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OBSERVATIONS OF AT CANCRI IN THE SEASON 1984/85

The star AT Cnc, which is probably of cataclysmic type, was measured on 66 blue-sensitive plates (ORWO-ZU21+GG13+BG12) from 14 nights obtained with the 50/70/172 cm Schmidt camera of Sonneberg Observatory covering the time interval between 29 November 1984 and 22 March 1985, using the sequence of

Table I

J.D.hel 244....	m_B	J.D.hel 244....	m_B	J.D.hel 244....	m_B
6034.595	$15^m.80$	6108.411	$15^m.45$	6113.390	$16^m.20$
6034.616	16.00	6108.431	15.40	6113.411	15.60
6034.635	15.65	6108.454	15.40	6113.431	15.80
6034.656	15.95	6108.474	15.40	6113.474	15.50
6034.677	15.55	6109.372	15.40	6113.495	15.55
6036.693	14.75	6109.390	15.45	6116.333	13.70
6036.711	14.85	6109.408	15.40	6116.354	13.70
6083.573	15.05	6109.429	15.20	6116.372	13.45
6083.639	15.40	6109.449	15.30	6116.392	13.80
6083.662	15.40	6109.469	15.65	6116.411	13.85
6083.683	15.35	6110.351	15.20	6116.430	14.00
6084.419	15.85	6110.373	15.10	6116.451	13.75
6084.436	15.90	6110.393	15.20	6121.397	13.30
6093.507	13.15	6110.431	15.60	6121.417	13.35
6093.527	13.10	6110.449	15.75	6121.437	13.25
6093.547	12.95	6110.471	16.00	6121.457	13.45
6093.567	12.80	6110.493	16.05	6121.479	12.90
6093.586	12.90	6110.603	15.70	6137.347	13.10
6093.630	13.10	6111.449	16.00	6137.368	13.20
6108.347	15.80	6111.470	15.50	6147.322	14.45
6108.366	15.95	6113.351	16.15	6147.342	14.25
6108.386	15.75	6113.370	16.05	6147.362	14.10

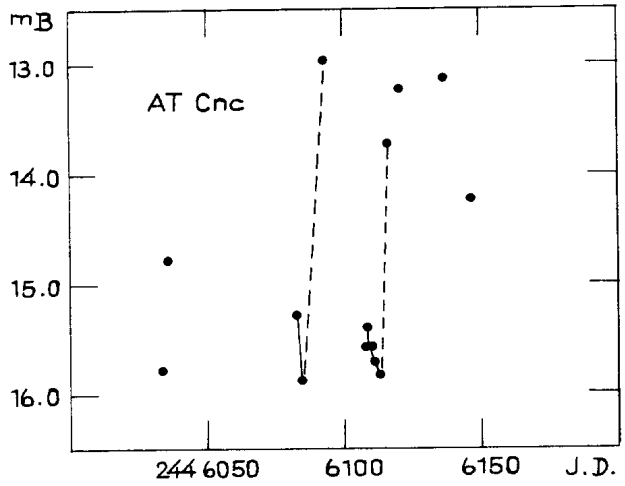

Figure 1

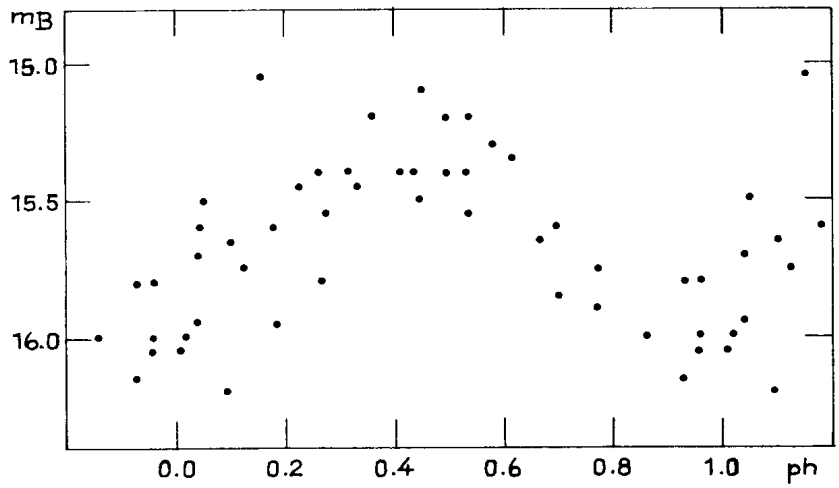

Figure 2

comparison stars given in the IBVS No. 2363 . The observations are listed in Table I. In order to study the short-term behaviour of the star, more than one plate were obtained in all nights. The exposure time of the plates amounts to 20 minutes.

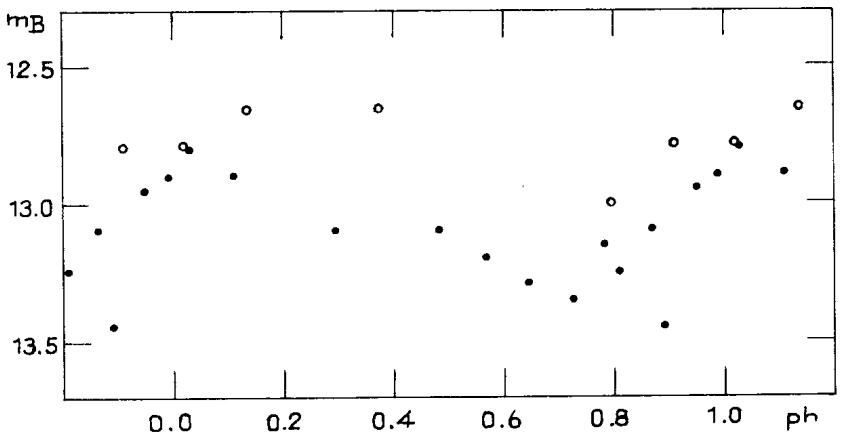

Figure 3

The long-term light curve of AT Cnc which results from the mean magnitudes of the nights listed in Table I, given in Figure 1, shows variations between $m_B = 15^m.90$ and $m_B = 13^m.00$. A remarkable increase in brightness with $\Delta m_B = -2^m.09$ within $2^d.97$ was observed between 16 February and 19 February 1985. Small short time-scale variations of the star can be observed in all series. They seem to be regular and refer to occultation light changes. In order to study the influence of these variations all observations were reduced to one common epoch by means of the preliminary orbital elements:

$$\text{Min. Hel.} = 244\,6110.504 + 0^d.238\,6556 \cdot E$$

The results are given in Figures 2 and 3 where the magnitudes m_B from observations of the low ($15^m.0 < m_B < 16^m.2$) and the high ($12^m.6 < m_B < 13^m.5$) state of brightness are plotted against the phases. In Figure 3 the series of observations from the night J.D. 244 5672 given in the IBVS No. 2526 (1984) and marked by circles are also drawn. Comparing Figures 2 and 3 it can be seen that in the high state the minimum phase is displaced to phase ≈ 0.75 . More observations are still needed to make further and detailed statements about the behaviour of AT Cnc.

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