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UBVRI MAGNITUDES FOR CATAclySMIC VARIABLES,
AF Vul AND COMPARISON STARS

Observations were made at 1.25m AZT-11 telescope of the Crimean Astrophysical Observatory equipped with an UBVRI photometer-polarimeter of the Helsinki University (Korhonen et al., 1984). The stars were linked to the UBVRI-standard stars HD 195919 (Neckel & Chini, 1980), HD 161261 and HD 171732 (Barnes & Moffett, 1979). The instrumental magnitude differences were transformed to the standard UBVRI system according to the expressions obtained by N. I. Shakhovskaya (private communication):

Table I

ΔU	=	$0.955\Delta U + 0.218\Delta B - 0.173\Delta V$
ΔB	=	$1.173\Delta B - 0.173\Delta V$
ΔV	=	$-0.104\Delta B + 1.104\Delta V$
ΔR	=	$-0.104\Delta B + 0.153\Delta V + 0.951\Delta R$
ΔI	=	$-0.104\Delta B - 0.012\Delta V + 1.116\Delta I$

Moments of measurements of the variable stars are listed in Table 1 as well as references for finding charts. Because 3 standard stars were measured, we determined magnitudes by linking to each of them. Internal scatter of magnitudes is 0^m07 , 0^m07 , 0^m05 , 0^m04 and 0^m02 for U-B and R-I and 0^m02 for B-V and V-R. Deviations of colors of the two check stars BD+17°4103 and BD+11°4380 from that of Neckel & Chini (1980) are in a range from 0^m01 to 0^m04 which may possibly be explained by a systematic difference between the three instrumental UBVRI systems.

Table II

Star	HJD 244800	Reference for a finding chart
CM Del	451.469	Meinunger (1980), Vogt & Bateson (1982)
VW Vul	451.434	Vogt & Bateson (1982)
EW Aql	485.323	Shain (1929)
AF Vul	451.402	Wachmann (1966)
V603 Aql	446.448	Williams (1983)
QQ Vul	450.358	Andronov & Yavorskij (1983)
MV Lyr	451.514	Andronov & Shugarov (1982)

One may note an excellent coincidence of our B magnitudes for the comparison stars for AF Vul with the *pg* ones published by Wachmann (1966). However, there is a large difference in the value $m_{pg} = 14^m8$ of the star "a" for QQ Vul (Andronov & Yavorskij, 1983) with $B = 14^m28$ which may indicate systematic shift of magnitudes of other comparison stars possibly appeared due to an increased background brightness near M71 (Arp & Hartwick, 1971) which was used for photographic measurements.

