

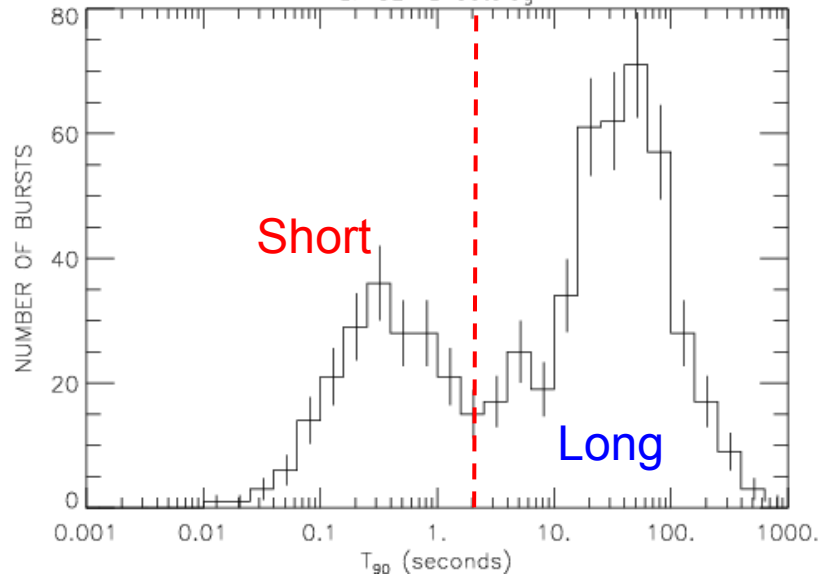
The importance of an early characterisation for the MWL follow-up

M. G. Bernardini (INAF, LUPM)



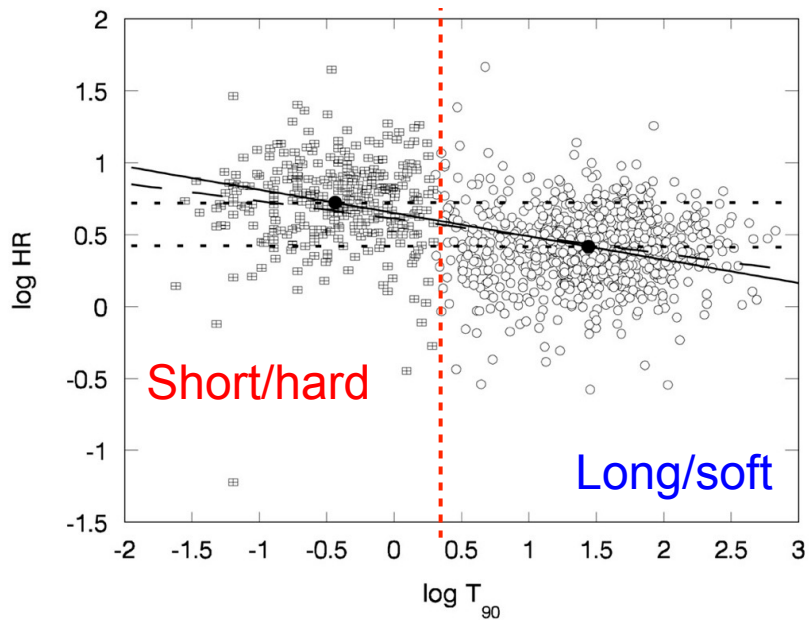
Determining the prompt emission duration

