

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 2869

Konkoly Observatory
Budapest
25 February 1986
HU ISSN 0374 - 0676

ON THE LIGHT CURVE OF AI Scl *

The possible δ Scuti star AI Scl (HR359, HD7312) is only little investigated. In the 'Third Supplement to the Third Edition of the General Catalog of Variable Stars' AI Scl is listed as a possible δ Scuti star with a period of approximately 70min. This is based on Eggen's (1973) observations who called the star an ultrashort-period Cepheid and presented two short parts of the light curve. In 1976 Eggen mentioned that spectrograms suggest the existence of a binary. Radial velocities are given in Buscombe and Morris (1958) and Buscombe (1963). Morris and DuPuy (1980) investigated AI Scl photometrically in the UBV system. They found two periods of 64min and 134min, respectively.

The observations were carried out on 23./24.11.1984 with the Danish 50cm telescope at La Silla/Chile equipped with the 4-channel Stömgren photometer. The integration time was 30sec per channel. Although no comparison star was used the quality of the measurements are quite good.

After the transformation into the standard system the averages were calculated and subtracted from the data. Then the remaining residuals were fitted simultaneously with two periods. The function fit was :

$$M(t) = ZP \cdot \sum (ampl_i \cdot \sin(2 \cdot f_i t + 2 \pi \varphi_i)), \quad i=1,2$$

Afterwards the estimated frequencies were weighted and the means yielded two periods of :

$$P = 116.4 \pm 3.5 \text{ min} \quad \text{and} \quad P = 60.0 \pm 1 \text{ min}$$

* Based on observations collected at the European Southern Observatory (ESO), La Silla/Chile.

Al Sci

Danish 50cm, 23./24.11.1984

Strömgen b

average= 6.117

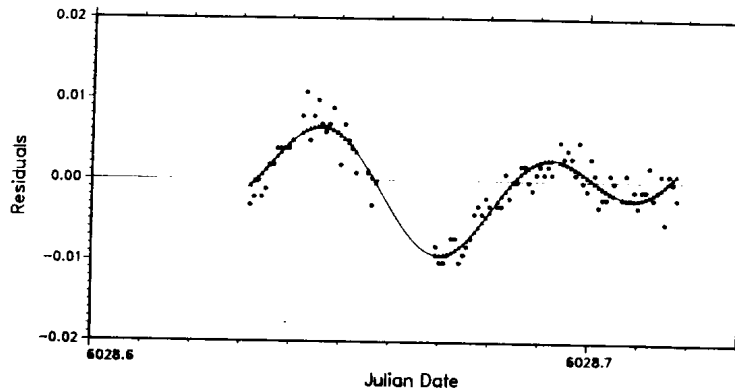
1.fit : f= 12.370 zp= -.001 amp= -.004 ϕ = .1522.fit : f= 24.020 zp= -.001 amp= -.005 ϕ = .827

Figure 1

Fig.1 shows the residuals from the b-channel. The solid line presents the fit, while the triangles are drawn in order to make time gaps in the observations visible.

There exists some indications for a third period, but the time base is too short to confirm this.

HARTMUT SCHNEIDER

and

WOLFRAM KOLLATSCHNY

Universitäts-Sternwarte
Geismarlandstr. 11
D-3400 Göttingen
F.R.G.

References :

- Buscombe, W. Mon. Not. R. Astron. Soc. 126, 29 (1963)
 Buscombe, W., Morris, P.M. Mon. Not. R. Astron. Soc. 118, 609 (1958)
 Eggen, O.J. Astrophys. J 180, 857 (1973)
 Eggen, O.J. Publ. Astron. Soc. Pac. 88, 402 (1976)
 Morris, S., DuPuy, D. Publ. Astron. Soc. Pac. 92, 303 (1980)