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CCD OBSERVATION OF THE 1999 OUTBURST OF TmzV46

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TmzV46 ($15^{\rm h}26^{\rm m}13\overset{\rm s}{.}99$, $+08^\circ18'03\overset{''}{.}8$, J2000.0) is a variable star discovered by Takamizawa (1998), who reported positive detections on JD 2449620, 2449716 and 2450906, and suggested it to be a possible dwarf nova based on the light curve and the USNO color. Schmeer (1999) reported another brightening on his CCD images. The object was caught at 12.6 mag on 1999 October 4.114 UT, while it was still very faint at $\sim$ 17.0 mag on October 2.099 UT. The rapid rise seems to confirm the suggested dwarf nova classification (Schmeer 1999). We performed follow-up CCD observations to clarify the nature of the outburst.

The observations were done using an unfiltered ST-7 camera attached to the Meade 25-cm Schmidt-Cassegrain telescope. The exposure time was 30 s. The images were dark-subtracted, flat-fielded, and analyzed using the Java$^{\rm TM}$-based PSF photometry package developed by one of the authors (TK). The relative magnitudes of the variable were measured against GSC 927.423 (USNO r-magnitude 13.2), whose constancy was confirmed by comparison with GSC 927.464 (USNO r-magnitude 14.3).

The overall light curve is shown in Figure 1. The scale is given in flux unit (relative to GSC 927.423) in order to clearly show the decline on October 20, when the object was below the limit of our detection. Because of the low altitude in the evening twilight and interfering clouds, no further observations were possible. The noticeable features are the initial decline of 0.73 ± 0.20 mag in 7 days between October 5 and 12, and the final decline in subsequent 8 days. The object was reported to be still bright on October 15 (Modic 1999), but no further observations are available. From these observations, the brightening of TmzV46 lasted at least 11 days, but the total duration was shorter than 16 days. The duration of the brightening, and the rapid rise and fade within several days are consistent with the dwarf nova classification. Spectroscopic confirmation is recommended. The observed rate of mean decline (~ 0.1 mag d^{-1}) is neither inconsistent with those of superoutbursts in SU UMa-type dwarf novae nor long outbursts of SS Cyg-type dwarf novae. Time-resolved photometry during the next long outburst is strongly needed.

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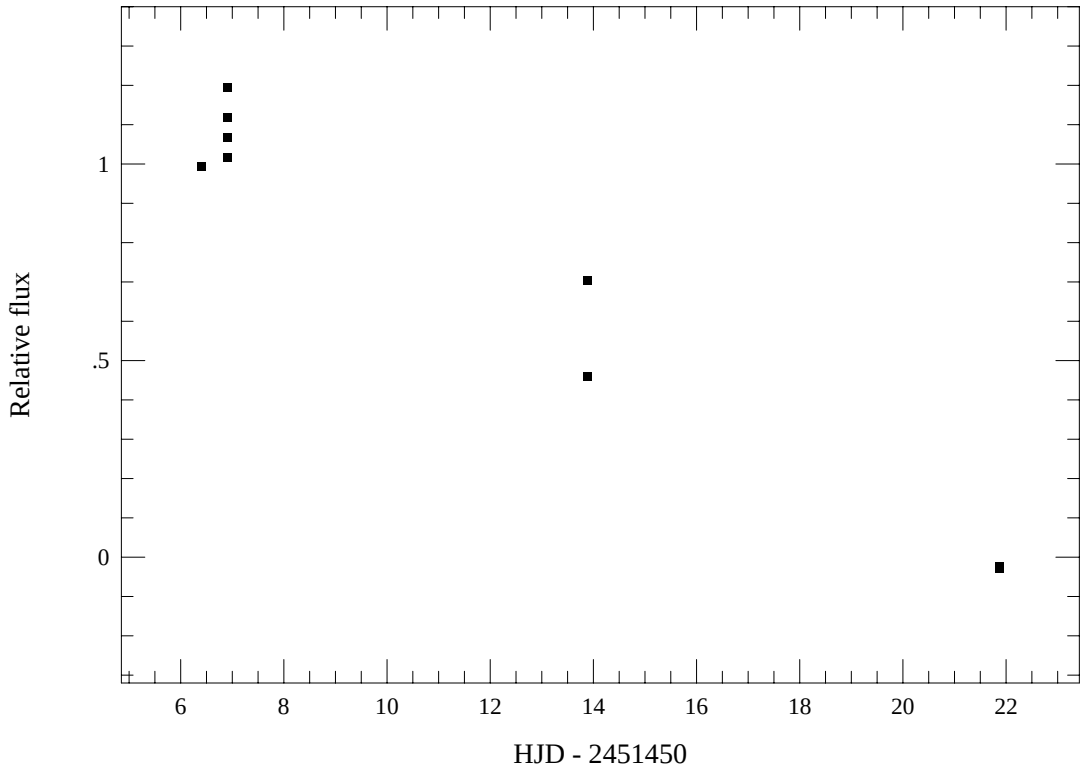

Figure 1. Outburst light curve of TmzV46

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