COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 502

Konkoly Observatory
Budapest
1970 December 31

PHOTOELECTRIC LIGHT-CURVE OF KP Aql

The eclipsing binary KP Aql (BD+15°3867) was observed photoelectrically between August 1 and October 9, 1970 on eleven nights with the 48 cm Cassegrain telescope of the Ege University Observatory. An RCA 1P21 photomultiplier and the filters Corning No.5030+Schott GG 13 for B and Corning No.3384 for V were used.

We have obtained between 1968 August and 1970 October 5 minima. They all show very large O-C's against the elements C_I given in GCVS (1969) (s. Table I, $O-C_I$) Calculations of new light-elements were made from 15 minima. The weighted least-square solution gives the following new elements:

$$\text{Hel. Min} = \text{JD } 2\,436\,712.4685 \pm 25 + 1^d.6837392 \pm 13\ (\text{m.e})\cdot E \quad (C_{II})$$

Table I. shows the observed times of the minima, the values of $O-C_I$ and $O-C_{II}$, their weights (p) and references to observers. (G1.= Ömür Gülmen, Ib = Cafer Ibanoglu, Kt = Mehmet Kurutac).

Table I

O	$O-C_I$	$O-C_{II}$	p	Obs
2 433 858.549 v	+0.001	+0.018	1	AN 281
34 910.859 pg	-0.018	-0.009	2	AJ 66
35 333.485 v	-0.008	-0.001	1	AN 286
35 355.364 "	-0.017	-0.011	1	"
36 025.507 "	+0.003	+0.004	1	"
36 106.331 "	+0.008	+0.009	1	"
36 451.502 "	+0.015	+0.013	1	"
36 712.465 "	0.000	-0.004	1	"
37 921.377 "	-0.004	-0.016	1	AN 288
37 948.322 "	+0.001	-0.011	1	"
40 098.471 pe	+0.031	+0.003	3	Ib/Kt
40 396.4914 "	+0.0317	+0.0015	5	Ib/G1
40 822.477 "V	+0.034	+0.001	3	Ib/G1
40 839.3129 "V	+0.0330	-0.0004	5	Ib/G1
40 866.2526 "V	+0.0331	-0.0005	5	Ib/G1

The light-curves are shown in Figures I and II where the magnitude differences between the variable and the comparison star BD+15°366 have been plotted against phase using the new elements. The star varies about $0^{m}.70$ in both yellow and blue. Both light-curves are similar with some exception in the phase-interval $0^{p}.825$-$0^{p}.925$. We have observed some anomalous effect in this interval in V on August 1 and 2, 1970.

We are planning to obtain further observations to fill the phase-interval $0^{p}.275$ to $0^{p}.400$, and to re-examine the unexpected behaviour between $0^{p}.825$ and $0^{p}.925$. We hope to clarify these points in the coming observing season.

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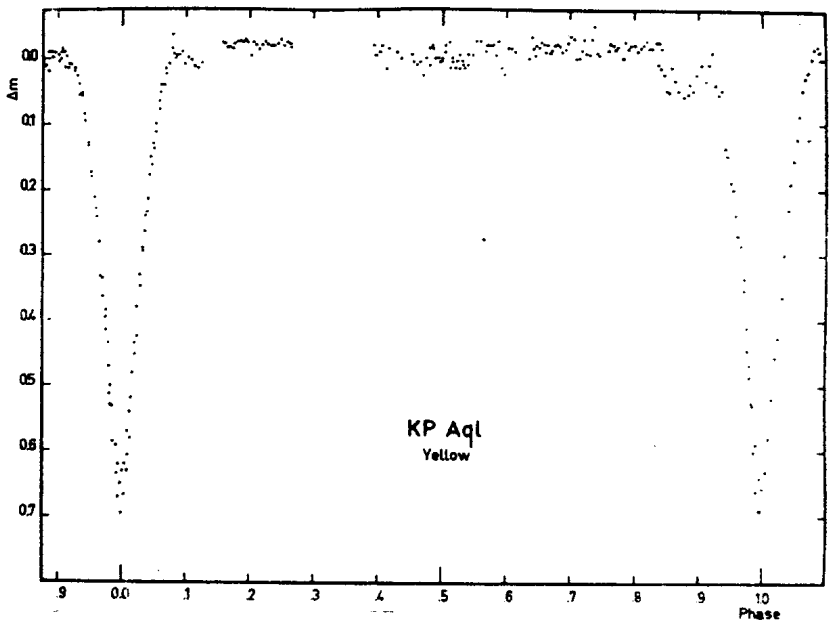
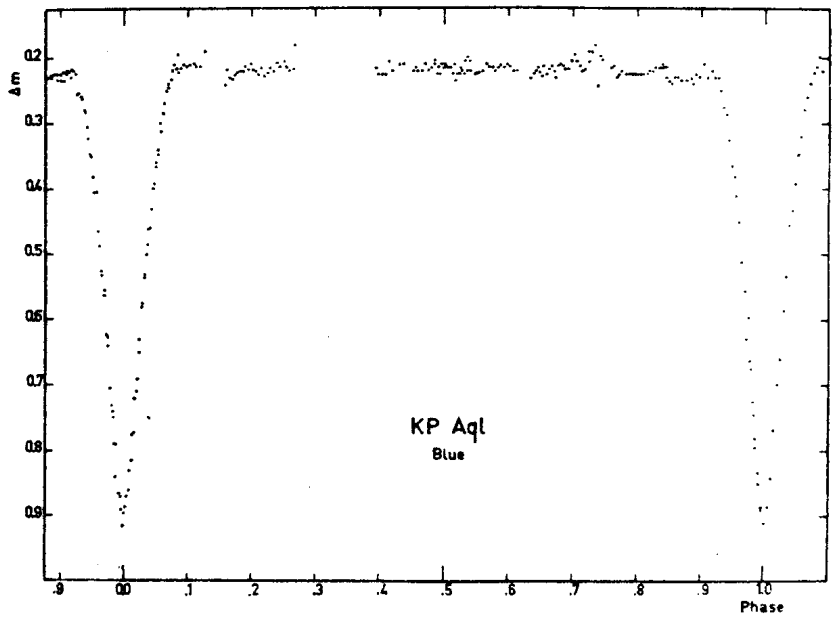

Δm
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
.9
0.0
.1
.2
.3
.4
.5
.6
.7
.8
.9
1.0
Phase
KP Aql
Yellow


Δm
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
.9
0.0
.1
.2
.3
.4
.5
.6
.7
.8
.9
1.0
Phase
KP Aql
Blue