The eclgrm user interface

F. Piron, ECLGRM-VHF IS training (2026/05/12)

Goal of this presentation

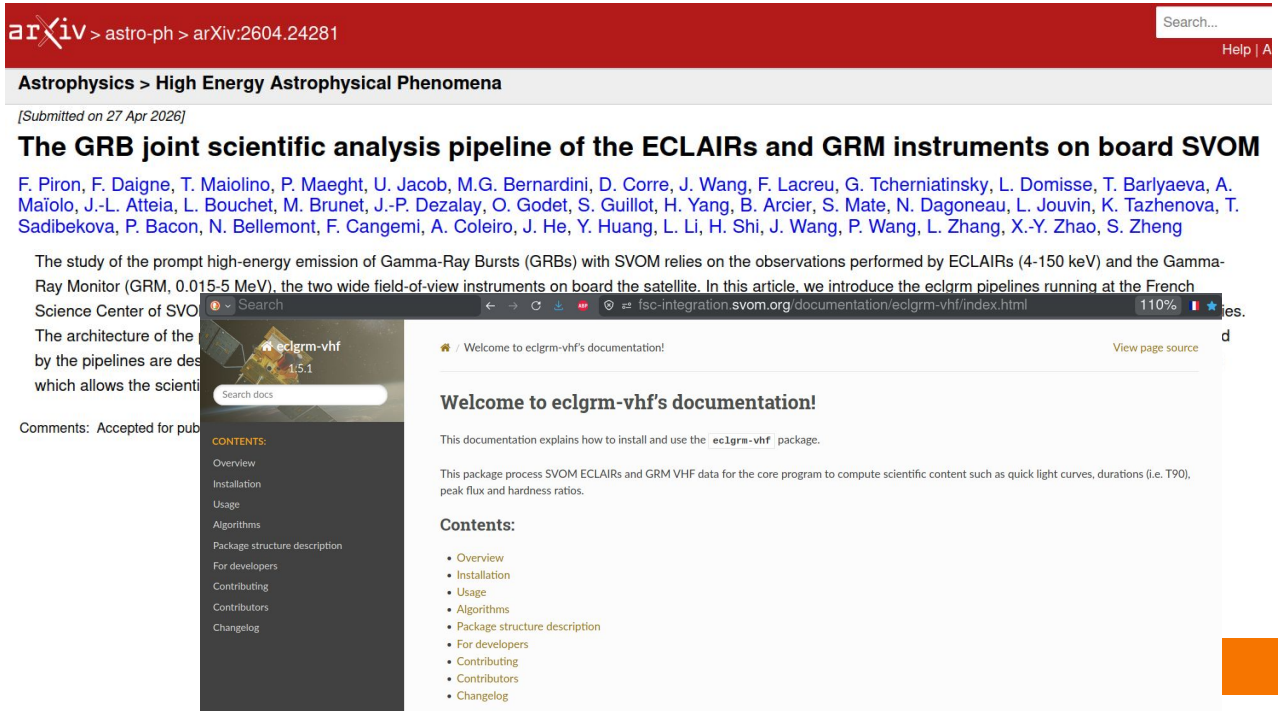
- **Present the eclgrm UI running at the French Science Center (FSC)**
  - Functionalities, dashboards, manual reprocessing

Useful documents

- Shift procedure: "Procedure for ECLAIRS / GRM Instrument Scientists on shift: working with VHF data in real time"
- Pipeline article in RAA (SVOM special issue): "The GRB joint scientific analysis pipeline of the ECLAIRs and GRM instruments on board SVOM"
- Pipeline full documentation (for experts) – installation, usage, targets, workflow & tasks, algorithms, products: Welcome to eclgrm-vhf's documentation!

Procedure for ECLAIRS / GRM Instrument Scientists on shift: working with VHF data in real time

Frédéric Piron (version 1.2 – May 9, 2026)



arXiv > astro-ph > arXiv:2604.24281

Search... Help | A

Astrophysics > High Energy Astrophysical Phenomena

[Submitted on 27 Apr 2026]

The GRB joint scientific analysis pipeline of the ECLAIRs and GRM instruments on board SVOM

F. Piron, F. Daigne, T. Maiolino, P. Maeght, U. Jacob, M.G. Bernardini, D. Corre, J. Wang, F. Lacreu, G. Tcherniatinsky, L. Domisse, T. Barlyaeva, A. Maïolo, J.-L. Atteia, L. Bouchet, M. Brunet, J.-P. Dezalay, O. Godet, S. Guillot, H. Yang, B. Arcier, S. Mate, N. Dagoneau, L. Jouvin, K. Tazhenova, T. Sadibekova, P. Bacon, N. Bellemont, F. Cangemi, A. Coleiro, J. He, Y. Huang, L. Li, H. Shi, J. Wang, P. Wang, L. Zhang, X.-Y. Zhao, S. Zheng

The study of the prompt high-energy emission of Gamma-Ray Bursts (GRBs) with SVOM relies on the observations performed by ECLAIRs (4-150 keV) and the Gamma-Ray Monitor (GRM, 0.015-5 MeV), the two wide field-of-view instruments on board the satellite. In this article, we introduce the eclgrm pipelines running at the French Science Center of SVO
The architecture of the
by the pipelines are des
which allows the scienti

Comments: Accepted for pub

Search fsc-integration.svom.org/documentation/eclgrm-vhf/index.html 110%

eclgrm-vhf 1.5.1

Search docs

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Overview
Installation
Usage
Algorithms
Package structure description
For developers
Contributing
Contributors
Changelog

Welcome to eclgrm-vhf's documentation! View page source

Welcome to eclgrm-vhf's documentation!

This documentation explains how to install and use the `eclgrm-vhf` package.

This package process SVOM ECLAIRs and GRM VHF data for the core program to compute scientific content such as quick light curves, durations (i.e. T90), peak flux and hardness ratios.

