



## UvA-DARE (Digital Academic Repository)

### First superburst observed by INTEGRAL, from SAX J1747.0-2853

Chenevez, J.; Brandt, S.; Kuulkers, E.; Alfonso-Garzon, J.; Beckmann, V.; Bird, T.; Courvoisier, Th; Del Santo, M.; Domingo, A.; Ebisawa, K.; Jonker, P.; Kretschmar, P.; Markwardt, C.; Oosterbroek, T.; Paizis, A.; Pottschmidt, K.; Sanchez-Fernandez, C.; Wijnands, R.

**Publication date**

2011

**Document Version**

Final published version

**Published in**

The astronomer's telegram

**License**

Unspecified

[Link to publication](#)

**Citation for published version (APA):**

Chenevez, J., Brandt, S., Kuulkers, E., Alfonso-Garzon, J., Beckmann, V., Bird, T., Courvoisier, T., Del Santo, M., Domingo, A., Ebisawa, K., Jonker, P., Kretschmar, P., Markwardt, C., Oosterbroek, T., Paizis, A., Pottschmidt, K., Sanchez-Fernandez, C., & Wijnands, R. (2011). First superburst observed by INTEGRAL, from SAX J1747.0-2853. *The astronomer's telegram*, 3183. <https://www.astronomerstelegam.org/?read=3183>

**General rights**

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

**Disclaimer/Complaints regulations**

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (<https://dare.uva.nl>)

<p><b>Outside</b></p> <p>GCN IAUCs</p> <p><b>Other</b></p> <p>ATel on Twitter ATELstream</p>
--

## The Astronomer's Telegram

Post | Search | Policies  
Credential | Feeds | Email

7 May 2021; 09:26 UT

<p>This space for free for your conference.</p>
---

[ [Previous](#) | [Next](#) | [ADS](#) ]

# First superburst observed by INTEGRAL, from SAX J1747.0-2853

ATel #3183; *J. Chenevez, S Brandt (DTU Space, Denmark), E. Kuulkers (ESA/ESAC, Spain), J. Alfonso-Garzon (LAEX-CAB/INTA-CSIC, Spain), V. Beckmann (APC, France), T. Bird (Southampton, UK), Th. Courvoisier (ISDC, Switzerland), M. Del Santo (INAF/IASF-Roma, Italy), A. Domingo (LAEX-CAB/INTA-CSIC, Spain), K. Ebisawa (ISAS, Japan), P. Jonker (SRON, The Netherlands), P. Kretschmar (ESA/ESAC, Spain), C. Markwardt (GSFC, USA), T. Oosterbroek (ESA/ESTEC, The Netherlands), A. Paizis (INAF-IASF, Italy), K. Pottschmidt (UMBC/NASA GSFC, USA), C. Sanchez-Fernandez (ESA/ESAC, Spain), and R. Wijnands (UvA, The Netherlands)*

on 23 Feb 2011; 09:38 UT

Credential Certification: Jerome CHENEVEZ ([jerome@dsri.dk](mailto:jerome@dsri.dk))

Subjects: X-ray, Binary, Neutron Star, Transient

Referred to by ATel #: [3217](#), [3930](#), [4622](#), [6602](#)

[Tweet](#)

A re-analysis of the INTEGRAL Galactic Bulge monitoring observation on February 13 (ATel #3172) shows that the flaring behaviour reported from SAX J1747.0-2853 is in fact due to a superburst.

The event started on February 13, 2011 at 13:01:40 UTC with a 2 minutes spike, but the JEM-X (3-30 keV) source light curve attests that the intensity continued to slowly decay during the remaining two hours of the observation. INTEGRAL slewed away from the Galactic centre region while the source intensity was still half of the maximum intensity level at 780 mCrab, and about three times above the average intensity prior to the flare. A rough extrapolation of the light curve suggests a total duration of four hours, which is consistent with a superburst.

The time-resolved spectral analysis confirms the nature of the event: the average JEM-X spectrum prior to the superburst is best described by an absorbed power law, while an additional black-body component is necessary to describe the average superburst spectra taken during the subsequent four exposures of 1800 sec duration each. The temperature decreases steadily from  $kT=2.1\pm 0.1$  keV during the spike down to  $1.4\pm 0.05$  keV during the last exposure of the observation. The unabsorbed 3-30 keV persistent source flux prior to the flare is  $3.0\text{e-}9$  erg/cm<sup>2</sup>/s.

### Related

- 12580 NICER observations of the ongoing X-ray outburst from SAX J1747.0-2853
- 12578 INTEGRAL identified with SAX J1747.0-2853 a source of the X-ray outburst in the Galactic center region detected by MAXI
- 12576 MAXI/GSC detection of an ongoing X-ray outburst from SAX J1747.0-2853 or a new X-ray transient MAXI J1746-290
- 10115 MAXI/GSC detection of peculiar soft X-ray enhancement probably from SLX 1735-269
- 8751 Swift/BAT hard X-ray monitoring: A New Outburst of Black Hole Transient H1743-322
- 8189 Swift/XRT imaging finds no new transient near MAXI reported burst position
- 8058 INTEGRAL finds renewed X-ray activity of the Neutron star X-ray transient SAX J1750.8-2900
- 7954 MAXI GSC detection of a soft X-ray transient : XRF 150826A / MAXI J1501-026
- 7096 INTEGRAL detection of the on-going outbursts from 1RXS J180408.9-342058 and GRO J1750-27
- 7039 Swift observations of 1RXS J180408.9-342058
- 7028 Continuing outburst of Galactic transient IGR J17451-3022
- 7020 Chandra position of IGR J17454-2919 and discovery of a possible NIR counterpart
- 7008 MAXI/GSC observation of 1RXS J180408.9-342058 in outburst
- 6997 Swift/BAT detects an outburst from the neutron star binary 1RXS J180408.9-

The total unabsorbed 3-30 keV flux at the peak of the superburst is  $6.7e-8$  erg/cm<sup>2</sup>/s.

