

COMMISSIONS 27 AND 42 OF THE IAU  
INFORMATION BULLETIN ON VARIABLE STARS

Number 4057

Konkoly Observatory  
Budapest  
1 August 1994

HU ISSN 0324 - 0676

**PHOTOMETRY OF STARS IN THE FIELD OF AQ AURIGAE**

AQ Aurigae (=IRAS 05031+3519 = GSC 2397-0319) is a poorly-studied, cool Mira with a period of about 335 days. Maxima are as bright as 8<sup>m</sup>.5 while minima are fainter than 14<sup>m</sup>. The spectral type is in the range M6.5 to M7 according to Nassau & Blanco (1954) and Cameron & Nassau (1956). The variable was added to the program of the AAVSO in 1970. However, the comparison stars on the preliminary chart had magnitudes based mostly on eye-estimates. At the request of Charles Scovill of the AAVSO, I have made photoelectric observations of several stars in the field.

Table 1. Photometry of Stars in the Field of AQ Aurigae

Name	RA (2000)	Dec (2000)	V	b - y	n	spec	Remarks
AQ Aur	5 <sup>h</sup> 06 <sup>m</sup> 30 <sup>s</sup> .3	+35°23'16"	11.135	1.814		M7	(1)
			11.113	1.832			(2)
HD 32673	5 06 29.9	+35 33 45	7.794	0.427	2	G0	(3)
			.007	.010			
HD 32682	5 06 31.7	+35 30 47	8.104	0.297	2	A0	
			.000	.001			
HD 280493	5 07 17.0	+35 41 18	9.640	0.397	1	B3e	(4)
HD 280499	5 06 37.3	+35 31 12	9.806	0.442	2	F8	
			.002	.001			
HD 280494	5 06 50.5	+35 37 49	9.907	0.313	1	A2	
HD 280498	5 05 43.4	+35 31 12	10.138	0.373	1	B2e	(5)
HD 280500	5 06 35.1	+35 17 47	10.161	0.348	2	B3	(6)
			.010	.016			
HD 280501	5 07 26.9	+35 14 58	10.182	0.490	1	F8	
GSC 2397-1095	5 06 51.5	+35 23 45	11.360	1.005	2		
			.006	.018			
GSC 2397-0760	5 06 55.8	+35 20 34	12.176	1.079	2		
			.014	.018			
GSC 2397-0953	5 06 36.4	+35 23 36	13.242	1.139	2		
			.009	.035			

Remarks:

- (1) - = GSC 2397-0319. observation on 1993 Dec 5.39 UT.
- (2) - observation on 1993 Dec 7.35 UT.
- (3) - V = 7.799, b - y = 0.437 (Olsen 1983).
- (4) - = LS V +35 8.
- (5) - = LS V +35 6.
- (6) - = LS V +35 7.

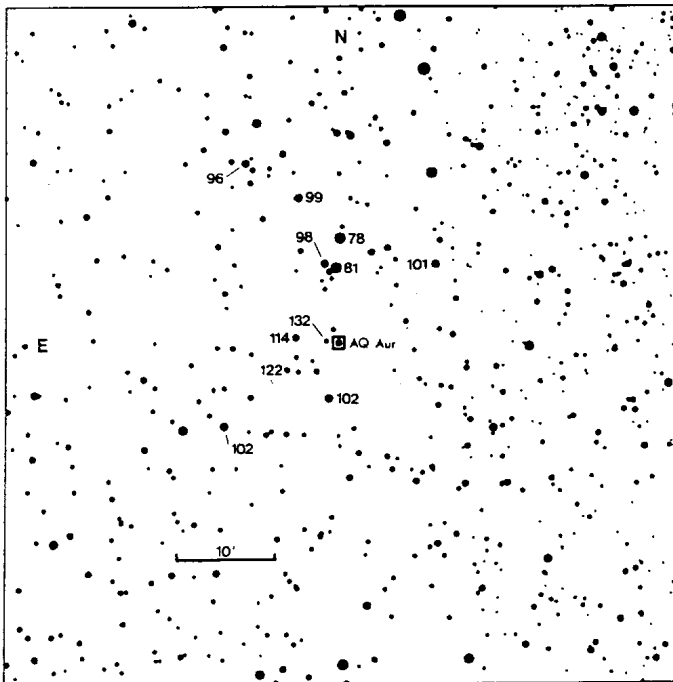


Figure 1. The field of AQ Aurigae showing stars from the GSC. V magnitudes are indicated to the nearest tenth with the decimal point omitted.

I observed the stars using the Lowell 53cm photometric telescope on four nights: 5, 7, 8, & 9 December 1993 UT. Strömgren  $y$  and  $b$  filters were used through either a 29- or 49-arcsec diaphragm. Each observation consisted of at least three 10s integrations on 'star' and two 10s integrations on 'sky', with greater numbers for stars fainter than about  $9^m0$ .

The standard star set was identical to that used for the field around VX Tauri (Skiff 1994), and so the results for these will not be repeated here.

Results for the stars near AQ Aurigae are shown in Table 1, listed in order of decreasing brightness. Measures on two nights of AQ Aurigae itself are given in the first entry. The comparison stars are identified by HD or GSC number, with positions from the PPM, GSC, or other sources via SIMBAD; SIMBAD is also the source for spectral types from the literature. The second line of each entry shows the standard deviation of the means for stars observed on two nights.

The two Be stars, HD 280493 and HD 280498, were found to exhibit  $H\alpha$  emission by Stephenson & Sanduleak (1977). These may be slightly variable, but probably only with small amplitude.

For the convenience of observers, a chart derived from the GSC is shown in Figure 1. The comparison stars are indicated by their V magnitudes rounded to the nearest tenth (decimal point omitted) in the style of visual variable- star charts.

Preparation of this report was facilitated by the use of SIMBAD, maintained by the Centre de Données astronomiques, Strasbourg, France.

Brian A. SKIFF  
Lowell Observatory  
1400 West Mars Hill Road  
Flagstaff AZ 86001-4499  
Internet: bas@lowell.edu

References:

- Cameron, D., and Nassau, J. J., 1956, *Astrophys. J.*, **124**, 346  
Nassau, J. J., and Blanco, V. M., 1954, *Astrophys. J.*, **120**, 118  
Olsen, E. H., 1983, *Astron. Astrophys., Suppl. Ser.*, **54**, 55  
Skiff, B. A., 1994, *Inf. Bull. Var. Stars*, No. 4056  
Stephenson, C. B., and Sanduleak, N., 1977, *Astrophys. J., Suppl. Ser.*, **33**, 459