CU ERIDANI – A SUSPECTED VARIABLE

(Letter to the Editor)

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Abstract. Photometric observations of CU Eridani, recently classified as non-variable, indicate it to be a variable star.

The star BD – 13°0525 = HD 017383 = CU Eri has been listed by Wood *et al.* (1980) as eclipsing binary with a period of 0.633798 day, and depths of 0.6 mag for both the primary and secondary minima. This information is based on the work of Przybl̀yski (cf. Wood *et al.*, 1980). Epoch of primary minimum, duration of eclipse, and duration of totality are not given. Kholopov (1985) has catalogued it as 'CST' type, which means a non-variable star, formerly suspected to be a variable and hastily designated. Further observations did not confirm its variability. No other information about it is available in the literature.

CU Eri was observed on the 38-cm reflector of the Uttar Pradesh State Observatory, Naini Tal, through *UBV* filters and 1P21 photomultiplier cooled to – 20 °C. HD 17164 and HD 17123 were taken as comparisons for CU Eri. Table I gives the particulars of the comparison and the variable star alongwith their observed magnitudes and colours. Observations (HD 17164–CU Eri) have been listed in Table II. The star has been observed on six nights.

We note a 0.18 mag variation in the light curve of CU Eri on the night of 2 March, 1984 (Figure 1). On the night of 4 December, 1983, this star shows a variation of

TABLE I

Particulars of comparison and variable stars

Star	α_{1950}	δ_{1950}	V	$B-V$
CU Eri = HD 17387 = BD – 13°525	$2^h44^m34^s.929$	– 13°33′0″.24	$8^m.76$	$0^m.88$
HD 17164 = BD – 14°523	$2^h42^m32^s.621$	– 13°48′33″.85	$9^m.18$	$0^m.55$
HD 17123 = BD – 14°521	$2^h42^m8^s.501$	– 13°53′52″.80	$9^m.47$	$0^m.89$

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TABLE II

Standard differential magnitudes of CU Eri

J.D. (Hel.)	ΔB	J.D. (Hel.)	ΔB	J.D. (Hel.)	ΔB
2445673.1552	0.084	2445673.6281	0.090	2445676.2387	0.084
.1563	0.073	676.1451	0.081	.2395	0.096
.1590	0.070	.1460	0.080	.2403	0.080
.1599	0.092	.1467	0.082	.2498	0.091
.1610	0.102	.1488	0.080	.2514	0.090
.1624	0.084	.1496	0.093	.2522	0.089
.1739	0.071	.1503	0.088	.2532	0.098
.1747	0.071	.1514	0.086	.2545	0.096
.1756	0.049	.1597	0.091	.2558	0.102
.1765	0.071	.1610	0.074	.2670	0.100
.1786	0.069	.1624	0.075	.2698	0.066
.1795	0.079	.1645	0.082	.2722	0.037
.1802	0.080	.1655	0.077	.2732	0.035
.1812	0.080	.1667	0.102	684.1379	0.169
.1823	0.069	.1673	0.100	.1483	0.043
.1895	0.098	.1752	0.117	.1565	0.059
.1902	0.107	.1762	0.116	.1673	−0.004
.1920	0.088	.1770	0.112	.1764	0.259
.1929	0.078	.1792	0.101	.1840	0.056
.1947	0.088	.1804	0.112	.1933	0.047
.1957	0.075	.1818	0.092	.2027	−0.018
.2024	0.102	.1819	0.121	.2110	0.176
.2032	0.092	.1898	0.112	723.1306	0.122
.2044	0.103	.1908	0.111	.1406	0.193
.2054	0.125	.1917	0.123	.1427	0.166
.2064	0.118	.1939	0.110	.1506	0.145
.2073	0.129	.1949	0.089	.1589	0.079
.2084	0.112	.1967	0.098	.1696	0.167
.2192	0.107	.2040	0.079	.1725	0.161
.2202	0.122	.2048	0.079	736.1020	0.094
.2212	0.122	.2058	0.089	.1096	0.088
.2225	0.116	.2066	0.080	.1172	0.111
.2235	0.122	.2088	0.078	.1283	0.056
.2324	0.090	.2100	0.088	.1356	0.066
.2336	0.081	.2111	0.099	.1430	0.112
.2353	0.094	.2174	0.089	.1495	0.054
.2365	0.094	.2184	0.089	.1566	0.074
.2374	0.095	.2195	0.100	762.0905	−0.037
.2495	0.062	.2202	0.100	.0987	0.087
.2506	0.064	.2222	0.094	.1070	0.122
.2520	0.096	.2233	0.083	.1135	0.059
.2535	0.086	.2245	0.074	.1196	0.194
.2549	0.081	.2336	0.069	.1259	0.064
.2642	0.113	.2346	0.075	.1330	0.174
.2654	0.099	.2354	0.076	.1404	0.266
.2668	0.096	.2364	0.087		