Distribution of T₉₀ from BATSE

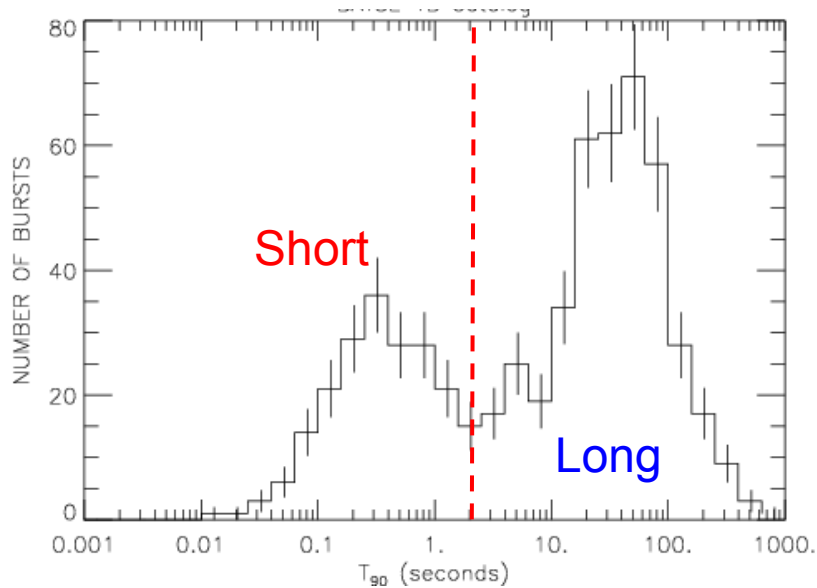


Determining the prompt emission duration

Duration vs. Hardness

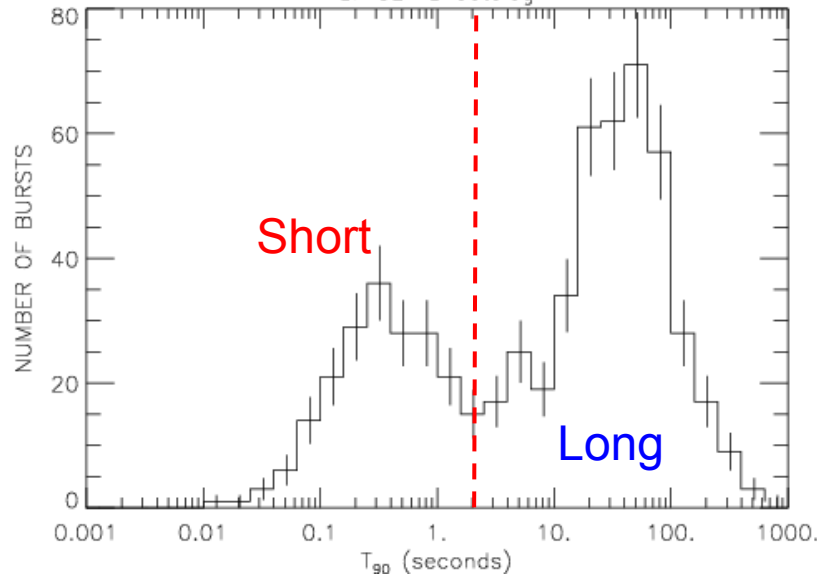


Distribution of T₉₀ from BATSE

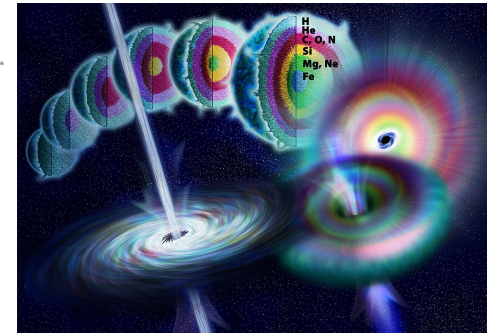


GRBs: a tale of two progenitors

Distribution of T₉₀ from BATSE



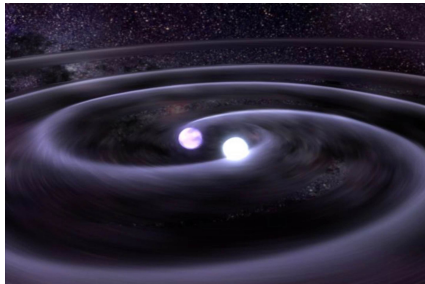
- LGRBs:** core-collapse of Type Ic SNe
- star-forming galaxies
 - young stellar population
 - SNe spectroscopically associated



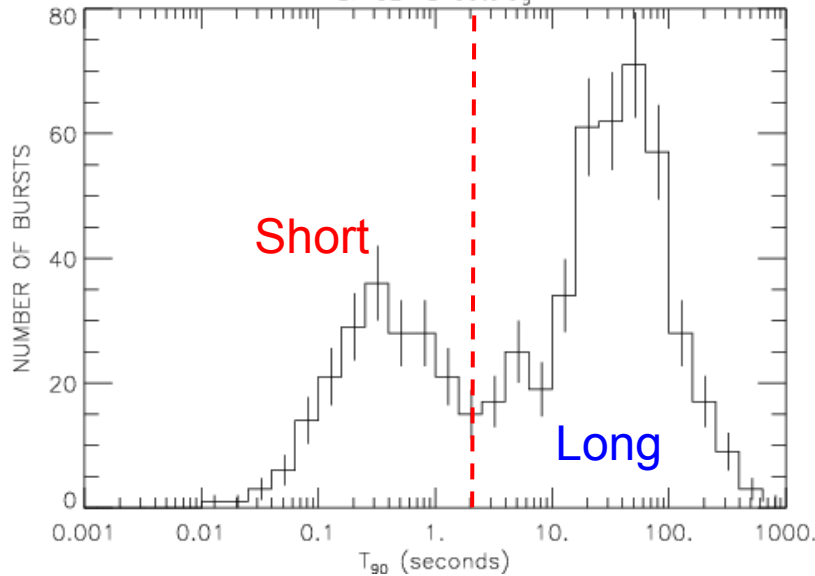
GRBs: a tale of two progenitors

SGRBs: merging of compact objects (NS-NS or NS-BH)

- mix of early and late type galaxies
- kicks/migration from their birth sites: offset, no correlation with UV light of their host galaxies, diversity of their environment
- KNe spectroscopically associated