Contents:

- Overview
- Installation
- Usage
- Algorithms
- Package structure description
- For developers
- Contributing
- Contributors
- Changelog

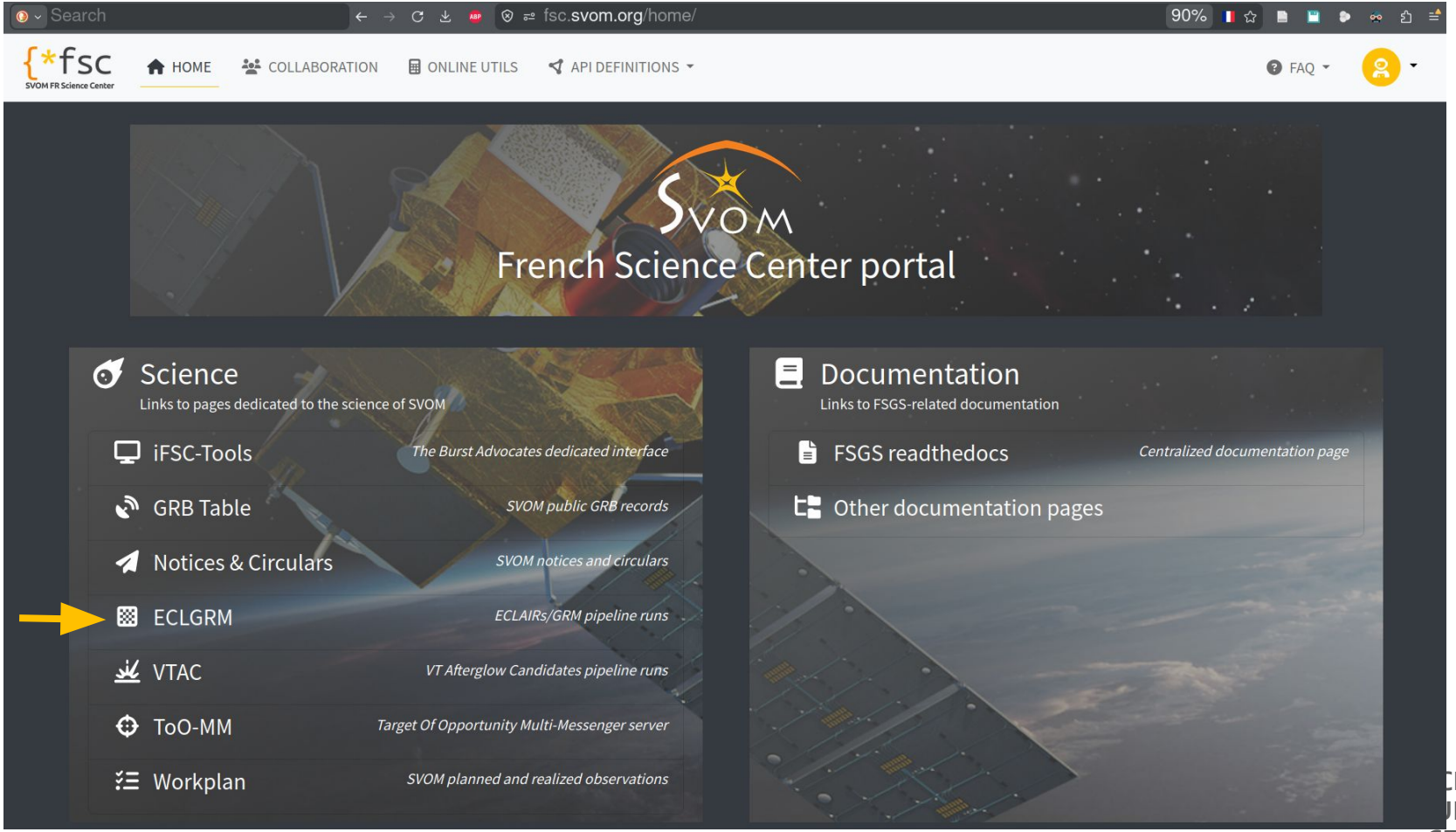
The eclgrm UI: functionalities 1

Purpose

The eclgrm UI is used by the ECLGRM-VHF IS to

- Monitor the automated processings in the eclgrm pipelines and inspect the analysis results
- Restart some processes manually to refine the results if needed

Access from the FSC home page

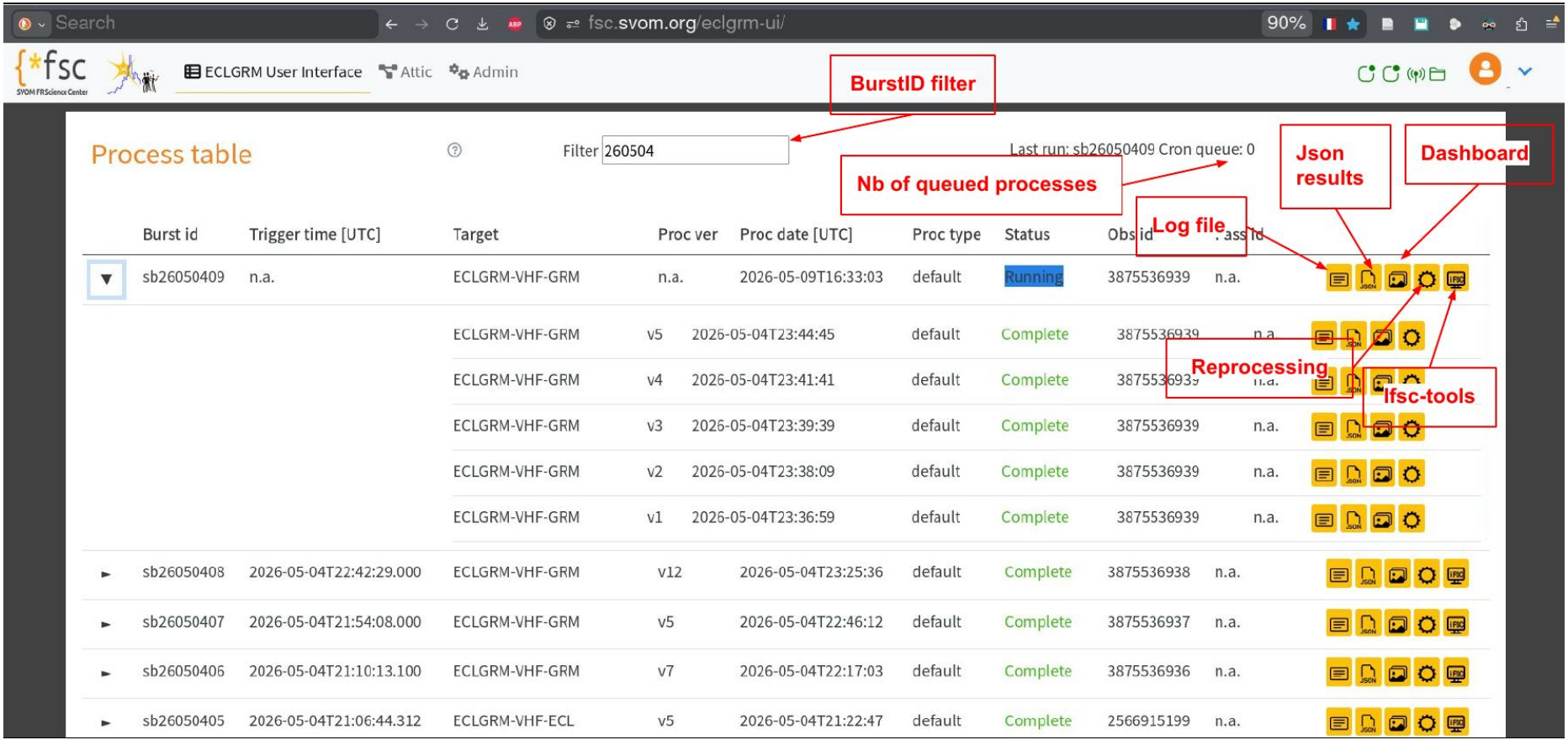


Functionalities

- The eclgrm UI displays all the processes executed in the eclgrm VHF and X-band pipelines
  - Each process corresponds to a given SVOM burst-id and to a given eclgrm target
  - In automated mode, each target can be executed several times, as complementary VHF data are received on ground and the eclgrm input SDPs are updated in the SDB
  - The eclgrm-vhf pipeline runs sequentially, queuing each new process until the current one completes

