

Swift Observation of GRB 080915B

H. Ziaeeppour (UCL/MSSL), J. Cummings (GSFC/UMBC), K. McLean (GSFC/UMD), R.L.C. Starling (U. Leicester), A. Breeveld (MSSL-UCL) for the Swift Team

1 Introduction

BAT triggered on GRB 080915B at 15:53:35 UT (Trigger 324805) (Ziaeeppour, et al., *GCN Circ.* 8234). This was a 0.128 sec rate-trigger with a significance of 23.47 on a mildly bright single-peak burst with $T_{90} = 3.9 \pm 0.7$ sec (15 – 350 keV). Swift didn't slew to this burst due to the Sun constraint, Sun distance = 41.74 deg, Sun angle = -2.6 hr (East of Sun). Our best position is from the BAT ground-analyzed data: RA($J2000$) = 213.088 deg (14h12m21.2s), Dec($J2000$) = -11.491 deg ($-11d29'26.9''$) with an error of 1.0 arcmin (radius, 90% confidence). No follow-up has been reported for this burst.

2 BAT Observation and Analysis

Using the data set from $T - 28$ to $T + 930$ sec, further analysis of BAT GRB 080915B has been performed by Swift team (McLean, et al., *GCN Circ.* 8236). The BAT ground-calculated position is RA($J2000$) = 213.088 deg (14h12m21.2s), Dec($J2000$) = -11.491 deg ($-11d29'26.9''$) ± 2.5 arcmin, (radius, systematic and statistical, 90% containment). The partial coding was 74% (the offset angle was 32.32 deg).

The 1-sec binned mask-weighted light curves (Fig.1) show a single FRED peak with $T_{90}(15-350keV) = 3.9 \pm 0.7$ sec (estimated error including systematics).

The time-averaged spectrum from $T - 0.5$ to $T + 6.1$ sec is best fitted by a power law with an exponential cutoff. This fit gives a photon index of 1.48 ± 0.35 and $E_{peak} = 42.3 \pm 9.1$ keV ($\chi^2 = 54.5$ for 56 d.o.f.). For this model the total fluence in the 15 – 150 keV band is $(9.9 \pm 0.6) \times 10^{-7}$ ergs cm^{-2} and the 1-sec peak flux measured from $T + 0.18$ sec in the 15 – 150 keV band is 8.5 ± 0.3 ph $\text{cm}^{-2} \text{sec}^{-1}$. A fit to a simple power law gives a photon index of 2.02 ± 0.08 ($\chi^2 = 62.6$ for 57 d.o.f.). All the quoted errors are at the 90% confidence level.

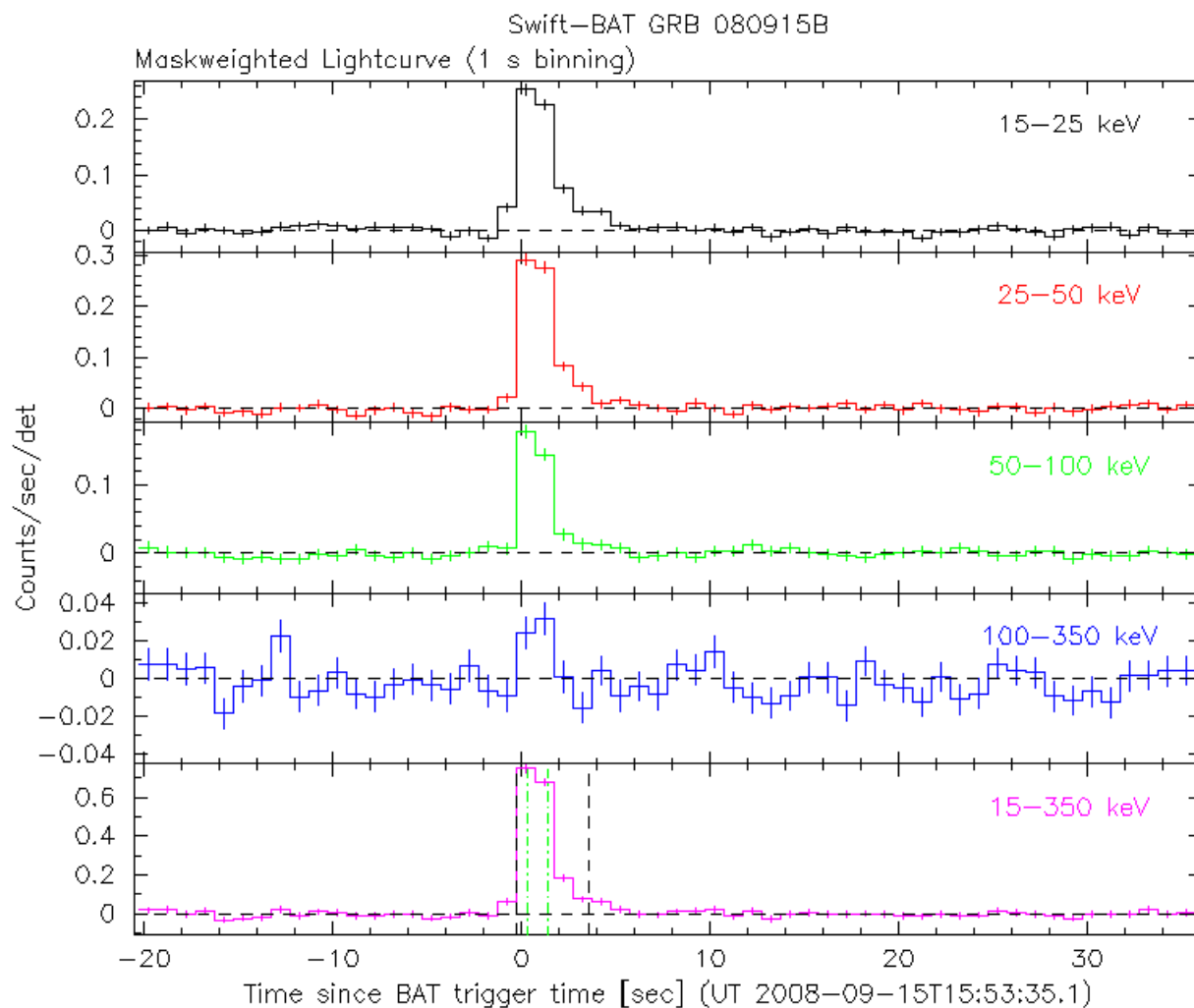


Figure 1: BAT light curve. The mask-weighted light curve in the 4 individual plus total energy bands. The units are counts/sec/illuminated-detector and T_0 is 15 : 53 : 35 UT.