



SVOM BA system in a nutshell

Damien Turpin (CEA)



The reminders of today

1-The VHF alert sequence to the SVOM products

- How do the scientific products are built?
- Where are they stored and displayed for the BA?

2-BA Visu tools

- iFSC-tools: overview
- CSC BA tools: overview (*Xuhui Han's talk*)

3-BA reporting tools and documentation

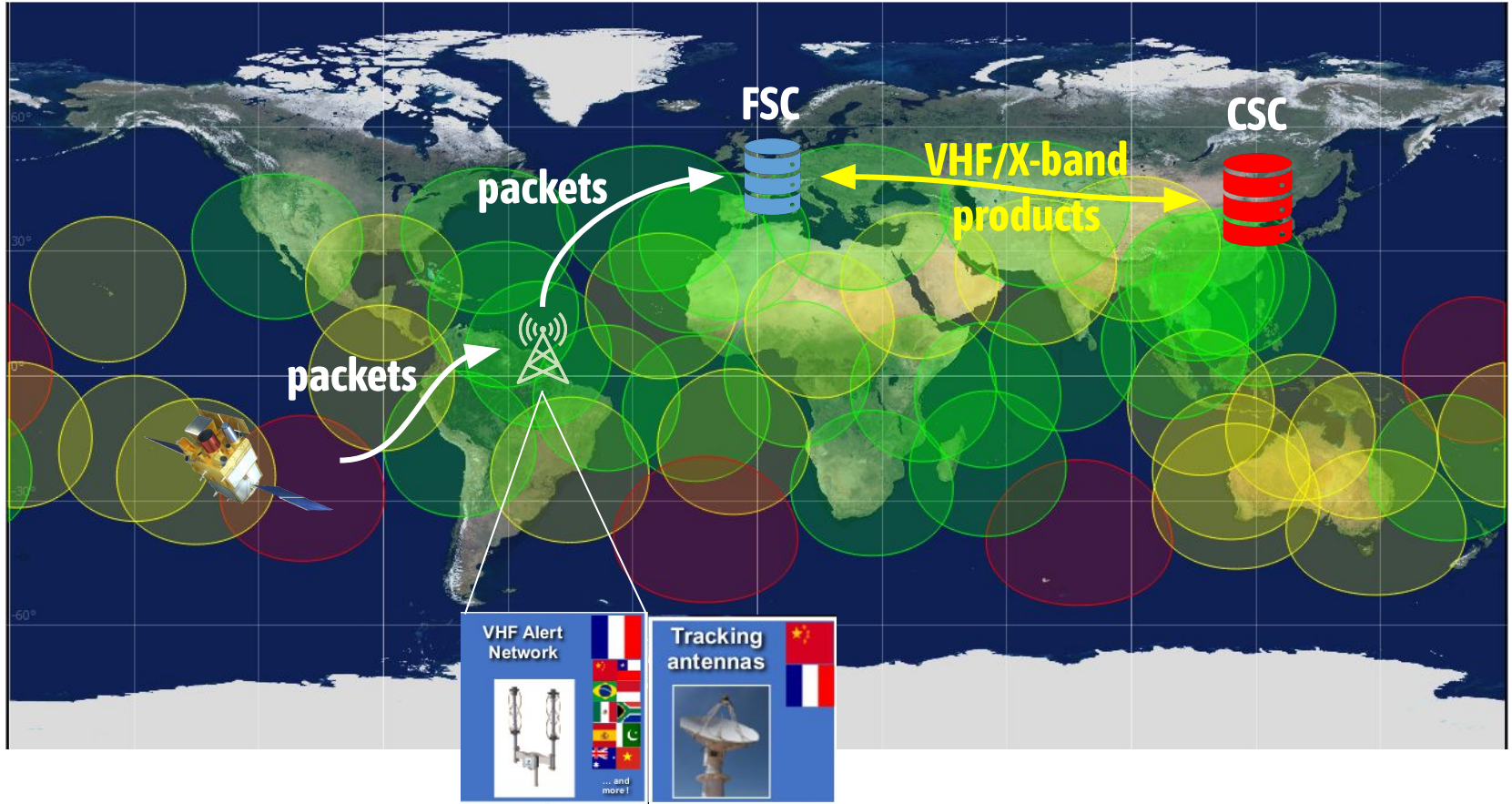
- Do we envision a reporting tool to close a follow-up campaign ?
- Do we follow the example of the SVOM/Swift training wiki ?
- How do we organize the BA user guide doc. ? Wiki ? PDF ? something else ?



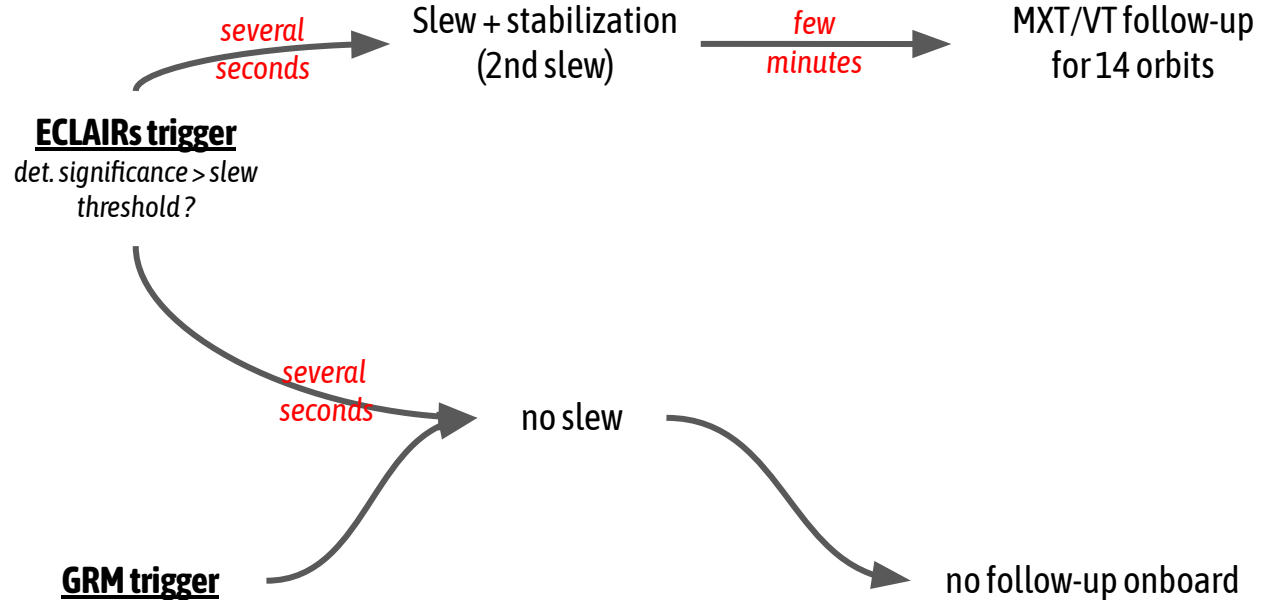
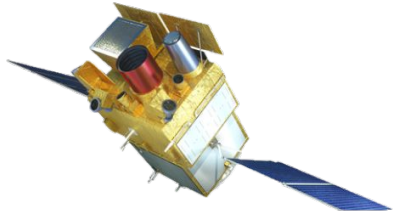
1-The VHF alert sequence to the SVOM products

- How do the scientific products are built?
- Where are they stored and displayed for the BA?

Overview of the SVOM product creation



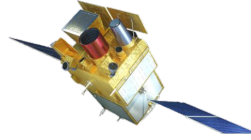
Overview of the onboard VHF alert sequence



Potential alert seq.