- The eclgrm UI has 4 main functionalities:
  - Access to the full configuration file of each process: all inputs, parameters and outputs in json format
  - Access to the log of each process: filled dynamically so that the IS can know at any time which analysis tasks have been already performed
  - A dedicated dashboard for each of the 3 eclgrm-vhf targets to visualize the analysis results and their associated control plots
  - A configuration editor to restart the analysis tasks interactively and to optimize the results with a different choice of parameters

Main page


fsc.svom.org/eclgrm-ui/
ECLGRM User Interface
Attic
Admin
BurstID filter
Process table
Filter 260504
Last run: sb26050409 Cron queue: 0
Nb of queued processes
Json results
Dashboard
Log file
Reprocessing
Ifsc-tools
Burst id
Trigger time [UTC]
Target
Proc ver
Proc date [UTC]
Proc type
Status
Obs id
Pass id
sb26050409 n.a. ECLGRM-VHF-GRM n.a. 2026-05-09T16:33:03 default Running 3875536939 n.a.
ECLGRM-VHF-GRM v5 2026-05-04T23:44:45 default Complete 3875536939 n.a.
ECLGRM-VHF-GRM v4 2026-05-04T23:41:41 default Complete 3875536939 n.a.
ECLGRM-VHF-GRM v3 2026-05-04T23:39:39 default Complete 3875536939 n.a.
ECLGRM-VHF-GRM v2 2026-05-04T23:38:09 default Complete 3875536939 n.a.
ECLGRM-VHF-GRM v1 2026-05-04T23:36:59 default Complete 3875536939 n.a.
sb26050408 2026-05-04T22:42:29.000 ECLGRM-VHF-GRM v12 2026-05-04T23:25:36 default Complete 3875536938 n.a.
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sb26050406 2026-05-04T21:10:13.100 ECLGRM-VHF-GRM v7 2026-05-04T22:17:03 default Complete 3875536936 n.a.
sb26050405 2026-05-04T21:06:44.312 ECLGRM-VHF-ECL v5 2026-05-04T21:22:47 default Complete 2566915199 n.a.

The eclgrm UI: dashboards 2

Frame #1 : GRB information & navigation (ECL target)

GRB information & Navigation

Reference time REFT [UTC]: **2026-01-02T04:09:50.670**

REFT (since DATEREF) [s]: **284098190.670**

Trigger Time T0 [UTC]: **2026-01-02T04:10:03.458**

T0 (since DATEREF) [s]: **284098203.458**

Onboard RA [deg]: **183.880**

Onboard Dec [deg]: **48.258**

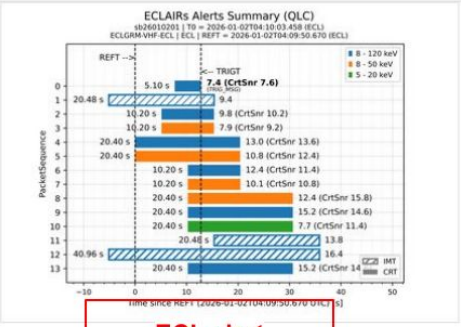
Onboard error radius (90%) [arcmin]: **5.09**

T90 [s]: **34.30 -2.66 / +2.33** (5-120 keV)

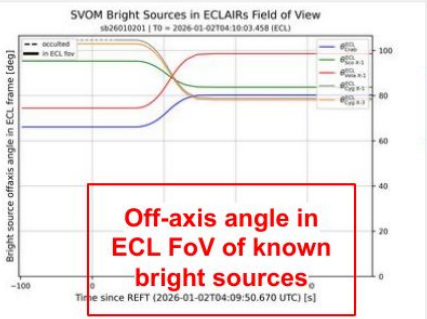
Ground significance (in T90): **14.40**

CRCLASS: **LONG (98.0%)**

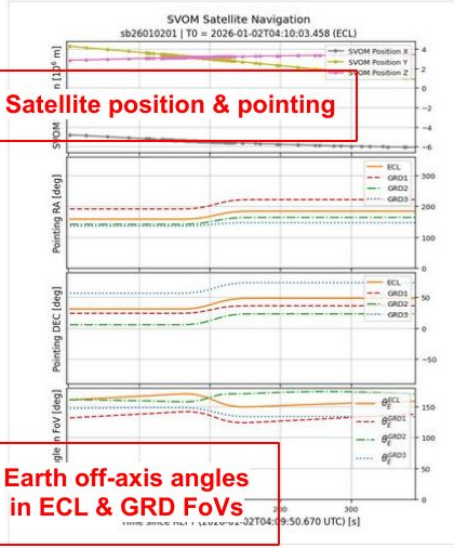
Summary table



ECL alert summary

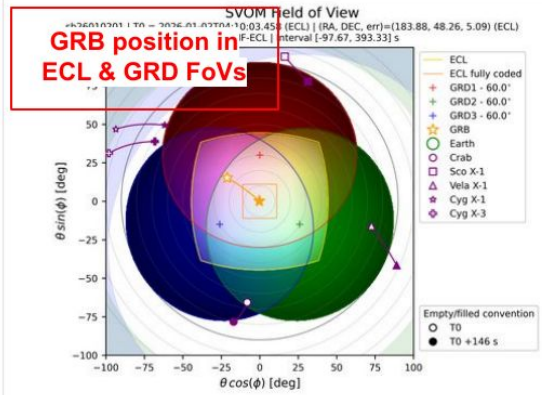


Off-axis angle in ECL FoV of known bright sources

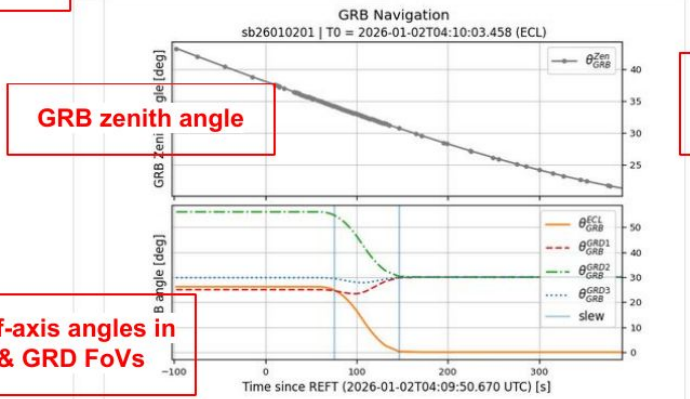


Satellite position & pointing

Earth off-axis angles in ECL & GRD FoVs



GRB position in ECL & GRD FoVs



GRB zenith angle

GRB off-axis angles in ECL & GRD FoVs

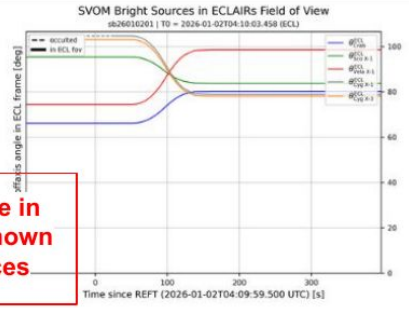
Frame #1 : GRB information & navigation (GRM target)