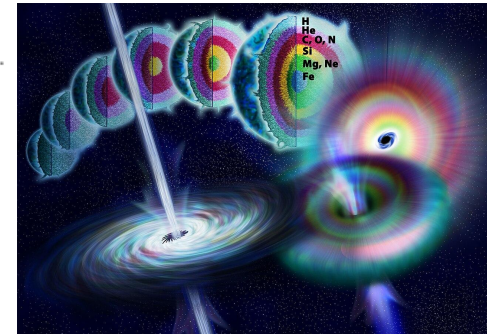


Distribution of T₉₀ from BATSE



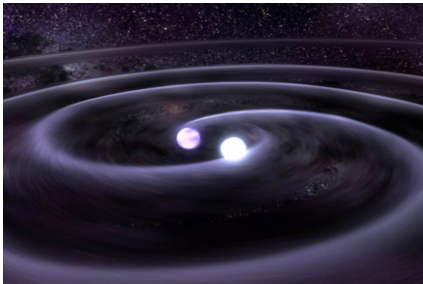
LGRBs: core-collapse of Type Ic SNe

- star-forming galaxies
- young stellar population
- SNe spectroscopically associated

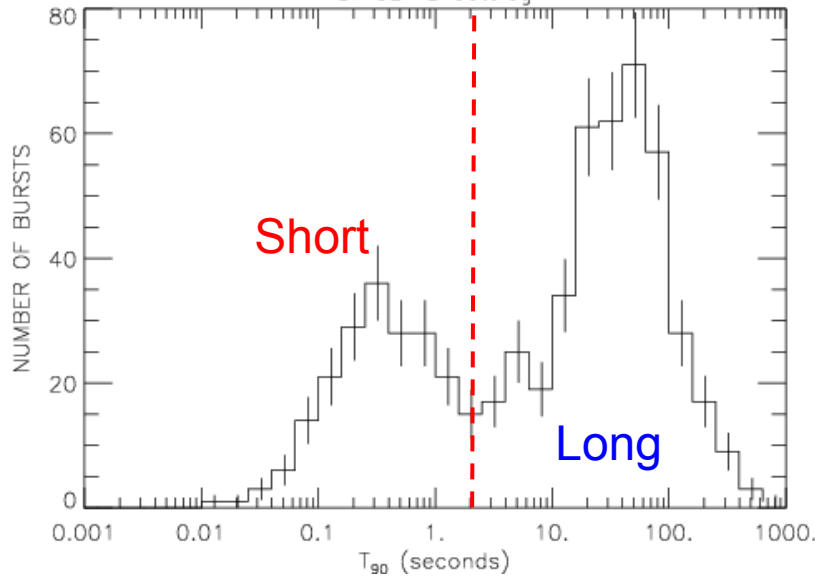


GRBs: a tale of two progenitors

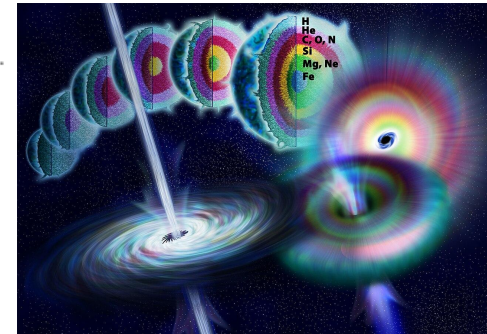
SGRBs: merging of compact objects (NS-NS or NS-BH)
- mix of early and late type galaxies
- kicks/migration from their birth sites: offset, no correlation with UV light of their host galaxies, diversity of their environment
- **KNe spectroscopically associated**



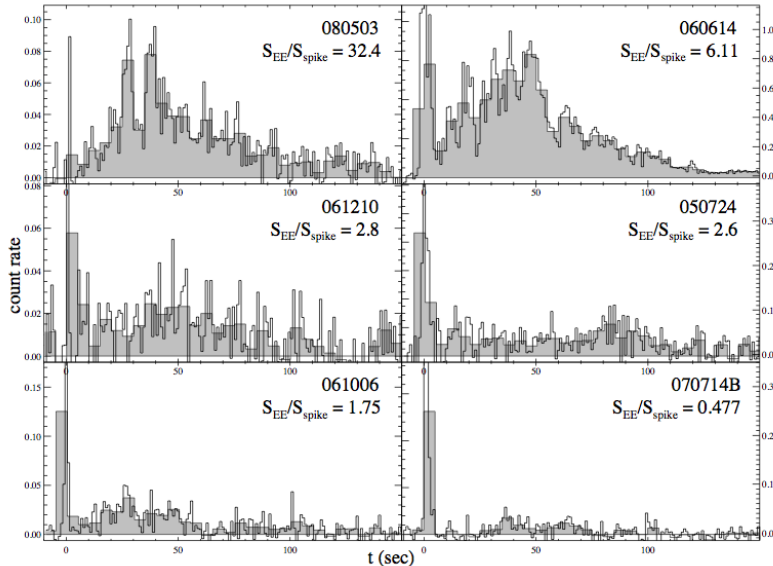
Distribution of T₉₀ from BATSE



LGRBs: core-collapse of Type Ic SNe
- star-forming galaxies
- young stellar population
- **SNe spectroscopically associated**

