PECULIARITIES IN TX SAGITTARII

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Abstract

Visual observations of TX Sgr during the past 20 years show it to be unusually bright during some of the scheduled minima. A visual light curve and preliminary finding chart are presented.

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TX Sgr (1908-17) is a Mira star that appears on the AAVSO "b" charts for T Sgr, RX Sgr, and RW Sgr. Observations of TX Sgr were begun in mid-1966, and an interesting peculiarity has shown up.

According to the **General Catalogue of Variable Stars** (GCVS) (Kukarkin et al. 1969), TX Sgr is an M3e star with a magnitude range 10-<14(v), a period of 246.7 days, and an epoch of JD 2436431. According to these data, my observations began in cycle 12 and have continued to the present 42nd cycle. The next two maxima are due on JD 2446792 and JD 2447039.

Phasing my 59 visual estimates with the 1969 GCVS ephemeris yields the light curve in Figure 1. Estimates indicating "fainter than" are indicated with open diamonds. Basically, TX Sgr is a flat-minimum star (a property that often indicates the presence of a companion) with a rather sharp rise and fall, whose time of maximum falls 50 to 60 days after the ephemeris epoch. Several estimates indicate that occasionally the minimum is excessively bright. Observations indicated by the diamonds, crosses, and squares distinguish minima that are brighter than normal. A rough periodicity of 1740 days may underlie these bright minima. Table I lists observations of TX Sgr plotted in Figure 1.

Although the GCVS indicates that a chart for TX Sgr exists, it is not readily available to amateurs, so I have made a sketch of the region, shown in Figure 2. The T Sgr sequence may be used, although it is a bit distant for easy use.

REFERENCE

Kukarkin, B. V. et al. 1969, **General Catalogue of Variable Stars**, 3rd Edition, Moscow.

TABLE I

Observations of TX Sgr

JD	Magnitude	Instrument	JD	Magnitude	Instrument
2439245.0	12.0:	6" refr.	2441900.8	12.8	6" refr.
678.8	10.4	" "	945.7	12.5	" "
708.8	12.0	" "	2272.8	13.0: x	" "
946.0	11 3/4	" "	303.7	~12.3: x	" "
40038.8	~14 1/4	" "	334.6	~14.3:	" "
084.8	13 3/4	" "	651.7	10.4	" "
114.7	14.0:	" "	685.7	12.2	" "
150.6	13.8:	" "	721.6	~14 1/4	" "
379.8	(14 1/2	" "	3042.0	(14.3:	5" SC
411.8	13.5	" "	076.0	~14 1/4	" "
439.8	10.4	" "	104.9	~14.3:	12 1/2" refl.
475.7	13 1/4	" "	360.0	~14.0:	" "
504.7	13.8	" "	434.0	12.7	" "
528.6	(14.3:	" "	779.0	12.4 △	" "
724.0	11.7:	" "	807.9	12.2 △	" "
769.8	(14 1/2	" "	4013.2	11.7 o	" "
804.8	~14 1/2	" "	135.0	11.0	" "
832.7	~13 3/4	" "	176.9	12.3	" "
879.6	14.0:	" "	431.0	13.2	" "
1125.9	~14.2:	" "	470.0	13.7	" "
147.8	(14.3:	" "	902.0	12.2	" "
193.7	10.9	" "	5205.1	11.6 □	" "
212.7	11.1:	" "	555.1	~13 1/2	" "
233.7	~14 1/4	" "	643.0	11.3	" "
402.0	~14 1/4	" "	943.0	~12 3/4 ◇	" "
517.7	(14 1/4	" "	997.0	~14 1/4	" "
541.8	~14.3:	" "	6271.0	(15 1/2	" "
568.7	(14.3:	" "	345.0	~14 1/4	" "
606.7	(14.0:	" "	700.0	~13.0:	" "
800.9	~13 3/4	" "			

Note: (= fainter than; ~ = approximately; : = uncertain.
x, △, □, o, and ◇ refer to observations brighter at minimum than expected.

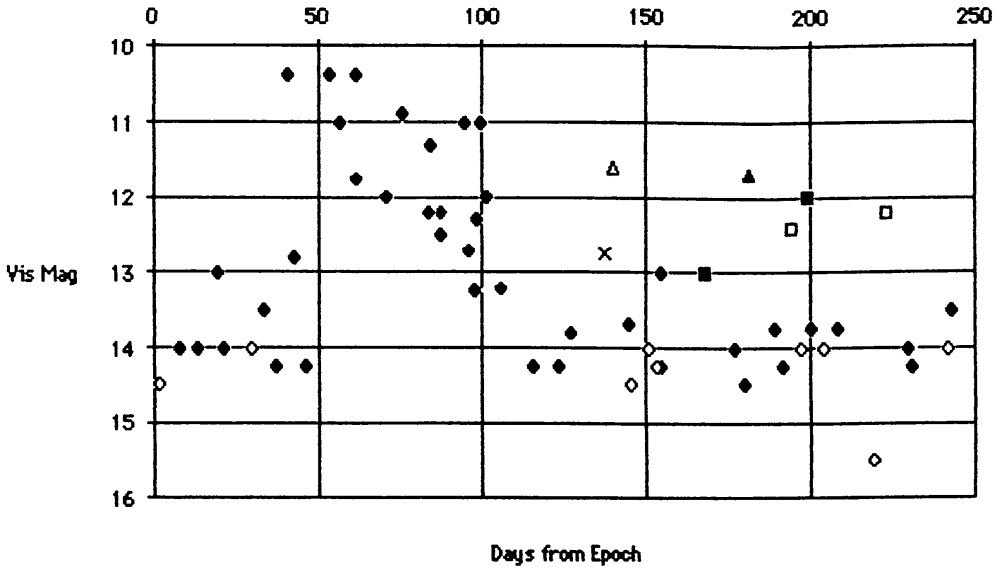

Figure 1. The light curve of TX Sgr from visual estimates reported in this paper, phased according to the ephemeris, T = JD2446792 + 246.7 E. Solid diamonds are estimates that seem to follow the expected light curve, while other symbols indicate minima that were brighter than expected.

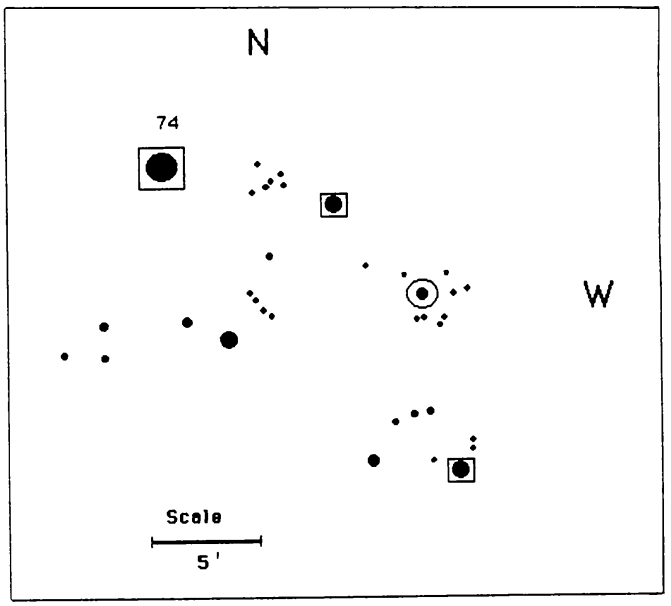

Figure 2. Sketch of the field of TX Sgr. Stars with squares are found on the AAVSO "b" chart of T Sgr. The circle indicates the variable TX Sgr. Note that the orientation is different from that of the usual AAVSO chart.