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IGR J17451-3022 returning to quiescence

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IGR J17451-3022 returning to quiescence

ATel #7570; *Arash Bahramian, Craig O. Heinke (Alberta), Diego Altamirano (Southampton), Rudy Wijnands (Amsterdam)*
 on 27 May 2015; 16:55 UT
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Subjects: X-ray, Binary, Neutron Star, Transient

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The X-ray transient IGR J17451-3022 was discovered in INTEGRAL JEM-X observations between Aug. 28-30, 2014 (ATel #6451). Further Swift/XRT observations have shown the source to maintain a soft thermal state well-described by an absorbed blackbody or disk blackbody (ATels #6459, #6469, #7028). A Suzaku observation showed eclipses with a 22.6 ks (6.3 hour) orbital period, plus periods of intense dipping, both of which reduced the observed flux by a factor of roughly 10 (ATel #7361). These eclipses show that the transient is a low-mass X-ray binary viewed at a high inclination angle.

A Swift/XRT observation performed on May 9th, 2015 (for 1 ks, ObsId 33439023) showed a slight decline of brightness (factor of 3 in absorbed flux), which could be explained as due to the observation occurring during a dip and/or eclipse. However, further Swift/XRT observations performed on May 16th (1 ks, ObsId 33439024) and May 18 (for 2 ks, ObsId 33439025) showed a significant decline in brightness (a drop by a factor of 12 in absorbed flux since May 9th). A new observation on May 23rd (for 700 s, ObsId 33439026) showed a continuing decrease in brightness, by another factor of 4 (since May 18th). The source is only marginally detected in this observation.

Spectral analysis of the most recent observations (May 16 and 18) showed their spectra to be consistent with an absorbed disk blackbody with an inner-disk temperature of 0.6±0.2 keV. This is significantly lower than the temperature of 1.3±0.2 keV measured during the bright state. The continued, monotonic decrease in brightness observed in the last three observations indicates that the source is returning to quiescence.

We thank the Swift team for rapidly scheduling our observations.

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