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Detection of a bright radio flare of Cygnus X-1 at 7.2 GHz with the Sardinia Radio Telescope

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on 27 May 2016; 21:40 UT

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Subjects: Radio, Binary, Black Hole

Referred to by ATel #: [9089](#)

In the framework of radio monitoring of NS/BH Galactic Binaries with Sardinia Radio Telescope (www.srt.inaf.it) during SRT Early Science Program S0013 (PI Egron), we detected Cyg X-1 in C-band through on-the-fly mapping centered on the source position (see also Atels [#8921](#), [#8849](#), [#8821](#)). Our observation was performed on May 24, 2016 at 23h UT (MJD 57532.9), in correspondence to a relatively high hard X-ray flux from the source (0.21 counts/cm²/s, MJD 57532-57533) observed by Swift/BAT in the 15-50 keV energy range (<http://swift.gsfc.nasa.gov/results/transients/CygX-1/>). We measured a flux density of 13 \pm 2 mJy at 7.2 GHz, band-width 0.68 GHz (using both SRT Total Power and SARDARA digital back-end operated in piggy-back mode). A follow-up observation performed on May 27, 2016 at 06h UT did not provide any detection. The corresponding image rms is 9 mJy/beam. Previous C-band (7.2 GHz) and/or K-band (21.4 GHz) weekly observations of Cyg X-1 with SRT in the time frame March-May 2016 did not provide any significant radio emission detection (flux density <10 mJy). This favors the detection of a bright radio flare of Cyg X-1 with SRT. Such flares have been detected before (Wilms et al. 2007 ApJ 663, L97). We encourage to look at the multi-wavelength data associated with the MJD indicates in this Atel to see if there is any noticeable change of state of the source. Further SRT monitoring of Cyg X-1 will be provided on a weekly frequency.

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- [11539](#) The 30-day monitoring of MAXI J1820+070 at 4.7 GHz
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