validating the trigger, another (Chinese) tool for identify the afterglow
  - Both tools shall be mastered by any BA (French and Chinese)
- Concerning the generation of **first circulars** aimed at confirming the burst candidate



circular relative to high energy instruments  
(ECLAIRs, GRM and MXT)



circular relative to visible observations  
(VT, **F-GFT**, C-GFT, GWAC, LCOGT)



# BA-tools

## What does it look like?



iFSC-tools, see C.Moreau's presentation



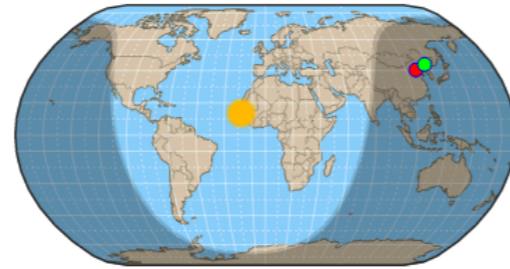
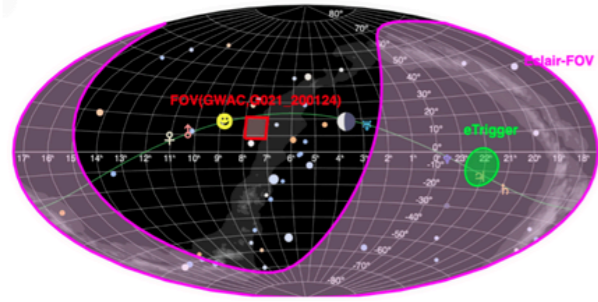
Chinese BA-tools, screenshots presented by D.Turpin

# CSC BA-tools

## Dashboard

IFSC-Tools      MC Tools      Science Data Product

Mission Status      Follow-Up System Status



Event:

EventId	Mission	Trigger name	Event name	Trigger time	Lastest RA (J2000)	Lastest DEC (J2000)	Err	Source type	BA
864	SVOM	sb23042379	GRB230423A	2023-04-23T19...	08:10:25.175	-21:55:13.08	0.0500000007		
855	SVOM	sb23042042	GRB230420A	2023-04-20T10...	10:44:03.146	+32:05:11.39	0.0500000007		
836	SVOM	sb23041467		2023-04-14T16...	12:04:17.113	+53:07:36.48	0.0500000007		
819	SVOM	sb23040920		2023-04-09T04...	21:58:07.295	+52:51:14.76	0.0500000007		
802	SVOM	sb23033168		2023-03-31T16...	02:31:49.032	+89:15:51.11	0.00639999984		
775	SVOM	sb23032862		2023-03-28T14...	19:23:56.565	+80:00:58.31	0.0500000007		
762	SVOM	sb23032513		2023-03-25T03...	19:47:16.846	-46:05:38.76	0.0500000007		
794	SVOM	sb23032288		2023-03-22T21...	01:06:15.696	-47:43:43.32	0.0500000007		

Latest Alert received at:2023-04-25T23:54:51      🚫 : unvalidate

BA Shift            

BA	Side	Status	On duty (UT)	Off duty (UT)	Time to handover

UT: 2023-04-26 13:08:07      BJT: 2023-04-26 21:08:07      CEST: 2023-04-26 15:08:07

### SVOM Operation Status

#### Ground Observatory Weather

XingLong:	CGFT: ---	FGFT: ---
Temperature: °C	Temperature: 7°C	Temperature: ---°C
WindSpeed: NaNm/s	WindSpeed: 0m/s	WindSpeed: ---m/s
Humidity: %	Humidity: 46%	Humidity: ---%
<a href="#">Link</a>	<a href="#">Link</a>	<a href="#">Link</a>

### Telescope Status

Telescope	Site	Operation Status	Follow-up status	Last update at
GWAC-F60A	xinglong	online	正常	2022-02-08T10:15:29
GWAC-F60B	xinglong	online	正常	2022-02-07T10:16:45
CGFT	jilin	online	正常	2022-02-01T10:15:29

\*Instrument list

### Telescope Configuration

# CSC BA-tools

## Burst alert page

Event : [Validate GRB](#) [Comments](#)

