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LINE PROFILE CHANGES IN X PERSEI

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X Persei is the optical counterpart of X-ray transient source 4U 0352+30. The system consists of a neutron star secondary accreting from an O9.5IIIe primary via stellar wind processes. The photometric and spectroscopic observations show that X Persei lost its circumstellar disc and it has been in "extended optical low state" during the periods 1974-1977 and 1990-1993. Engin and Yüce (1997) observed X Per in the period 1994-1996 and found that it entered a "new low state" in 1995.

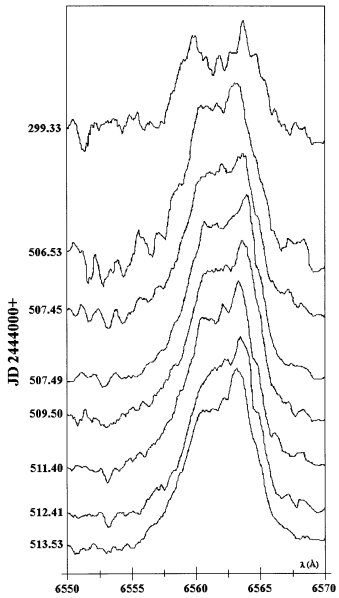

Figure 1. Hα line profile variations.

Roche et al. (1993) have examined the long-term variability of Hα emission line and they have given their Hα equivalent width measurements with those of other authors. These measurements correspond to the period from October 1981 onwards. We present here the Hα and Hβ equivalent width measurements of X Persei that are based on the observations of this system during the period February 1980 and September 1980. The

Table 1: Hα equivalent widths.

Date	JD(2440000+)	EW of Hα (Å)
29 Feb 1980	4299.33	−2.6
23 Sep 1980	4506.53	−4.7
24 Sep 1980	4507.45	−4.6
24 Sep 1980	4507.49	−5.1
26 Sep 1980	4509.50	−4.8
28 Sep 1980	4511.40	−5.0
29 Sep 1980	4512.41	−4.6
30 Sep 1980	4513.53	−4.8

spectrograms, which had been obtained with the coudé spectrograph at the 152cm telescope of Haute-Provence Observatory, have been borrowed from Trieste Observatory for this work.

Figures 1 and 2 show the profiles of Hα and Hβ. It is clearly seen that the profiles taken in February and September 1980 are different. In February 1980 the emission wings are symmetric and central absorption component is strong, but in September 1980 absorption becomes weaker and emission stronger with an asymmetric profile, with violet wing being broad.

Tables 1 and 2 list our Hα and Hβ equivalent width measurements, respectively.

Figure 3 shows the variation of Hα equivalent width with time. Our data confirm that after the disc-loss phase of 1974–1977, in February 1980 the disc began to form again and in September 1980 an expanding full disc was present.

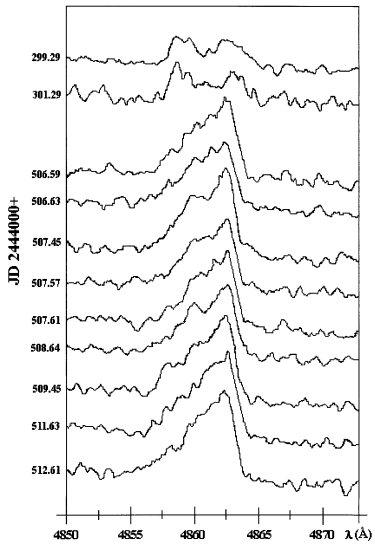

Figure 2. Hβ line profile variations.

Table 2: Hβ equivalent widths.

Date	JD(2440000+)	EW of Hβ (Å)
29 Feb 1980	4299.29	− 0.7
02 Mar 1980	4301.29	−0.8
23 Sep 1980	4506.59	−2.5
23 Sep 1980	4506.63	−2.3
24 Sep 1980	4507.45	−2.3
24 Sep 1980	4507.57	−2.4
24 Sep 1980	4507.61	−2.3
25 Sep 1980	4508.64	−2.3
26 Sep 1980	4509.45	−2.1
28 Sep 1980	4511.63	−2.5
29 Sep 1980	4512.61	−2.5

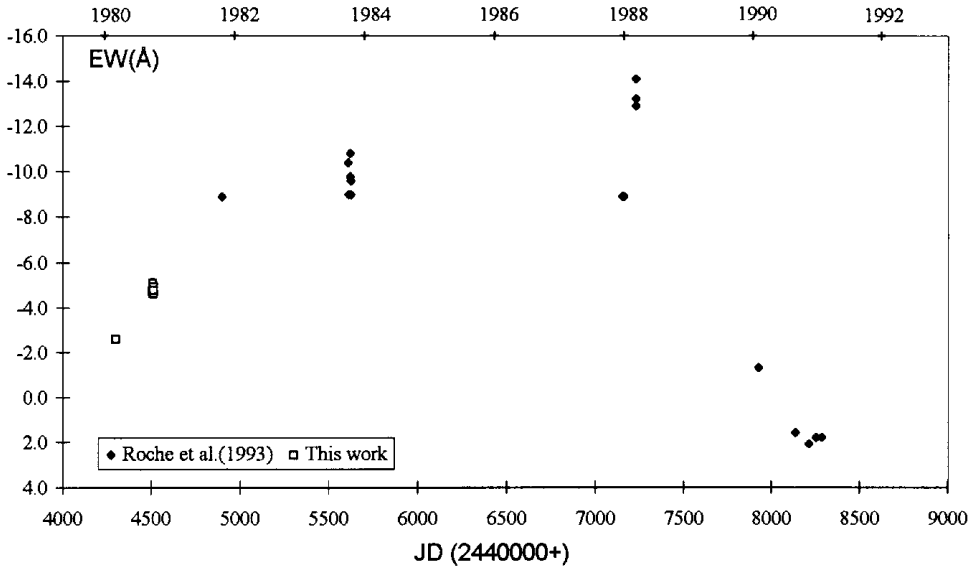

Figure 3. The variation of Hα equivalent widths with time.

References:

Engin S., Yüce K., 1997, Inf. Bull. Var. Stars, No. 4454.
Roche P., Coe M.J., Fabregat J., et al., 1993, A&A, 270, 122.