1. GRM/ECLAIRs (no slew)
2. ECLAIRs/GRM (no slew)
3. GRM only (no slew)
4. ECLAIRs only (no slew)
5. ECLAIRs/MXT/VT
6. GRM/ECLAIRs/MXT/VT
7. ECLAIRs/GRM/MXT/VT

VHF alert packet sequence and prioritization



ex: ECLAIRs/GRM/MXT/VT sequence

Not all packets represented here

Many packets are emitted and their latencies depend on their priority defined onboard

TmVhfVtSubIm
 TmVhfVtFindChart
 TmVhfVtAttChart
 TmVhfMxtPhotonL
 TmVhfMxtPosition

TmVhfGrmXXLightCurve
 TmVhfEclairsAlertDescriptorN
 TmVhfEclairsXXLightCurve
 TmVhfPdpuGrb
 TmVhfEclairsAlertDescriptor1
 TmVhfEclairsAlert

priority

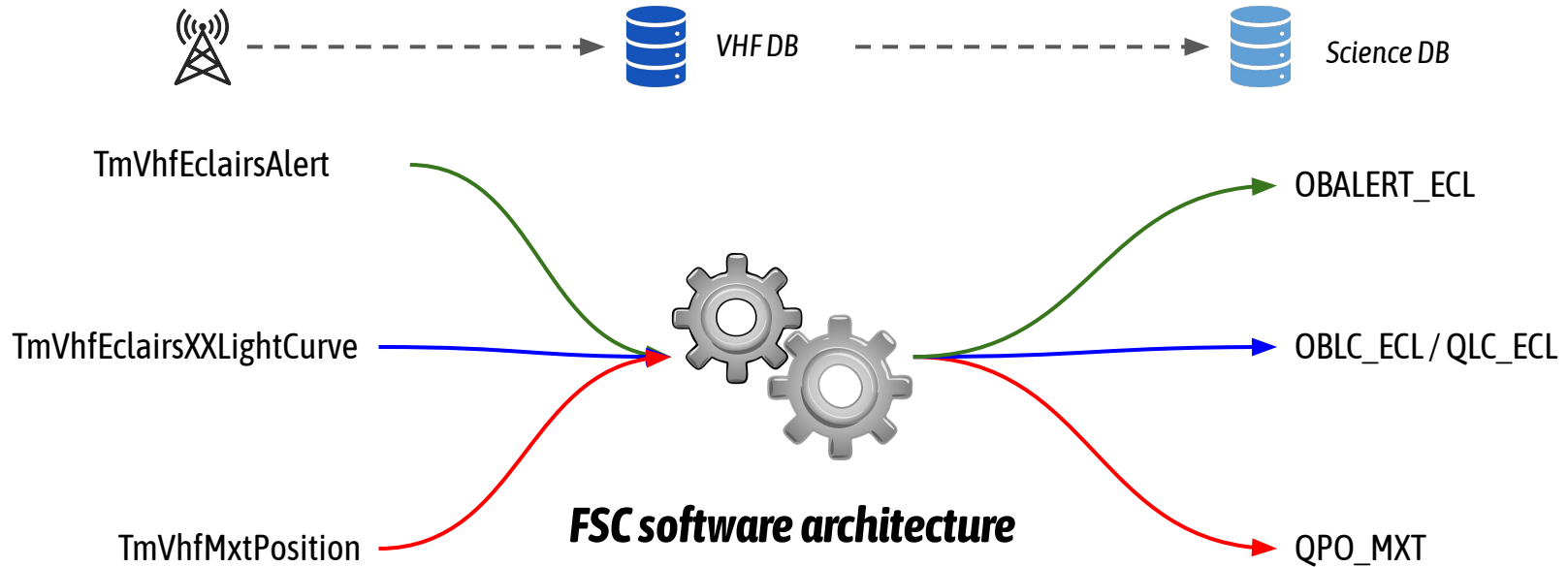
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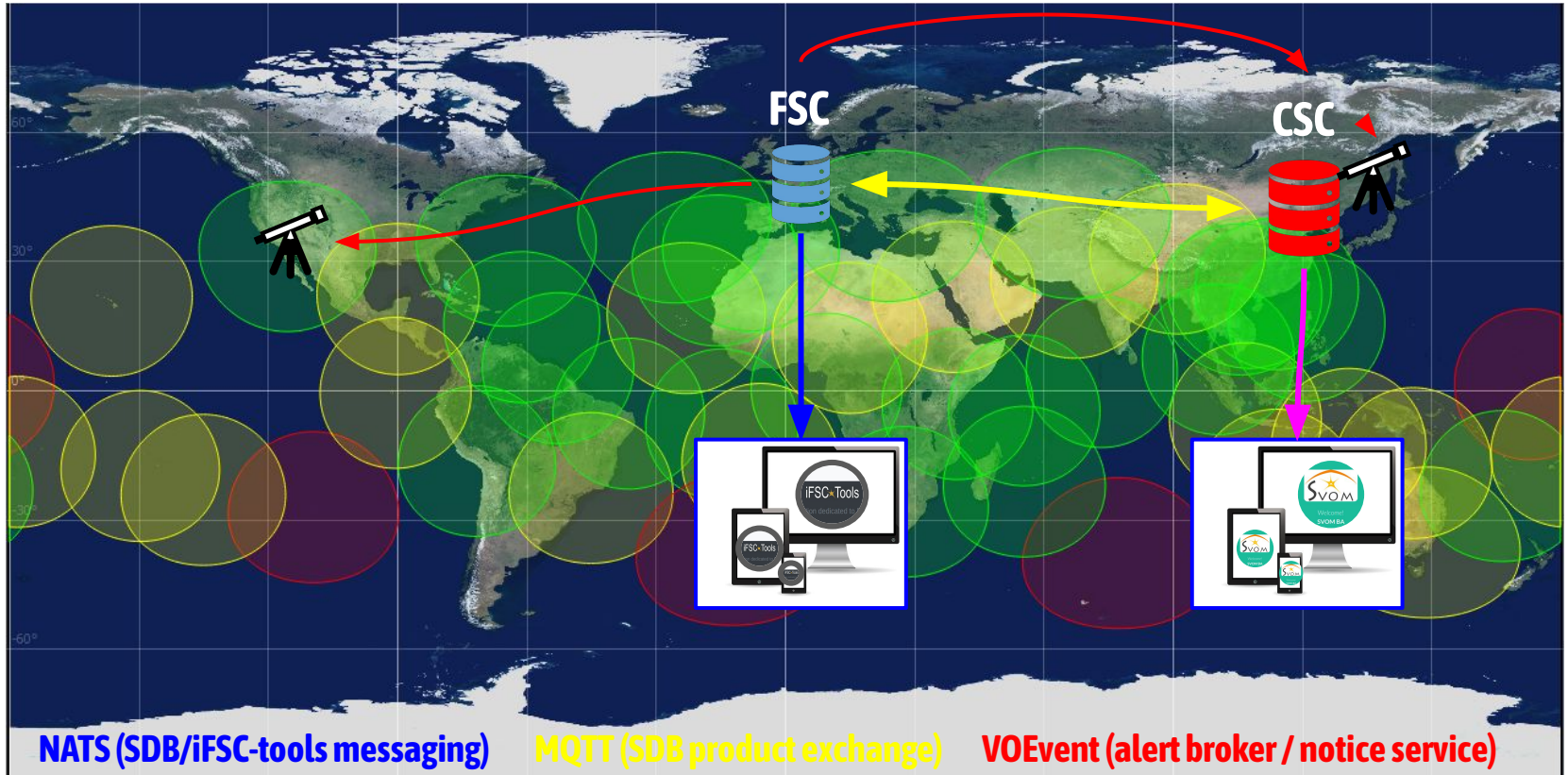
VHF alert packet to product conversion