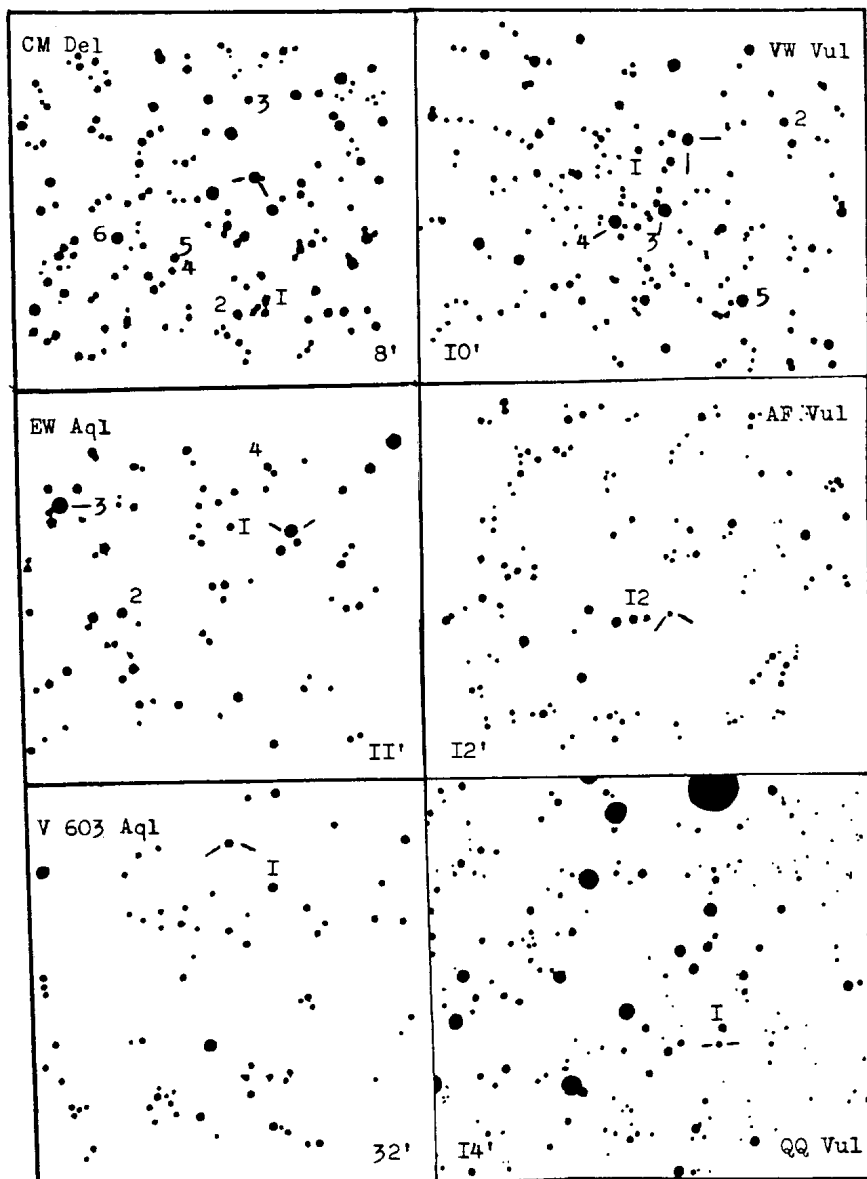


Figure 1.

Table III

Star	U	B	V	R	I	U-B	B-V	V-R	R-I
CM Del	13.26	13.87	13.75	13.59	13.48	-0.61	0.12	0.16	0.11
1	13.73	13.37	12.63	12.06	11.61	0.36	0.74	0.57	0.45
2	15.30	14.14	12.96	12.10	11.42	1.16	1.18	0.86	0.68
3	14.22	13.98	13.60	13.35	13.13	0.24	0.38	0.25	0.22
4	14.92	14.77	14.54	14.31	14.07	0.15	0.23	0.23	0.24
5	14.06	13.92	13.27	12.77	12.38	0.14	0.65	0.50	0.39
6	12.69	12.52	11.97	11.50	11.15	0.17	0.55	0.47	0.35
VW Vul	15.71	16.71	16.64	15.79	15.08	1.00	0.07	0.85	0.71
1	15.60	15.37	14.64	14.06	13.55	0.23	0.72	0.58	0.51
2	14.29	13.83	12.97	12.30	11.76	0.46	0.86	0.67	0.54
3	13.59	12.56	11.36	10.49	9.76	1.03	1.20	0.87	0.73
4	13.84	12.46	11.16	10.22	9.50	1.38	1.30	0.94	0.72
5	13.33	13.24	12.67	12.21	11.83	0.09	0.57	0.46	0.38
EW Aql	12.54	12.22	11.69	11.29	11.00	0.32	0.53	0.40	0.29
1a	14.71	14.29	13.52	12.87	12.37	0.42	0.77	0.65	0.50
1b	14.50	14.08	13.32	12.68	12.13	0.42	0.76	0.64	0.55
2	14.31	13.09	11.74	10.72	9.94	1.22	1.35	1.02	0.78
3	12.75	12.03	11.17	10.47	10.02	0.72	0.86	0.70	0.45
4	15.65	15.40	14.37	13.68	13.06	0.25	1.03	0.69	0.62
AF Vul	16.37	15.76	14.52	13.65	12.94	0.61	1.24	0.87	0.71
1	14.85	14.61	14.02	13.49	13.02	0.24	0.59	0.53	0.47
2	15.73	15.00	14.14	13.36	12.76	0.73	0.86	0.78	0.60
V603 Aql	10.93	11.67	11.63	11.49	11.43	-0.74	0.04	0.14	0.06
1	10.53	10.29	9.89	9.55	9.32	0.24	0.40	0.34	0.23
QQ Vul	15.09	15.98	15.66	15.36	14.76	-0.89	0.32	0.30	0.60
1	14.48	14.28	13.58	13.03	12.63	0.20	0.70	0.55	0.40
MV Lyr	11.76	12.56	12.60	12.55	12.53	-0.80	-0.04	0.05	0.02
4	14.60	13.58	12.49	11.69	11.05	1.02	1.09	0.80	0.64
c	12.49	12.41	12.08	11.76	11.53	0.08	0.33	0.32	0.23
8	13.68	13.60	13.05	12.61	12.24	0.08	0.55	0.44	0.37

Remark: Two brightness estimates of the comparison star "1" for EW Aql obtained on HJD 2448452.365 (a) and 85.330 (b) are different, despite the fact that for the star "3" they coincide within $\pm 0^m.01$.

For MV Lyr we had measured 3 comparison stars designated by Andronov & Shugarov (1982), who published a finding chart with 19 comparison stars. One may note a large ($0^m.2$) systematic difference in U-magnitudes of the stars "c" and "8" as compared with that obtained with the same equipment by Andronov et al. (1992) by linking to another standard star BD+28°4211 (Neckel & Chini, 1980).

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