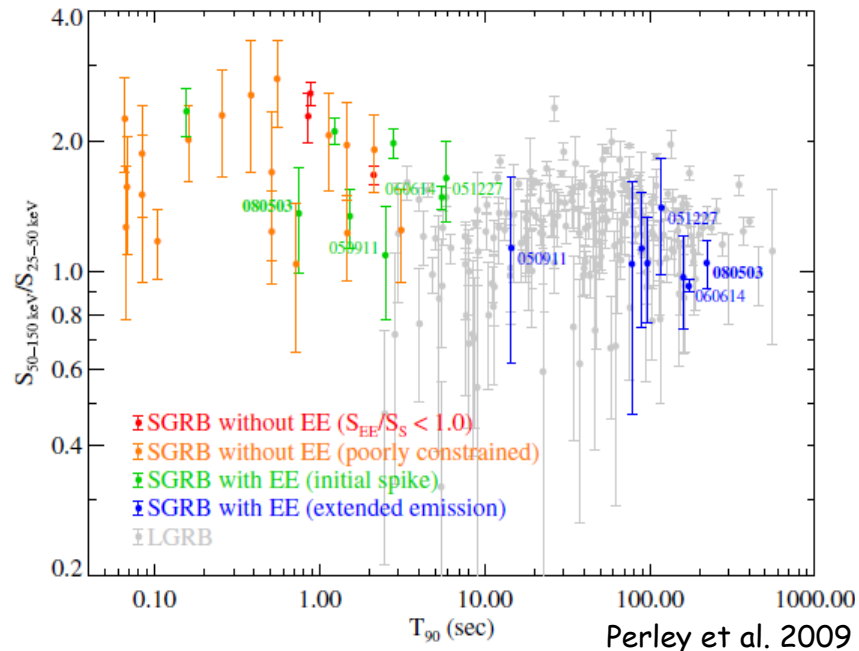


Determining the prompt emission duration



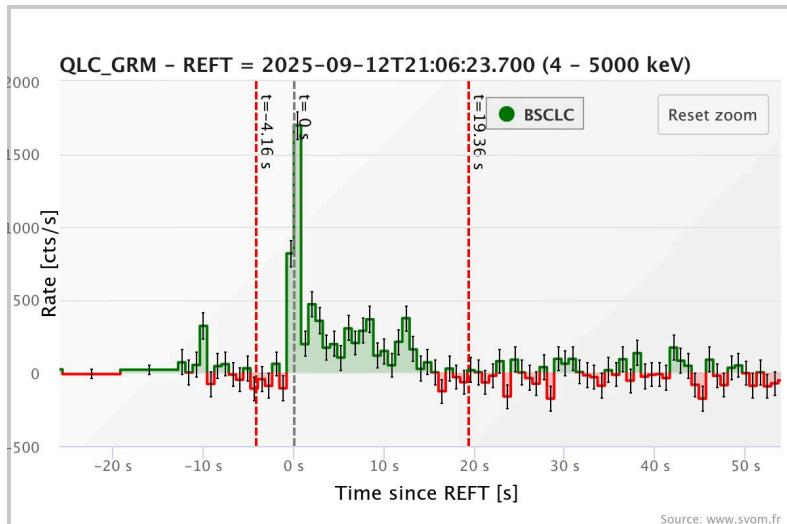
- delayed onset of **EE** hard spike, soft tail
- lower peak but duration ~ 100 s
- larger fluence than the main event

$\sim 15\%$ of SGRBs show an **extended emission (EE)** in the prompt phase



Determining the prompt emission duration

GRB 250912A (sb25091206)



GCN Circular 41820

Subject GRB 250912A: SVOM detection of a burst
Event [GRB 250912A](#)
Date 2025-09-12T21:58:10Z (8 months ago)
From SVOM_group <svomgroup@bao.ac.cn>
Via Web form

Jean-Grégoire Ducoin (CPPM), Damien Dornic (CPPM), Hui Yang (IRAP), Chenwei Wang (IHEP), Hatsune Goto (Kanazawa Univ./CEA), report on behalf of the SVOM mission team:

At 2025-09-12T21:06:24 UTC (T₀), SVOM/ECLAIRs triggered and located the gamma-ray burst GRB 250912A (SVOM burst-id sb25091206).

GCN Circular 41826

Subject GRB 250912A: SVOM/GRM analysis suggests a possible short GRB with extended emission
Event [GRB 250912A](#)
Date 2025-09-13T18:17:13Z (8 months ago)
Edited On 2025-09-15T13:19:13Z (8 months ago)
From Chenwei Wang at IHEP <cwang@ihep.ac.cn>
Edited By Judith Racusin at NASA/GSFC <judith.racusin@nasa.gov> on behalf of Chenwei Wang at IHEP <cwang@ihep.ac.cn>
Via Web form

SVOM/GRM team: Chen-Wei Wang, Shi-Jie Zheng, Yue Huang, Shao-Lin Xiong, Shuang-Nan Zhang (IHEP)

SVOM/ECLAIRs team: Hui Yang, Jean-Luc Atteia (IRAP), Stéphane Schanne (CEA)

Report on behalf of the SVOM team:

SVOM/GRM detected the burst GRB 250912A at 2025-09-12T21:06:23.700 UTC (T₀), which is also detected by