This week you can discuss with the developers of the different FSC services



SVOM product & alert communication system





2-BA Visu tools

- iFSC-tools: overview
- CSC BA tools: overview (*Xuhui Han's talk*)



The SVOM BA tools



Chrystel Moreau, Jean-Christophe Thome,
François Agneray (LAM)

- Manage th FR shifts
- Display VHF data on real-time
- **Allow the validation of the high-energy trigger**
- Display the MXT data and few VT VHF data (first obs. seq)
- **Edition of the HE GCN Circular (See Timothé Roland's talk)**
- Monitor the space environment around the spacecraft
- Display X-band high energy data
- Display ToO-MM data



Xuhui Han's talk (CSC)

- Manage th CN shifts
- Display VHF data on real-time
- **Allow the identification of the optical afterglow**
- Display the VT and GFT optical data
- **Edition of the optical GCN Circular**

Set up your BA working environment

Notification tools

- SVOM Mattermost (#voevent-notice, #ba-training) -> invitation link
https://svack.lal.in2p3.fr/signup_user_complete/?id=q1egqc9bg3bx3y1t8i7146tw1e
- NASA GCN system (<https://gcn.nasa.gov/>)
- FSC account (<https://fsc.svom.org/>)
- CSC SMS (for those who want to be notified directly on their phone)
- Astro-Colibri App (<https://astro-colibri.com/#/>)



BA Visu tools

- iFSC-tools - need a FSC account- (<https://fsc.svom.org/ifsc-tools/>)
- CSC BA tools - generic account for all of us for now (<https://svom-gwacn.cn/ba/login.action>)

Be in the JSOG meeting mailing list

- every two weeks on wednesday morning we make a status about the Scientific operation activities. You should participate to these meetings if you are available (ask Arnaud Claret (arnaud.claret@cea.fr) to be in the mailing list of the JSOG meetings)

BA reporting tools?

- SVOM redmine BA-training wiki (<https://forge.in2p3.fr/projects/ba-training2/wiki>)



Your FSC dashboard

FSC [HOME \(!! Testing Site !!\)](#) [COLLABORATION](#) <https://fsc.svom.org/> (currently only use the dev. server) [FAQ](#)

Documentation
Links related to FSC-related documentation

- Centralized Documentation Page *FSGS Read the Docs*
- All Documentation Pages

Science Interfaces
Links dedicated to the SVOM Science: IFSC-tools for BA, vhf, xband,...

- iFSC-Tools** *A Burst Advocates dedicated interface.*
- Shift *The Burst Advocates and Instrument Scientists centralized shift interface.*
- Notices** *Monitor and create SVOM VOEvent notices.*
- ToO-MM *(Target Of Opportunity Multi-Messengers) Build Observation Plans from VOEvent.*
- ECLGRM *Monitor the ECLAIRS/GRM pipeline runs.*
- VHF** *Monitor the VHF DataBase: stations, packets, burst, satellite attitude & position.*
- X-Band *Monitor the X-Band database.*

Instrument Centers
Links to the SVOM Instrument Centers: ECLAIRS, MXT, and GFT.

- MIC *Dedicated to the MXT (Micro-Channel X-Ray Telescope).*
- EIC *Dedicated to ECLAIRS (X/Gamma-Ray Wide-Field Telescope).*
- EIC/ETC *Dedicated to the ECLAIRS Trigger Control.*
- GIC *Dedicated to the GFT (ground follow-up telescope).*

Infrastructure
Find here all services related to the FSC Pipelines infrastructure and monitoring.

- NATS *The FSC JetStream Messaging Interface.*

Databases
Find all FSC databases here.

- SDB *SVOM Science Database with all scientific products.*

Look at the sci. products delivered on real-time

Look at the generated notices

Look at VHF packets received in real-time
Access restricted

Your iFSC-tools dashboard

After the step of authentication, the BA can access to several modules



The screenshot shows the iFSC-Tools dashboard interface. At the top, there is a navigation bar with the SVOM FSC logo, a home icon, and menu items for GRB, ToO, Shifts, Mission, Documentation, and Chinese SVOM-BA Tools. The date and time are displayed as 2023-05-02 01:42 PM (UT). The main content area is titled 'iFSC-Tools' and contains four yellow cards:

- GRB Mode**: This mode allows you to follow the GRB. Callout: Follow the GRB in real time.
- ToO Mode**: This mode allows you to follow the ToO. Callout: Follow the ToO in real time.
- Shifts Calendar**: This mode allows you to manage the french Shifts. Callout: Check the Shifts calendar.
- Mission Mode**: This mode allows you to monitor the mission informations. Callout: Monitor the Mission informations.

At the bottom, there is a footer with the text: © 2020-2023 - iFSC-Tools - Made by LAM/CeSAM-SI. Logos for CeSAM-SI, LAM, CRES, Aix-Marseille Université, and CRES INSU are also present.

iFSC-Tools - v2.7.0, Chrystel Moreau (LAM)

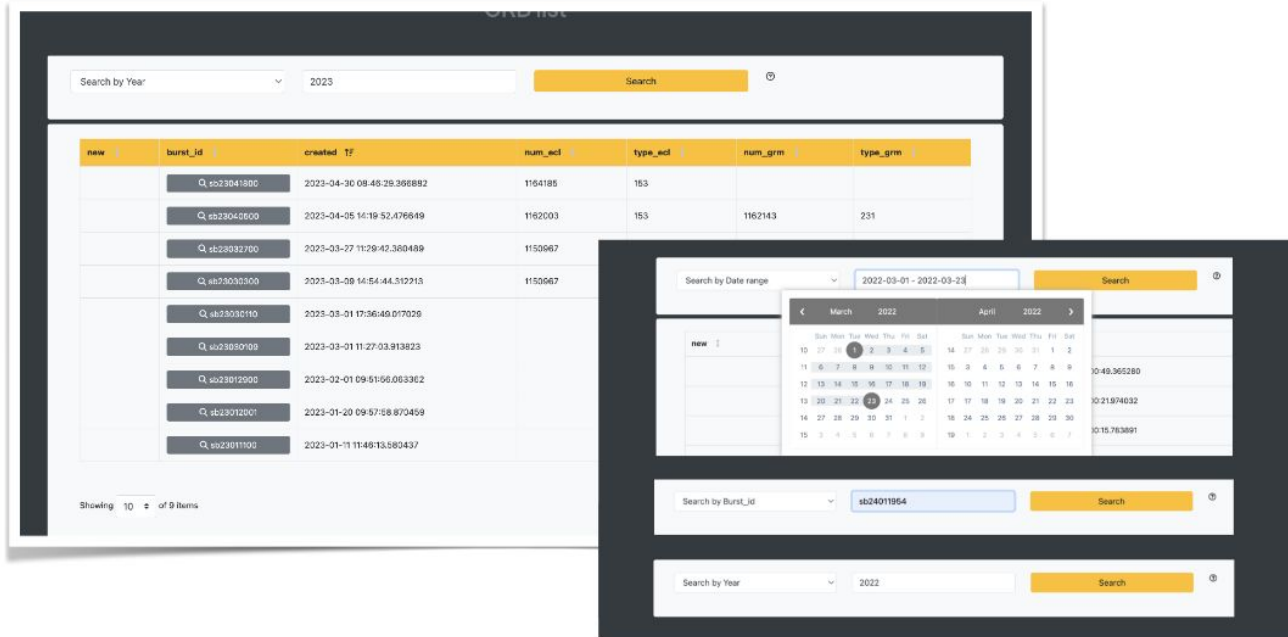
iFSC-tools: the GRB mode

With the GRB mode, the BA can list & follow the available or current GRB and display the available science products

