COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 2858

Konkoly Observatory
Budapest
5 February 1986
HU ISSN 0374 - 0676

IMPROVED EPHEMERIS FOR THE SHORT PERIOD, ECLIPSING CATACLYSMIC VARIABLE V1315 AQUILAE

V1315 Aquilae (= SVS 8130 = KPD 1911+1212) was identified as an eclipsing binary by Downes *et al.* 1986. On the basis of the strengths of the He II and C III/N III lines they classified it as a member of a subset of cataclysmic variables, old novae with high excitation lines.

V1315 Aql has a V magnitude, at light maximum, of ≈ 14.4 and a B-V of ≈ +.4. The eclipse is quite deep, 1.7 magnitudes, and lasts about thirty minutes. It is symmetric, though there seems to be a light peak just after the eclipse. There is no evidence for a secondary eclipse. Fig. 1 shows the typical light curve. There is strong variability of the emission lines during the eclipse. The Balmer lines also have the peculiar property of absorption cores occasionally appearing during the inferior conjunction of the emission line source.

The interpretation of this object is of a secondary losing mass to a white dwarf primary. Most of the observed light is produced by the accretion disc, so the variations in spectral line strengths during the eclipse are probes of the accretion disc structure.

Downes *et al.* observed nine eclipses in 1984, eight with the 0.9m telescope of the Manastash Ridge Observatory, and one with the Kitt Peak 1.3m telescope. During 1985, three more eclipses were obtained at MRO, and the entire data set reanalyzed. The highly symmetric eclipses lend themselves to least squares parabolic fits. Light minima were derived analytically from the fitted parabolas and the minima were then least squares linear fitted to yield the period. The observations are presented in Table I.

Table I Eclipses of SVS 8130

Observer	Location	HJD(2,445,900+)	cycle	O-C(seconds)
Mateo	MRO	002.84065	1	0.3
Downes	KPNO	006.75183	29	-12.1
Jenner	MRO	028.82167	187	-111.7
Jenner	MRO	044.74821	301	52.2
Jenner	MRO	044.88748	302	15.8
Jenner	MRO	045.72697	308	132.2
Jenner	MRO	045.86486	309	-22.9
Jenner	MRO	071.70714	494	-52.0
Meakes	MRO	395.78815	2814	-0.3
Annis	MRO	424.70424	3021	25.6
Annis	MRO	444.67928	3164	-26.6

The long baseline of observations, covering 3100 cycles, allows determination of the period with a formal error of two milliseconds. The improved ephemeris is :

$$\text{HJD(light minimum)} = 2{,}445{,}902.700964 + .139689832E$$
$$\pm .000084 \pm .000000017$$

There is no evidence for a changing period to the level of less than one second over the course of more than a year. The position of this object near the edge of the 'period gap'

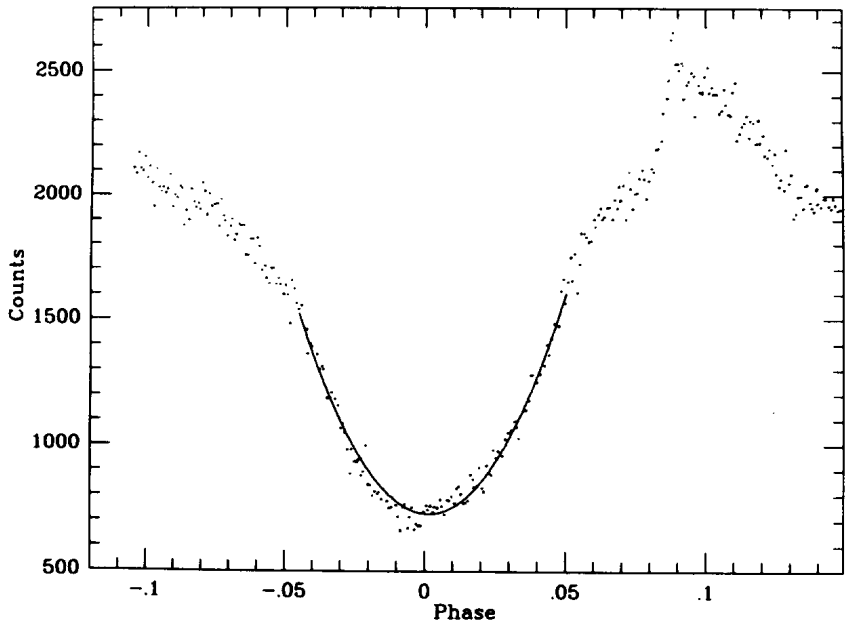

Figure 1. The light curve of V1315 Aql, taken during eclipse cycle 2184 at the Manastash Ridge Observatory. The solid line is the fitted parabola used for light minimum determination.

for cataclysmic variables at 2-3 hours (Patterson 1984), where a decrease in mass transfer dims the system considerably, makes the determination of whether V1315 Aql is edging into the gap interesting.

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