

Swift Observations of INTEGRAL GRB 061025

M. Stamatikos (GSFC/ORAU), T. Mineo (IASF-Pa), S. B. Pandey (UCL-MSSL), S.D. Barthelmy (GSFC), D. Burrows (PSU), P. Roming (PSU) and N. Gehrels (GSFC) for the Swift Team

1 Introduction

At $\sim T+93$ minutes, Swift executed a target of opportunity (TOO) observation of GRB 061025, which triggered INTEGRAL (trigger #3525) at 18:35:50 UT on October 25, 2006 (Mereghetti et al., GCN Circ. 5751), resulting in a localization of RA, DEC (J2000) = 300.9121 deg, -48.2442 deg with an uncertainty of 2 arcmin (90% c.l.). Consequently, no BAT observations were made and we report on the detection of an XRT source and UVOT upper limits. Our best position is the XRT location RA, DEC (J2000) = 300.9040 deg (20h 03m 36.97s), -48.2437 deg (-48d 14' 37.39") with an error of 5.3 arcsec (90% confidence), given in Mineo et al., GCN Circ. 5753.

2 BAT Observation and Analysis

No BAT observations were made for this GRB, since Swift slewed in the context of a TOO at $\sim T+93$ minutes. Analysis by INTEGRAL resulted in a burst duration of ~ 20 seconds¹, with a total fluence and 1-sec peak flux of 8×10^{-7} ergs/cm² and 1.5×10^{-7} ergs/cm²/sec, respectively, in the 20 – 200 keV energy band pass (Mereghetti et al., GCN Circ. 5751).

3 XRT Observations and Analysis

Using the data from the first three orbits of the XRT data of GRB 061025 (9.4 ksec in Photon Counting mode), the refined XRT position² is RA, DEC (J2000) = 300.9040 deg (20h 03m 36.97s), -48.2437 deg (-48d 14' 37.39"), with an uncertainty of 5.3 arcsec (90% confidence), as given in Mineo et al., GCN Circ. 5753. This position is 19.3 arcsec from the INTEGRAL position given in Mereghetti et al., GCN Circ. 5751. The 0.3 – 10 keV light curve (Figure 1) shows an initial shallow decline with a slope of 0.7 ± 0.8 . At 20 ± 4 ksec, the light curve breaks and decays with a steeper slope of 3.4 ± 1.2 (Mineo et al., GCN Circ. 5758). The average spectrum can be modeled with a power-law photon index of 1.7 ± 0.4 , with an absorption (NH) column consistent with the galactic value of 5×10^{20} cm⁻². The average (observed) unabsorbed flux over 0.3 – 10 keV for this spectrum is $(4.3 \pm 0.8) \times 10^{-13}$ ergs/cm²/sec, corresponding to a count rate of 5.3×10^{-3} counts/sec. All errors are quoted at 90% confidence level.

4 UVOT Observation and Analysis

UVOT began observing the field of GRB 061025 at $\sim T+93$ minutes after the initial INTEGRAL trigger (Mereghetti et al., GCN Circ. 5751). No new source was detected within the XRT error circle (Mineo et al., GCN Circ. 5753) in the co-added images of any filter down to 3-sigma magnitude. Upper limits (Pandey et al., GCN Circ. 5757), summarized in Table 1, are not corrected for Galactic extinction $E(B-V) = 0.047$ mag along the line of sight to the burst.

¹The INTEGRAL light curve may be found online at <http://ibas.iasf-milano.inaf.it/061025.html> (Mereghetti et al., GCN Circ. 5751).

²XRT data have been processed with the new TELDEF files that include the new boresight information (see Burrows et al., GCN Circ. 5750).

Filter	Start	Stop	Exposure	3-Sigma UL
V	11282	39711	875	20.5
B	11112	38644	1082	21.4
U	9302	38427	1267	21.2
UVW1	8875	38210	2581	21.4
UVM2	11318	40316	2468	22.0
UVW2	11150	39494	3524	22.4

Table 1: Magnitude limits from UVOT observations of GRB 061025.

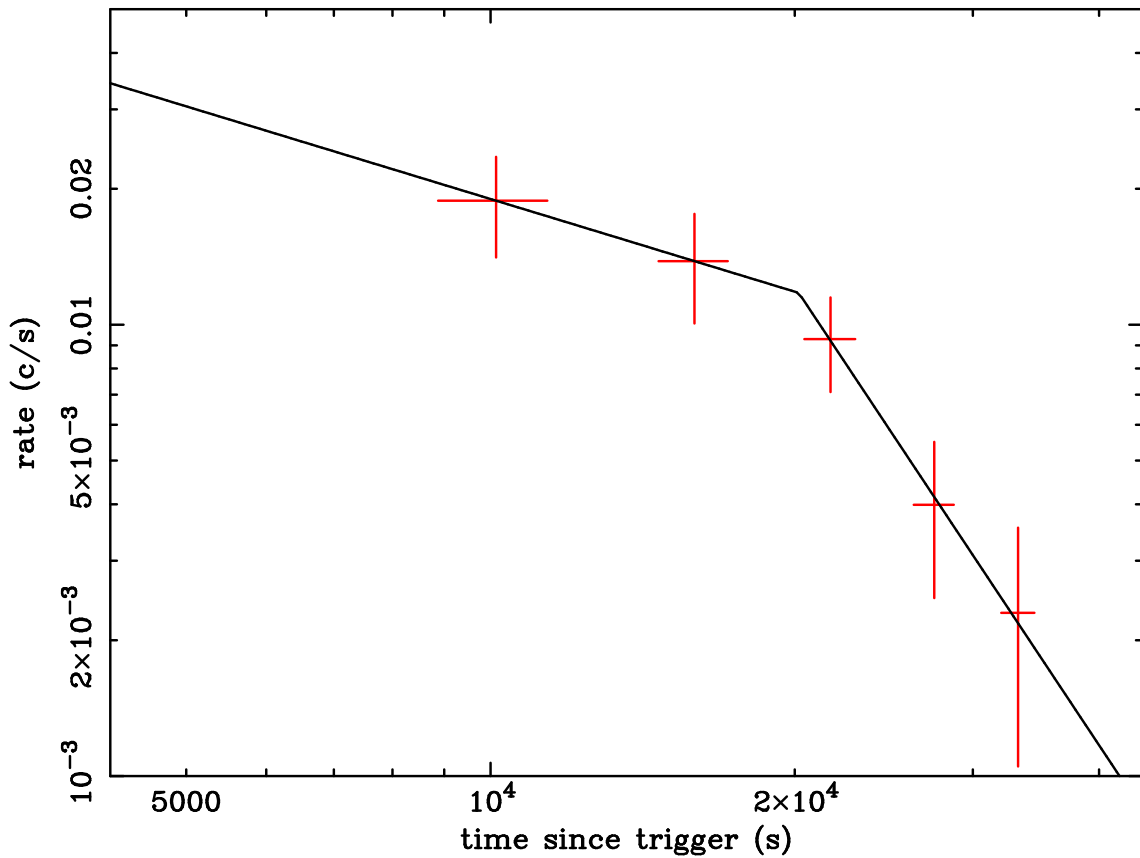


Figure 1: XRT Lightcurve for GRB 061025. Counts/sec in the 0.3-10 keV band.