

Swift Observation of long GRB 090107A

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1 Introduction

BAT triggered on GRB 090107A at 04:48:04 UT (Trigger 339295) (Ukwatta, *et al.*, *GCN Circ.* 8782). This was a 1.024 sec rate-trigger on a long burst with $T_{90} = 12.2 \pm 0.7$ sec. Swift could not slew to this burst due to its proximity to the Sun.

Our best position is the BAT ground-calculated location $RA(J2000) = 302.409$ deg(20h09m38.2s), $Dec(J2000) = +4.744$ deg(+04d44'37.9'') with an uncertainty of 2.4 arcsec (90% confidence, including boresight uncertainties), reported by Sato *et al.*, *GCN Circ.* 8783.

Since, Swift did not slew to the BAT position, there are no XRT or UVOT data for this trigger.

2 BAT Observation and Analysis

Using the data set from $T - 240$ to $T + 962$ sec, further analysis of BAT GRB 090107A has been performed by BAT team (Sato, *et al.*, *GCN Circ.* 8783). The BAT ground-calculated position is $RA(J2000) = 302.409$ deg (20h09m38.2s), $Dec(J2000) = 4.744$ deg (+04d44'37.9'') ± 2.4 arcmin, (radius, systematic and statistical, 90% containment). The partial coding was 74% (the bore sight angle was 22.5 deg).

The mask-weighted light curve (Fig. 1) shows two peaks. The first is about 1.2 sec wide and peaks at $\sim T + 0.9$ sec. The second is about 6 sec wide and peaks at $\sim T + 11$ sec. Because of the Sun observing constraint and because of a regular pre-planned target slew, the BAT has no data on this event past $T + 260$ sec. T_{90} (15 – 350 keV) is 12.2 ± 0.7 sec (estimated error including systematics).

The time-averaged spectrum from $T + 0.2$ to $T + 12.9$ sec is best fit by a simple power-law model. The power law index of the time-averaged spectrum is 1.69 ± 0.27 . The fluence in the 15 – 150 keV band is $2.3 \pm 0.5 \times 10^{-7}$ erg cm⁻². The 1-sec peak photon flux measured from $T + 0.30$ sec in the 15 – 150 keV band is 1.1 ± 0.2 ph/cm²/sec. 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/339295/BA/

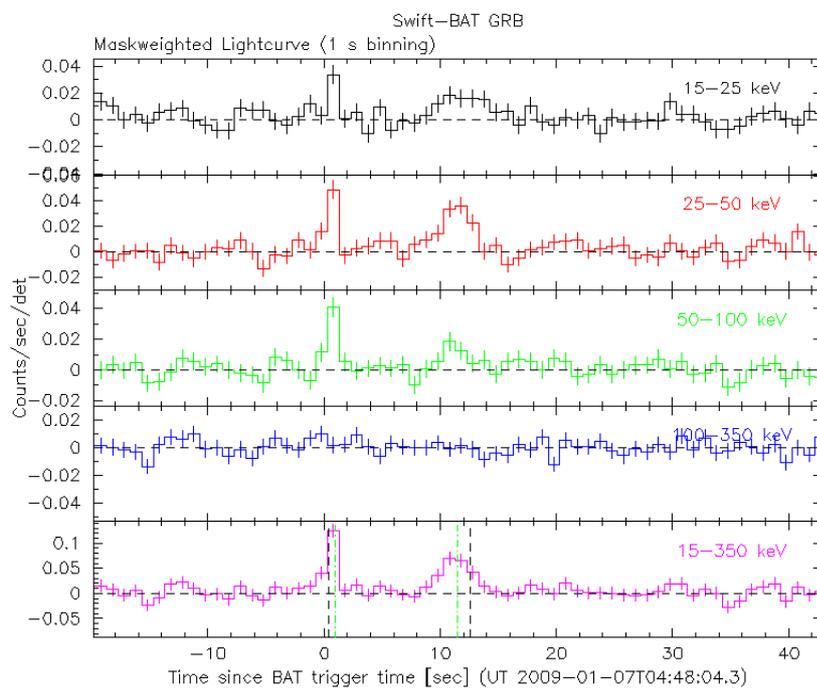


Figure 1: The mask-weighted light curve in the 4 individual plus total energy bands. The units are counts/sec/illuminated-detector and T_0 is 04:48:04 UT.