Swift Observations of GRB 090709B

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1. INTRODUCTION

At 15:07:42 UT, the Swift Burst Alert Telescope (BAT) triggered and located GRB 090709B (trigger=356912; Marshall *et al.* GCN Circ. 9633). Swift did not slew because of a Sun constraint. Since there are no XRT or UVOT observations, BAT (Ukwatta et al. GCN Circ. 9641) provides the most accurate Swift position for the burst of RA (J2000) = 06h 14m 05.4s and Dec (J2000) = +48° 06' 18.10" with a 90% confidence error radius of 1.8' (including both statistical and systematic uncertainties). The burst was also detected with the Fermi GBM (Meegan and van der Horst GCN Circ. 9650) and the INTEGRAL SPI-ACS instruments. INTEGRAL light curves are available at http://isdc.unige.ch/cgi-bin/cgiwrap/~beck/ibas/spiacs/ibas_acs_web.cgi/?trigger=2009-07-09T15-07-42.0000-00000-00000-0 and http://isdc.unige.ch/Soft/ibas/results/triggers/spiacs/2009-07/2009-07-09T15-07-42.0000-00000-00000-0.png. There were no GCN Circulars based on ground-based observations of this burst.

2. BAT OBSERVATION AND ANALYSIS

The mask-weighted light curve (Figure 1) shows a main peak beginning at T-5 seconds and continuing until T+10 seconds. There are two much weaker peaks at approximately T+25 and T+35 seconds. T_{90} (15-350 keV) is 27.2 ± 6.6 seconds (estimated error including systematics).

The time-averaged spectrum from T-5.4 to T+35.9 seconds is best fit by a simple power-law model with an index of 1.51 ± 0.18. The fluence in the 15-150 keV band is 1.5 ± 0.2 x 10^{-6} erg-cm^{-2}. The 1-s peak photon flux measured from T+1.47 seconds in the 15-150 keV band is 2.1 ± 0.4 photons-cm^{-2}-s^{-1}. All the quoted errors are at the 90% confidence level.

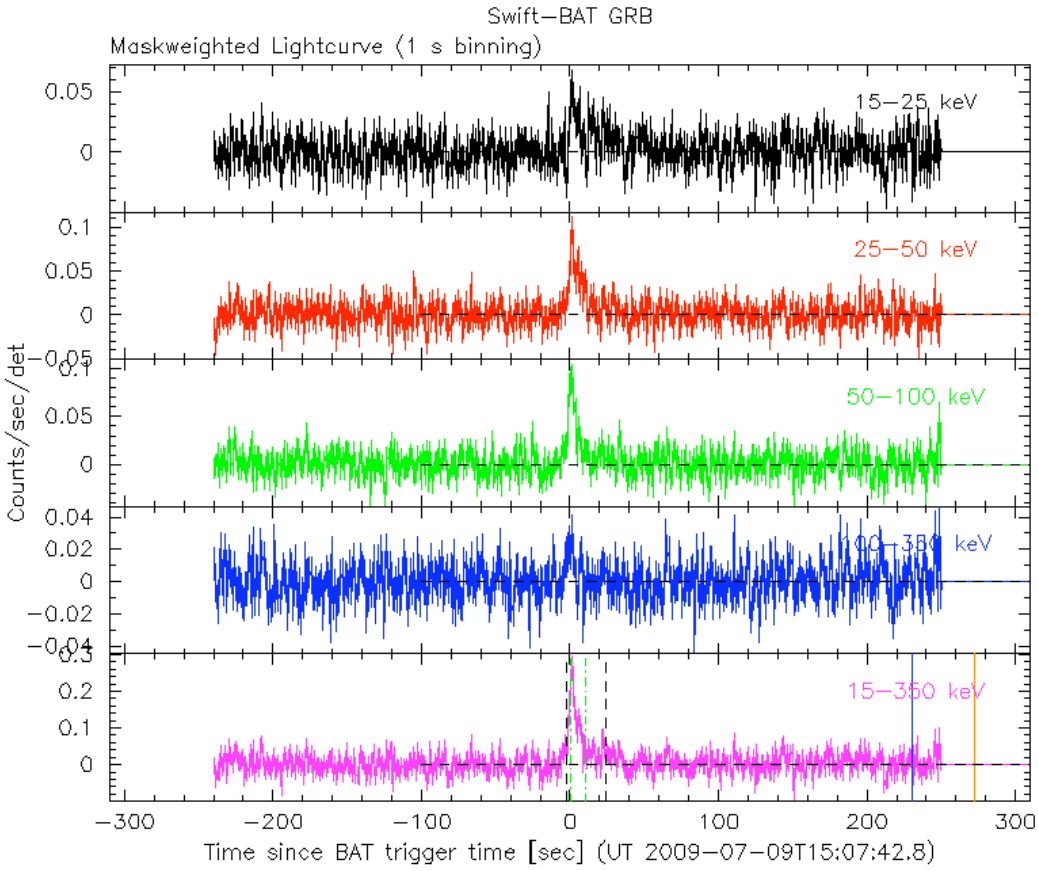

Figure 1: The BAT mask-weighted light curve in the 4 individual plus total energy bands. The units are counts s^{-1} illuminated-detector^{-1}. Each illuminated detector has an area of 0.16 cm^2.