

Swift Observation of Short/Hard GRB 070209

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1 Introduction

BAT triggered on GRB 070209 at 03:33:41.9 UT (Trigger 259803) (Sato, *et al.*, *GCN Circ.* 6086). This was a 0.064 sec rate-trigger on a burst with $T_{90} = 0.1 \pm 0.02$ sec. Swift slewed to this burst immediately and XRT began follow-up observations at T+78 sec, and UVOT at T+83 sec. Our best position is the BAT location RA (J2000) = 03h4m51.2s, Dec (J2000) = $-47^{\circ}22'34''.2$ with an error of 5 arcsec (90% confidence, including boresight uncertainties).

2 BAT Observation and Analysis

Using the data set from $T - 240$ to $T + 302$ sec, the BAT ground-calculated position is RA (J2000) = 46.213° (03h4m51.2s), Dec (J2000) = -47.376° ($-47^{\circ}22'34''.2$) with an uncertainty of 2.8 arcmin, (radius, sys+stat, 90% containment). The partial coding was 85% (the bore sight angle was 26.7°).

The mask-weighted lightcurve (Figure 1) has a single peak. T_{90} (15–350 keV) is 0.1 ± 0.02 sec (estimated error including systematics).

The time-averaged spectrum from $T + 0.0$ to $T + 0.1$ is best fit by a simple power-law model. The power law index of the time-averaged spectrum is 1.55 ± 0.39 . The fluence in the 15–150 keV band is $1.1 \pm 0.3 \times 10^{-8}$ ergs cm^{-2} . The 1-sec peak photon flux measured from $T + 0.00$ sec in the 15–150 keV band is 2.4 ± 0.6 ph $\text{cm}^{-2} \text{s}^{-1}$. All the quoted errors are at the 90% confidence level.

3 XRT and UVOT Observations

The analysis of the XRT and UVOT data has been complicated (a) by the relative timing of the gap in the Malindi downlink passes with respect to the burst time, and (b) by the faintness of this source. The XRT and UVOT sections of this report will appear in a later revision of this report on GRB 070209.

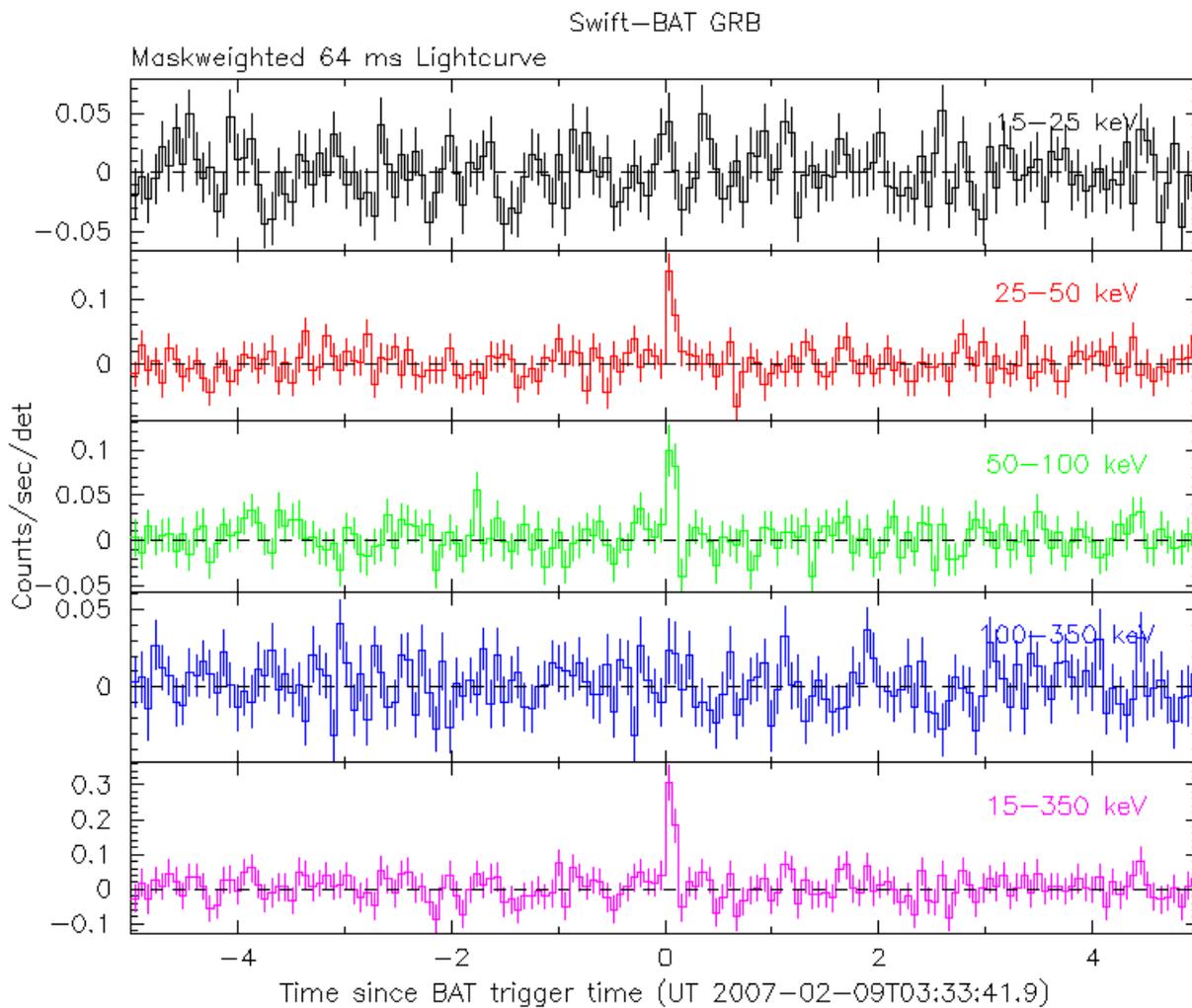


Figure 1: BAT light curve for GRB 070208. The mask-weighted light curve in the 4 individual plus total energy bands. The units are counts/sec/illuminated-detector and T_0 is 03:33:41.9 UT.