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

Number 5066

Konkoly Observatory
Budapest
25 April 2001

HU ISSN 0374 – 0676

HD 193986 IS AN ALGOL-TYPE ECLIPSING BINARY STAR

VIDAL-SAINZ, JOAQUIN

Grup d'Estudis Astronomics, Apartado 9481, 08080 Barcelona, Spain, e-mail: jvidal@astrogea.org

Name of the object:
HD 193986 = BD +30°4003 = HIP 100443 = SAO 69906 = PPM 84803 = GSC 02672-00976 = ADS 13760 AB

Equatorial coordinates:	**Equinox:**
R.A.= $20^{\rm h}22^{\rm m}10\overset{\rm s}{.}19$ **DEC.**= $+31°15'11\overset{''}{.}5$	2000.0

Observatory and telescope:
Monegrillo Observatory, 41-cm Newtonian telescope

Detector:	CCD

Filter(s):	*V*

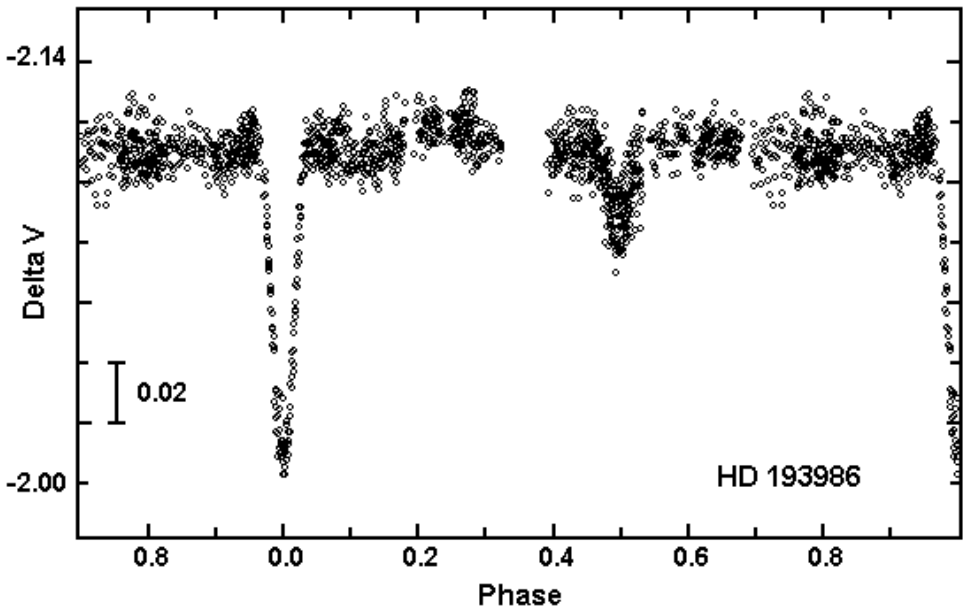

Figure 1.

Comparison star(s):	HD 332218 = GSC 2672-0986

Check star(s):	1: GSC 2672-1930 2: GSC 2672-1406

Transformed to a standard system:	No

Availability of the data:
Upon request

Type of variability:	EA

Remarks:

HD 193986, an object with a V magnitude of 8.63 and an A0 spectral type, is a variable discovered by the Hipparcos mission (ESA, 1997) after detecting light variations between $8\overset{\mathrm{m}}{.}64$ and $8\overset{\mathrm{m}}{.}76$. It could not be assigned a variable type and was catalogued as an unsolved variable. HD 193986 is also a double star (ADS 13760 AB, Aitken, 1932) whose components, of magnitudes 9.7 and 9.9, are $0\overset{''}{.}3$ apart.
The analysis of the Hipparcos satellite data indicated that this star might be an Algol-type eclipsing binary star with a period of $1\overset{\mathrm{d}}{.}3955$ or double. To confirm the analysis results this star was observed for 27 nights, between July 9, 2000 and November 9, 2000. Photometric observations showed that HD 193986 is in fact an EA variable with a period of $2\overset{\mathrm{d}}{.}79$. The star fades $0\overset{\mathrm{m}}{.}10$ at primary minimum and $0\overset{\mathrm{m}}{.}03$ at the secondary one. Since it could only be performed joint photometry of the optical binary system, brightness variations must have a larger amplitude for the variable component. The following ephemeris could also be computed:

$$\begin{aligned} \text{Min I} = \text{HJD } 2451809.4772 &+ 2\overset{\mathrm{d}}{.}791185 \times E. \\ &\pm 0.0006 \pm 0.000010 \end{aligned}$$

Acknowledgements:

I am grateful to J. M. Gomez-Forrellad for his analysis of the Hipparcos data, which allowed to solve this variable.

References:

Aitken, R.G., 1932, Carnegie Inst. Washington D.C., Publ. 417
ESA, 1997, The Hipparcos and Tycho Catalogues, ESA SP-1200