Some statistics,

as of the 17th of November, 2025

S. BASA, with Camila and Francis

Motivation of the exercise

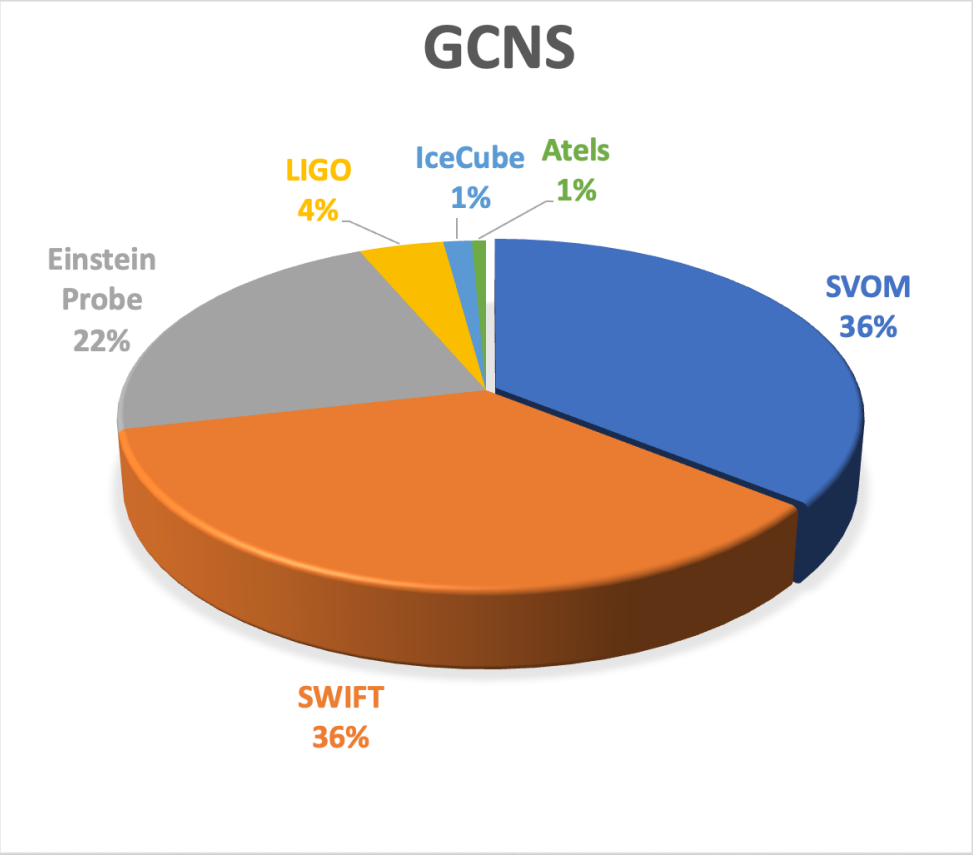
- **Check our efficiency in the follow-up of the alerts, SVOM in particular (are we fulfilling our duty?).**

GCNs statistics

Real start of the scientific exploitation: 1st of January 2025.

<u>More than 140 GCNs</u> as of November 17th, 2025:

- 54 from SVOM.



Some useful pages

Update automatically done at about 16h UTC.

All the alerts: https://www.colibri-obs.org/wp-content/uploads/2024/01/observation-data/data_alerts.html

Science programs: https://www.colibri-obs.org/wp-content/uploads/2024/01/observation-data/data_sciences.html

And specifically for the GRBs

SVOM (maintained by Francis): https://projets.lam.fr/projects/svom-colibri/wiki/SVOMpro

SWIFT (maintained by Camila): https://projets.lam.fr/projects/svom-colibri/wiki/Swiftpro

SVOM

SVOM alerts

Analysis of the COLIBRI GCNs (https://projets.lam.fr/projects/svom-colibri/wiki/GCNs)**:**

- 54 COLIBRI GCNs published associated to 44 SVOM alerts.

As some alerts had multiple GCNs:

- 3 GCNs for GRB 251013C.
- 2 GCNs for GRB 251106A, GRB 251026A, GRB 250530A, GRB 250506A, GRB 250327B, GRB 250317B, sb25021804, GRB 241108A.

62 alerts published by SVOM on the same period (private communication from JLA):

- About 71% (44/62) of the SVOM alerts are followed by COLIBRI.

Performances on the SVOM alerts

As computed by Damien in May 2015

Delay since trigger	F-GFT Photometry
60 sec	23 %
180 sec	26 %
3600 sec (1h)	33 %
61200 sec (17h)	65 %

- Calculation taking into account the B1 law followed by the satellite and therefore alerts too far south.

