Swift Observation of GRB 071129

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1 Introduction

BAT triggered on GRB 071129 at 00:03:55 UT (Trigger 297628) (Pagani, *et al.*, *GCN Circ.* 7138). This was a 4.096 second rate trigger on a burst with $T_{90} = 420 \pm 100$ *sec*. Swift did not slew to the burst because of the Sun observing constraint and no XRT or UVOT observations were performed.

2 BAT Observations and Analysis

Using the data set from $T - 240$ to $T + 800$ *sec* analysis of BAT GRB 0711129 has been performed by the Swift team (Palmer, *et al.*, *GCN Circ.* 7139).

The BAT ground-calculated position is RA($J2000$) = $220.039deg$, Dec($J2000$) = $-26.667deg$, which is RA ($J2000$) = $14h40m09.3s$, Dec ($J2000$) = $-26d40'00$" with an uncertainty of 2.2 arcmin, (radius, sys+stat, 90% containment). The partial coding was 55%.

The mask-weighted light curve (Fig.1) shows three long smooth peaks. The first starts at $\sim T-10$ *sec*, peaks at $\sim T+5$ *sec*, and then roughly exponentially decays to a minimum around $T+100$ *sec*. The second peak is more symmetric rising to a peak at $\sim T+180$ *sec* and decaying back to baseline around $T + 300$ *sec*. The third weaker peak reaches a maximum around $T + 400$ *sec* and returns to baseline around $T + 450$ *sec*. $T_{90}(15 - 350keV)$ is 420 ± 100 *sec* (estimated error including systematics).

The time-averaged spectrum from $T - 5.6$ to $T + 522.3$ *sec* is best fit by a simple power-law model. The power law index of the time-averaged spectrum is 1.94 ± 0.16. The fluence in the $15 - 150$ *keV* band is $3.5 \pm 0.3 \ \times 10^{-06} ergs/cm^2$.

The 1-sec peak photon flux measured from $T+5.83$ *sec* in the $15-150$ *keV* band is 0.9 ± 0.2 $ph/cm^2/sec$. All the quoted errors are at the 90% confidence level considering the statistical and usual systematic effects.

This burst satisfies Sakamoto/Ukwatta Swift-BAT possible high-z criteria:
1) Power law photon index = 1.94 (PL photon index < 2)
2) 1-s peak photon flux = 0.9 (1-s peak photon flux < 1.0 $ph/cm^2/sec$)
3) Light curve variance = $1.5 \ \times 10^{-06}$ (Variance $<$ 0.0001)
4) T_{90}/(Peak photon flux) = 480 (T_{90}/(Peak photon flux) $>$ 200)
Based on a limited sample of bursts, these criteria yield an 85% chance it has a redshift greater than 3.5.

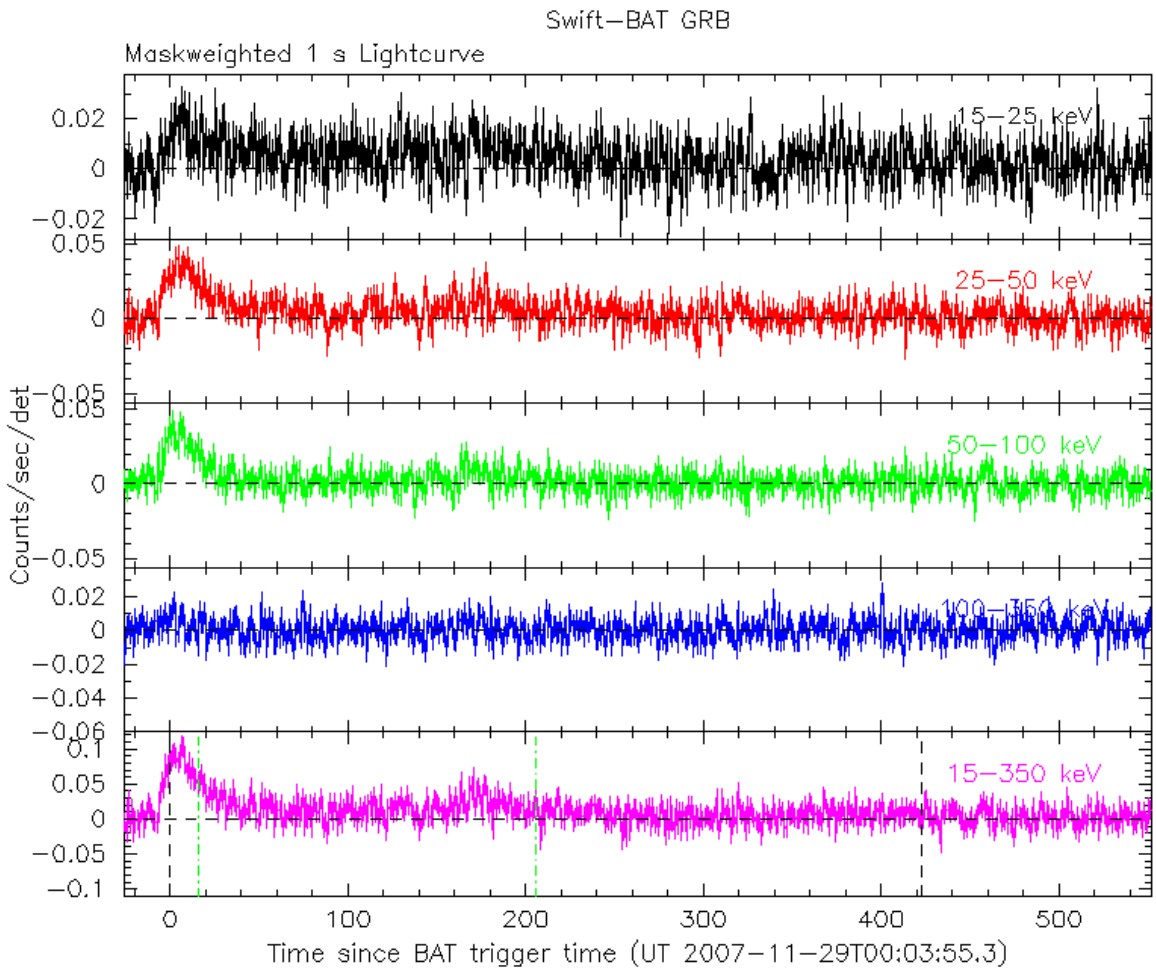

Figure 1: BAT Light curve. The mask-weighted light curve in the 4 individual plus total energy bands. The units are counts/sec/illuminated-detector and T_0 is 00:03:55.3 UT.