GCN Circular 41869

Subject GRB 250912A: SVOM/ECLAIRs refined analysis
Event [GRB 250912A](#)
Date 2025-09-18T15:09:27Z (8 months ago)
From SVOM_group <svomgroup@bao.ac.cn>
Via Web form

Hui Yang, Olivier Godet, Marius Brunet, Jean-Luc Atteia (IRAP), Floriane Cangemi (APC), Jean-Grégoire Ducoin, Damien Dornic (CPPM)

Using the event-by-event data downloaded through the X-band ground station, we report further analysis of ECLAIRs observations of GRB 250912A (SVOM burst-id sb25091206, GCN [41820](#)) detected at T₀ = 2025-09-12T21:06:24.69, which was also detected by SVOM/GRM (GCN [41826](#)) and Fermi/GBM (GCN [41819](#)).

The burst that triggered ECLAIRs consists of a short main peak starting from T₀-1.19 s and lasting about 0.6 s in the 4-120 keV energy band, followed by extended emission continuing until T₀+18.3 s. We note a weak precursor at T₀-11.1 s, detected mainly in the 8-20 keV band by ECLAIRs and also by GRM, whose position is consistent with that of the main event.

Faint/soft events

GRB 241001A (sb24100102)

GCN Circular 37655

Subject GRB 241001A : Detection of a soft transient by ECLAIRs onboard SVOM

Event [GRB 241001A](#)

Date 2024-10-01T17:59:27Z (2 years ago)

Edited On 2024-10-01T20:21:05Z (2 years ago)

From s.schanne@cea.fr

Edited By Judith Racusin at NASA/GSFC <judith.racusin@nasa.gov> on behalf of Stéphane Schanne at CEA Paris-Saclay/IRFU <s.schanne@cea.fr>

Via Web form

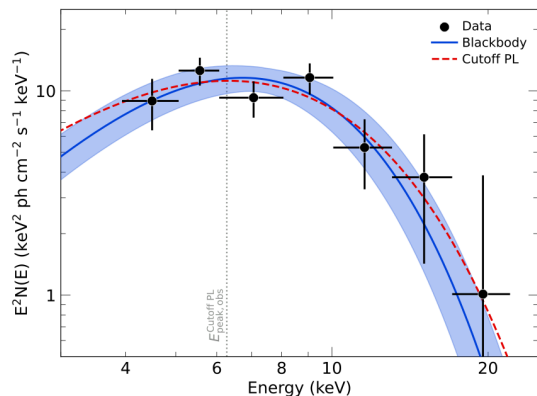
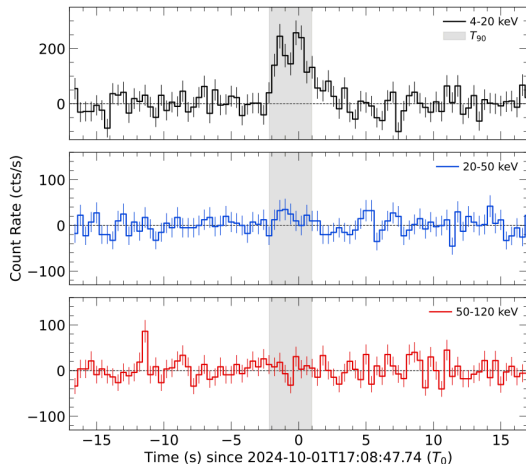
SVOM/ECLAIRs Commissioning Team: Nicolas Dagoneau, Stéphane Schanne, Frédéric Chateau, Hervé Le Provost (CEA), Wenjin Xie (NAOC), Jean-Luc Atteia, Laurent Bouchet, Sebastien Guillot, Juliette Alaux (IRAP), Tais Maiolino (LUPM), Alexis Coleiro (APC), Karine Mercier, Marie-Claire Charmeau, Stefano Crepaldi (CNES)

SVOM JSWG: Jian-Yan Wei (NAOC), Bertrand Cordier (CEA), Shuang-Nan Zhang (IHEP), Stéphane Basa (LAM), Olivier Godet (IRAP), Arnaud Claret (CEA), Zi-Gao Dai (USTC), Frédéric Daigne (IAP), Jin-Song Deng (NAOC), Andrea Goldwurm (APC), Diego Götz (CEA), Xu-Hui Han (NAOC), Cyril Lachaud (APC), En-Wei Liang (GXU), Yu-Lei Qiu (NAOC), Susanna Vergani (Obs.Paris), Jing Wang (NAOC), Chao Wu (NAOC), Li-Ping Xin (NAOC), Bing Zhang (UNLV)

Report on behalf of the SVOM team:

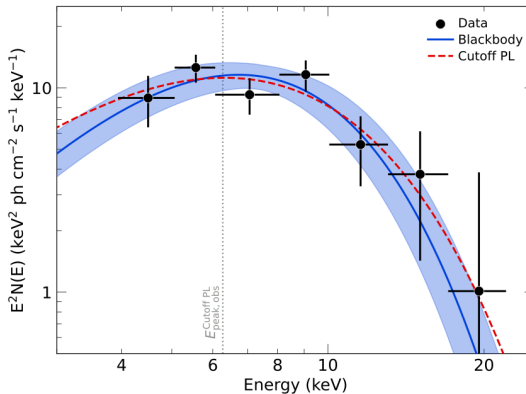
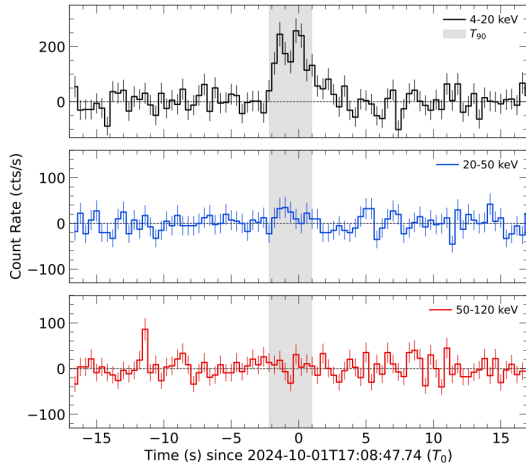
During the commissioning phase, the SVOM/ECLAIRs telescope triggered and located a soft transient, called GRB 241001A (sb24100102) at 2024-10-01T17:08:45 UT (TimTb).

The following information from the ECLAIRs onboard trigger was received on ground with low-latency by the SVOM VHF Alert Network. The burst was detected by the Count-Rate Trigger (CRT) which produced 3 Alerts in the 5–8 keV energy band. The best Alert has a signal-to-noise ratio of 7.8 over a time window of 5.12 s starting at TimTb. A clear point-like source is visible in the deconvolved sky image downloaded.



Faint/soft events: XRF in the local Universe

GRB 241001A (sb24100102) GCN Circular 37655



Subject GRB 241001A : Detection of a soft transient by ECLAIRs onboard SVOM

Event [GRB 241001A](#)

Date 2024-10-01T17:59:27Z (2 years ago)

Edited On 2024-10-01T20:21:05Z (2 years ago)

From s.schanne@cea.fr

Edited By Judith Racusin at NASA/GSFC <judith.racusin@nasa.gov> on behalf of Stéphane Schanne at CEA Paris-Saclay/IRFU <s.schanne@cea.fr>

Via Web form

SVOM/ECLAIRs Commissioning Team: Nicolas Dagoneau, Stéphane Schanne, Frédéric Chateau, Hervé Le Provost (CEA), Wenjin Xie (NAOC), Jean-Luc Atteia, Laurent Bouchet, Sebastien Guillot, Juliette Alaux (IRAP), Tais Maiolino (LUPM), Alexis Coleiro (APC), Karine Mercier, Marie-Claire Charmeau, Stefano Crepaldi (CNES)

SVOM JSWG: Jian-Yan Wei (NAOC), Bertrand Cordier (CEA), Shuang-Nan Zhang (IHEP), Stéphane Basa (LAM), Olivier Godet (IRAP), Arnaud Claret (CEA), Zi-Gao Dai (USTC), Frédéric Daigne (IAP), Jin-Song Deng (NAOC), Andrea Goldwurm (APC), Diego Götz (CEA), Xu-Hui Han (NAOC), Cyril Lachaud (APC), En-Wei Liang (GXU), Yu-Lei Qiu (NAOC), Susanna Vergani (Obs.Paris), Jing Wang (NAOC), Chao Wu (NAOC), Li-Ping Xin (NAOC), Bing Zhang (UNLV)

Report on behalf of the SVOM team:

During the commissioning phase, the SVOM/ECLAIRs telescope triggered and located a soft transient, called GRB 241001A (sb24100102) at 2024-10-01T17:08:47.74 UT (Tim+Th)

GCN Circular 37867

Subject GRB 241001A: JWST spectroscopic identification of a supernova counterpart

Event [GRB 241001A](#)

Date 2024-10-25T08:20:10Z (2 years ago)

From Ben Gompertz at U of Birmingham <b.gompertz@bham.ac.uk>

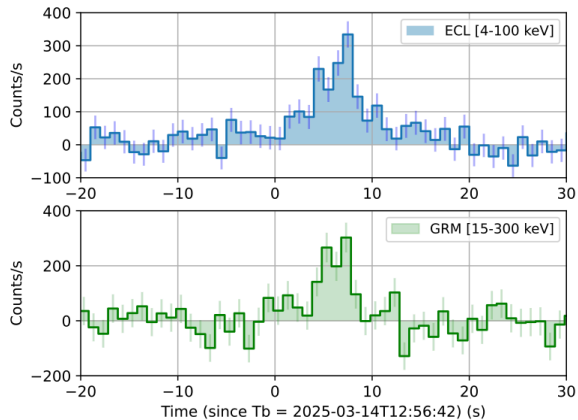
Via email

B. P. Gompertz (U. Birmingham), A. J. Levan (Radboud Univ. and Warwick Univ.), D. B. Malesani (DAWN/NBI and Radboud Univ.), B. Schneider (MIT), L. Izzo (INAF-OAcN & DARK/NBI), T. Laskar (University of Utah) and A. Martin-Carrillo (UCD) report for a larger collaboration:

