Multi-band optical monitoring of GRB100925A/MAXI J1659-152

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Abstract

We present photometric data of GRB100925A/MAXI J1659-152 obtained over one month after the first detection (Mangano et al., GCN 11296; Negoro et al., ATEL 2873). The multi-band observations were performed with four telescopes in Japan and Egypt. The optical light curves of this black-hole candidate shows that the brightening in first 3 days is about 0.4 magnitude. The color indices (g'-Rc and Rc-Ic) for 3 days are significantly redder than the first point. Short term variations up to 0.1 magnitude in 0.10066 day were continuously observed. This period derived from the the generalized Lomb-Scargle periodogram is consistent with the previously reported x-ray results (Kuulkers et al., ATel 2912; Belloni et al., ATel 2926).

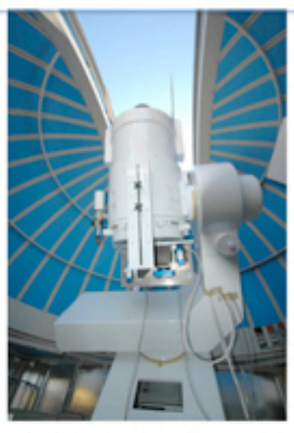
Observation

Ishigakijima Astronomical Observatory

Telescope	1.05m Murikabushi
Filter	g', Rc, Ic
Obs. Date	2010/9/25,26,27,28,30 2010/10/1,2,3,7,8,9,11,12,13

Akeno Astronomical Observatory

Telescope	0.5m MITSuME
Filter	g', Rc, Ic
Obs. Date	2010/9/28 2010/10/7,15



Okayama Astrophysical Observatory

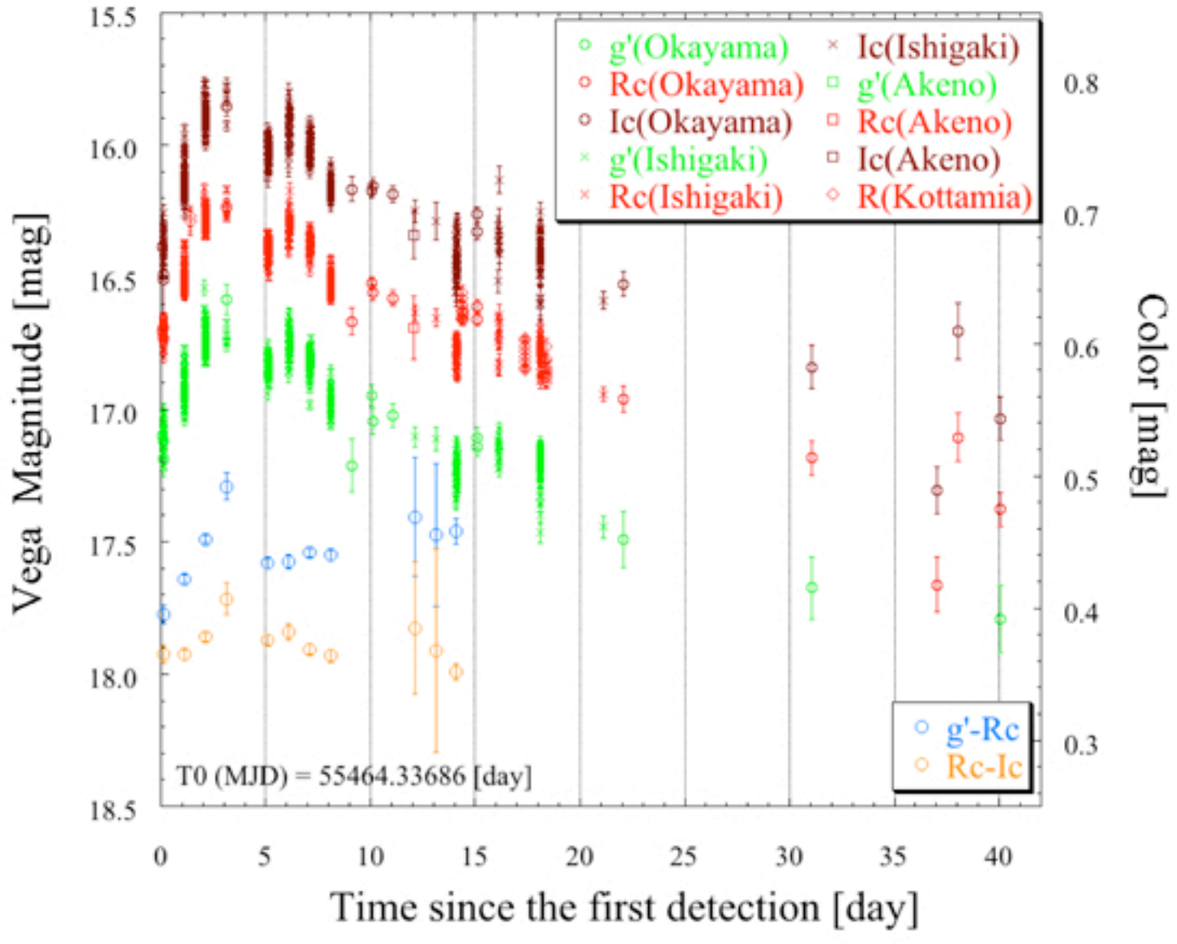
Telescope	0.5m MITSuME
Filter	g', Rc, Ic
Obs. Date	2010/9/25,28, 2010/10/4,5,6,9,10,17,26, 2010/11/1,2,4

Kottamia Astronomical Observatory

Telescope	1.88m
Filter	R
Obs. Date	2010/9/26 2010/10/9,12,13

Result

The multi-color light curves and the color variations are shown below, where the flux calibrations were carried out by using four GSC2.3 stars around the target. The data points with more than 0.2 magnitude error are not plotted in this figure. The color indices are the weighted average value at airmass less than 2.0.



The detail light curves and the periodic short term variation are shown below. After subtracting the daily median value from the Rc-band light curve, the resulting periodogram shows a peak at 0.10066 (±0.00001) day.