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**OPTICAL VARIABILITY AND H-ALPHA EMISSION
FOR THE BRIGHT O STAR HR 2806**

HR 2806 (HD 57682) has been classified as a sharp-lined O9V star (Slettebak, 1956). Its v_{ini} is truly small: values from 17 (Conti et al., 1977) to 40 km/sec (Buscombe, 1970) have been quoted. There has been some past speculation that it has possessed emission lines at some epochs. Peterson & Scholz (1971) observed possible emission at H α and H β . Conti (1974) found emission shortward of H α , and elsewhere. However, Jaschek et al. (1964) and Zinn (1970) found no emission at H α . The star is the exciting object for the IC 2177 nebulosity and a member of the CMa OB1 association.

The author obtained a spectrum centered at H α with the Kitt Peak coude feed telescope and RCA2 CCD on JD2446878.73. It was immediately apparent that there was a noticeable single emission component at H α . Later, two other spectra in the same region were also acquired on JD 2448644.90 and 8645.80 with the same telescope, but this time with the T1KA CCD. They were virtually identical in appearance, with both showing a single emission component at H α and a strong, uncontaminated λ 6678 He I. The spectra from JD 6878 and 8645 are shown in Figure 1. The intensity of H α emission seems to have increased slightly. The velocity of the H α emission peak has not changed much (-5.6, -11.4, and -12.0 km/sec for 3 spectra), nor has that of He I λ 6678 (+17.9, +19.3, +21.0 km/sec). These last are in good agreement with the published radial velocities of +22.6, +21.9, and +23.9 (Abt & Biggs, 1972). In view of its possible variability, the star was added to the BV photometric monitoring program of the Corralitos Observatory. Along with its 0.6-m. telescope, two different photometers were used, the first being an ambient temperature EMI 9924A tube-based system, and the second based on an R4457 tube. Care was devoted to the observation of standard stars so that there were no measurable transformation errors between the two systems. Two comparison stars were utilized: HR 2798 ($V=6.549$; $B-V=+.513$) and HR 2739 ($V=6.001$; $B-V=-.135$). The average standard errors for the two comparison stars were .018 magnitudes in V and $B-V$.

51 observations over the time period JD 2446754-8724 were obtained. They appear in Table 1 and graphically in Figure 2. Clearly, HR 2806 is minorly variable, showing a range of 0.111 in V and .100 in $B-V$. A plot of V vs. $B-V$ shows no correlation. It would also seem that the range of variability in V magnitude changes: seasons 3 and 4 show larger dispersion than 1, 2, and 5. The cause of variability of this star cannot be ascertained from the data taken. It may proceed from changing conditions in the circumstellar material or HR 2806 may be a rapid variable akin to Zeta Ophiuchi, an O9.5Ve star which shows light variations with periods of 0.193 and 1.075 days (Percy, 1987).

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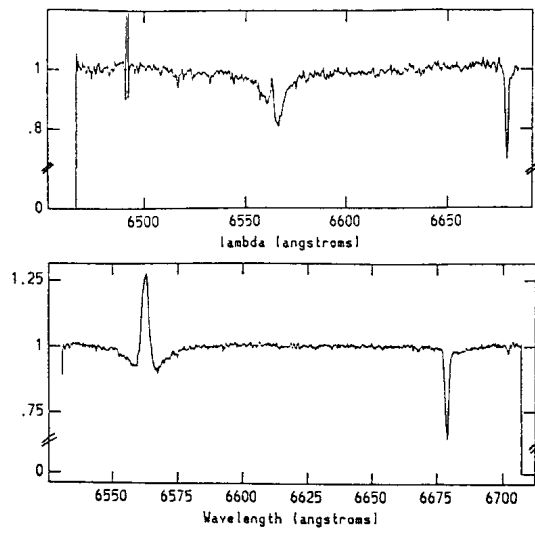


Figure 1. Coudé spectra in the region of $H\alpha$ for HR 2806. The ordinate is in units of continuum intensity. Dates of spectra are in the text.

