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NEW PHOTOELECTRIC OBSERVATION OF W UMa
SYSTEM 44i BOOTIS

The eclipsing variable 44i Boo is the fainter component of the visual binary ADS 9494. It is the brightest known W UMa-type eclipsing binary star (Bopp and Witzigmann, 1982).

It has been observed many times since its discovery (Schilt, 1926), (Eggen, 1948; Binnendijk, 1955; Schmidt and Schrick, 1957; Wehlau and Leung, 1961; Semeniuk, 1963; Catalano and Saitta, 1964; Brown and Pinnington, 1969; Kurpinska and Van't Veer, 1970; Giesecking, 1977; Hopp et al., 1977; Breinhorst, 1978; Duerbeck et al., 1978; Mikolajewska and Mikolajewski, 1980; Rovithis and Livaniou, 1981; Hopp and Witzigmann, 1982).

The system 44i Boo is known to have abrupt period changes as well as strong light activities. According to Bergeat et al. (1972) the star has an "active" period of 3 years followed by a 7 years "quiet" period. The former active periods were 1945-1947, 1955-1957, 1966-1968, 1976-1978. Thus new active period is expected to be in 1986-1988.

As a part of a program to study this eclipsing binary, photoelectric observation has been done with the 40 cm Cassegrain telescope of ALBATTANI Observatory (IRAQ-TARMIYA, latitude = $33^{\circ}37'32''$ N, longitude = $44^{\circ}28'6''$ E) during the nights 26, 27, 28 of July 1986.

An unrefrigerated photometer equipped with a 1P21 photomultiplier tube and UBV filters in close accordance with standard Johnson's filter was attached to the telescope (Kadourie et al. 1986).

The observations were made in B and V filters only.

The comparison star was 38 Boo. A total of 50 normal points have been

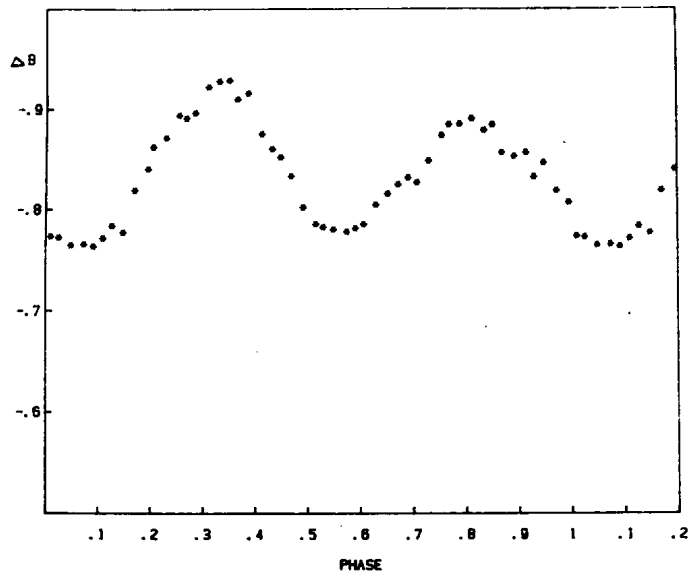


Figure 1 Light curve of 44i Boo in blue filter

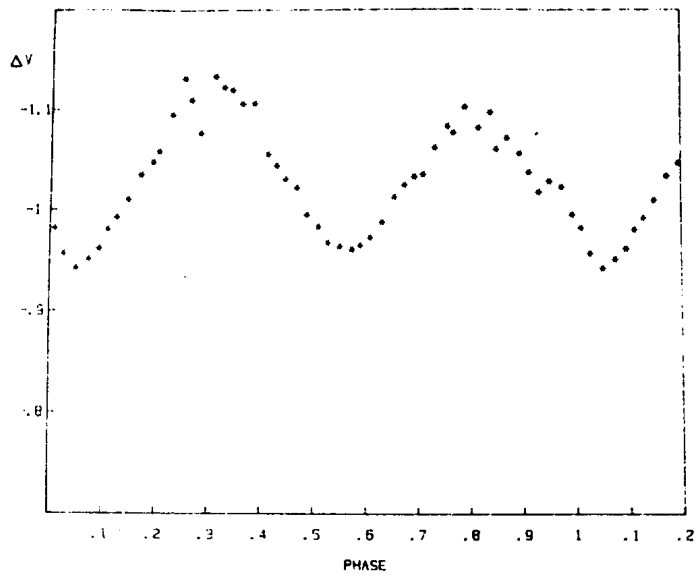


Figure 2 Light curve of 44i Boo in yellow filter

obtained from 213 observation points in each filter and the light curves are shown in Figures 1 and 2 respectively. The probable error for a single observation was ± 0.025 in V and ± 0.03 in B filter.

The phases are computed according to Duerbeck's (1978) ephemeris:

$$\text{MIN I (Hel.)} = 2439852.4903 + 0^{\text{d}}.2678159 \cdot E$$

The following table shows the times of minima and O-C values.

Filter	Min.	J.D. (Hel.)	O-C
B	I	2446640.30262	0.0174
B	II	2446638.29375	0.0171
V	I	2446640.30052	0.0153
V	II	2446638.29390	0.0151

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References:

- Bergeat, J., Lunel, M., Sibille, F. and Van't Veer, F., 1972, *Astron. Astrophys.* 17.215
 Binnendijk, L., 1955, *Astron. J.* 60.355
 Breinhorst, R.A., 1978, *Acta Astron.* 28.579
 Brown, B.M.K. and Pinnington, E.H., 1969, *Astron. J.* 74.538
 Catalano, S. and Saitta, T., 1964, *Mem. Soc. Astron. It.* 35.43
 Duerbeck, H.W., 1978, *Astron. Astrophys. Suppl.* 32.361
 Duerbeck, H.W., Karimle, M.T., Hopp, U., Kiehl, M. and Witzigmann, S., 1978, *I.B.V.S. No.* 1497
 Eggen, O.J., 1948, *Astrophys. J.* 208.15
 Giesecking, F., 1977, *I.B.V.S. No.* 1374
 Hopp, U. and Witzigmann, S., 1982, *Astrophys. Space Sci.* 83.171
 Hopp, U., Witzigmann, S. and Kiehl, M., 1977, *I.B.V.S. No.* 1353
 Kadourie, T.H., Al-Roubaia, A.H. and Mutter, A.A., 1986, *Journal of Space and Astronomy Research* 3.13
 Kurpinska, M. and Van't Veer, F., 1970, *Astron. Astrophys.* 4.253
 Mikolajewska, J. and Mikolajewski, M., 1980, *I.B.V.S. No.* 1812
 Rovithis, P. and Livanliou, R., 1981, *Astrophys. Space Sci.* 76. 351
 Schilt, J., 1926, *Astrophys. J.* 64.215
 Schmidt, H. and Schrick, K.W., 1957, *Z. Astrophys.* 43.165
 Semeniuk, I., 1963, *Acta Astron.* 13.118
 Wehlau, W. and Leung, K.C., 1962, *J. Royal Astron. Soc. Canada* 56.105