Table II (continued)

J.D. (Hel.)	ΔV	J.D. (Hel.)	ΔV	J.D. (Hel.)	ΔV
2445673.1547	$0^m.440$	2445673.2681	$0^m.425$	2445676.2382	$0^m.432$
.1559	0.428	676.1447	0.412	.2391	0.424
.1567	0.433	.1457	0.410	.2399	0.433
.1595	0.432	.1463	0.418	.2499	0.430
.1604	0.424	.1484	0.403	.2510	0.425
.1616	0.421	.1490	0.404	.2518	0.432
.1733	0.422	.1499	0.409	.2529	0.434
.1743	0.413	.1510	0.409	.2538	0.428
.1751	0.404	.1594	0.416	.2551	0.437
.1761	0.401	.1601	0.423	.2564	0.432
.1781	0.406	.1620	0.416	.2719	0.394
.1789	0.429	.1641	0.411	.2726	0.385
.1799	0.417	.1651	0.416	.2737	0.387
.1807	0.416	.1661	0.425	684.1383	0.456
.1817	0.413	.1670	0.411	.1487	0.357
.1888	0.429	.1749	0.417	.1567	0.352
.1898	0.442	.1756	0.429	.1677	0.311
.1917	0.427	.1766	0.429	.1767	0.463
.1927	0.420	.1785	0.413	.1844	0.406
.1943	0.427	.1797	0.416	.1937	0.416
.1952	0.426	.1811	0.426	.2030	0.279
.2019	0.419	.1884	0.422	.2114	0.459
.2029	0.417	.1894	0.421	723.1311	0.462
.2040	0.414	.1903	0.428	.1411	0.514
.2049	0.428	.1913	0.429	.1432	0.491
.2059	0.434	.1935	0.428	.1510	0.456
.2069	0.429	.1945	0.417	.1594	0.416
.2078	0.433	.1959	0.410	.1703	0.384
.2187	0.412	.2035	0.415	.1728	0.411
.2197	0.410	.2045	0.416	736.1025	0.416
.2208	0.426	.2054	0.423	.1100	0.429
.2218	0.433	.2063	0.422	.1177	0.413
.2229	0.427	.2083	0.429	.1288	0.394
.2320	0.427	.2094	0.427	.1361	0.432
.2331	0.413	.2106	0.425	.1435	0.427
.2344	0.402	.2170	0.412	.1500	0.386
.2359	0.431	.2179	0.413	.1570	0.391
.2370	0.425	.2190	0.426	762.0908	0.317
.2483	0.406	.2199	0.440	.0991	0.396
.2500	0.407	.2220	0.434	.1073	0.424
.2514	0.422	.2226	0.434	.1138	0.467
.2525	0.424	.2241	0.426	.1200	0.483
.2542	0.419	.2330	0.427	.1264	0.510
.2635	0.436	.2341	0.434	.1335	0.511
.2649	0.417	.2350	0.435	.1407	0.489
.2658	0.411	.2360	0.437		