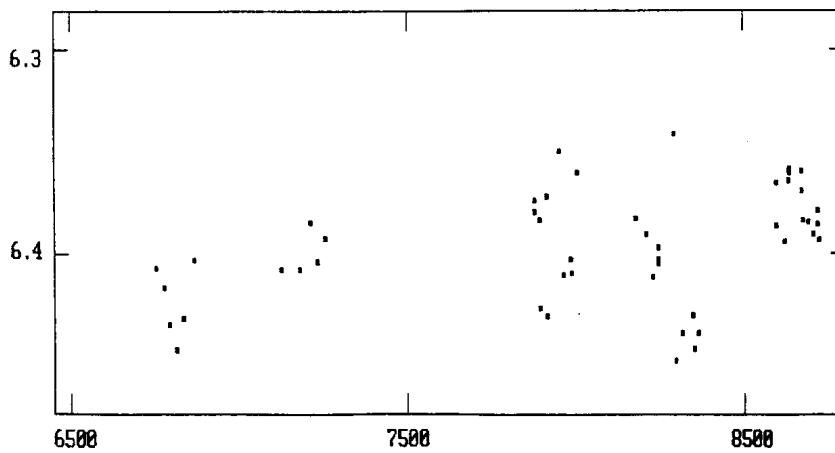


Figure 2. V magnitudes for HR 2806. Julian Date is JD - 2440000.

Table 1

BV magnitudes for HR 2806

Numbers following magnitudes in parentheses are standard errors in millimag.

Julian Date (2440000+)	V(SE)	B-V(SE)	Julian Date (2440000+)	V(SE)	B-V(SE)
6754.9471	6.406(-)	-.162(-)	8243.8361	6.404(1)	-.119(19)
6777.8721	6.416(-)	-.158(-)	8243.8377	6.402(-)	-.171(-)
6795.8928	6.434(-)	-.187(-)	8244.8375	6.397(13)	-.147(13)
6816.8416	6.447(-)	-.141(-)	8292.8410	6.341(-)	-.152(-)
6833.7912	6.431(-)	-.197(-)	8293.7806	6.452(11)	-.173(16)
6867.7748	6.402(-)	-.133(-)	8313.7616	6.439(-)	-.181(21)
7124.9447	6.407(-)	-.186(-)	8328.7042	-	-.189(-)
7183.8243	6.407(-)	-.174(-)	8348.6847	6.430(-)	-.185(-)
7212.7448	6.384(-)	-.147(-)	8350.6694	6.447(10)	-.105(23)
7232.7124	6.403(-)	-.146(-)	8364.6573	6.439(-)	-.154(-)
7259.6546	6.392(-)	-.118(-)	8597.9493	6.365(17)	-.124(6)
7878.9333	6.379(4)	-.140(20)	8598.9188	6.386(15)	-.145(-)
7881.8076	6.374(1)	-.132(4)	8621.8215	6.394(-)	-.191(20)
7896.8132	6.383(18)	-.109(9)	8635.8917	6.359(16)	-.147(4)
7897.8014	6.426(6)	-.154(13)	8635.8931	6.364(-)	-.179(-)
7915.7646	-	-.123(-)	8636.8153	6.358(13)	-.164(-)
7916.8319	6.372(-)	-.119(-)	8637.8028	6.360(-)	-.162(19)
7917.7764	6.430(-)	-.160(4)	8674.8090	6.369(21)	-.158(1)
7952.6750	6.350(-)	-.097(10)	8679.8101	6.359(-)	-.196(-)
7965.7139	6.410(19)	-.125(-)	8677.7667	6.383(4)	-.149(1)
7985.6403	6.402(16)	-.142(-)	8695.6993	6.384(2)	-.160(19)
7986.6694	6.409(14)	-.150(-)	8711.6576	6.390(-)	-.140(4)
8002.6313	6.360(-)	-.190(-)	8722.6410	6.378(1)	-.160(1)
8176.9660	6.382(9)	-.123(29)	8723.6368	6.385(2)	-.144(14)
8205.8896	6.390(5)	-.131(24)	8724.6417	6.393(1)	-.166(4)
8225.8979	6.411(11)	-.123(2)			

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