GRB information & Navigation

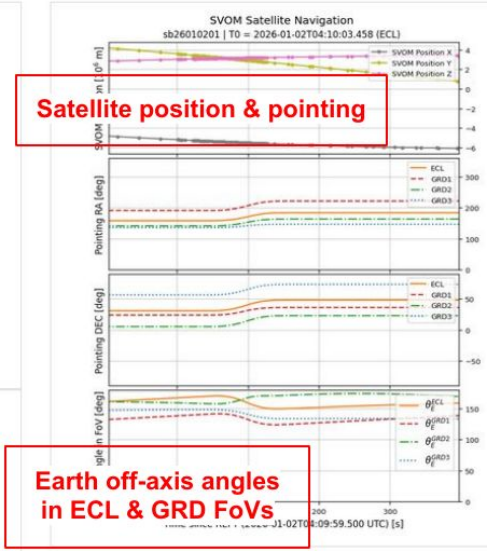
Reference time REFT [UTC]: **2026-01-02T04:09:59.500**
REFT (since DATEREF) [s]: **284098199.500**
Trigger Time T0 [UTC]: **2026-01-02T04:10:03.458**
T0 (since DATEREF) [s]: **284098203.458**
Onboard RA [deg]: **None**
Onboard Dec [deg]: **None**
Onboard error radius (90%) [deg]: **None**
T90 [s]: **41.99 -5.88 / +8.57** (4-550 keV)
Ground significance (in T90): **13.50**
CRCLASS: **LONG (98.0%)**

HA_RA [deg]: **183.880**
HA_Dec [deg]: **48.258**
HA_ERR (90%) [arcmin]: **5.09**
HA_ORI : **ECL**
Involved GRDs: **n.a.**
Ground significance GRD1: **6.00**
Ground significance GRD2: **8.00**
Ground significance GRD3: **9.30**

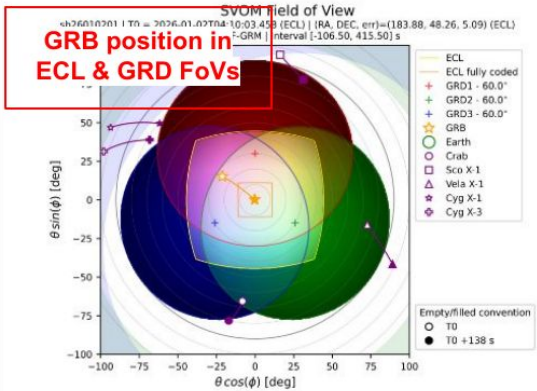
Summary table



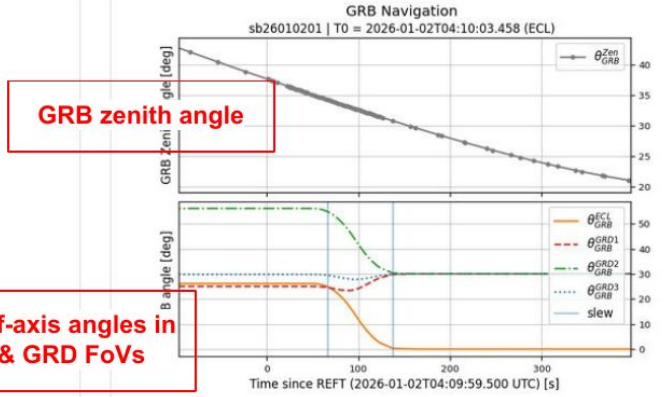
Off-axis angle in ECL FoV of known bright sources



