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

Number 3141

Konkoly Observatory
Budapest
1 February 1988

HU ISSN 0374-0676

ON THE PERIOD CHANGE OF THE RR LYRAE-TYPE VARIABLE XZ CYGNI

Based upon 2500 photographic, photovisual and visual observations obtained by the author between 1957 - 1985, as well as upon published data by other authors, an analysis was made of the behaviour of the mean fundamental pulsation period of XZ Cygni (Bezdenezhnyi 1977, 1986).

Table I shows the moments of 46 mean maxima derived, the corresponding (O-C)-residuals and the numbers of the main cycle E calculated by means of Klepikova's (1970) linear elements:

Max. hel. = J.D.2436933.981 + $0^d.466579 \cdot E$.

Table I

Max.hel J.D. 2400000+	O-C	E	notes	Max.hel. J.D. 2400000+	O-C	E	notes
36084.336	-0.006	- 1821	pg	45906.225	-0.537	+19231	pg
36435.217	+0.017	- 1069	pg	46281.385	-0.507	+20035	pg
37074.422	+0.004	+ 301	pg	44412.441	-0.802	+18030	pg
37512.536	+0.005	+ 1240	pg	45209.502	-0.657	+17738	pg
37896.533	-0.006	+ 2063	pg	45608.474	-0.611	+18593	pg
38354.243	-0.001	+ 3044	pg	45916.483	-0.544	+19253	pg
38983.187	-0.010	+ 4392	pg	46303.290	-0.531	+20082	pg
39377.418	-0.040	+ 5237	pg	36448.269	-0.008	- 1041	pv
39721.299	-0.032	+ 5974	pg	36809.416	+0.012	- 267	pv
40230.267	-0.099	+ 7065	pg	37174.269	-0.002	+ 515	pv
40986.458	-0.233	+ 8686	pg	37521.410	+0.003	+ 1259	pv
41642.349	-0.351	+10092	pg	37904.475	+0.008	+ 2080	pv
41545.280	-0.368	+ 9884	pg	38253.480	+0.014	+ 2828	pv
42292.140	-0.501	+11485	pg	38645.411	+0.010	+ 3668	pv
42626.588	-0.590	+12202	pg	38990.168	-0.026	+ 4407	pv
42981.525	-0.720	+12963	pg	39373.244	-0.011	+ 5228	pv
43357.487:	-0.821	+13769	pg	39785.202	-0.045	+ 6111	pv
43732.535	-0.902	+14573	pg	40465.384	-0.133	+ 7569	pv
44081.555	-0.883	+15321	pg	40814.336	-0.183	+ 8317	pv
44467.495:	-0.804	+16148	pg	41176.325	-0.262	+ 9093	pv
44814.253	-0.714	+16891	pg	41649.323	-0.372	+10107	pv
45187.586	-0.644	+17691	pg	41565.368	-0.347	+ 9927	v
45561.369	-0.591	+18492	pg	41906.355	-0.419	+10658	v

Using the observations spanning from 1905 to 1954 published by Klepikova (1959), our mean maxima, and the material obtained by other authors (see Bezdenezhnyi, 1986), the system of nine linear elements was determined by a least squares solution. All the elements of XZ Cygni are discussed and compared with those published elsewhere.

Table II

No.	Interval J.D.	Mo	P	References
1	2417000-24800	2417201.243 ± 9	0.4665861 ± 2	Martin and Plummer (1914) Bezdenezhnyi (1986)
2	24800-34600	25031.492 ± 2	0.4665818 ± 1	Payne-Gaposchkin (1947) Bezdenezhnyi (1986)
3	34600-38700	36933.981	0.466579	Klepikova (1970)
4	38700-39800	38983.184 ± 16	0.466560 ± 4	Bezdenezhnyi (1986)
5	39800-40750	40465.383 ± 11	0.466516 ± 2	Bezdenezhnyi (1986)
6	40750-42300	40445.805 ± 3	0.4664831*	Bezdenezhnyi (1977)
7	42300-43900	43628.486 ± 45	0.466442 ± 3	Taylor (1978-79) and Bezdenezhnyi (1986)
8	43900-45200	45209.507	0.466679 ± 6	Bezdenezhnyi (1986)
9	45200-46300	45209.511	0.466637 ± 7	Bezdenezhnyi (1986)

* the period P = 0.466480 ± 4 is of good fit as well (Bezdenezhnyi, 1986)

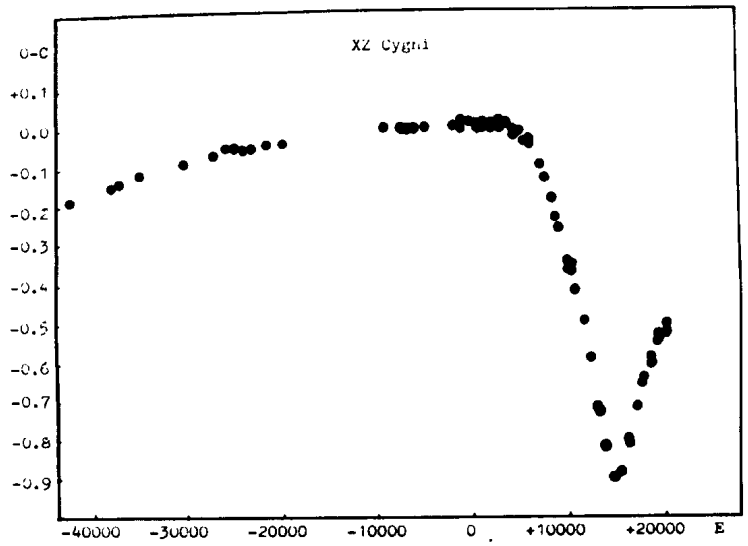

Figure 1 O-C diagram for XZ Cyg

In Figure 1 (O-C)-values are shown versus E for 80 years.

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References:

Bezdenezhnyi, V.P. 1977, The Variable Stars, Suppl. 3, 14, 125.
Bezdenezhnyi, V.P. 1986, in: "The Problems of Astronomy" , V.2
Ukrain. Res. Inst. Sci. Techn. Inform.
(UkrNIINTI) No 430, p.127-148.
Klepikova, L.A. 1959, The Variable Stars, 12, 164.
Klepikova, L.A. 1970, S.A.C. 42.
Martin, C. and Plummer, H.C. 1914, M.N. 74, 225.
Payne-Gaposchkin, C. 1947, H.A. 118, No 19.
Taylor, P.O. 1978-79, J.A.A.V.S.O. 7, No 2, 82.