EVN e-VLBI detections of MAXI J1659-152

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We observed MAXI J1659-152 (Negoro et al. 2010, ATel #2873; Mangano et al. 2010, GCN #11296) following its sub-millimeter and centimeter radio detections (de Ugarte Postigo et al. 2010, GCN #11304; van der Horst et al. 2010, ATel #2874) with the European VLBI Network (EVN) in real-time e-VLBI mode on 30 September 2010, from 13:30 to 18:30 UT at 4.9 GHz. The participating telescopes were Cambridge, Effelsberg, Jodrell Bank (MkII), Hartebeesthoek, Medicina, Onsala, Torun and Westerbork sending data at a rate of ~1024 Mbps to the EVN Data Processor at JIVE. The target was phase-referenced to the nearby source J1707-1415 (2.2 degrees away) which is apparently in outburst and serves as a very good compact calibrator. MAXI J1659-152 was detected at RA(J2000) 16 59 01.67709, DEC(J2000)-15 15 28.7324 (uncertainty about 1 mas), in agreement with the optical position reported by Marshall (2010, GCN #11298), with a peak brightness of 6.1 mJy/beam, and a total flux density of about 10 mJy.

The source was observed again at the same frequency with the EVN on 4 October from 13:30 to 18:00 UT, now including the Yebes telescope in the array as well. Very preliminary data analysis shows that MAXI J1659-152 is fainter in this second run but clearly detected. Its peak emission coincides with the first epoch VLBI position within 1 milliarcsecond, which indicates no or very small proper motion. This corresponds to an upper limit of 1% of the speed of light for an assumed distance of 7 kiloparsec. Further analysis is required to reveal the detailed radio structure at these two epochs.

Although the source is suggested to be a black hole candidate (Kalamkar et al. 2010, ATel #2871), our initial analysis shows no evidence for collimated ejecta travelling at (mildly-)relativistic speeds, as in the case of, e.g., XTE J1752-223 (Yang et al. 2010, arXiv1009.1367). However, we note that relativistic ejecta are not always observed in black hole binary systems during X-ray state changes, as in the case of, e.g., XTE J1752-223 (Yang et al. 2010, arXiv1009.1367). However, we note that relativistic ejecta are not always observed in black hole binary systems during X-ray state changes, see the recent observations of Cyg X-1 (Rushton et al. 2010, ATel #2734). It is also possible that the jet components are formed only at later stages of the X-ray spectral state change in black hole transients. Further observations are planned.

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MAXI J1659-152 is a BH candidate

AGILE upper limits above 100 MeV regarding the recent transient MAXI J1659-152

MAXI J1659-152: Swift localization and monitoring

INTEGRAL detection of the new MAXI transient MAXI J1659-152

VIRGO Radio and Polarization Detection of GRB 100925A, MAXI J1659-152

MAXI/GSC detection of a new hard X-ray transient source MAXI J1659-152

Radio observations of Cyg X-1 in the soft X-ray state

RXTE Monitoring of Cyg X-1 in its current transitional state

Radio and X-ray monitoring of Cygnus X-1 during the recent state change

Swift/XRT observations of Cyg X-1 during state transition

Fermi GBM detects a rapid hard X-ray decline in Cyg X-1

AGILE gamma-ray detection of Cygnus X-1

RXTE-ASM detects the start of a possible state transition in Cygnus X-1

MAXI/GSC detected a rapid soft X-ray brightening in Cyg X-1

AGILE detection of a gamma-ray flare from the Cygnus X-1 region

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