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**PHOTOMETRIC AND POLARIMETRIC OBSERVATIONS
OF SEVEN MIRAS**

Photometric and polarimetric observations of red giants and supergiants have been carried out at the Byurakan Astrophysical Observatory since 1957. In 1994, Magnan suggested to include in that program systematic photometric observations of Mira Ceti type long period variables. Preliminary results of those observations are given in this paper.

Seven long period Mira-type variables were observed in Byurakan Observatory during April-September 1996. The observations have been made with the photopolarimeter attached to the AZT-14 50cm-telescope. That photopolarimeter works in the regime of intensification of the direct current. It can be used either as a photoelectric photometer (without the polaroid) or as a photopolarimeter (with the polaroid). The maximum of sensitivity of the photomultiplier lies in the wavelength interval 4000–4400 Å. The observations have been done in the U, B, V, R bands, sometimes without the filter (“filter 0”). A more detailed description of the method and instruments has already been given elsewhere (Eritsian and Nersisian, 1984).

The results of polarimetric observations for the Mira variables are presented in Table 1. The columns of the table successively give (i) the name of the star from the General Catalogue of Variables Stars (GCVS), (ii) the date of the observation, (iii) the observed degree of polarization P in the U, B, V, R bands (when the observations have been done without any filter, this is indicated by the term “filter 0”) and (iv) the angle of polarization θ . The uncertainties in the photometric and polarimetric measurements respectively are $\sigma_{UBV} = 0^m02 - 0^m04$, $\sigma_P(UBV) = 0.1 - 0.2\%$. The uncertainty in the determination of the polarization angle is $\sigma_\theta = 1^\circ - 3^\circ$.

As can be seen from Table 1, a light polarization has been detected for the stars R Aql, RT Cyg and S UMi. In those three cases, the variable character of the polarization has been confirmed.

As a noteworthy result, a rapid light variation of the star T Cep has been found about two months after the maximum of brightness. The corresponding data in the B and V bands are given in Table 2. The light variations are drawn in Figure 1. The solid straight line represents the mean light-curve in V-color, which has been obtained from the data of the GCVS (1985) by knowing the epoch of maximum and the phase. One can see that the whole event lasted less than 20 days but the duration of the peak itself represents only a few days.

Table 1. Polarimetric observations of 7 Mira Ceti type stars

star (GCVS)	date (UT)	$P(\%)$				$\theta(^{\circ})$			
		U	B	V	R	U	B	V	R
R Aql	14.07.96	filter 0				130			
	08.08.96	–	–	–	≤ 0.3	–	–	–	–
	09.09.96	–	–	≤ 0.3	0.6	–	–	–	31
	15.09.96	≤ 0.3	≤ 0.3	≤ 0.3	1.0	–	–	–	35
T Cep	20.05.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
	21.05.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
	22.05.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
	09.06.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
	10.09.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
RT Cyg	15.07.96	–	1.5	1.2	0.9	–	65	35	40
	16.07.96	5.0	1.5	1.3	1.2	45	35	45	60
	10.09.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
	15.09.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
R Dra	14.07.96	–	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
	15.09.96	–	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
X Oph	09.06.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
	13.07.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
	16.07.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
	09.09.96	≤ 0.3	≤ 0.3	≤ 0.3	≤ 0.3	–	–	–	–
S UMi	15.07.96	–	≤ 0.5	≤ 0.5	0.9	–	–	–	45
	15.09.96	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	–	–	–	–
R Vir	22.04.96	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	–	–	–	–

Table 2. Rapid variation of T Cep

Date	B	V
20 May 1996	8.72	7.06
21 May 1996	8.12	6.67
22 May 1996	8.56	6.91
09 June 1996	9.11	7.80

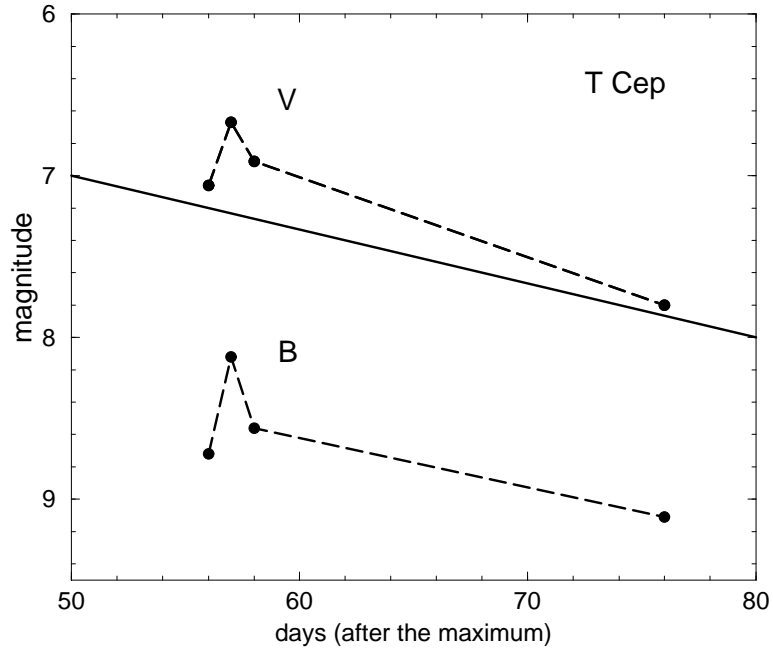


Figure 1. Rapid variation of T Cep

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Reference:

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ERRATUM

In IBVS No. 4359 issue, Table 1 contains incorrect data on the minima of V676 Cen. The revised table is as follows:

JD Hel 24000000+	Eclipse Type	Cycles	(O-C) ₁	(O-C) ₂
48393.5174(1)	I	4863.0	-0.0001	0.0001
48394.6872(1)	I	4867.0	0.0001	0.0002

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