➡ *We are in line with our expectations!*

Follow-up efficiency

Of the 62 SVOM alerts, there are only <u>57 observables by COLIBRI</u> (5 too far south):

- About 77% (44/57) of the SVOM alerts observable by COLIBRI are followed up.

➡ ***We really do our job for SVOM!***

Status of the alerts associated to the UL

21 upper limits published.

Cross checked with ECLAIRs alerts status (https://forge.in2p3.fr/projects/etog-validation/wiki/Basic_TriggerVerdict) :

- 9 are false GRB alerts.
- 3 are not defined alerts (real or not?).
- 9 are real GRB alerts.

GRB 251104A	GRB 251104A (not confirmed), long duration bump
GRB 251027A	Was first considered as GRB 251027A and then retracted (codind noise from the Crab)
GRB 251026A	GRB251026A
GRB 251025A	Stellar flare from RX J2350.0+2659
GRB 251007B	GRB 251007B gcn with no slew. Seen by Swift
GRB 250831A	Flare Star G 272-61
GRB 250808A	GRB 250808A gcn No SlewRequest (Snr below threshold 8.5). Seen by Fermi
GRB 250806A	GRB 250806A, with slew and MXT counterpart,
sb 25061218	X-ray transient
sb 25061207	X-ray transient
GRB 250521B	No clear X-ray candidate
GRB 250510A	CAT Trigger on Ser X-1, 1 IMT on 40.96s in the 5-8 keV strip.
GRB 250507A	GRB 250507A,10 triggers with IMT provided the alert with the SNR of 10.65 in the 8-120 keV band over a time window of 40.96 seconds.
GRB 250506A	GRB 250506A
sb 25041603	IMT 11 min trigger on Particle event, probably low energy electrons, Stripes seen in the shadowgram (in 5-50 keV, not >50 keV), following solar Coronal Mass Ejection from 250413.
GRB 250329B	GRB 250329B seen by IMT. Best IMT SNR on 40.96 s and 8-120 keV. Swift XRT afterglow.
sb 25021804	Real source but many x-ray sources inside the eror box. An ULX candidate SRW2012 Src6 is about 9arcmin away
GRB 250215A	CAT Alert on Vela X-1
GRB 250213A	GRB 250213A, GCN 39317
GRB 241108A	GRB 241108A, maybe false (Xoff); without Optical detection, just before entrance of SAA (in SAA-EXT)
GRB 240821A	GRB 240821A

Detection efficiency

Of the 44 SVOM alerts followed by COLIBRI, there is in fact only real 32-35 real GRBs (3 uncertain):

- 9-12 has not been detected (Upper Limit).
- 65-71% (32-35/44) of the real GRBs from SVOM detected by COLIBRI.

Stats SWIFT and EP

SWIFT, statistics and efficiency

66 SWIFT alerts received up to the 12th of November:

- 28 followed by COLIBRI.

Among the 66 SWIFT alerts, there is in fact:

- 20 with a too low declination (i.e. not observable from COLIBRI).
- 3 non-detection reported by others facilities (COLIBRI decided then not to go).

Follow-up efficiency on SWIFT

Of the 66 SWIFT alerts, there are only 46 observables by COLIBRI:

- About 61% (28/46) of the observable SWIFT alerts are followed by COLIBRI.

➡ ***Almost in line with SVOM (for ref.: 71%).***

Detection efficiency on SWIFT

Of the 46 SWIFT alerts observable by COLIBRI:

- 9 has not been detected (Upper Limit), among which 5 suffered significant extinction.
- 37% (17/46) of the GRBs from SWIFT detected by COLIBRI.

➡ ***This needs to be consolidated, but it seems much lower than SVOM.***

Einstein Probe, statistics and efficiency

Analysis of the GCNs (https://projets.lam.fr/projects/svom-colibri/wiki/GCNs):

- 29 COLIBRI GCNs published associated to 25 EP alerts

Among 25 EP alerts:

- 9 has not been detected (Upper Limit).
- 14 have been detected (56%).

GCN statistics

Analysis of the GCNs (https://projets.lam.fr/projects/svom-colibri/wiki/GCNs):

- 2 GCNs for IceCube.
- 3 GCNs for LIGO/Virgo/KAGRA S250206dm, 2 GCNs for LIGO/Virgo/KAGRA S241125n and 1 GCN for LIGO/Virgo/KAGRA S250818k (AT2025ulz)
- 1 GCN for FRB250316A.

https://www.colibri-obs.org/