Mission	Trigger Name	Event name	SVOM Burst ID	Online / Offline	Source Type	Detector	Trigger Time (T0,UT)	T90	RA (J2000)	Dec (J2000)	Err	CLE	Solar Dist	Lunar Dist/Phase	Galactic l/b	E(B-V)	BA	Validation Status
SVOM	sb23021661	GRB230216A				Svom-Eclairs	2023-02-16T14:48:34.830000		07:35:51.841	-08:00:54.36	0.0500000007	1	139.1806	140.4663 / 0.19	225.1876 / 6.0956	0.17		true

Columns ▾

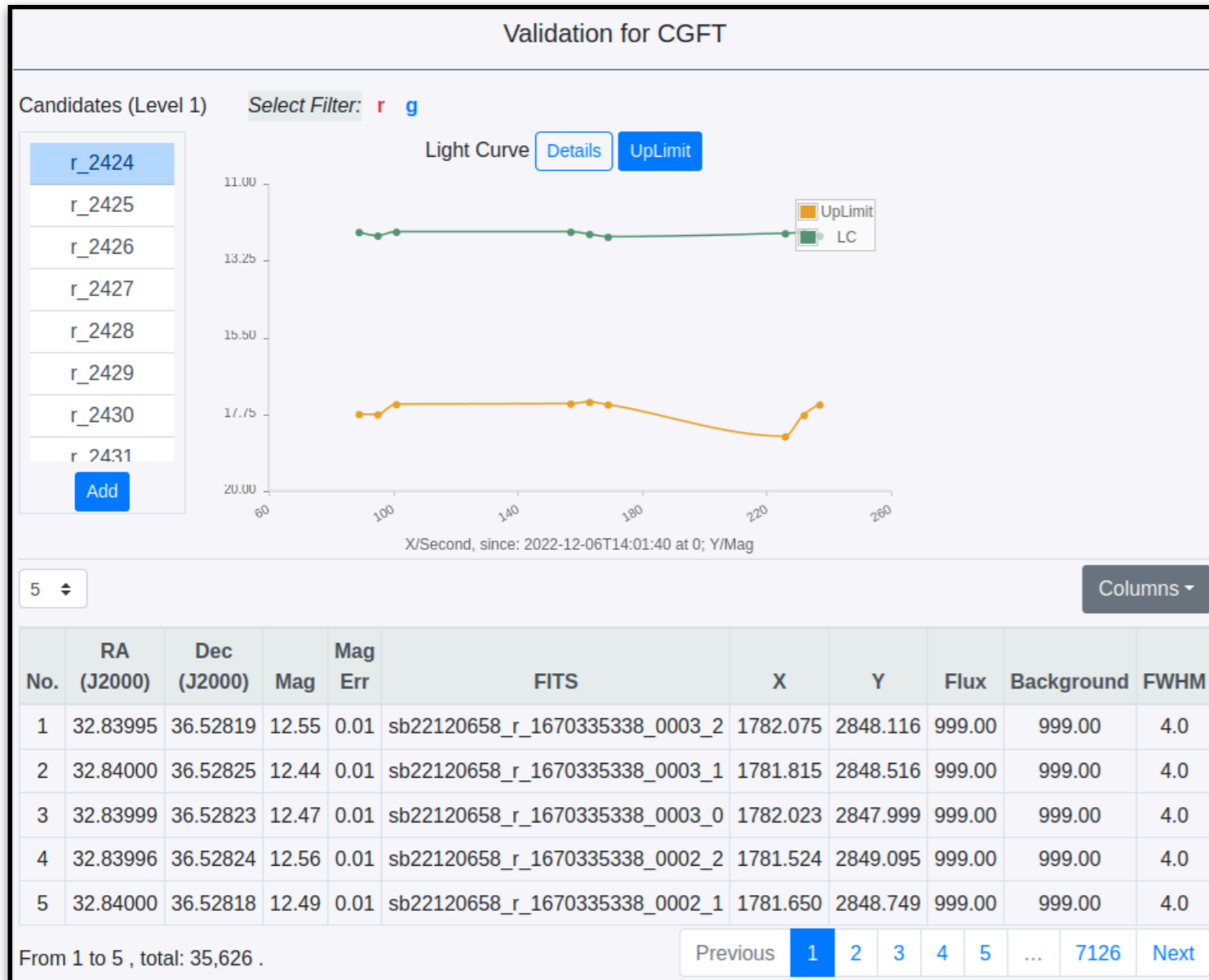
**Alert Detail :**

Alert Time (UT)	Alert ID	Alert Type	Alert Number	Alert Instrument	RA (J2000)	Dec (J2000)	Error	Duration	SNR	Event Proba	Alert Status URL
2023-02-16T14:48:34.830000	41450	N1e notice (data from ECLAIRS)	2	Svom-Eclairs	07:35:51.841	-08:00:54.36	0.0500000007			1	
2023-02-16T14:48:34.830000	41427	N1e notice (data from ECLAIRS)	1	Svom-Eclairs	07:35:51.841	-08:00:54.36	0.0500000007			1	