Satellite position & pointing



GRB position in ECL & GRD FoVs

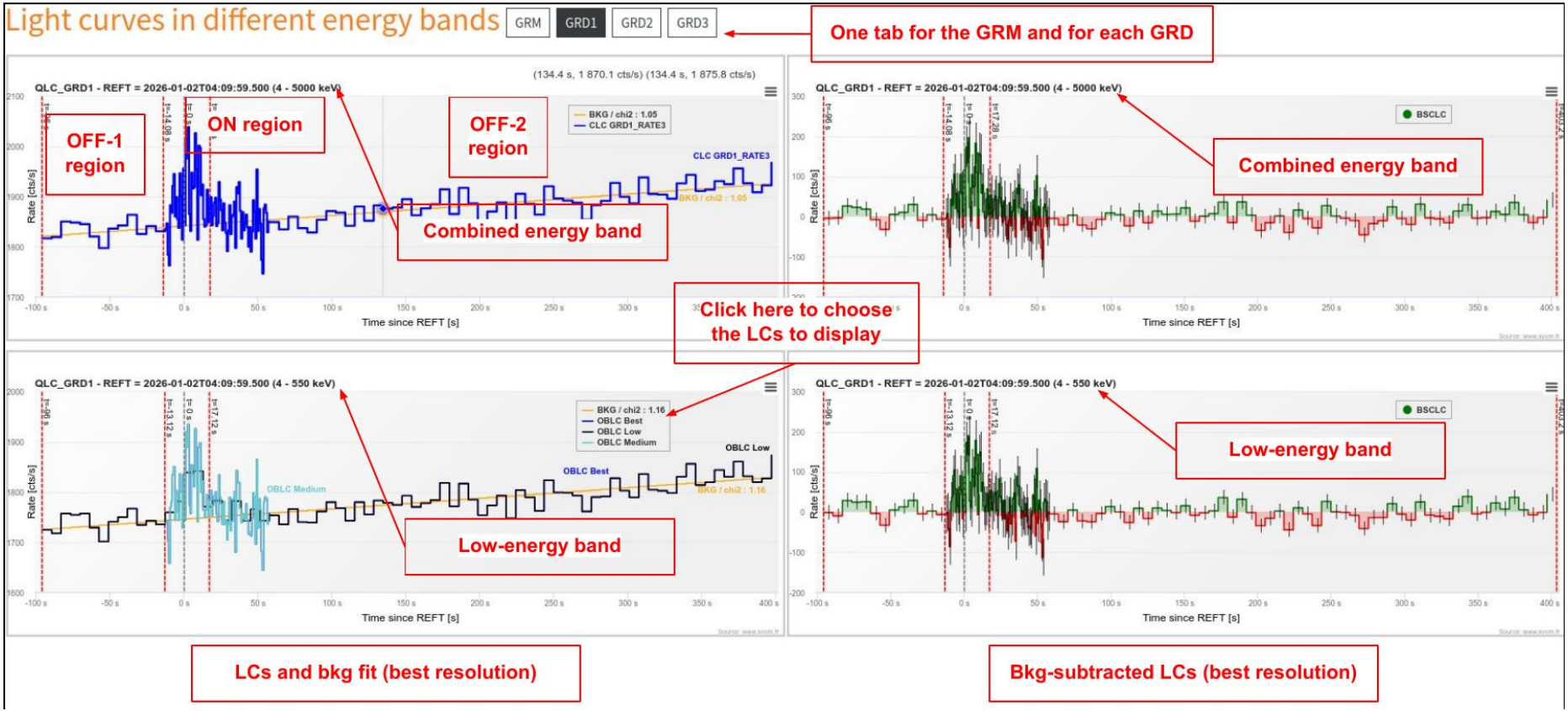


GRB zenith angle

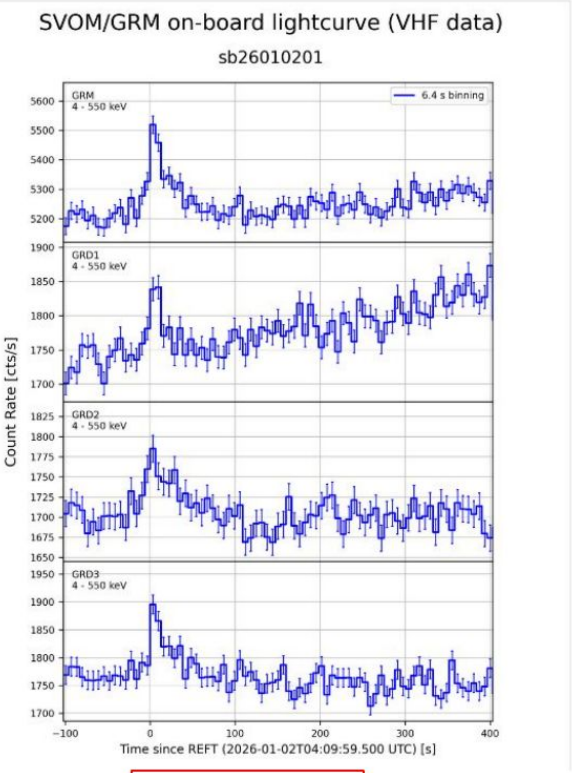
GRB off-axis angles in ECL & GRD FoVs

Earth off-axis angles in ECL & GRD FoVs

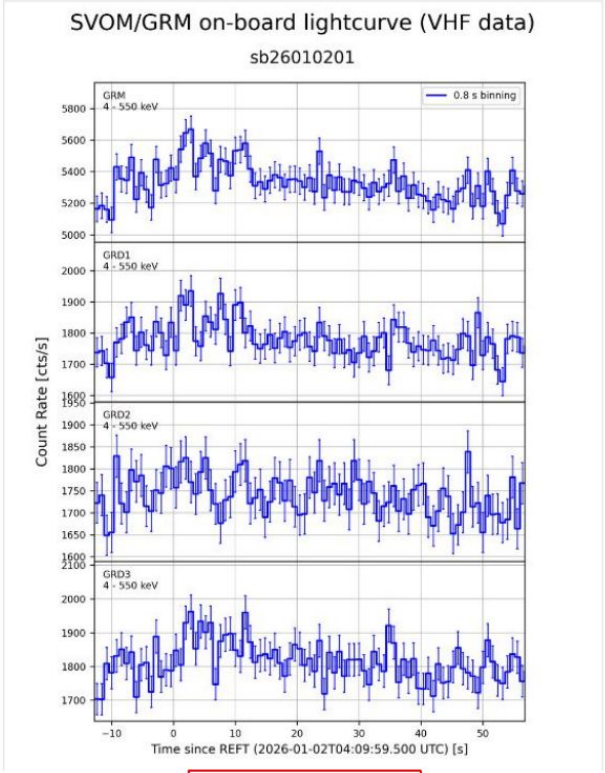
Frame #2 : dynamic light curves (GRM target)



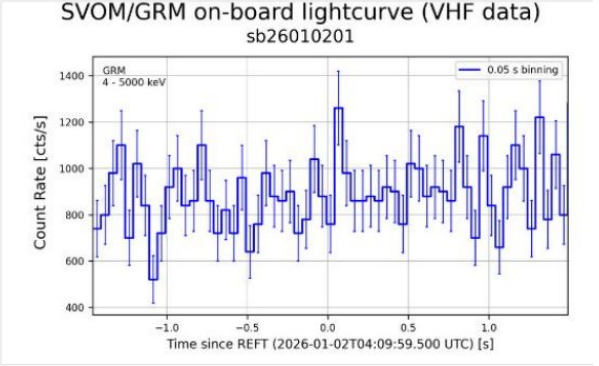
Frame #2 : public light curves (GRM target)