We obtained spectroscopic observations of the optical counterpart (Izzo & Malesani., GCNs [37667](#) and [37673](#); Breeveld et al., GCN [37678](#); Turpin et al., GCN [37679](#); SVOM/VT commissioning team, GCN [37695](#)) to the SVOM/ECLAIRs-detected GRB 241001A (SVOM/ECLAIRs Commissioning Team; GCN [37655](#)) at redshift $z = 0.57$

Faint/soft events

GRB 250314A (sb25031405)



GCN Circular 39719

Subject GRB 250314A: SVOM detection of a burst
Event [GRB 250314A](#)
Date 2025-03-14T14:12:08Z (a year ago)
Edited On 2025-03-14T16:03:35Z (a year ago)
From SVOM_group <svomgroup@bao.ac.cn>
Edited By Judith Racusin at NASA/GSFC <judith.racusin@nasa.gov> on behalf of SVOM_group <svomgroup@bao.ac.cn>
Via Web form

Y. Wang (PMO, CAS), Rui-Zhi Li (YNAO, CAS), M. Brunet, H. Yang (IRAP), T. Maiolino (LUPM), H. Goto (CEA) on behalf of the SVOM mission team.

SVOM/ECLAIRs triggered on the gamma-ray burst GRB 250314A (SVOM burst-id sb25031405) starting at 2025-03-14T12:56:42 UTC (Tb).

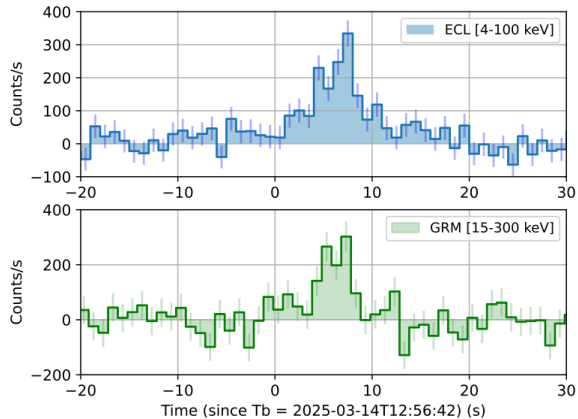
The following trigger information was received on the ground with low latency by the SVOM VHF Alert Network.

The burst was only detected by the Count rate Trigger (CRT), from which we received 1 alert. CRT provided the alert with the best signal-to-noise-ratio (SNR) of 9.18 in the 8–120 keV energy band over a time window of 10.2 seconds starting at Tb.

The light curve shows a single main episode, lasting ~20 s in ECLAIRs (5–120 keV) and ~10 s in GRM (5–550 keV).

Faint/soft events

GRB 250314A (sb25031405)



GCN Circular 39719

Subject GRB 250314A: SVOM detection of a burst
Event [GRB 250314A](#)
Date 2025-03-14T14:12:08Z (a year ago)
Edited On 2025-03-14T16:03:35Z (a year ago)
From SVOM_group <svomgroup@bao.ac.cn>
Edited By Judith Racusin at NASA/GSFC <judith.racusin@nasa.gov> on behalf of SVOM_group <svomgroup@bao.ac.cn>
Via Web form

Y. Wang (PMO, CAS), Rui-Zhi Li (YNAO, CAS), M. Brunet, H. Yang (IRAP), T. Maiolino (LUPM), H. Goto (CEA) on behalf of the SVOM mission team.

GCN Circular 39732

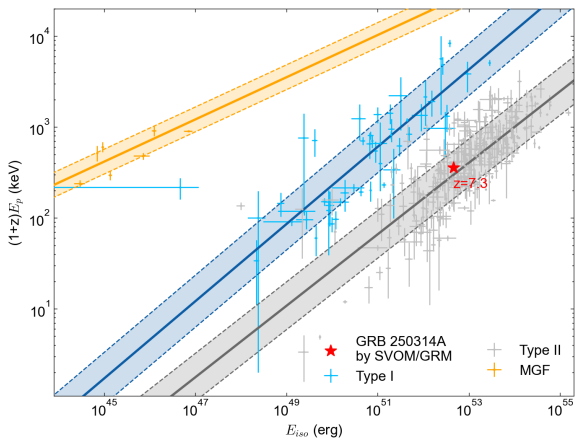
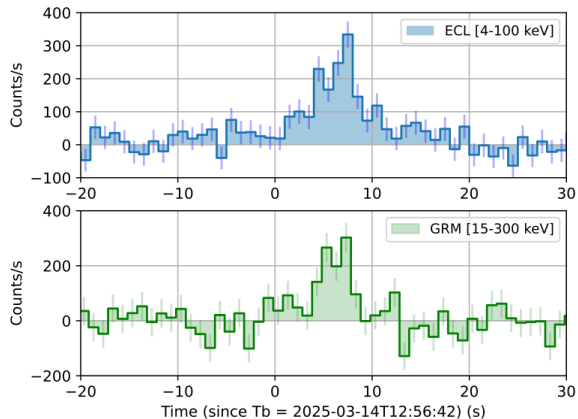
Subject GRB 250314A: VLT/X-shooter dropout, redshift $z \sim 7.3$
Event [GRB 250314A](#)
Date 2025-03-15T12:45:58Z (a year ago)
Edited On 2025-03-15T20:14:19Z (a year ago)
From Daniele B. Malesani at IMAPP / Radboud University <d.malesani@astro.ru.nl>
Edited By Vidushi Sharma at NASA GSFC/UMBC <vidushi.sharma@nasa.gov> on behalf of Daniele B. Malesani at IMAPP / Radboud University <d.malesani@astro.ru.nl>
Via Web form

