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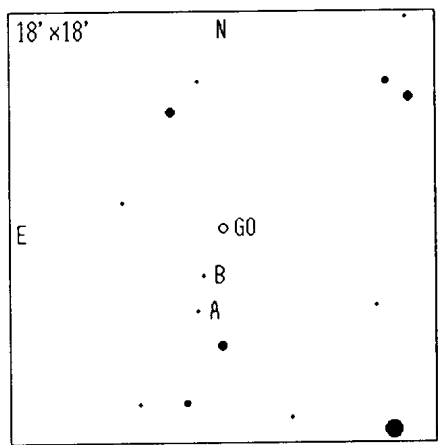
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CCD PHOTOMETRY OF GO Com

A sub-group of the dwarf novae, namely WZ Sge type dwarf novae has been proposed as systems with characteristics of long-lasting outbursts of large amplitudes and long intervals between them (Bailey, 1979). Vogt and Bateson (1982) and Downes (1990) published a list of candidates of WZ Sge type dwarf novae. However, many of them recently turned to be of normal SU UMa category, since they have been later shown to have short faint outbursts, recurring with a time-scale of a year or so, e.g., VY Aqr (Hurst et al. 1987, McNaught et al. 1987), RZ Leo (Narumi et al. 1989), and WX Cet (Watanabe and Kato 1990). This is a short report on GO Com, a proposed WZ Sge type, which was not well observed in the past.

Observations were done with Thomson CCD (576x384 pixels, binned to 288x192) attached to the Cassegrain focus of the 60cm reflector at the Ouda Station on April 30, 1990. The Johnson V filter was employed and the exposure time was mostly 240 seconds. The frames were processed with the aperture photometry package developed by Y. Tomita. The magnitudes were calculated differentially to the nearby stars in the same frame. Differential atmospheric extinction was negligible because the variable and the comparisons were located within a few minutes of arc.

Figure 1 illustrates the field map of the variable and the comparisons. The resulting differential magnitudes are shown in



A = GSC1995-01151 V=14.39
 B = GSC1995-00790 V=14.82

Figure 1.

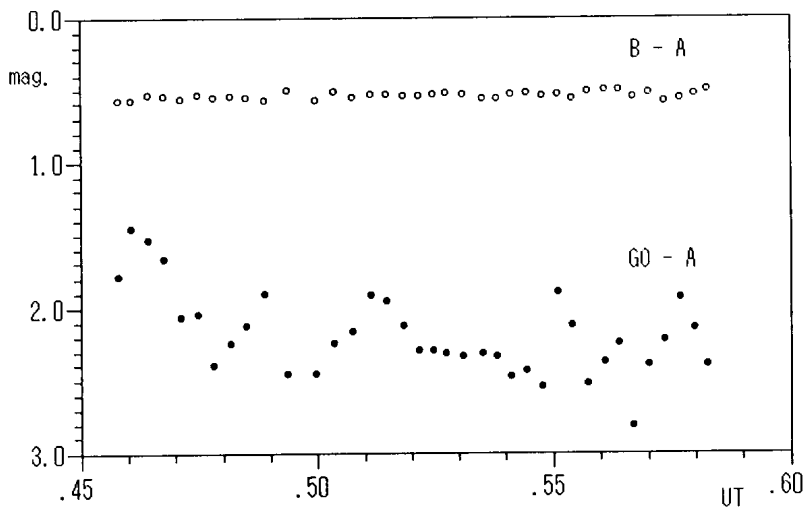


Figure 2.

Table 1. The r.m.s. error of the check star is 0.024 magnitude, and the r.m.s. error of the variable is expected to be 0.08 magnitude.

Adopting the V magnitudes of the comparison stars given in the Hubble Space Telescope Guide Star Catalog (Lasker et al. 1988), the brightness of GO Com in this run was between 16.0 and 17.2 mag., and the star was slowly fading at 0.15 mag./hour. It was significantly brighter than quiescent brightness: $m_p \sim 20$ (Oke and Kowal 1973) or $B \sim 18.1$ (Usher 1981). It is most likely that the variable was at the declining phase of a minor outburst. The star was previously observed at a major outburst ($m_v \sim 13.2$) on May 30, 1989 (Watanabe and Kato 1989). Such short recurrence time of outbursts is not characteristic of WZ Sge type.