Columns ▾ Showing 1 to 2 of 2 entries Previous **1** Next

# CSC BA-tools

## Candidates light curve and image display



**g band**  
**[Carousel]**

sb22120658\_g\_1670335338\_0003\_2  
Obs: 2022-12-06T14:05:06  
Center: 32.4899216, 36.3536415  
Size: 1.6deg, 4096x4096

**r band [Carousel]**

sb22120658\_r\_1670335338\_0003\_2  
Obs: 2022-12-06T14:05:38  
Center: 32.4896202, 36.3534088  
Size: 1.6deg, 4096x4096



# CSC BA-tools

## SVOM Follow-up Telescope joint analysis

Telescopes **CGFT** **VT**

Joint analysis for candidates (Level 2) Manual import data

Crossmatch radius:  arcsec. Correlation / Submit Re-select Columns ▾

	ID	Inst	DT(UT)	T-T0(s.)	RA (J2000)	Dec (J2000)	Err	Dis.Eclair	Dis.MXT	N_dete.	AMP.	CL1		
<input type="checkbox"/>	79	CGFT	2022-12-06T14:03:10	89.14	32.83998	36.52824	1.000	0.0779		16	4.56	r_2424	⊖	↕

Candidate list (Level 3) Data visulization

	No.	RA (J2000)	Dec (J2000)	Err	Dis.Eclair	Dis.MXT	VT	CGFT	GWAC	F60A	F60B	F30	CL2		
	1	32.8400	36.5282	1.0000	0.0779		N	Y	N	N	N	N	79	⊖	↕

Submit

**Final words**

# Announcement

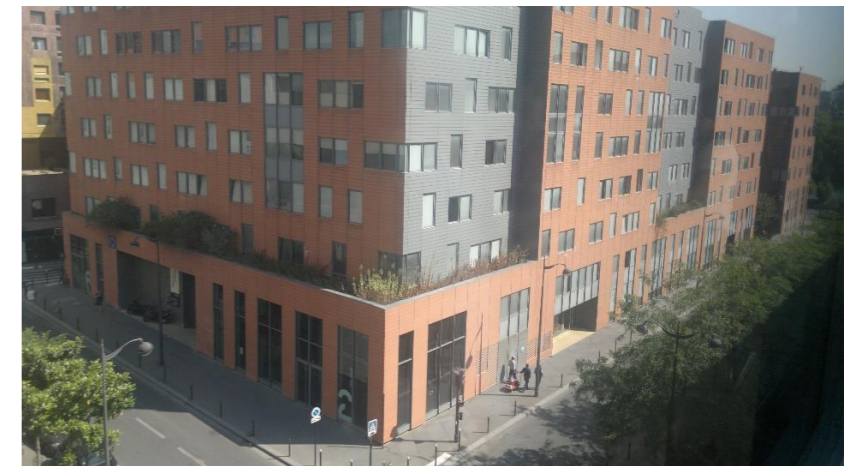
**Training school for BA (not only, General Program also)**

**2023 September 18-22, at Paris/APC**

- 9 months before the scientific operations
- Documentations and user manuals shall be in rather good shape

## **Preliminary program**

- Tutorials on BA-tools, with Hands-on
- Tutorial on SSTOMP (SVOM Support Tool for Observation Mission Planning)



# Conclusion

## Reminder of main questions raised here

- **F-GFT observing sequence**
  - ▶ Need to adapt in real time? Probably **YES**
  - ▶ Fully automated or HIL? Probably **YES**
  - ▶ Mexican expert until 4:00 LT, and then French one starting from midday? **TBC**
- **Support to provide to BA for Colibri pipeline**
  - ▶ Participation of Mexican team as IS?



Thank you