6.4 s resolution



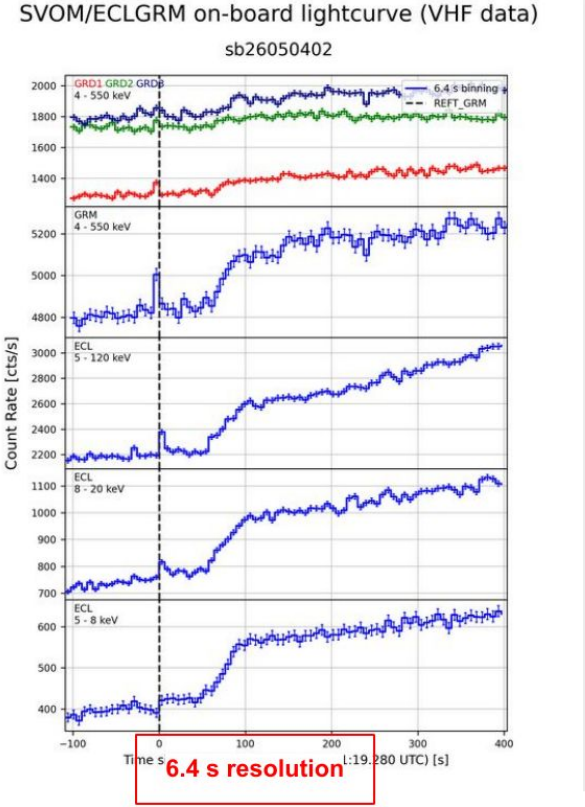
0.8 s resolution

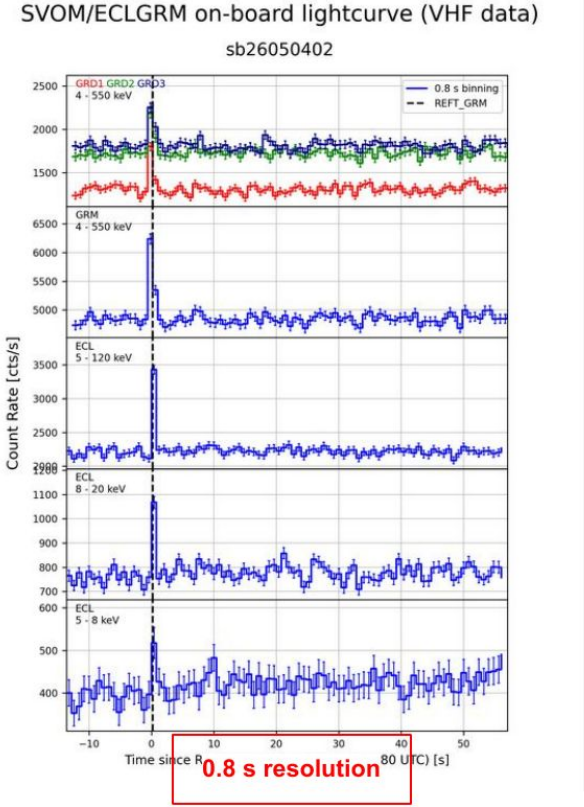


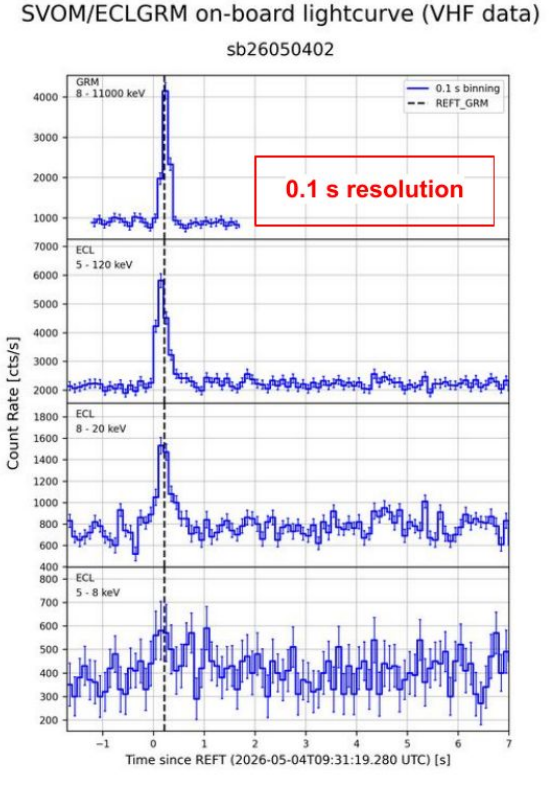
0.1 s resolution

Frame #2 : public light curves (ECLGRM target)

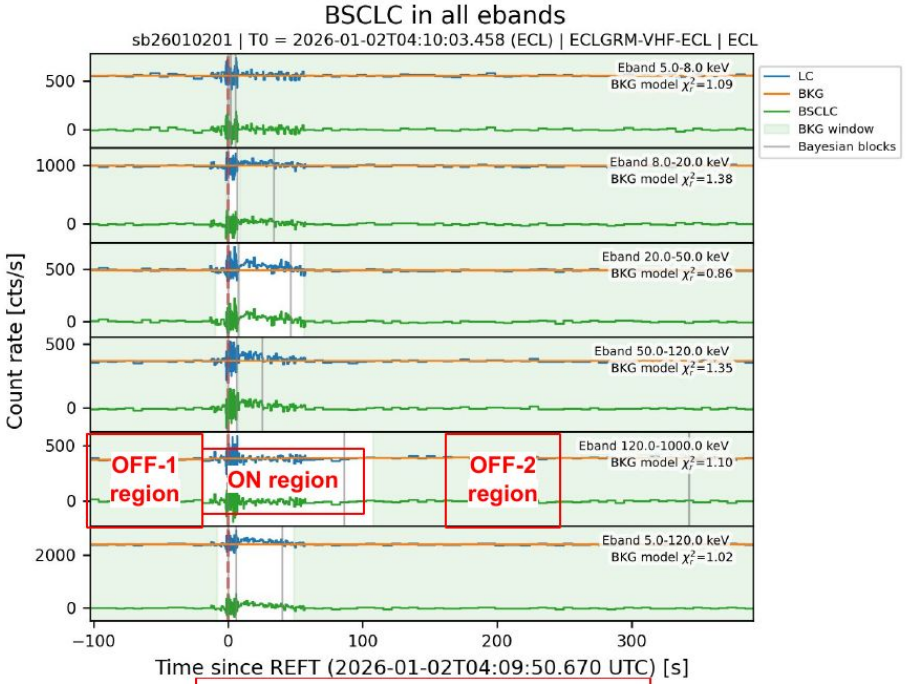
Light curves in different energy bands



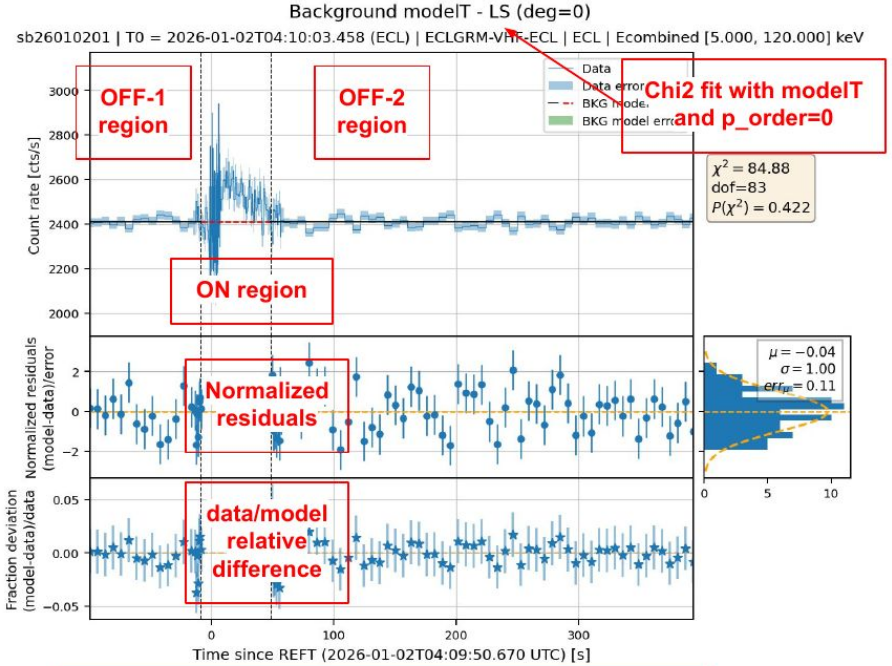




Frame #3 : background subtraction (ECL target)



