

Swift Observations of GRB 120918A

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1 Introduction

At 11:16:10 UT on 2012-09-18, the Swift Burst Alert Telescope (BAT) triggered and located GRB 120918A (trigger=534015). Swift could not slew to the burst due to a Sun observing constraint lasting until 2012-11-15. Consequently, there are no XRT or UVOT data for this burst. No ground-based optical or infrared observations have been reported.

The best *Swift* position (1.1' uncertainty) is the BAT position from Barthelmy et al. (*GCN Circ.* 13784):

$$\begin{aligned} \text{RA (J2000)} &= 12\text{h } 04\text{m } 10.1\text{s} \\ \text{Dec (J2000)} &= -32^\circ 45' 43.5'' \end{aligned}$$

2 BAT Observation and Analysis

At 11:16:10 UT on 2012-09-18, the Swift Burst Alert Telescope (BAT) triggered and located GRB 120918A (trigger=534015; Barlow et al., *GCN Circ.* 13779). Using the data set from T-239 s to T+963 s, the BAT ground-calculated position is RA, Dec = 181.042, -32.762 deg which is

$$\begin{aligned} \text{RA(J2000)} &= 12\text{h } 04\text{m } 10.1\text{s} \\ \text{Dec(J2000)} &= -32^\circ 45' 43.5'' \end{aligned}$$

with an uncertainty of 1.1 arcmin (radius, sys+stat, 90% containment). The partial coding was 15% (Krimm et al. *GCN Circ.* 13634).

The mask-weighted light curve, shown in Figure 1, exhibits several overlapping peaks starting at $\sim T-5$ s, peaking at $\sim T+1$ s, and ending at $\sim T+40$ s. T_{90} (15-350 keV) is 25.1 ± 2.5 s (estimated error including systematics).

The time-averaged spectrum from T-2.86 s to T+23.90 s is best fit by a power law with an exponential cutoff. This fit gives a photon index 1.00 ± 0.39 , and E_{peak} of 85.5 ± 36.3 keV ($\chi^2=55.6$ for 56 d.o.f.). For this model the total fluence in the 15-150 keV band is $(3.7 \pm 0.6) \times 10^{-6}$ erg cm^{-2} and the 1-s peak flux measured from T-0.28 s in the 15-150 keV band is 4.5 ± 0.5 ph cm^{-2} s^{-1} . A fit to a simple power law gives a photon index of 1.60 ± 0.09 ($\chi^2=63.5$ for 57 d.o.f.). All quoted errors are at the 90% confidence level.

The results of the batgrbproduct analysis are available at http://gcn.gsfc.nasa.gov/notices_s/534015/BA/

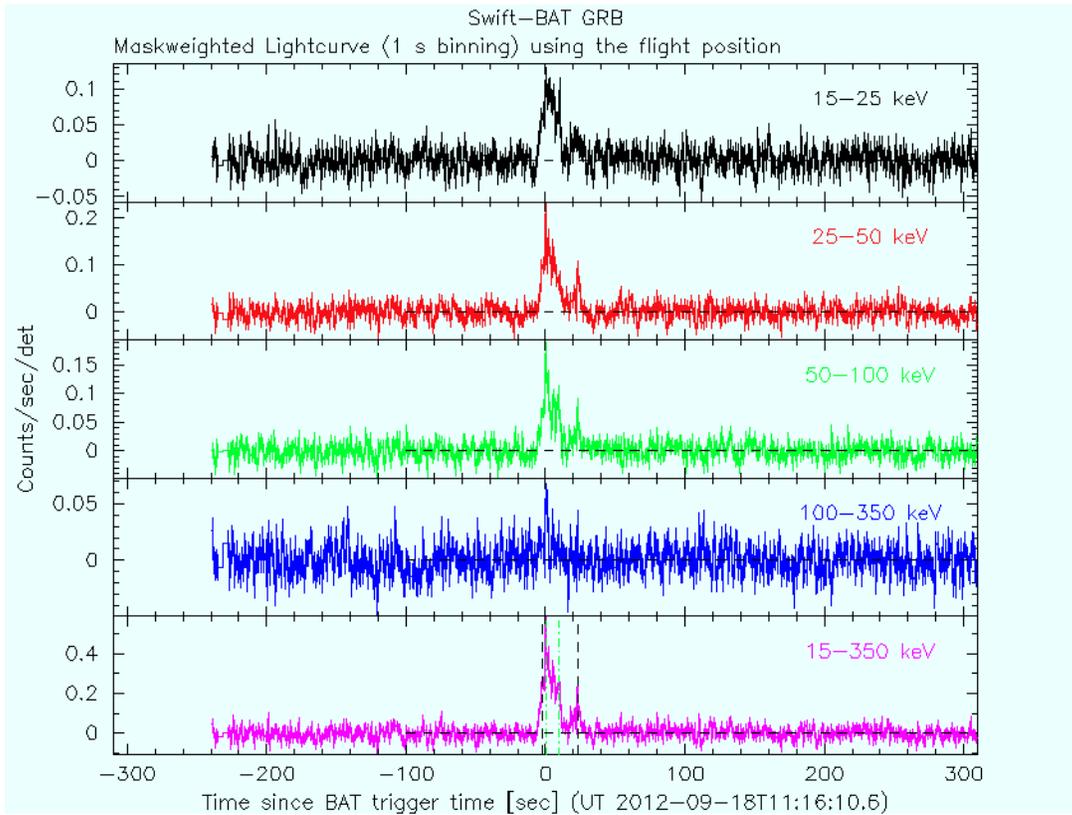


Figure 1: The mask-weighted BAT light curve of GRB 120918A in the 4 individual plus total energy bands.