D. B. Malesani (DAWN/NBI and Radboud), G. Pugliese (API-UvA), J. P. U. Fynbo (DAWN/NBI), B. Schneider (LAM), V. D'Elia (SSDC and INAF-OAR), A. de Ugarte Postigo (LAM), L. Izzo (INAF-OAcn and DARK/NBI), P. G. Jonker (Radboud), A. J. Levan (Radboud and Warwick), J. T. Palmerio (CEA/Irfu), N. A. Rakotondrainibe (LAM), A. Saccardi (CEA/Irfu), N. R. Tanvir (U. Leicester), A. L. Thakur (INAF-IAPS), S. D. Vergani (CNRS, Obs. Paris/LUX), D. Xu (NAOC), Z.P. Zhu (NAOC) report on behalf of the Stargate collaboration:

We observed the near-infrared candidate counterpart (Malesani et al., GCN [39727](#)) of the long SVOM/ECLAIRs GRB 250314A (Wang et al., GCN [39719](#)) at the ESO VLT, using the HAWK-I near-infrared imager (on UT4, Kueyen) and the X-shooter spectrograph (on UT3, Melipal).

Faint/soft events: high-redshift GRBs

GRB 250314A (sb25031405)



GCN Circular 39719

Subject GRB 250314A: SVOM detection of a burst
Event [GRB 250314A](#)
Date 2025-03-14T14:12:08Z (a year ago)
Edited On 2025-03-14T16:03:35Z (a year ago)
From SVOM_group <svomgroup@bao.ac.cn>
Edited By Judith Racusin at NASA/GSFC <judith.racusin@nasa.gov> on behalf of SVOM_group <svomgroup@bao.ac.cn>
Via Web form

Y. Wang (PMO, CAS), Rui-Zhi Li (YNAO, CAS), M. Brunet, H. Yang (IRAP), T.Maiolino (LUPM), H. Goto (CEA) on behalf of the SVOM mission team.

GCN Circular 39732

Subject GRB 250314A: VLT/X-shooter dropout, redshift $z \sim 7.3$
Event [GRB 250314A](#)

GCN Circular 39746

Subject GRB 250314A: SVOM/GRM analysis
Event [GRB 250314A](#)
Date 2025-03-16T18:36:43Z (a year ago)
From Chenwei Wang at IHEP <cwwang@ihep.ac.cn>
Via Web form

SVOM/GRM team: Chen-Wei Wang, Shi-Jie Zheng, Yue Huang, Shao-Lin Xiong, Shuang-Nan Zhang (IHEP)

SVOM/ECLAIRs team: Nicolas Dagoneau (CEA), Maria-Grazia Bernardini (INAF-OAB), Jean-Luc Atteia (IRAP), Frédéric Piron (LUPM)

Report on behalf of the SVOM team:

With the event-by-event data downloaded through the X-band ground station, we conducted the standard analysis pipeline of the high redshift burst, GRB 250314A (Wang et al., GCN #[39719](#)). The GRM light curve shows that this burst consists of a single main episode with a T90 of $7.0 +3.6/-3.7$ s in the 15–5000 keV band, which is consistent with the result from VHF data.

The GRM on-ground localization of this burst is consistent with ECLAIRs (Wang et al., GCN #[39719](#)). With the localization of ECLAIRs (RA=201.272, DEC=-5.293), the time-averaged spectrum from T0-1 to T0+9 s is best fitted by a power law function with an exponential high-energy cutoff. The power law index is $-1.75 +0.19/-0.46$ and the cutoff energy, parameterized as Epeak, is $43 +26/-19$ keV. The event flux (10–1000 keV) in this time interval is $(3.1 +0.5/-0.8)E-07$ erg/cm².

Summary

- Preliminary information that can be measured in ECL and GRM VHF data are valuable to identify particularly interesting events
 - ➔ Duration (QT90): crucial for a preliminary classification bw short (merger) or long (collapsar) events + short with EE
 - The two progenitor types are associated to different optical transients (KNe and SNe) that evolve on completely different time-scales
 - Short GRBs have fainter afterglows, impacting on the follow-up strategy
 - ➔ Soft/faint events:
 - XRFs in the local Universe (with perspectives for the detection of the progenitor SN or for VHE emission)
 - high-redshift GRBs
- The more the better: a more complete characterisation of the prompt emission phase helps to tailor an efficient follow-up strategy
 - ➔ Observing proposals can be activated based on specific criteria