A screenshot of the iFSC-Tools web application interface. The top navigation bar includes the SVOM FSC logo, a 'Home' button, and a 'GRB' button which is highlighted with a red square. Other navigation items include 'ToO', 'Shifts', 'Mission', 'Documentation', and 'Chinese SVOM-BA Tools'. The main content area is titled 'iFSC Tools' and contains four yellow panels: 'GRB Mode' (highlighted with a red border), 'ToO Mode', 'Shifts Calendar', and 'Mission Mode'. Each panel includes an icon and a brief description of its function. The footer contains logos for various institutions: CNRS, LAM, CNRS, Aix-Marseille Université, and CNRS INSU.

iFSC-tools: the GRB list

The BA can list available GRB by Year, by Date range or by GRB id



The screenshot displays the iFSC-tools interface for listing GRBs. It features a search bar at the top with a dropdown menu set to '2023' and a 'Search' button. Below the search bar is a table with the following columns: 'new', 'burst_id', 'created_TF', 'num_scl', 'type_scl', 'num_grm', and 'type_grm'. The table contains 9 rows of data, each with a search icon and a 'burst_id' value. At the bottom of the table, it says 'Showing 10 of 9 items'. An inset window shows a 'Search by Date range' filter with a calendar for March and April 2022, and a 'Search by Burst_id' filter with the value 'sb24011964'. Another inset window shows a 'Search by Year' filter set to '2022'.

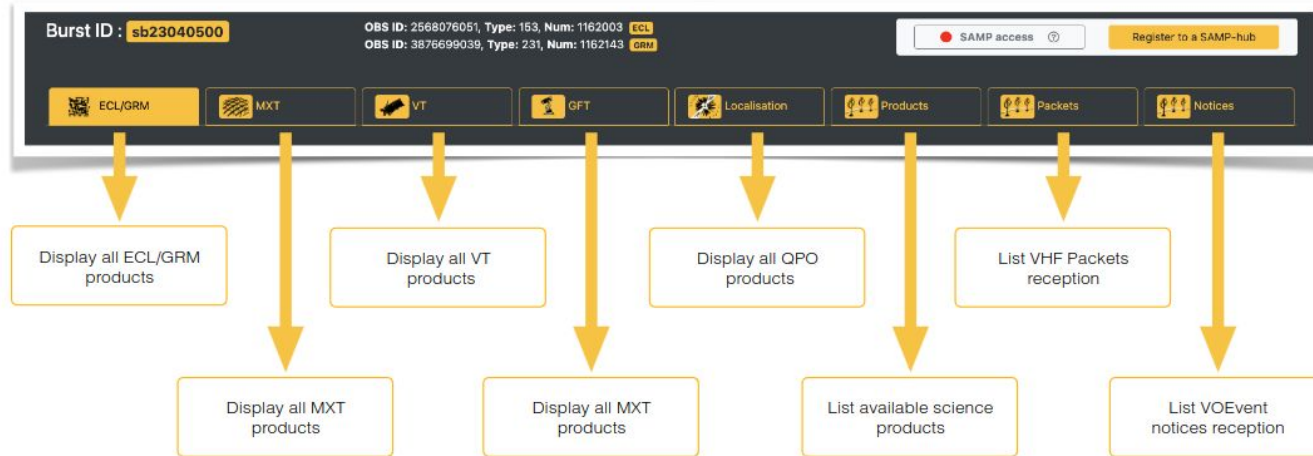
new	burst_id	created_TF	num_scl	type_scl	num_grm	type_grm
	sb23041580	2023-04-30 08:45:29.366882	1164185	153		
	sb23040500	2023-04-05 14:19:52.476649	1162003	153	1162143	231
	sb23032700	2023-03-27 11:29:42.380489	1150967			
	sb23030500	2023-03-08 14:54:44.512713	1150967			
	sb23030210	2023-03-01 17:36:49.07020				
	sb23080909	2023-03-01 11:27:03.913823				
	sb23012500	2023-02-01 09:51:56.063362				
	sb23012001	2023-01-20 09:57:58.870459				
	sb23011102	2023-01-11 11:46:13.580437				

iFSC-Tools - v2.7.0, Chrystel Moreau (LAM)

iFSC-tools/GRB: the product list

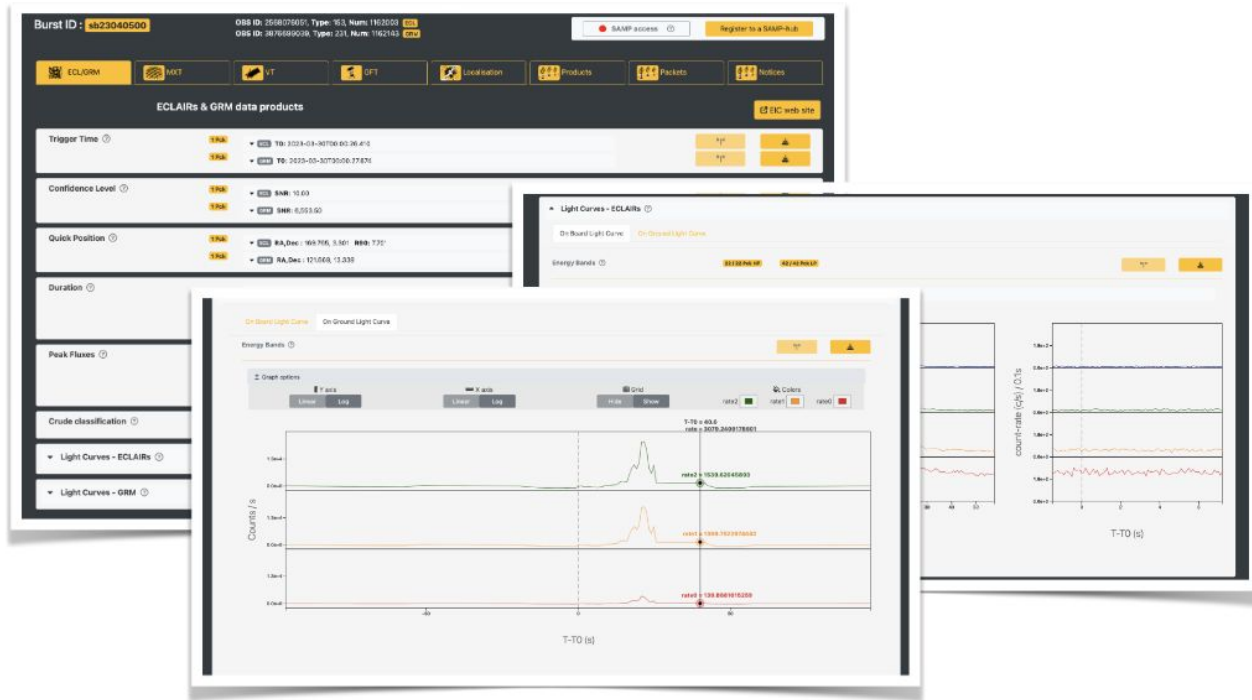
For the selected GRB, iFSC-Tools loads the available science products and displays them on dedicated tab to each instrument

During a GRB sequence, the new products are displayed in real time



iFSC-tools/GRB: the product display (1)

