

VARIABLE STAR  
BULLETIN

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DETECTION OF SUPERHUMPS  
IN DWARF NOVA AQ ERIDANI

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AQ Eri has been classified as a Z Cam type dwarf nova according to the fourth edition of the General Catalogue of Variable Stars. However, the star normally shows short faint outbursts with the cycle length of approximately 40 days, sometimes interrupted by long bright ones which are more characteristic of supermaxima of SU UMa type dwarf novae rather than standstills (see Figure 1). Moreover, photometric data at quiescence suggest a low luminosity secondary which makes shorter orbital period more likely (Szkody, 1987).

During a bright outburst starting November 12, 1987, time-resolved observations were carried out photographically by Fujino using 31 cm Wright Schmidt camera with Tri-X film and yellow-green filter, and visually by Kato with 20 cm reflector and Iida with 26 cm reflector. Photographic light curve is shown in Figure 2. Periodic modulation in brightness with the amplitude of 0.2 magnitude is visible, which are attributable to superhumps with the period of 97 minutes. No apparent eclipses are detected.

Times of light maxima are summarized in Table 1. Observed maxima are well represented by the possible superhump period of 0.06703 days, although the possibility of one-day aliases can not be excluded. On November 24, the star declined to 14.0 magnitude and the amplitude of variation became less than 0.1 magnitude. Such phenomenon is often seen in other SU UMa systems at the end of supermaxima.

As shown above, AQ Eri has all the characteristics of SU UMa type dwarf nova with moderate orbital period. The star well deserves further photometric and spectroscopic observation.

Table 1. Times of light maxima (Days in UT of Nov. 1987)

Time(Nov. UT)	Observer	Method	E	O-C(days)
15.563:	Kato	vis	-15	+0.006:
15.628	Kato	vis	-14	+0.002
16.558:	Kato	vis	0	-0.005
16.562	Fujino	pg	0	-0.001
16.626	Iida	vis	1	-0.004
16.629	Kato	vis	1	-0.004
16.629	Fujino	pg	1	-0.001
17.576:	Iida,Kato	vis	15	+0.008:

\*O-C is calculated from the following formula:  
 $\text{Max.UT} = \text{Nov.16.563} + 0.06703 * E$

Reference:  
 Szkody, P. 1987, Ap.J.Suppl. 63, 685.

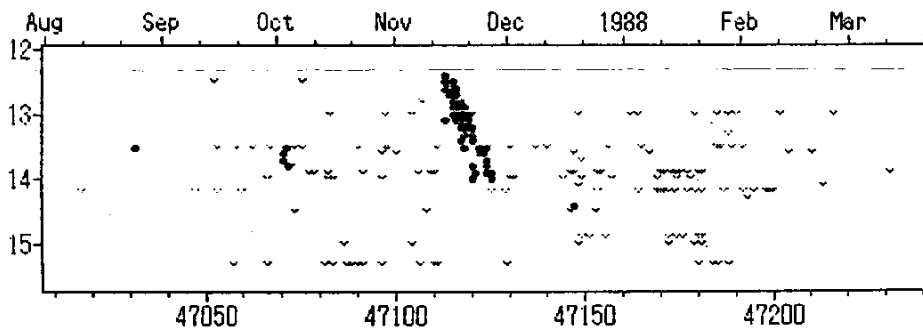


Figure 1. Light curve of AQ Eri by the members of VSOLJ.

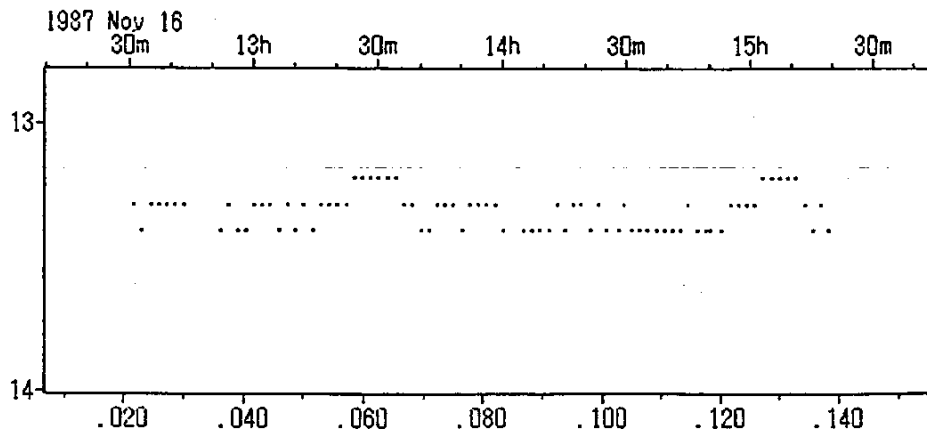


Figure 2. Photographic light curve of AQ Eri on Nov. 16.

