Swift/BAT detection of a burst from SGR J1745-29

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At 11:17:26 UT on June 7th, 2013 Swift/BAT triggered on a burst from the region near Sgr A*, which contains the currently active magnetar SGR J1745-29 (Kennea et al. 2013; Mori et al. 2013). The initial onboard data showed a short duration single soft peak < 0.32s in duration (Barthelmy et al., GCN #14805). We have analyzed the downlinked BAT data and find a refined position of RA/Dec = 266.4340, -28.9876 with an estimated error of 2.6 arc-min. This position lies 1.5 arc-sec from the best position of SGR J1745-29 provided by Chandra (Rea et al., ATEL #5032). This is the second SGR burst from this source since it was first detected by XRT on April 24th, 2013 (Degenaar et al., ATEL #5006). The first BAT burst was detected on April 25th (Kennea et al., ATEL #5009), ~42 days earlier.

The spectrum of the latest BAT burst can be well fit by a blackbody model with kT = 5.4 +/- 0.7 keV, and a fluence of 4.3 +/- 1.2 x 10^{-9} erg/cm^2 (15-150 keV). In comparison the earlier BAT burst had a temperature of 9.2 +/- 0.8 keV, and a 15-150 keV fluence of 7.8 +/- 1.8 x 10^{-9} erg/cm^2 (Kennea et al., 2013), making this burst slightly softer/fainter than the previous burst.

A target-of-opportunity observation in response to this burst detection was initiated, and 1ks of Swift/XRT data was collected starting 14:14 UT on June 7th, 2013, approximately 3 hours after the burst. The PC mode spectrum of SGR J1745-29 can be fit with an absorbed black-body model with kT_{BB} = 1.1 +/- 0.2 keV and an absorption corrected flux of 3.5 +/- 0.7 x 10^{-11} erg/s/cm^2 (0.3-10 keV). Since initial detection, SGR J1745-29 has been slowly fading (e.g. see http://www.swift-sgra.com), and this observation shows a slightly elevated flux compared to the previous observation (2.8 +/- 0.6 x 10^{-11} erg/s/cm^2), although given the errors on this flux and the variability seen in the light-curve of SGR J1745-29, we cannot conclusively state that this elevated flux is as a result of the SGR burst.

Observations of SGR J1745-29 by Swift are on-going.

References:

Kennea, Burrows, Kouveliotou et al., 2013, ApJL, 770, 24
Mori, Gotthelf, Zhang et al., 2013, ApJL, 770, 23

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