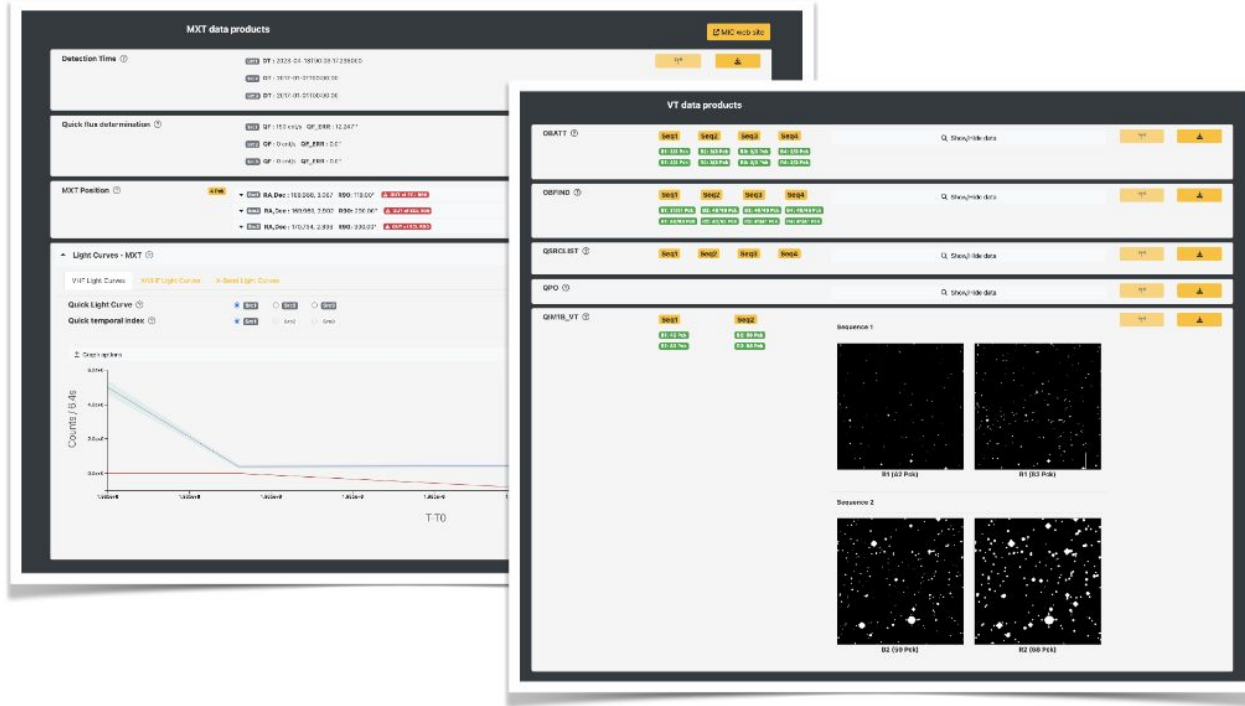
For example, the BA can visualise the Trigger Time and the Light Curves of ECLAIRs or GRM



iFSC-Tools - v2.7.0, Chrystel Moreau (LAM)

iFSC-tools/GRB: the product display (2)

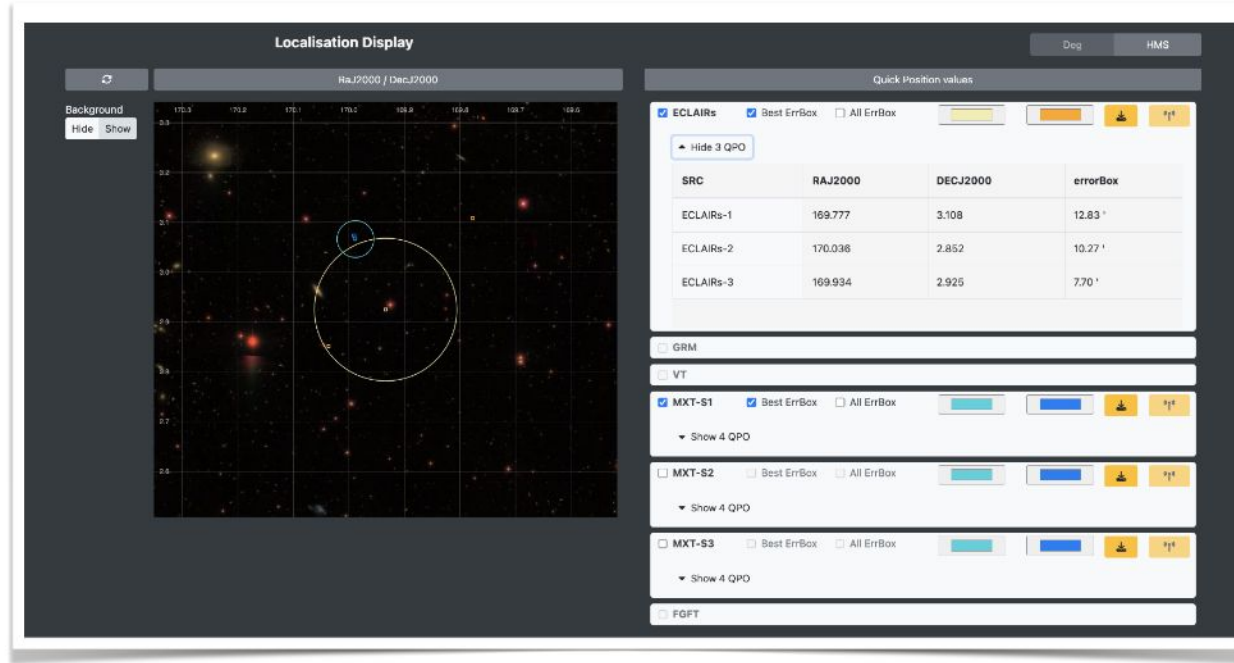
and the Detection Time and the Light Curves of MXT and the VT Images



iFSC-Tools - v2.7.0, Chrystel Moreau (LAM)

iFSC-tools/GRB: the localisation

the BA can also visualise the available detected Positions by the instruments



Localisation Display

Background
Hide Show

RAJ2000 / DecJ2000

Quick Position values

ECLAIRs Best ErrBox All ErrBox

Hide 3 QPO

SRC	RAJ2000	DECJ2000	errorBox
ECLAIRs-1	169.777	3.108	12.83'
ECLAIRs-2	170.038	2.852	10.27'
ECLAIRs-3	169.934	2.925	7.70'