## A NEW EPHEMERIS OF AK HYA

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A new ephemeris of AK Hya is obtained from the times of 11 maximum and 13 minimum light, which are determined our visual observations and tabulated in Table 1.

The ephemeris obtained is

$$\text{Min} = \text{JD } 2429233 + 78 * E \pm 5 ; \text{Max} - \text{Min} = 32.$$

Comparison stars used in observation are;

BD-16°2589, BD-18°2489, BD-19°2489, and BD-17°2534.

Table 1. Times of maxima and minima

Max (JD)	E	O-C	Observer	Min (JD)	E	O-C	Observer
2429270	0	+ 6	Gomi	2429322	1	+11	Gomi
29670	5	+16	Lo*	29704	6	+ 3	Lo*
29958	9	- 8	Gomi	30070	11	-21	Gomi
30025	10	-19	Gomi	30478	16	- 3	Gomi
30108	11	-14	Gomi	38770	122	+21	Gomi
30450	15	+16	Gomi	39125	127	-14	Gomi
43222	179	- 4	Koshiro	39900	137	-19	Gomi
43995	189	-11	Koshiro	43260	180	-13	Koshiro
43337	193	+19	Koshiro	43588	184	+ 3	Koshiro
44657	197	+27	Koshiro	43958	189	-17	Koshiro
45070	202	+50	Koshiro	44366	194	+ 1	Koshiro
				44692	198	+ 5	Koshiro
				44501	202	+12	Koshiro

\*Lo= E. Loreta; Variable star circular, No.20, 1959. (in Japanese)

## OBSERVATION OF V362 CEP

Compiled by S. Kiyota

V362 Cep is a Mira type variable discovered by O. Morgeroth (1933) and was named in 67-th name list (Kholopov et al., 1985).

Visual observation of the star have been carried out since 1985 (Figure 1) with a finding chart by R. McNaught (1984) and a photograph by M. Huruhata. We obtained 3 maxima in 1985-1987, which are tabulated in table 1. In spite of close monitoring, we could not catch the expected maximum around JD2447400, which may be fainter than 13 magnitude and fainter than the usual maximum.

Table 1. Maximum of V362 Cep

Time of Max	Mag(v)	E	O-C(d)	*Max = JD 2426410 + 318.1 * E
JD 244 6470	11.4	63	+20	Observers: K.Hirosawa(Aichi)
JD 244 6786	11.4	64	+16	M.Iida(Nagano)
JD 244 7108	11.4	65	+21	M.Yamada(Ishikawa)
				S.Kiyota(Ibaraki)

Reference:

O. Morgeorth, 1933, AN., 248, pp. 411.

P. N. Kholopov et al., 1985, IBVS., No. 2681.

R. McNaught, The Astronomer, 1984, 241(8), pp. 21.

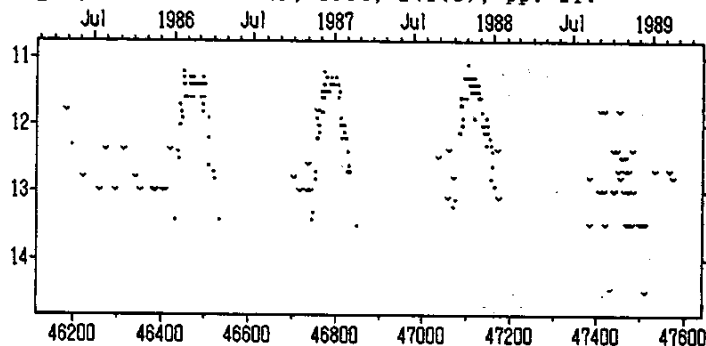


Figure 1. Light curve of V362 Cep.

Prof. M. Huru h a t a i n M e m o r i u m

Prof. Masaaki Huru h a t a, Editorial advisor of our Bulletin, past Director of Tokyo Astronomical Observatory (1968-73), past away on 23 November 1988 at the age of 76. He was born in 1912, and graduated from the University of Tokyo in 1938. He had worked at the Tokyo Astronomical Observatory and Astronomy Department, University of Tokyo, until his retirement except for a few years at the Harvard College Observatory. He obtained his doctor of science in 1955.

His early research was mainly concerned with variable stars and meteors and his interests expanded to encompass besides them the zodiacal light and airglow. His significant contribution to these fields won him wide respect and he held important posts in scientific societies both nationally and internationally.

Besides his professional career, we must mention that he continued observation of variable stars as an "amateur" astronomer after his retirement. We make a grateful acknowledgement for his continuous encouragement to the variable star research of amateur astronomers, which made us possible to publish our Bulletin, and express our deepest regret to the loss of the fine gentleman.

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V A R I A B L E   S T A R   O B S E R V E R S   L E A G U E  
I N   J A P A N

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