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PHOTOMETRY OF STARS IN THE FIELD OF AP PEGASI

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AP Pegasi is a poorly-observed Mira variable showing maxima as bright as visual magnitude 9. At the request of AAVSO chartmaker Charles Scovil, I measured several stars in the field suitable as comparisons for visual and CCD observers while the star is bright. The current AAVSO (d)-scale chart, dated November 1982 (AAVSO 2000), has no proper photometry of the sequence stars. The present results were originally distributed via the 'vsnet' list-server (Skiff 1996).

I observed the stars on 20 October 1994, and 10 and 11 October 1996 UT using the Lowell 53-cm photometric telescope, 19″ or 29″ diaphragms, and Strömgren b and y filters. Between ten and thirty-one primary and secondary standard stars were used each night for adjustment to the standard system. The field was observed at low airmass, so mean extinction values (Lockwood & Thompson 1986) were applied in the reductions. The per-star residuals in the linear fits to the standards averaged between $0\overset{\mathrm{m}}{.}005$ and $0\overset{\mathrm{m}}{.}007$ in V and $b-y$ on all three nights. Although the colors of the standards extended to $b-y \sim 1.1$, the variable and one red field star were nevertheless outside the calibration regime.

Table 1 shows the results for the stars in order of decreasing brightness; an observation of the variable itself is given in the first entry. An asterisk by the star name indicates a note following the table. The positions are from Tycho-2 (Høg *et al.* 2000) except for the last star, which is from the GSC-ACT (Gray 1999). Two observations have been made on the fainter stars, and the *rms* scatter of these are given in the second line of the relevant entries. Spectral types given in parentheses and lower-case characters are *estimates* based simply on the $b-y$ colors and the assumption of near-zero reddening.

The red star GSC 1668-0160 was not obviously variable in my two observations made two years apart, but is clearly a mid-M giant (it has negligible proper motion in Tycho-2), and so must be variable at some level.

Table 1: Photometry of stars in the field of AP Pegasi

Name	RA (2000)	Dec	V	$b-y$	n	spec	Remarks
AP Pegasi*	$21^h29^m22^s.89$	$+18°09'59''.4$	11.811	1.450	1	M6e	DO 20495
HD 204560*	21 28 59.92	+17 54 21.3	6.407	0.863	1	K5	HR 8221
HD 204725*	21 30 06.85	+18 34 42.7	7.429	0.165	1	A5	
BD+17°4595*	21 30 07.68	+18 16 21.3	9.256	0.420	1	G0	
BD+17°4591*	21 28 43.82	+18 09 47.3	9.454	0.346	1	F8	
BD+17°4590	21 27 53.91	+17 59 05.8	9.918	0.269	1	F2	
BD+17°4593	21 29 24.48	+17 47 27.9	9.996	0.341	1	(f8v)	GSC 1668-0189
GSC 1668-0160	21 29 23.20	+18 05 48.2	10.840	1.221	2	(m3/5iii)	DO 20496
			.021	.012			
GSC 1668-0082	21 29 24.59	+18 07 59.6	12.089	0.292	2	(f5v)	
			.023	.045			
GSC 1668-0007	21 29 20.83	+18 10 24.9	12.998	0.378	2	(g0v)	
			.015	.011			

Notes

AP Peg	observation on 20 October 1994 UT (JD 2449645.7).
HD 204560	$V = 6.425$ (Kornilov *et al.* 1991).
HD 204725	$V = 7.435$, $b-y = 0.154$ (Olsen 1983); $V = 7.432$ (Kornilov *et al.* 1991)
BD+17°4595	large proper motion.
BD+17°4591	ADS 15005, companion at $22''$ excluded; $V = 9.46$ (Henden 1980).

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