As mentioned in ATel #3172, the whole event was only marginally detected by IBIS/ISGRI, and the 15-25 keV light curve during the entire observation is roughly flat at an average flux of 25 mCrab.

This first superburst ever recorded from SAX J1747.0-2853 is also the first superburst observed by INTEGRAL. It is preceded 30 minutes earlier by a shorter type I X-ray burst. The latter started during a 2 minutes slew of the INTEGRAL satellite, but due to the burst duration of several minutes, the tail was still observable during the next stable pointing. A preliminary analysis of this precursor burst indicates a peak count rate approximately at the same level as the peak of the superburst, as well as a dual exponential decay.

The above-mentioned persistent flux is derived from the average spectrum taken during the 1800 sec exposure prior to the first burst, i.e., less than one hour before the onset of the superburst.

We note that this event is only the 2nd superburst seen from a normal X-ray transient source after the superburst observed from 4U 1608-52 in 2005 (ATel #482).

	342058
6839	New Outburst of the Be/X-ray Transient GRO J1750-27 Detected with Fermi/GBM
6668	MAXI/GSC detection of a superburst from 4U 0614+091
6602	INTEGRAL/JEM-X sees enhanced activity in the Galactic center region: SAX J1747.0-2853 and IGR J17454-2919
6574	Hard X-ray spectral and timing properties of IGR J17454-2919 consistent with a black hole in the hard state
6530	IGR J17454-2919: a new X-ray transient found by INTEGRAL/JEM-X close to the Galactic Center
6451	A new X-ray transient, IGR J17451-3022, discovered by INTEGRAL/JEM-X near the Galactic Centre
5241	MAXI/GSC detection of a renewed outburst from the black hole candidate H 1743-322
5041	MAXI/GSC detection of an X-ray outburst probably from SAX J1747.0-2853 and Swift followup observation of the Galactic center region
4840	Transient X-ray burster KS 1741-293 active again
4622	MAXI/GSC detection of a possible superburst from SLX 1735-269
3930	INTEGRAL Bulge monitoring program detects several active transients with JEM-X
3842	MAXI/GSC detects a quasi-regular outburst and a possible soft state transition in H 1743-322
3830	MAXI/GSC detection of an outburst from a black hole candidate 4U 1630-472
3760	MAXI/GSC detection of a superburst from the neutron star SAX J1828.5-1037
3625	MAXI and RXTE-ASM detect superburst candidate for 4U 1820-30
3280	Broad band energy spectrum and a low frequency QPO from H1743-322 in the hard state revealed by INTEGRAL and Swift observations
3277	RXTE Observes H1743-322 in Outburst
3267	INTEGRAL spots the very beginning of the current H1743-322 outburst
3263	IGR J17464-3213 (= H1743-322) is active again
3217	SAX J1747.0-2853: 'normal' thermonuclear bursts resumed
3183	First superburst observed by INTEGRAL, from SAX J1747.0-2853
3181	Swift/XRT confirms the INTEGRAL detection of a faint outburst from SAX J1750.8-2900
3172	INTEGRAL sees continuing activity from SAX J1747.0-2853, but not from SAX J1750.8-2900
3170	INTEGRAL/IBIS observations of the Galactic center region at the epoch of the short Fermi/LAT flare
3163	Swift/XRT detects SAX J1747.0-2853 (=MAXI J1745-288) in outburst
3162	Fermi LAT detection of an outburst from the Galactic center region

3123	MAXI/GSC detects an X-ray outburst from the Galactic center region, GRO J1744-28/MAXI J1745-288
2857	RXTE observes a transition to the low-hard state in H1743-322
2797	State transition in H 1743-322
2792	H 1743-322 approaching state transition
2788	RXTE pointed observations of H 1743-322
2781	Swift XRT observation of the black hole candidate H 1743-322
2774	MAXI/GSC detects a re-brightening from the black hole candidate H 1743-322
1944	INTEGRAL detects an X-ray burst from SAX J1747.0-2853 with no detectable persistent emission
1831	Swift/XRT observations of SAX J1828.5-1037 in outburst
1400	Further observations of GRO J1750-27 (AX J1749.1-2639) with INTEGRAL
1385	INTEGRAL Galactic bulge monitoring observations of GRO J1750-27 (AX J1749.1-2639), H1743-322 and SLX 1746-331
1340	A long burst from SLX 1735-269 detected by INTEGRAL
1228	A new outburst of the recurrent neutron star transient SAX J1747.0-2853
642	On the (hard) X-ray activity of SAX J1747.0-2853 as seen with INTEGRAL
637	Renewed activity of the neutron star X-ray transient SAX J1747.0-2853
539	HETE-2 detection of Superburst from SLX 1735-269
483	Probable superbursts in 4U 0614+091 and 4U 1608-522
482	Superburst in 4U1608-52
342	New X-ray transient IGR J17507-2856 discovered with INTEGRAL
256	INTEGRAL detection of the X-ray outburst of SAX J1747.0-2853
255	RXTE PCA Detections of Transient Activity of X-ray Bursters in the Galactic Center Region
68	A superburst from GX 3+1

[ **Telegram Index** ]

R. E. Rutledge, Editor-in-Chief

rrutledge@astronomerstelegam.org

Derek Fox, Editor

dfox@astronomerstelegam.org