GRM

VT

MXT-S1 Best ErrBox All ErrBox

Show 4 QPO

MXT-S2 Best ErrBox All ErrBox

Show 4 QPO































MXT-S3 Best ErrBox All ErrBox

Show 4 QPO

FGFT

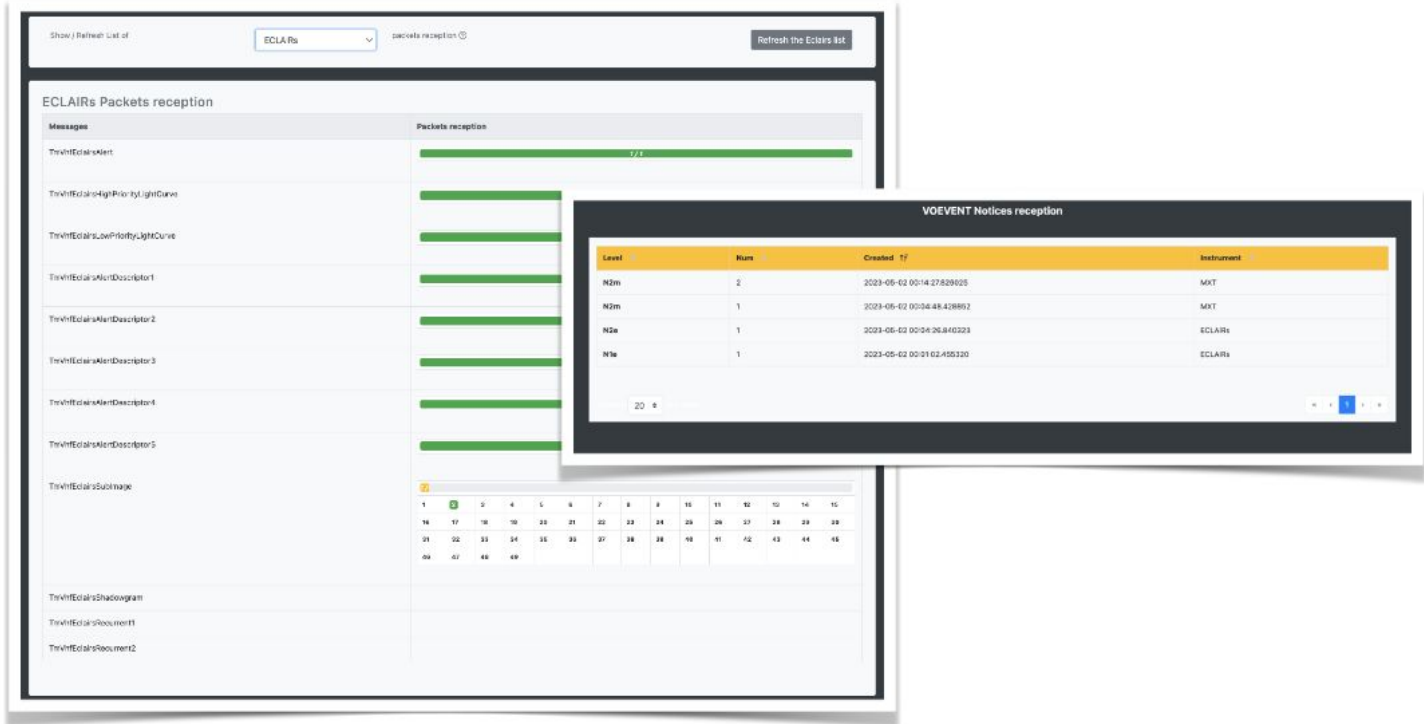
iFSC-tools/GRB: the available products

the BA can check the available science products during a GRB sequence

Available Science Products										
Product	Pipeline	Definition	Created	Last upd	Nb of upd	Download	Broadcast	SDB	PDB	
QT_MXT	MXT pipeline	Quick temporal index	2023-04-27 13:45:32.9	2023-04-27 13:45:32.9	1					
QLC_MXT	MXT pipeline	Quick Light Curve	2023-04-27 13:43:31.7	2023-04-27 13:43:31.7	1					
QF_MXT	MXT pipeline	Quick Flux at detection	2023-04-25 14:49:43.6	2023-04-25 14:49:43.6	1					
DT_MXT	MXT pipeline	Detection time	2023-04-25 14:26:43.3	2023-04-25 14:26:43.3	1					
QPO_MXT	MXT pipeline	Quick position	2023-04-19 09:05:58.7	2023-04-19 09:05:58.7	1					
OBALERT_ECL	VHF pre-proc	Trigger params	2023-04-19 08:46:29.3	2023-04-19 08:46:29.3	1					
OBLC_ECL	VHF pre-proc	On-Board Light Curve								
OBLC_GRM	VHF pre-proc	On-Board Light Curve								
QLC_ECL	VHF pre-proc	Quick Light Curve								
QLC_GRM	VHF pre-proc	Quick Light Curve								
QPF_ECL	VHF pre-proc	Quick peak flux								
QPF_GRM	VHF pre-proc	Quick peak flux								

iFSC-tools/GRB: packets and notices reception

and also check the VHF packets reception and the Notices reception



The screenshot displays two overlapping windows from the iFSC-tools interface. The background window is titled "ECLAIRs Packets reception" and features a search bar with "ECLAIRs" and a "Refresh the Eclair's list" button. It contains a table with columns "Messages" and "Packets reception". The "Messages" column lists various alert types such as "TwinHEclairAlert", "TwinHEclairHighPriorityLightCurve", and "TwinHEclairLowPriorityLightCurve". The "Packets reception" column shows green progress bars, with the first one indicating 7/7. A calendar widget is visible at the bottom of this window.

The foreground window is titled "VOEVENT Notices reception" and displays a table with the following data:

Level	Num	Created	Instrument
N2m	2	2023-05-02 00:14:27.628605	MXT
N2m	1	2023-05-02 00:34:48.418852	MXT
N2a	1	2023-05-02 00:34:26.840323	ECLAIRs
N1a	1	2023-05-02 00:31:02.430520	ECLAIRs

The table also includes a "20" and a "8" at the bottom, along with navigation icons.

iFSC-tools: The Shift mode

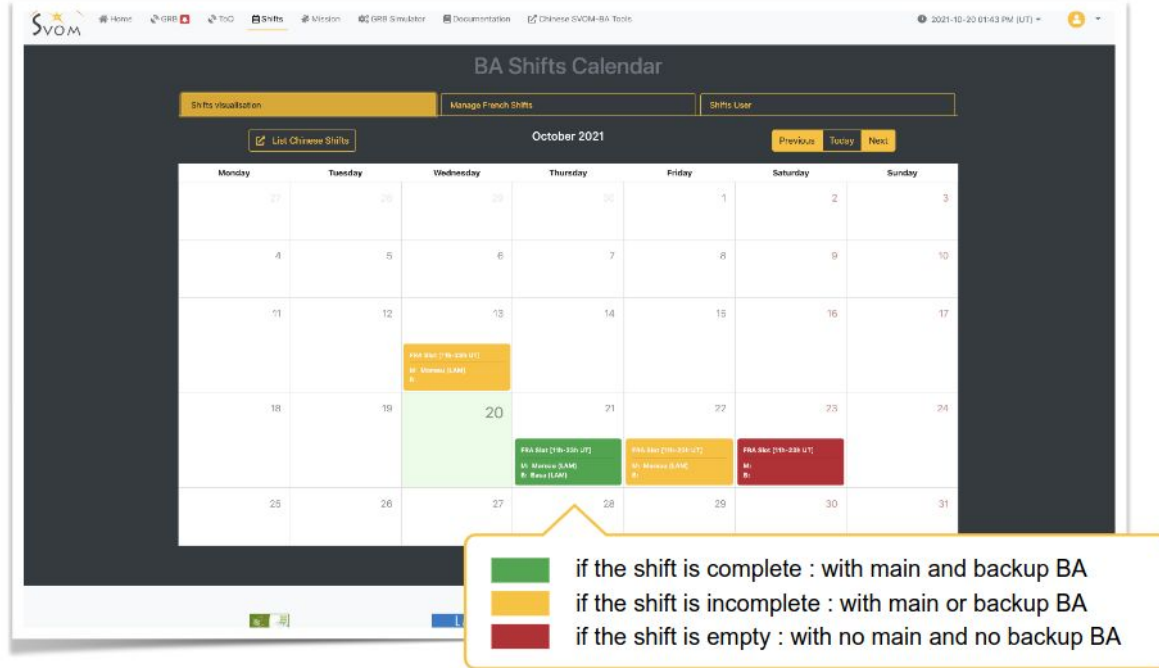
With the Shifts Calendar, the BA check and manage the french Shifts



The screenshot shows the iFSC Tools web application interface. The top navigation bar includes the SVOM FSC logo, a home icon, and menu items for GRB, ToO, Shifts (highlighted with a red box), Mission, Documentation, and Chinese SVOM-BA Tools. The main content area features four mode cards: GRB Mode, ToO Mode, Shifts Calendar (highlighted with a red box), and Mission Mode. The footer contains logos for CESAM-SI, LAM, CRIS, Aix-Marseille université, and CRIS INSU.

