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The X-ray rebrightening of the Be/X-ray transient SAXJ2103.5+4545

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The X-ray rebrightening of the Be/X-ray transient SAXJ2103.5+4545

ATel #10249; *Alicia Rouco Escorial, Rudy Wijnands (UvA)*
on 7 Apr 2017; 13:48 UT

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On 2016 April 2nd, the MAXI/GSC nova-search system detected the start of a new X-ray outburst of the Be/X-ray transient SAX J2103.5+4545 (Atel #8912). Since then, we have been monitoring this outburst using Swift/XRT and UVOT pointings to study the outburst properties and how the source transited back into quiescence. The X-ray outbursts lasted approximately ~262 days and the source reached the lowest level on February 21st, 2017, with a no-detection observation where only 3 photons were collected in the source region using a total exposure time of 1 ksec. It gave a flux upper limit of $\sim 1\text{E-}12$ erg/s/cm² (0.5- 10 keV; assuming an absorbed power-law shaped X-ray spectrum with a $\text{NH}=1\text{E}22$ cm⁻² and a power-law index =1.4). On March 21st it was reported that the source increased in optical brightness again (Atel #10190). In our monitoring observations we found that also in the X-ray the source rebrightened between March 14th and March 21th in agreement with the reported start day of the renewed optical activity. We found that the unabsorbed X-ray flux increased one order of magnitude from $\sim 5.3\text{E-}12$ to $\sim 5.4\text{E-}11$ erg/s/cm². However, during the next observation, performed on March 28th, the flux decreased to $\sim 4.7\text{E-}12$ erg/s/cm². Surprisingly, the next observation on April 4th shows a significant increase of the flux again to $\sim 6.3\text{E-}11$ erg/s/cm², instead of a source decaying to quiescence. The NH varied between $\sim 1\text{E}21$ and $\sim 1.6\text{E}22$ cm⁻² during our those last few observations and, the photon index between ~ 0.1 and ~ 1.5 . We also obtained simultaneous U, B, and V observations of the source using the Swift/UVOT. The source is clearly detected in all bands but we do not find any variability. The magnitudes (in the Vega system of reference) of the source were ~ 14.9 (U), ~ 15.0 (B) and ~ 13.8 (V). Further Swift monitoring observations of SAXJ2103.5+4545 are planned to study the behavior of the source. We thank to the Swift PI for approving our ToO observations of SAXJ2103.5+4545.

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