V802 Aql IS AN ECLIPSING BINARY OF W UMa-TYPE

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V802 Aql (= GSC 5119-00948; $\alpha_{2000} = 18^h58^m55^s$; $\delta_{2000} = -03°1'2$) was discovered by Bakos (1950) who classified it as an RR Lyrae star varying between magnitudes 13.7 and 14.2 with a period of $0^d.1338$, based on 25 observed minima. Rodríguez et al. (2000) included the star in their latest catalogue of δ Scuti stars.

We observed V802 Aql on two nights in 1996 and on four nights in 2000. We obtained respectively 130 and 347 data points, totalling 12.7 hours of photometry. We used a 0.40-m telescope. In 1996 this instrument was equipped with a Hisis24 CCD camera, in 2000 with a ST7 CCD camera. Both cameras have a Kodak KAF400 chip. No filter was used. Exposure times varied between 70 and 120 seconds, depending on sky conditions. The images were reduced with the aperture photometry procedure of the Mira AP software package[†].

The brightness of the variable was measured with respect to the average of GSC 5119-01018 and GSC 5119-00575. The standard deviation of the differential magnitudes between both comparison stars was $0^m.006$. The data were frequency-analysed with "Period", a period search program developed by one of us (P. Wils) based on the PDM method (Stellingwerf, 1978). The following times of minima were observed:

Type	Mag	JD Hel.
Min II	0.295	2450300.434
Min II	0.325	2451780.457
Min I	0.369	2451781.392
Min I	0.349	2451782.463
Min II	0.288	2451784.471

Our results show that V802 Aql is an eclipsing binary of type W UMa with a period of $0^d.2677 \pm 0^d.0003$. Fig. 1 shows the phased light curve with two unequal minima: the primary minimum (Min I) is $0^m.35$ deep, the secondary minimum (Min II) is $0^m.30$ deep. Both minima are total with a duration of $0^d.02$.

The corresponding ephemeris is:

$$\text{Min. I} = \text{HJD } 2451781.392 + 0^d.2677 \times E.$$
$$\pm 0.001 \pm 0.0003$$

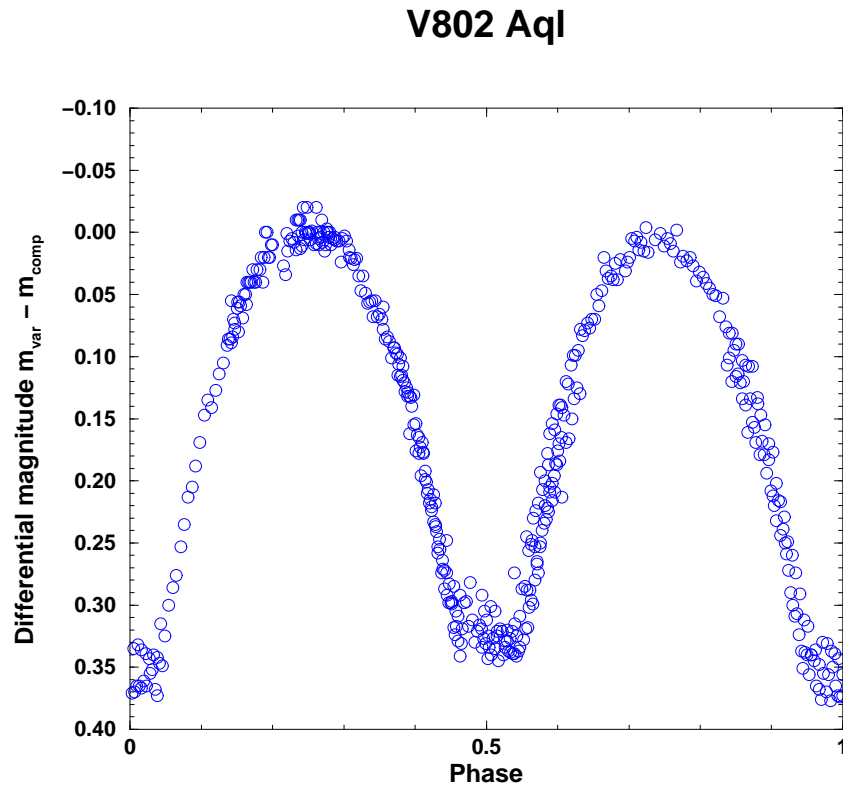[†] The Mira AP software is distributed by Axiom Research Inc.

V802 Aql

Figure 1. Phase diagram for V802 Aql (against the period of $0^{\rm d}2677$)

References:

Bakos, G.A., 1950, *Ann. Sterrew. Leiden*, **20**, No. 4
Rodríguez, E., López-González, M.J., López de Coca, P., 2000, *A&AS*, **144**, 469
Stellingwerf, R.F., 1978, *ApJ*, **224**, 953