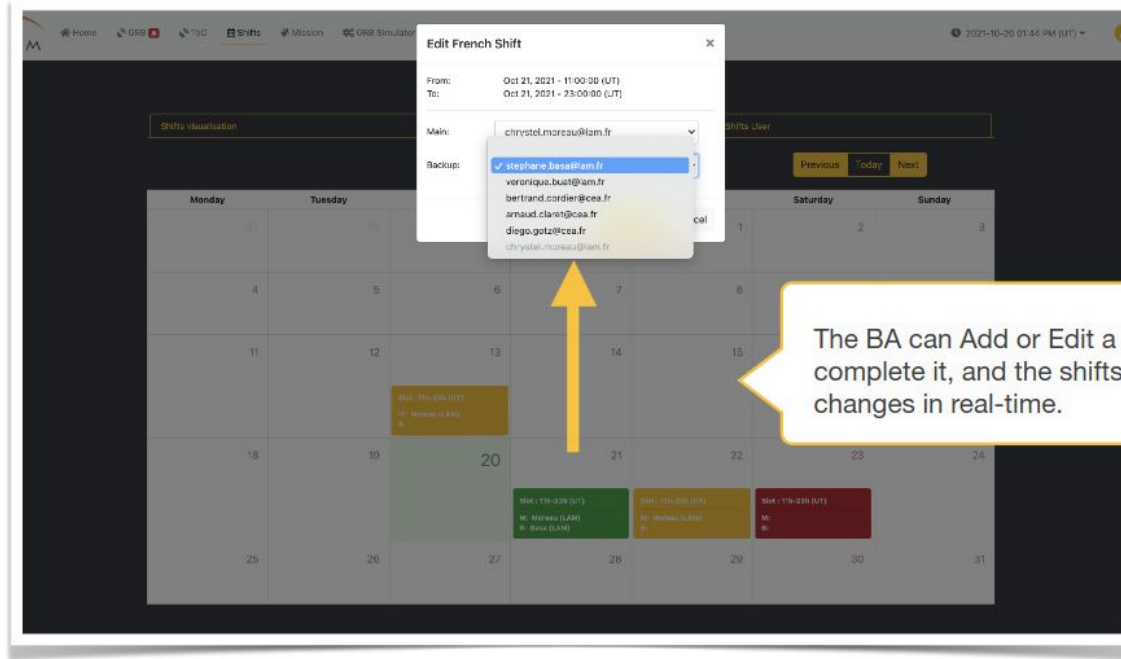
iFSC-tools: The Shift visualisation

The first tab displays all shifts.



iFSC-tools: The FR Shift management

The second tab allows to manage the french shifts.



The screenshot displays a web application interface for managing shifts. At the top, there is a navigation bar with tabs for Home, GRB, TIG, Shifts, Mission, and GRB Simulator. The 'Shifts' tab is active. Below the navigation bar, there is a 'Shifts visualisation' section with a calendar grid. The calendar shows dates from Monday to Sunday. A modal window titled 'Edit French Shift' is open, showing a form with fields for 'From' (Oct 21, 2021 - 11:00:00 (UT)), 'To' (Oct 21, 2021 - 23:00:00 (UT)), 'Main' (chrystel.moreau@lam.fr), and 'Backup' (stephane.basallam.fr). A yellow arrow points from the 'Backup' field to a specific shift block on the calendar for October 20th. A yellow callout box on the right contains the text: 'The BA can Add or Edit a shift to complete it, and the shifts status changes in real-time.'

iFSC-tools: The FR Shift management

This tab allows to check the statistics of the BA

BA Shifts Calendar

Shifts visualisation
Manage French Shifts
Shifts User

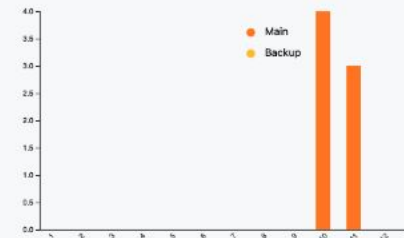
Select the BA :

Select a year :

Name : Moreau Chrystel
 Unit : LAM
 E3 : chrystel.moreau@lam.fr

➔ Shifts List (chrystel.moreau@lam.fr / 2021)

tstart	main	backup
2021-11-12	chrystel.moreau@lam.fr	stephane.basa@lam.fr
2021-11-11	chrystel.moreau@lam.fr	stephane.basa@lam.fr
2021-11-10	chrystel.moreau@lam.fr	stephane.basa@lam.fr
2021-10-29	chrystel.moreau@lam.fr	stephane.basa@lam.fr
2021-10-22	chrystel.moreau@lam.fr	
2021-10-21	chrystel.moreau@lam.fr	stephane.basa@lam.fr
2021-10-13	chrystel.moreau@lam.fr	



Shifts / Month

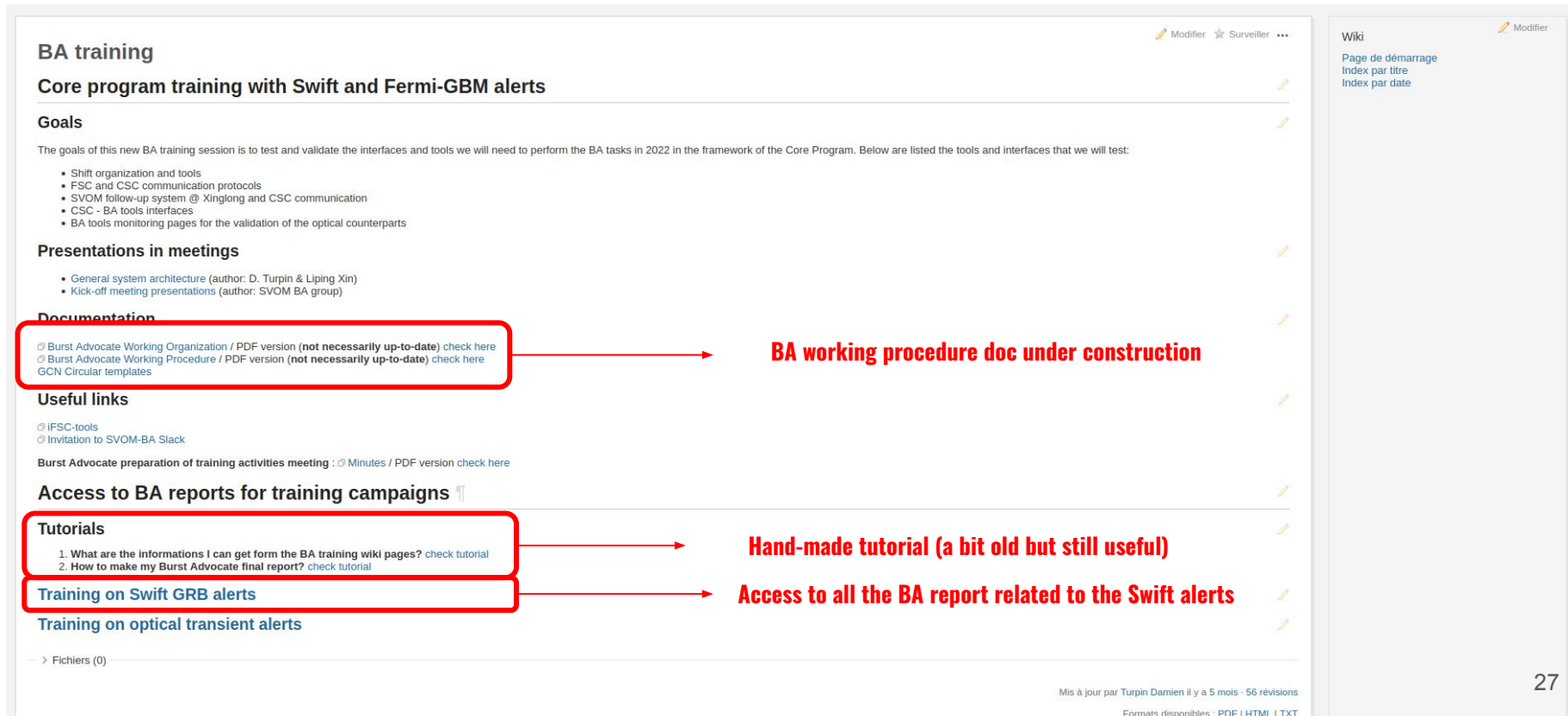
Showing 10 of 7 items



3-BA reporting tools and documentation

- Do we envision a reporting tool to close a follow-up campaign?
- Do we follow the example of the SVOM/Swift training wiki?
- How do we organize the BA user guide doc.? Wiki? PDF? something else?

