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New Swift/XRT observation shows faint X-ray transient SAX J1806.5-2215 remains active 1 year after outburst

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The faint X-ray transient SAX J1806.5-2215 was discovered through the detection of two type-I bursts by BeppoSAX's WFC in 1996-1997 (in't Zand et al. 1999, NuPhS, 69, 228). Around the times of both bursts, no persistent emission was detected from the source with BeppoSAX. RXTE/ASM observations suggested that the source was active from early 1996 till late 1997 with an X-ray luminosity of $\sim 1E+36$ erg/s (for $d=8$ kpc; Cornelisse et al. 2002, A&A 392, 931). After this long outburst, SAX J1806.5-2215 resided in quiescence for almost 13 years, and went into another faint X-ray outburst on Feb 22, 2011 (ATel#[3193](#)). The follow-up X-ray observations obtained using Swift on March 1, 2011 confirmed that the source was actively accreting with 2-10 keV X-ray luminosity of $\sim 2E+36$ erg/s (ATel#[3202](#)). Since this detection of a new outburst the source remained active until the source could not be observed anymore in late 2011 due to solar constraints (see ATel#[3210](#), ATel#[3218](#); see the RXTE/PCA bulge scan light curve of 2011 of the source at <http://lheawww.gsfc.nasa.gov/Craig.Markwardt/galscan/html/SAXJ1806.5-2215.html>).

Currently, the solar constraints are lifted again and therefore we obtained a new observation of SAX J1806.5-215 using the Swift/XRT to determine its current activity. The observation was performed on February 9, 2012, 20:30:52 UT to 20:45:57 UT in the photon counting mode for an exposure time of ~ 900 s. The source was found still in outburst with a mean 0.2-10 keV count rate of 1.2 counts/s (after the pile-up correction). The X-ray spectrum was well fitted with an absorbed power-law model of power-law index 1.8 ± 0.3 and a hydrogen column density, N_H of $(3.9 \pm 0.8)E+22$ cm $^{-2}$ (reduced chi square/dof=0.83/46). During our observations, the 2-10 keV absorbed and unabsorbed flux of the source was $2.8E-10$ erg/s and $3.7E-10$ erg/s respectively. For a distance of 8 kpc (Cornelisse et al. 2002, A&A 392, 931), the unabsorbed flux translates to a 2-10 keV luminosity of $2.9E+36$ erg/s. This activity demonstrates that SAX J1806.5-2215 continues its most recent outburst.

We thank the Swift team for making this observation possible. This work made use of data supplied by the UK Swift Science Data Centre at the University of Leicester.

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