Background fit summary plot (ECL)



Background fit details (ECL, combined energy band)

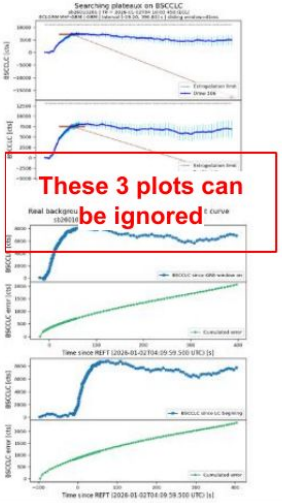
Frame #4 : duration (ECL target)

Duration

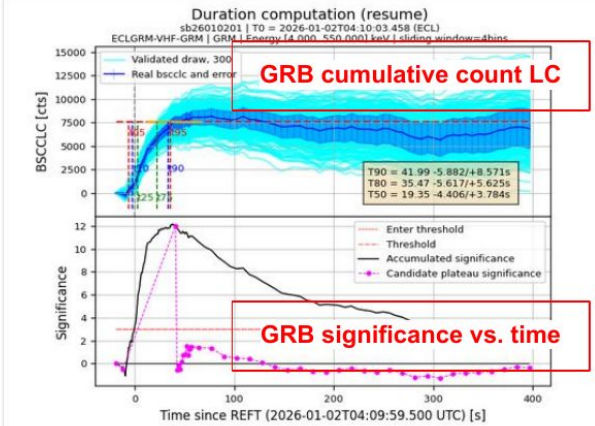
Summary table

Emin 4 Emax 550 (keV)

Quantity	Value	Neg. error	Pos. error
t05 [s]	-6.094	1.484	3.546
t95 [s]	35.889	3.454	11.638
T90 [s]	41.993	5.882	8.571
t25 [s]	2.615	0.992	1.495
t75 [s]	22.273	5.444	4.090
T50 [s]	19.351	4.406	3.784



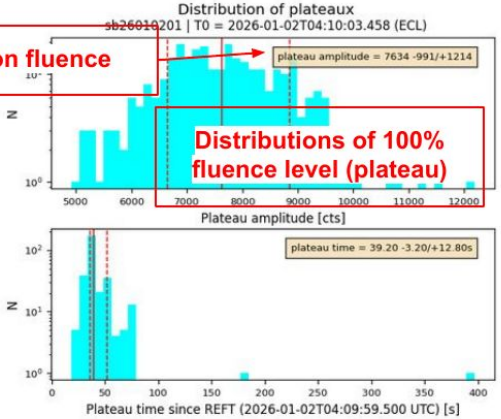
These 3 plots can be ignored



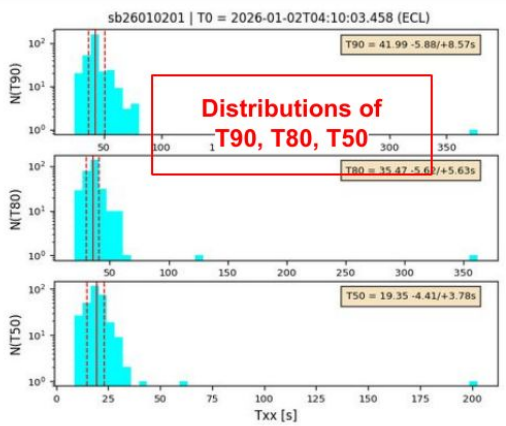
GRB cumulative count LC

GRB significance vs. time

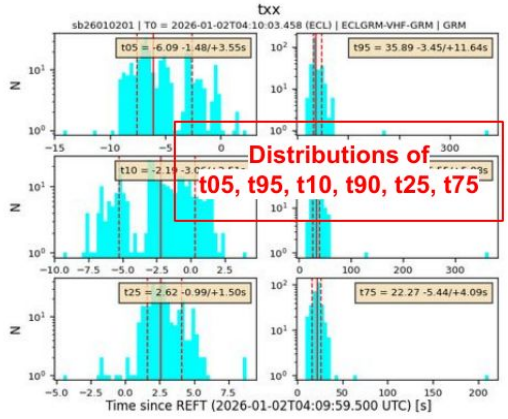
GRB photon fluence



Distributions of 100% fluence level (plateau)



Distributions of T90, T80, T50



Distributions of t05, t95, t10, t90, t25, t75

Frame #5 : peak count fluxes & hardness ratios (ECL target)

Peak count fluxes – Hardness Ratios – Event classification

Emin, Emax (keV)	TIME (since T0) [s]	TIME_DEL [s]	PCF [cts/s]	PCF_ERR [cts/s]
5 - 8	5.9500	0.1000	184.2	86.0
8 - 20	-0.9500	0.1000	226.8	110.5
20 - 50	4.7500	0.1000	223.4	84.9
50 - 120	1.4500	0.1000	151.7	72.1
120 - 1000	6.8500	0.1000	204.3	76.8
5 - 120	5.9500	0.1000	530.5	171.5

High [Emin, Emax] / Low [Emin, Emax]	HR	ERR
[50 - 120] / [5 - 8]	3.4593	1.8373
[50 - 120] / [8 - 20]	0.6769	0.1254
[50 - 120] / [5 - 20]	0.5661	0.1072