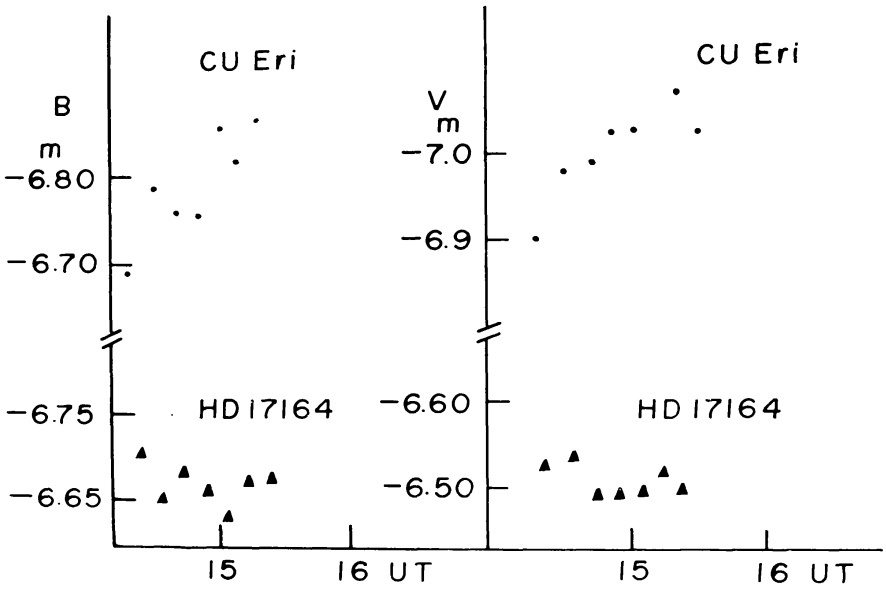

Fig. 1. Light curve of CU Eri (2 March, 1984). Filled circles and triangles represent instrumental magnitudes of CU Eri and comparison star HD 17164, respectively.

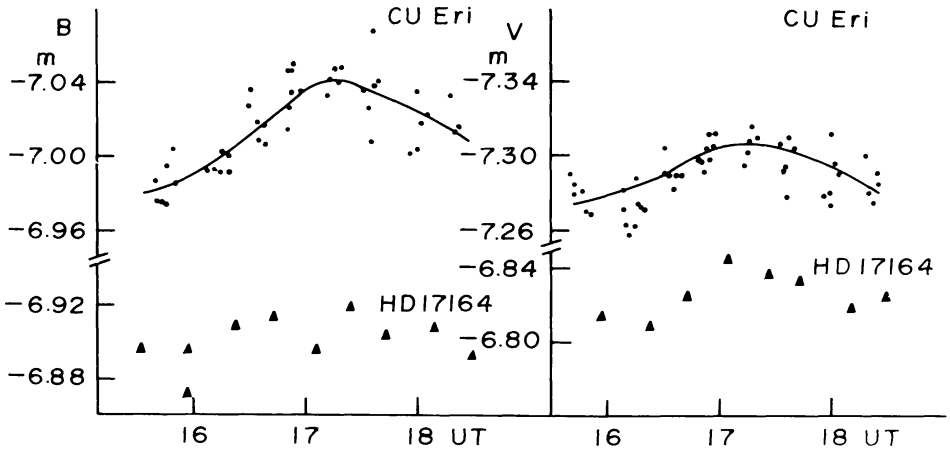

Fig. 2. Light curve of CU Eri (4 December, 1983). Filled circles and triangles represent instrumental magnitudes of CU Eri and comparison star HD 17164, respectively.

0.06 mag only in the *B* filter (Figure 2). The magnitude variation is not prominent in the *V* filter. The standard error of observations for these two nights is less than 0.02 mag. The observations are not sufficient to indicate the type of variability but CU Eri does not appear to be an eclipsing star.

References

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