

1 Introduction

BAT triggered on GRB 080822B on 2008 August 22 at 21:02:52 UT (Trigger 321376) (Holland, *et al.*, GCN Circ. 8117). This was an image trigger. It was a long burst with $T_{90} = 64 \pm 20$ s. *Swift* did not slew to this burst due to a Moon constraint. There were no follow-up observations with *Swift*'s narrow-field instruments. Our best position is the BAT location, RA, Dec (J2000.0) = 63°560, +25°760, which corresponds to

$$\text{RA (J2000.0)} = 04^{\text{h}}14^{\text{m}}14^{\text{s}}5$$

$$\text{Dec (J2000.0)} = +25^{\circ}45'36''$$

with an uncertainty of 3'6 (radius, 90% containment, including systematics).

The Burst Advocate for this burst is Stephen Holland (Stephen.T.Holland@nasa.gov). Please contact the Burst Advocate by e-mail if you require additional information regarding *Swift* follow-up observations of this burst. In extremely urgent cases, after trying the Burst Advocate, you can contact the *Swift* PI by phone (see the *Swift* ToO Web site for information: <http://www.swift.psu.edu/too.html>).

2 BAT Observation and Analysis

Using the data set from $T - 239$ to $T + 903$ s we report our analysis of GRB 080822B. The BAT ground-calculated position is RA, Dec (J2000.0) = 63°560, +25°760, which corresponds to

$$\text{RA(J2000.0)} = 04^{\text{h}}14^{\text{m}}14^{\text{s}}5$$

$$\text{Dec(J2000.0)} = +25^{\circ}45'36''$$

with an uncertainty of 3'6, (radius, systematic + statistical errors, 90% containment). The partial coding was 82%.

The mask-weighted light curves (Fig. 1) show weak emission starting at about $T - 50$ s and ending at about $T + 70$ s. T_{90} (15–350 keV) = 64 ± 20 s (estimated error including systematics).

The time-averaged spectrum from $T + 0.0$ to $T + 64.0$ s is best fit by a simple power-law model. The power-law index of the time-averaged spectrum is 2.54 ± 0.5 ($\chi^2 = 76.5$ for 59 dof). For this model the total fluence in the 15–150 keV band is $(1.7 \pm 0.6) \times 10^{-7}$ erg cm⁻². The 1-s peak photon flux measured from $T + 0.00$ s in the 15–150 keV band is 0.06 ± 0.02 ph cm⁻² s⁻¹. All the quoted errors are at the 90% confidence level.

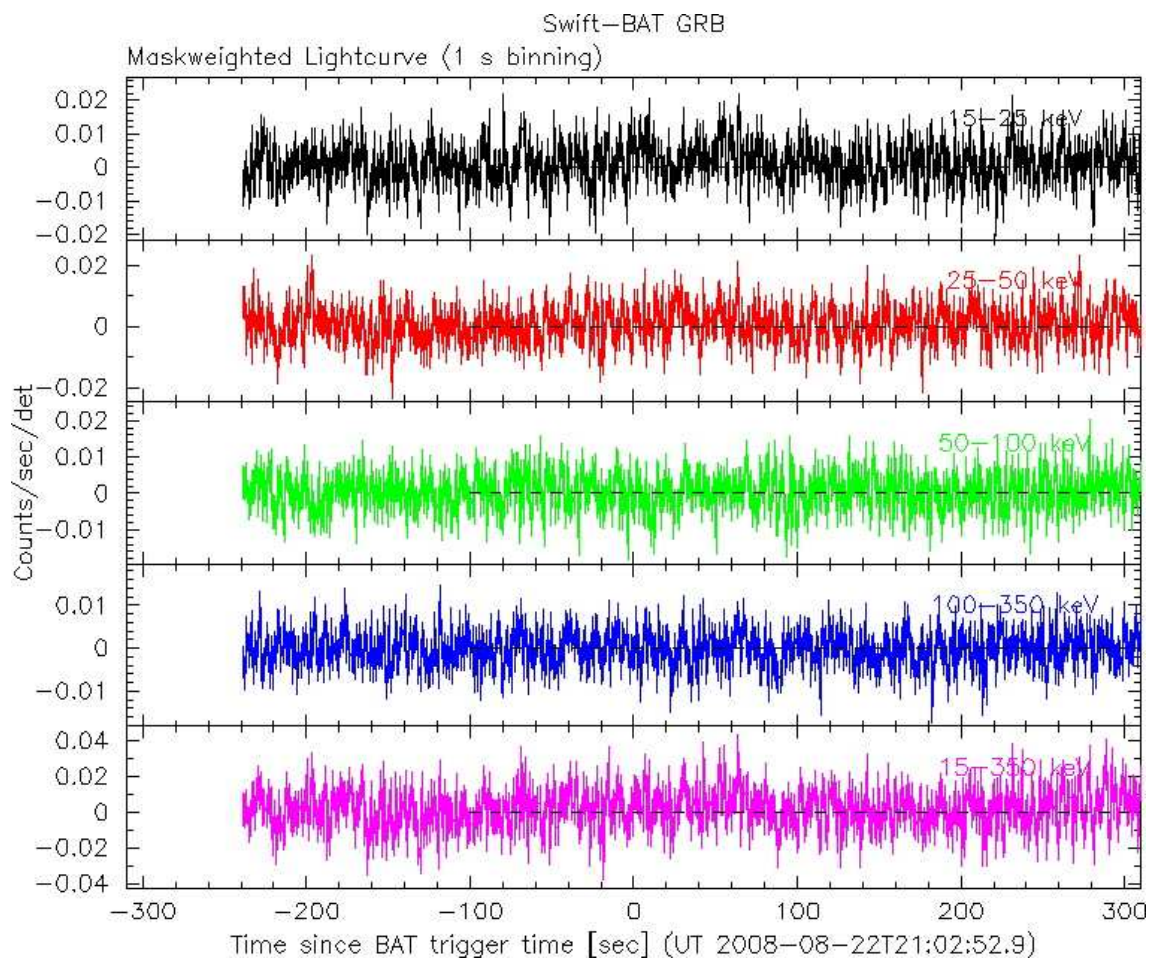


Figure 1: BAT light curves. The mask-weighted 1 s light curves in the four individual plus total energy bands. The units are $\text{count s}^{-1} \text{ illuminated-detector}^{-1}$ and T_0 is 21:02:52.9 UT.