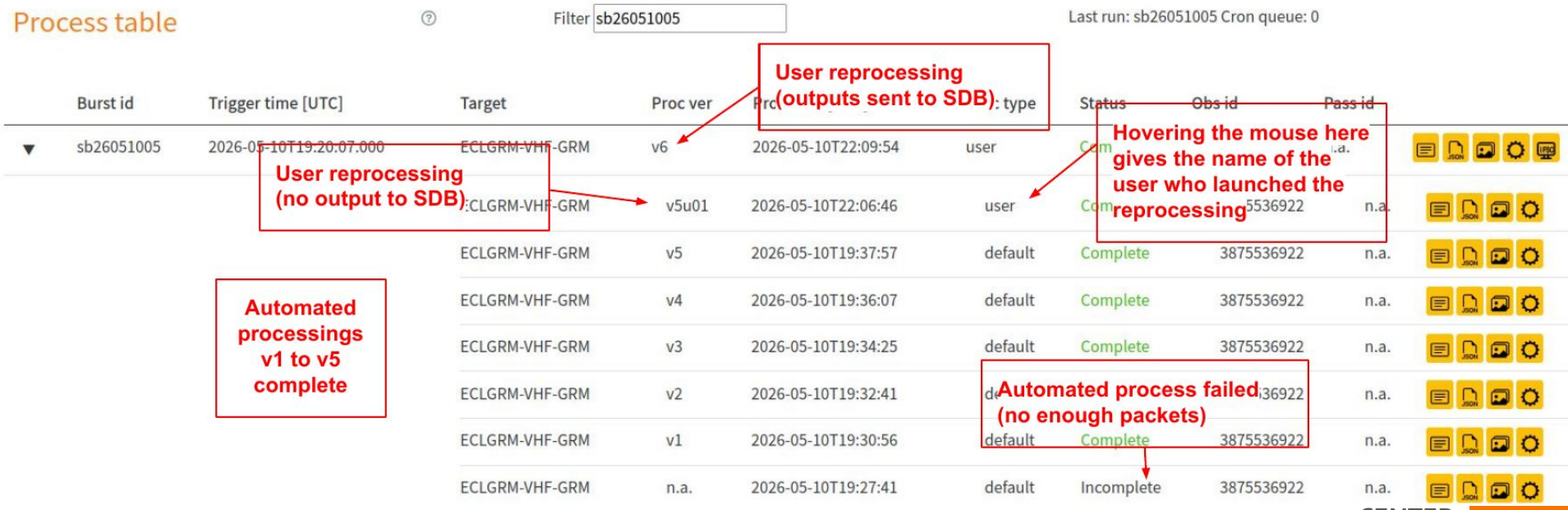
The eclgrm UI: manual reprocessing 3

Automated vs. manual mode

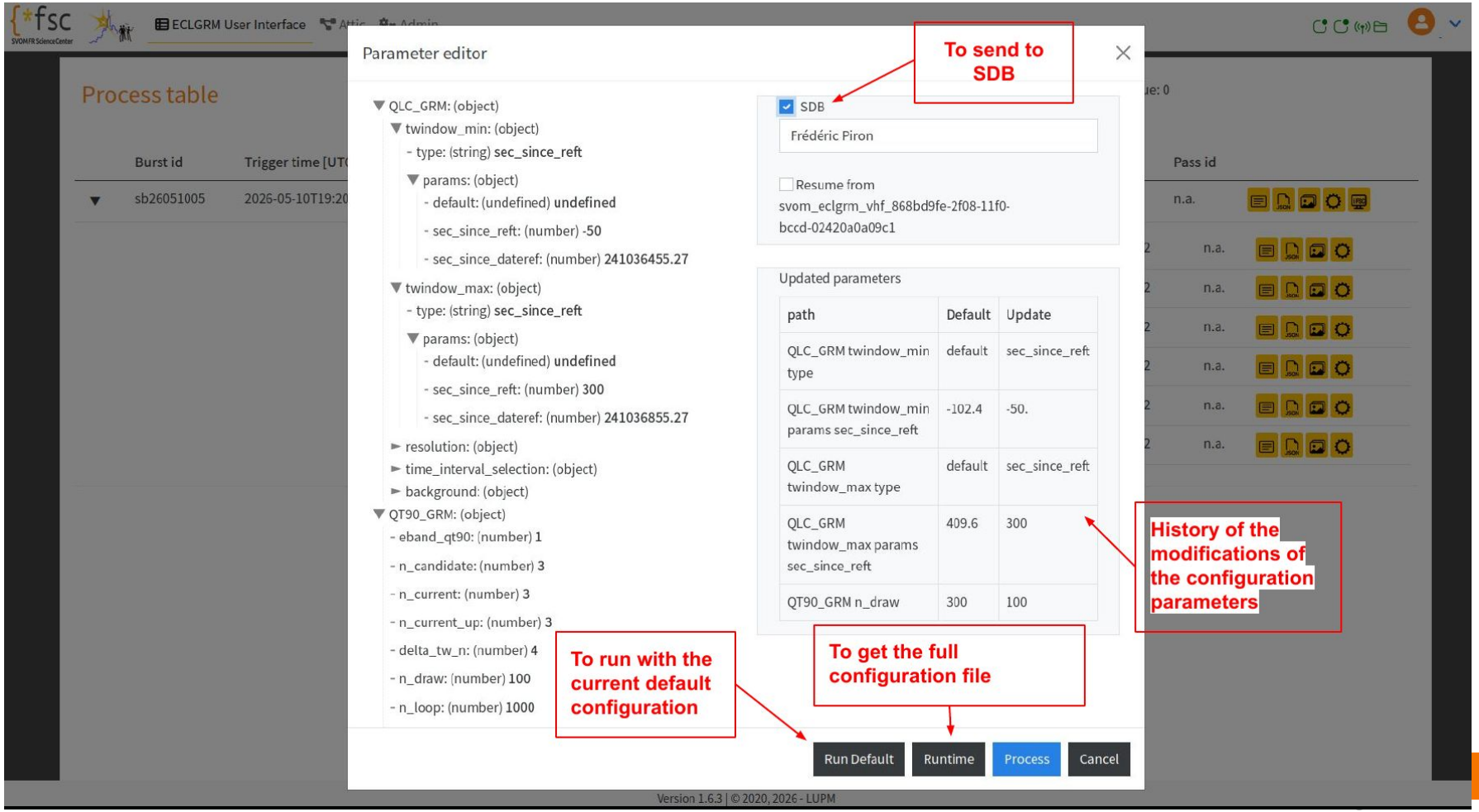
“Proc type” column (execution mode)

- “default” = automated processing activated by the orchestrator
- “user” = manual reprocessing by a specific user
  - The user name is visible when hovering the mouse over “user”
  - The user name is stored in the eclgrm-ui internal database only (i.e. not in the SDP FITS file)

“Proc ver” column: v[i]u[jj] indicates that the SDPs have not been sent to SDB



Configuration editor



Manual reprocessing

- Do not try to fit the background over the ~500 s of available data if not needed!
- Fit the background right before/after the GRB to predict it correctly in the ON region
  - To ensure reliable SDPs (T90 & ground significance, etc.)
- In general, the results can be improved by playing with very few parameters:

Task	Parameter	Default	Reproc	Purpose
QLC	twindow_min twindow_max	sec_since_reft = -108.8 / +403.2	Choose start and/or stop times of the analysis window	To restrict the overall analysis around the GRB, for example to discard late data when GRB emission stops before the slew starts.
QLC	time_interval_selection	Method = bayesian_blocks_auto	Set Method = fixed and choose t_left and t_right	To define OFF-1,2 regions for bkg fit
QLC	background	model = modelAuto porder = -1 (tries from 0 to 4)	Choose modelE or modelT, and/or choose porder = n (for all energy bands)	To adapt the bkg model (e.g. modelT usually enough if no slew)
QT90	n_draw	300	100 for tests 1000 once the results are SDB ready (top right button in the configuration editor)	100 to speed up resampling (less accurate QT90 error)

MERCI DE VOTRE ATTENTION