<https://forge.in2p3.fr/projects/ba-training2/wiki>



The screenshot shows the 'BA training' wiki page. It is divided into several sections: 'Core program training with Swift and Fermi-GBM alerts', 'Goals', 'Presentations in meetings', 'Documentation', 'Useful links', 'Access to BA reports for training campaigns', 'Tutorials', 'Training on Swift GRB alerts', and 'Training on optical transient alerts'. Three red boxes highlight specific content, with red arrows pointing to explanatory text:

- Documentation:** A red box highlights the 'Burst Advocate Working Organization / PDF version (not necessarily up-to-date) check here' and 'Burst Advocate Working Procedure / PDF version (not necessarily up-to-date) check here' links. An arrow points to the text: **BA working procedure doc under construction**.
- Tutorials:** A red box highlights the first two items in the 'Tutorials' list: '1. What are the informations I can get form the BA training wiki pages? check tutorial' and '2. How to make my Burst Advocate final report? check tutorial'. An arrow points to the text: **Hand-made tutorial (a bit old but still useful)**.
- Training on Swift GRB alerts:** A red box highlights the 'Training on Swift GRB alerts' link. An arrow points to the text: **Access to all the BA report related to the Swift alerts**.

At the bottom right, it says 'Mis à jour par Turpin Damien il y a 5 mois · 56 révisions' and 'Formats disponibles : PDF | HTML | TXT'. The page number '27' is in the bottom right corner.



BA reporting tools: the BA report

<https://forge.in2p3.fr/projects/ba-training2/wiki>

Summary of the follow-up 2023

Instrument	TrigID	SVOM burst ID	Trigger alias	GRB type	Redshift	Trigger Time [UTC]	BA	Description	SVOM Follow-up	First observation after T0	follow-up duration	SVOM GCN Circular	BA report
Swift/BAT	1186982	sb23082478	--	Swift J1727.8-1613	--	2023-08-24 18:54:32	T. Maiolino	This is not a GRB. Swift Burst Alert Telescope (BAT) triggered and located Swift J1727.8-1613. We note this is the 2nd time BAT has triggered on this source, previously named GRB 230824A (GCN #34537), now likely a Galactic transient Swift J1727.8-1613 (GCN #34540). Due to a Moon observing constraint, Swift cannot observe this location until 09:35 UT on 2023 August 27.	No (FSC/IFSC out of order)	--	--	--	check
Swift/BAT	1186959	sb23082458	GRB 230824A (Swift J1727.8-1613; GCN #34540/34542)	Non Burst	--	2023-08-24 13:59:44	T. Maiolino	As is common for image triggers, the BAT light curve does not show significant structure. The duration appears to be about 20 sec. The peak count rate was ~1400 counts/sec (15-350 keV), at ~6 sec after the trigger.	No (FSC/IFSC out of order)	--	--	--	check
Swift/BAT	1186304	sb23082084	--	Non Burst	--	2023-08-20 20:14:56.13	D. Turpin	--	No (Failure at FSC - Orchestrator-)	--	--	--	check
Swift/BAT	1186302	sb23082083	--	Non Burst	--	2023-08-20 20:02:24.13	D. Turpin	--	No (Failure at FSC - Orchestrator-)	--	--	--	check
Swift/BAT	1186296	sb23082082	--	Non Burst	--	2023-08-20 19:43:36.13	D. Turpin	--	No (Failure at FSC - Orchestrator-)	--	--	--	check
Swift/BAT	1186294	sb23082081	--	Non Burst	--	2023-08-20 19:28:32.13	D. Turpin	--	No (Failure at FSC - Orchestrator-)	--	--	--	check
Swift/BAT	1186291	sb23082079	--	Non Burst	--	2023-08-20 19:09:36.13	D. Turpin	--	No (Failure at FSC - Orchestrator-)	--	--	--	check
Swift/BAT	1186032	sb23081897	GRB230818A	Long	2.42	2023-08-18 23:27:34	D. Turpin	The BAT light curve showed a single complex peak structure with a duration of about 10 sec. The peak count rate was ~6000 counts/sec (15-350 keV), at ~1 sec after the trigger.	No (Failure at FSC - Orchestrator-)	--	--	--	check
Swift/BAT	1185685	sb23081679	--	Non Burst	--	2023-08-16 19:10:48.16	D. Turpin	--	No (Failure at FSC - Orchestrator)	--	--	--	check
Swift/BAT	1185673	sb23081667	GRB230816A	Long	--	2023-08-16 16:08:48.29	D. Turpin	The BAT light curve showed a single-peaked structure with a duration of about 25 sec. The peak count rate was ~1900 counts/sec (15-350 keV), at ~0 sec after the trigger.	No (Failure at FSC - Orchestrator-GFT follow-up directly from the Swift notices)	6.9 min	16.67 min	<input checked="" type="checkbox"/> Yes	check
Swift/BAT	1183217	sb23080547	GRB230805B	Long	--	2023-08-05 11:23:51	D. Turpin	The BAT light curve showed a complex structure with a duration of about 60 sec. The peak count rate was ~1300 counts/sec (15-350 keV), at ~5 sec after the trigger.	No (Failure at FSC - Orchestrator)	--	--	--	check
Swift/BAT	1182085	sb23080228	GRB230802A	Long	--	2023-08-02 06:50:26	D. Turpin	The BAT light curve showed a wide pulse structure with a duration of about 60 sec. The peak count rate was ~3000 counts/sec (15-350 keV), at ~0 sec after the trigger.	No (Initial Failure at FSC - Orchestrator and bad weather)	--	--	--	check

sb23081897 / 1186032 / GRB230818A

Summary

Trigger nature	GRB
Trigger facility	Swift/BAT
Trigger alias	GRB230818A
Trigger type	Long GRB
Redshift	2.42
Date (UTC)	2023-08-18 23:27:34
RA (final)	285.88784
dec (final)	40.89668
Error position (degree)	0.000638
Probability of false alert	0%
S/N	10.63
Proba Coverage	0
SVOM follow-up delay first obs	No (Failure at FSC - Orchestrator-)
Follow-up duration	--

Characteristics of the trigger

<https://gcn.gsfc.nasa.gov/other/1186032.swift>

The Swift/BAT light curve can be found here : https://gcn.gsfc.nasa.gov/notices_sb/1186032/BA/#lc

SVOM follow-up

BA on duty : D. Turpin

Some comments :

Observations report

telescope Tstart - T0 (min) Tend - T0 (min) filter mag error mag

Results from other experiment

Facility Wavelength GCN Comments

→ Fichiers (0)



JSOG meeting: what should I report ?

I could say one introductive word to summarize the statistics of the last two weeks
and then

If you were on shift and a burst occurred, you should describe

1. A summary of your check-list to report failure in some process or successes (always good to report successes)
2. If A GCN has been published, take some time to describe the follow-up results and the upcoming plans in terms of SVOM and external (if you have some info.) team follow-ups

If you were on shift and no burst occurred

1. Nothing to report

Conclusive words

- If you need more information about the FSC software architecture and VFH packet to products creation don't hesitate to ask the FSC dev this week
- Test the iFSC-tools and give feedback to the available displays
- Think about missing displays
- Discussion to have: how do we organize the regular BA report (JSOG is enough?) ? Should a BA make a final report to close a campaign ?
- How do the BA interact with the external follow-up facilities ? Contact the PI proposal ? see <https://forge.in2p3.fr/projects/grb-follow-up/wiki>