

Swift Observation of GRB 070920A

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1 Introduction

BAT triggered on GRB 070920A at 2007-09-20 04:00:13 UT (Grupe *et al.* GCN Circ. 6805). Because Swift was in the process of returning to normal operations, automatic slewing to GRBs was disabled. Therefore, there were no prompt XRT or UVOT observations of this burst. The first slew to this burst was performed about 11 hours after the burst. Because the UVOT was still turned off during the afterglow observations, this report has no UVOT section.

2 BAT Observation and Analysis

Using the data set from $T - 119$ s to $T + 300$ s, analysis of BAT GRB 070920A has been performed by the Swift team (Barbier, *et al.*, GCN Circ. 6807). The BAT ground-calculated position is RA($J2000$) = $100.968deg$ ($06h43m52.2s$), Dec($J2000$) = $+72.250 deg$ ($+72d14'59''$) with an uncertainty of $2.1'$, (radius, systematic and statistical, 90% containment). The partial coding was 100%.

The masked-weighted light curves (Fig.1) shows a single peak (with structure) starting at $T - 15$ s, broadly peaking at $T + 25$ s and ending at $T + 140$ s. $T_{90}(15 - 350keV)$ is 56 ± 1 s (estimated error including systematics).

The time-averaged spectrum from $T + 15.1$ s to $T + 75.0$ s is best fitted by a single power law model. This fit gives a photon spectral index of $\Gamma = 1.69 \pm 0.21$, ($\chi^2 = 37.4$ for 57 d.o.f.). For this model the total fluence in the $15 - 150 keV$ band is $(5.1 \pm 0.7) \times 10^{-7}$ ergs cm^{-2} and the 1-s peak flux measured from $T + 30.45$ s in the $15 - 150 keV$ band is 0.3 ± 0.1 photons $cm^{-2} s^{-1}$. All the quoted errors are at the 90% confidence level.

3 XRT Observations and Analysis

Due to the spacecraft recovery process, automated targets to observe bursts promptly were disabled, so no immediate X-ray (and optical/UV) data could be obtained for this burst. In order to get a position of the X-ray afterglow as soon as possible a slew to the BAT position was performed manually 11 hours after the burst. The duration of the exposure of about 1 ks. No source was found at the BAT position. The field of GRB 070920A was observed again for 10 ks starting 40 hours after the burst. Again, no source was detected in the BAT error circle.

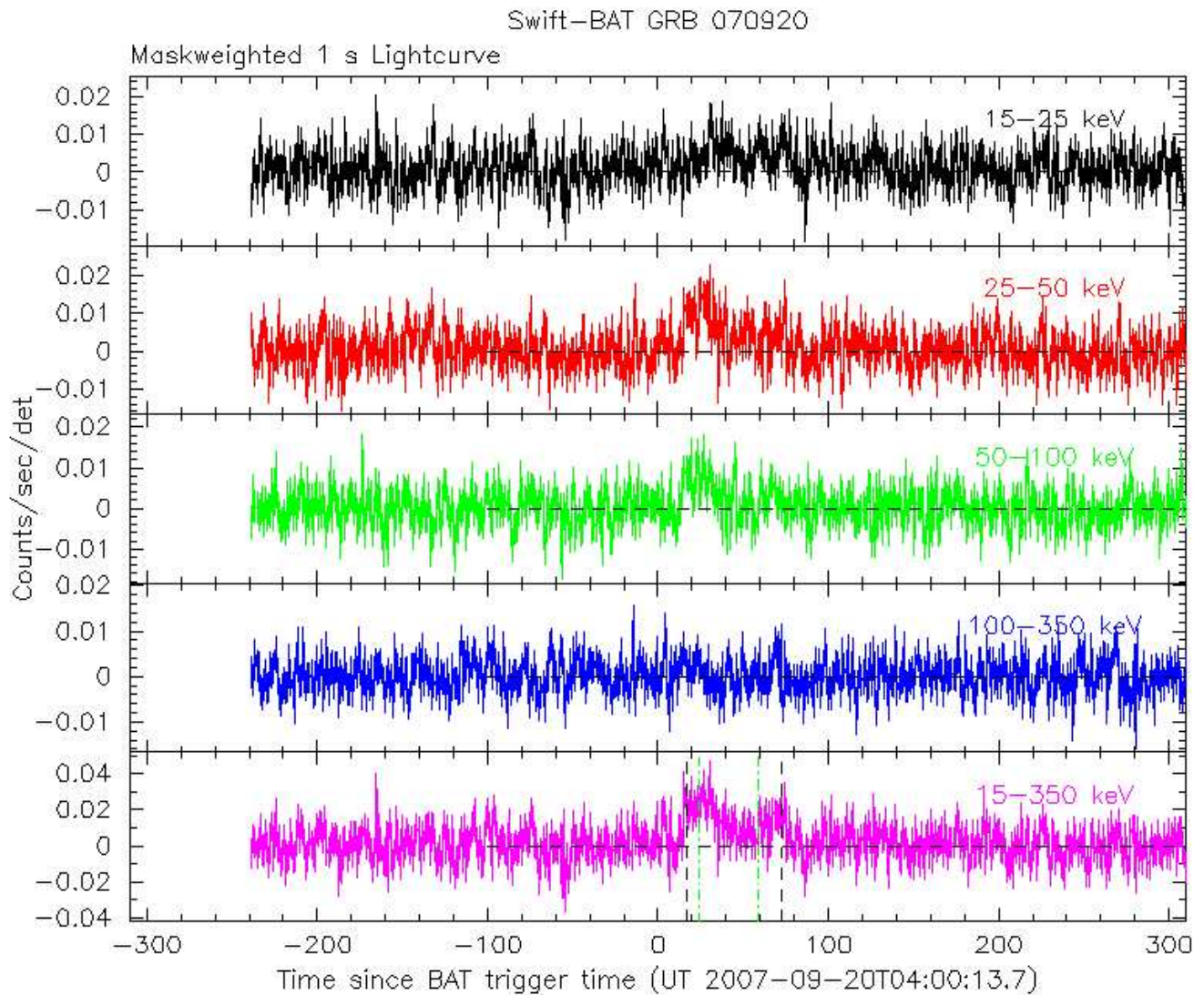


Figure 1: BAT Light curve. The mask-weighted light curve in the 4 individual plus total energy bands. The units are counts s^{-1} illuminated-detector $^{-1}$ and T_0 is 2007-September-20 04:00:13 UT.