

Swift Observations of GRB 130829A

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1 Introduction

At 05:43:33 UT on 2013-08-29, the Swift Burst Alert Telescope (BAT) triggered and located GRB 130829A (trigger=568417). Due to a sun constraint Swift could not slew to the burst location (Grupe et al., *GCN Circ.* 15131). Swift XRT or UVOT cannot observe this region until September 24th, 2013. Due to this source's apparent proximity to the Galaxy NGC 4144, this was originally reported as a transient and no GCN circular was issued. The nominal (Simbad) coordinates of galaxy NGC 4144 are 2.8 arcmin East and 3.8 arcmin North of the BAT GRB location. This places the entire BAT error circle outside of the bright visible area of the galaxy, but the position would be consistent with an extended spherical halo.

There are only two ground-based optical follow-up observations reported on this burst: 1) NOT and 2) AAO. Both of them did not detect an optical afterglow (Xu et al., *GCN Circ.* 15134 and Volnova et al. *GCN Circ.* 15136, respectively).

2 BAT Observation and Analysis

At 05:43:33 UT on 2013-08-29, the Swift Burst Alert Telescope (BAT) triggered and located GRB 130829A (trigger=568417, Grupe et al., *GCN Circ.* 15131). Using the data set from T-239 to T+303 s, the BAT ground-calculated position is RA, Dec = 182.426, +46.520 deg which is

$$\text{RA(J2000)} = 12\text{h } 09\text{m } 42.1\text{s}$$

$$\text{Dec(J2000)} = +46^\circ 31' 10.8''$$

with an uncertainty of 1.3 arcmin, (radius, sys+stat, 90% containment). The partial coding was 84% (Grupe et al. *GCN Circ.* 15131).

The mask-weighted light curve (Figure 1) shows a long peak starting at T+34 s and ending at T+77s. The T_{90} (15-350 keV) is 42.56 ± 7.08 s (estimated error including systematics).

The time-averaged spectrum from T+30.86 to T+87.50 s is best fit by a single power law. This fit gives a photon index of 1.36 ± 0.12 ($\chi^2 = 59.8$ for 57 d.o.f.). For this model the total fluence in the 15-150 keV band is $1.2 \pm 0.1 \times 10^{-6}$ erg cm^{-2} . The 1s peak flux measured from T+2.54 s in the 15-150 keV band is 0.6 ± 0.1 photons $\text{cm}^{-2} \text{s}^{-1}$. All the quoted errors are at the 90% confidence level.

The results of the batgrbproduct analysis are available at http://gcn.gsfc.nasa.gov/notices_s/568417/BA/.

3 XRT and UVOT Observations

Due to the sun constraint XRT and UVOT did not observe the field of GRB 130829A.

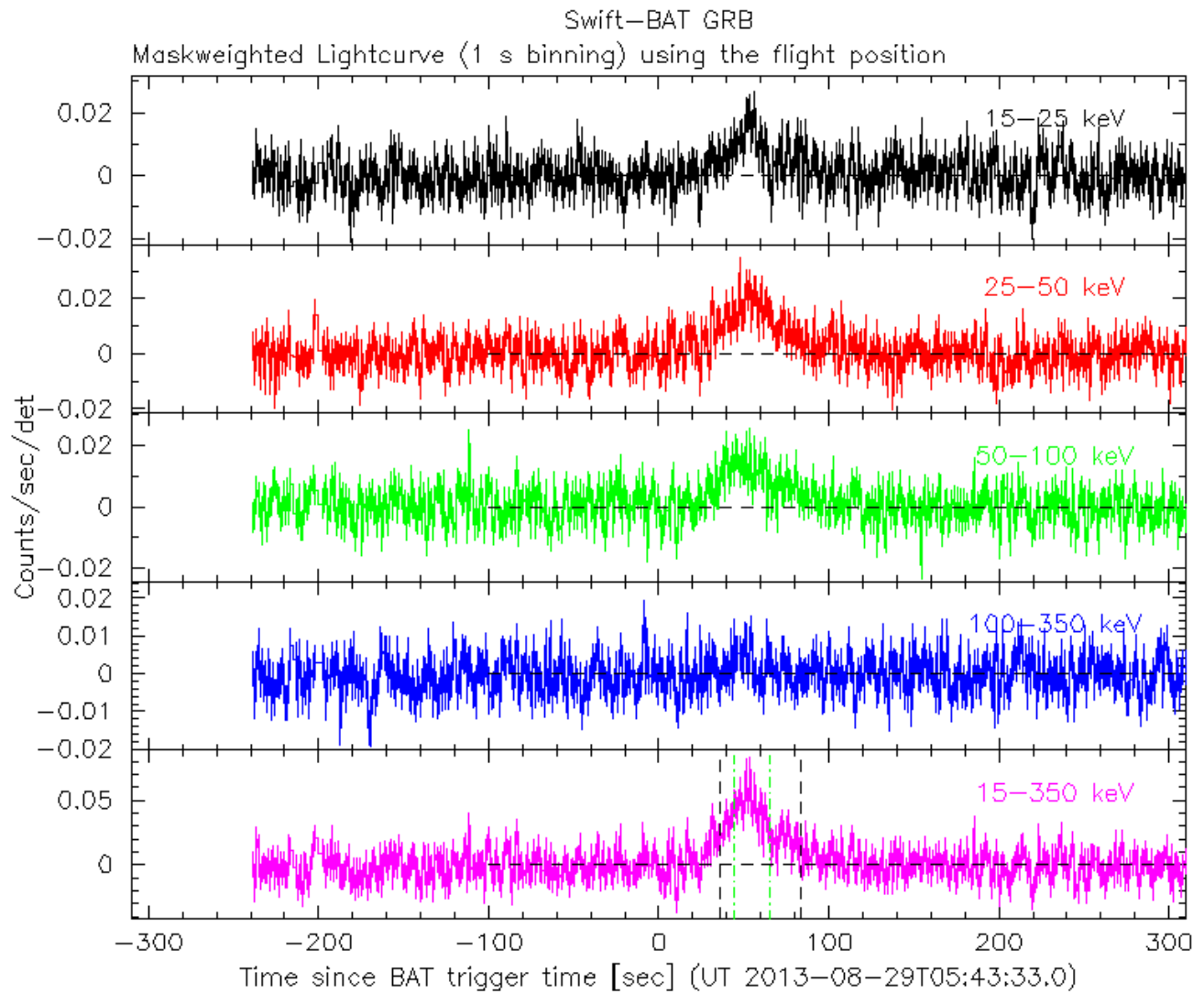


Figure 1: BAT Light curve of GRB 130829A.