

COMMISSIONS 27 AND 42 OF THE IAU  
INFORMATION BULLETIN ON VARIABLE STARS  
Number 4557

Konkoly Observatory  
Budapest  
16 February 1998  
*HU ISSN 0374 – 0676*

**HIP 12056 IS AN ECLIPSING BINARY SYSTEM**

J. VIDAL-SAINZ

Grup d'Estudis Astronòmics, Apartado 9481, 08080 Barcelona, Spain  
e-mail: vidal@astro.gea.cesca.es

HIP 12056 (SAO 38145 = PPM 45234 = HD 15965 = BD +45°628 = AGK +45°0275 = GSC 3295.2164) was observed by the HIPPARCOS satellite and found variable, and it was listed among the unsolved variable stars (ESA, 1997). According to the HD catalogue, this object is an A star, while it is listed as a B8 type star in the PPM.

The analysis of the HIPPARCOS photometric data showed that HIP 12056 is actually an eclipsing binary system with a period over two days and a maximum V magnitude of  $9.19 \pm 0.01$  (Figure 1). To obtain more information about it, the star was monitored in the V band, from 21 August to 14 December 1997, at Monegrillo Observatory using the 0.4-m Newtonian telescope. SAO 38137 was used as comparison star, with  $V=8^m.235$  as calculated from Tycho magnitudes.

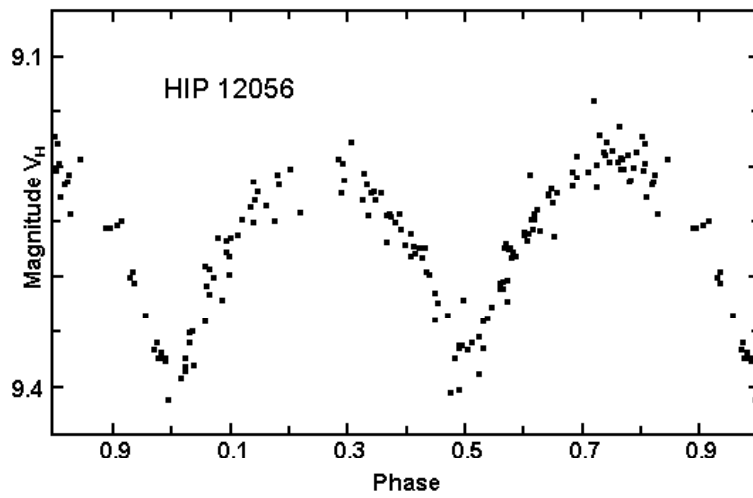
Observations show that HIP 12056 is an eclipsing binary system with a period close to 2.165 days. Figure 2 depicts the folded light curve. At primary minimum, the star fades by 0.18 magnitudes. The secondary minimum is 0.16 magnitude deep. HIPPARCOS data provided a primary minimum that was taken as zero epoch. The final derived ephemeris is the following:

$$\text{Min. I} = \text{HJD } 2448430.0254 + 2^d.165016 \times E \\ \pm 0.0040 \pm 0.000010$$

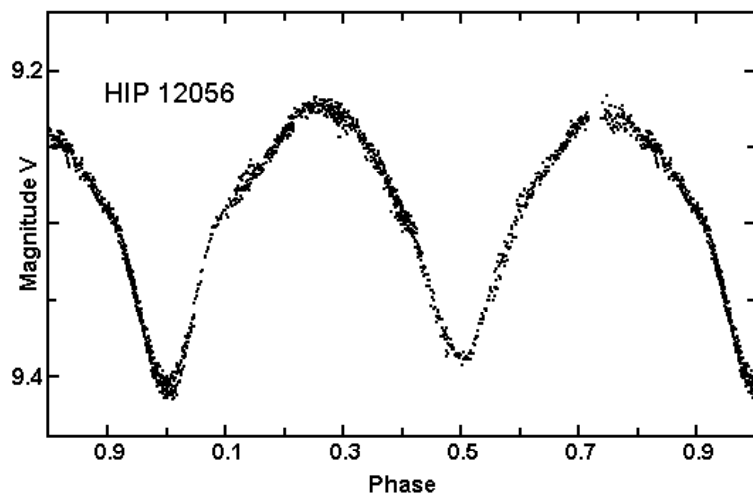
The combined set of satellite data and CCD observations allowed to compute the time of eight minima, using Kwee and van Woerden's (1956) method, and the respective O–C residuals, all of them summarized in Table 1.

Table 1

HJD +2400000	Epoch	O–C
48430.0060	0.0	–0.0195
48431.1221	0.5	+0.0142
48433.2533	1.5	–0.0196
48617.2801	86.5	–0.0192
50718.4493	1057.0	+0.0020
50731.4443	1063.0	+0.0069
50795.3130	1092.5	+0.0076
50796.3950	1093.0	+0.0071



**Figure 1.** Light curve of HIP 12056 derived from the original satellite data folded according to the given ephemeris



**Figure 2.** Photometric observations of HIP 12056 phased according to the given ephemeris

References:

- ESA, 1997, The Hipparcos and Tycho Catalogs, ESA SP-1200  
Kwee, K.K. and van Woerden, H., 1956, *BAN*, **12**, 327