

Swift Observation of GRB 080218A

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1 Introduction

BAT triggered on GRB 080218A at 20:08:42.79 UT (Trigger 303609) (Ziaepour, et al., *GCN Circ.* 7313). This was a 4.096 sec rate-trigger with significance of 9.84 on a faint intermediate length multi-peak burst with $T_{90} = 27.6 \pm 5.9$ sec (15 – 350 keV). Swift didn't slew to this burst due to the Sun constraint, Sun distance = 33.97 deg, Sun angle = -1.6 h (East of Sun). Our best position is from the BAT ground-analyzed data: RA($J2000$) = 355.941 deg (23h43m45.8s), Dec($J2000$) = 12.159 deg (12d9'34") with an error of 2.5 arcmin (radius, 90% confidence). No follow-up has been reported for this burst.

2 BAT Observation and Analysis

Using the data set from $T - 239$ to $T + 303$ sec, further analysis of BAT GRB 080218A has been performed by Swift team (Fenimore, et al., *GCN Circ.* 7317). The BAT ground-calculated position is RA ($J2000$) = 355.941 deg (23h43m45.8s), Dec ($J2000$) = 12.159 deg (12d9'34") ± 2.5 arcmin, (radius, systematic and statistical, 90% containment). The partial coding was 21% (the offset angle was 47.39 deg).

The 1-sec binned mask-weighted light curves (Fig.1) show at least three peaks: one at $T - 12$ sec, the highest peak at $T + 0$ sec, and another peak at $T + 9$ sec. The presence of other faint peaks both before the trigger time and after the third peak mentioned above can not be ruled out. T_{90} (15 – 350 keV) is 27.6 ± 5.9 sec (estimated error including systematics).

The time-averaged spectrum from $T - 12.8$ to $T + 18.6$ sec is best fitted by a simple power law model. This fit gives a photon index of 2.34 ± 0.35 ($\chi^2 = 51.20$ for 57 d.o.f.), indicating a relatively soft burst. For this model the total fluence in the 15 – 150 keV band is $(6.3 \pm 1.4) \times 10^{-7}$ ergs cm^{-2} and the 1-sec peak flux measured from $T + 1.22$ sec in the 15 – 150 keV band is 1.4 ± 0.4 ph cm^{-2} sec^{-1} . All the quoted errors are at the 90% confidence level.

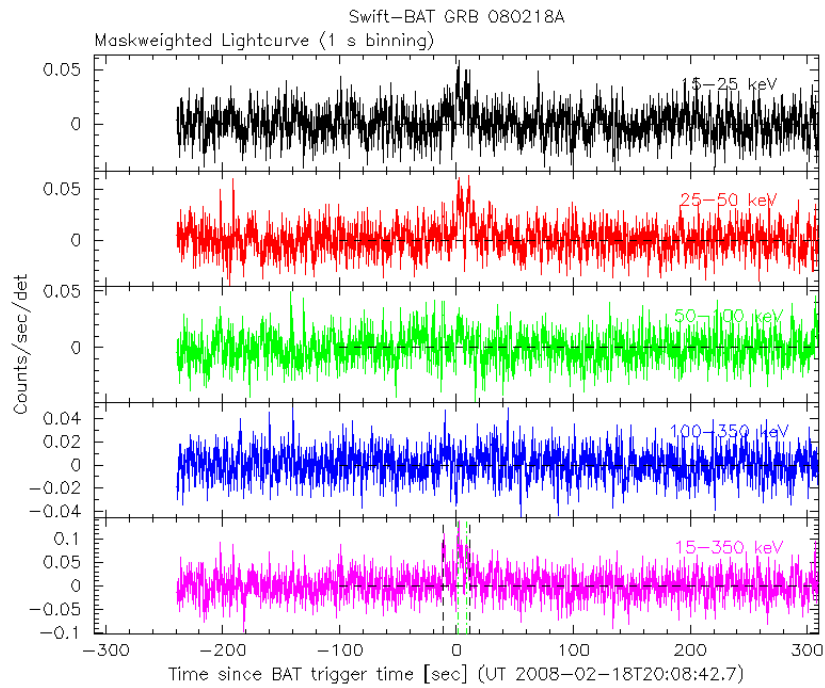


Figure 1: BAT light curve. The mask-weighted light curve in the 4 individual plus total energy bands. The units are counts/sec/illuminated-detector and T_0 is 20 : 08 : 42.79 UT.