Quasi-periodic modulation with an amplitude of about 0.5 mag. is seen in the light curve (Figure 2). Fourier analysis yields the strongest periodicity of 0.023 days, without any trace of periodicity in the normal range of 0.05 and 0.10 days for the orbital periods of cataclysmic binaries below the period gap.

This modulation is possibly caused by the rotation of the white dwarf or by the orbital motion of the double degenerate system, just as proposed for AL Com and AH Eri (Howell and Szkody 1988, Szkody et al. 1989). Possibility of flickering activity is less likely because flickering usually becomes less prominent during an outburst of a dwarf nova, while the amplitude of the present variation is large.

More observation is required to clarify the nature of the periodicity.

Table I

UT(Geo)	(B)-(A)	(GO)-(A)	UT(Geo)	(B)-(A)	(GO)-(A)
1990 April	m	m	1990 April	m	m
30.4580	0.58	1.78	30.5273	0.52	2.32
30.4606	0.58	1.46	30.5308	0.53	2.34
30.4643	0.53	1.53	30.5349	0.56	2.32
30.4674	0.54	1.67	30.5379	0.56	2.33
30.4711	0.56	2.07	30.5411	0.53	2.47
30.4748	0.53	2.04	30.5442	0.52	2.43
30.4779	0.55	2.40	30.5478	0.54	2.54
30.4816	0.54	2.24	30.5509	0.53	1.90
30.4849	0.55	2.13	30.5541	0.56	2.13
30.4887	0.58	1.91	30.5572	0.51	2.53
30.4935	0.50	2.45	30.5607	0.50	2.38
30.4997	0.58	2.46	30.5638	0.50	2.24
30.5036	0.51	2.24	30.5669	0.55	2.81
30.5075	0.55	2.16	30.5700	0.52	2.40
30.5114	0.53	1.92	30.5736	0.59	2.22
30.5146	0.53	1.96	30.5767	0.56	1.94
30.5182	0.54	2.13	30.5798	0.53	2.15
30.5214	0.54	2.29	30.5824	0.50	2.40
30.5245	0.53	2.29			

TAICHI KATO RYUKO HIRATA

Dept. of Astronomy, Faculty of Science,
Kyoto University,
Sakyo-ku, Kyoto 606, Japan

References:

- Bailey, J. : 1979, Mon. Not. R. astr. Soc., 189, 41p.
Downes, R. A. : 1990, Astron. J., 99, 339.
Howell, S. B., and Szkody, P. : 1988, Publ. Astron. Soc. Pacific, 100, 224.
Hurst, G. M., Isles, J., and McNaught, R. H. : 1987, IAU Circ., No. 4413.
Lasker, B. M., Jenkner, H., and Russell, J. L. : 1988, in IAU Symp. No.133, Mapping the Sky - Past Heritage and Future Directions, eds. S. Debarbat et al. (Dordrecht: Kluwer), p.229.
McNaught, R. H., Seargent, D. A. J., and Pearce, A. : 1987, IAU Circ., No. 4414.
Narumi, H., Korth, S., Dyck, G., Iida, M., and Hurst, G. : 1989, IAU Circ., No. 4757.
Oke, J. B., and Kowal, C. T. : 1973, IAU Circ., No. 2562.
Szkody, P., Howell, S. B., Mateo, M., and Kreidl, T. : 1989, Publ. Astron. Soc. Pacific, 101, 899.
Usher, P. D. : 1981, Astrophys. J. Suppl., 46, 117.
Vogt, N., and Bateson, F. M. : 1982, Astron. Astrophys. Suppl., 48, 383.
Watanabe, M., and Kato, T. : 1989, Japan. CV Circ., No. 23.
Watanabe, M., and Kato, T. : 1990, Japan. CV Circ., No. 30.