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ON THE VARIABILITY OF UPSILON AURIGAE

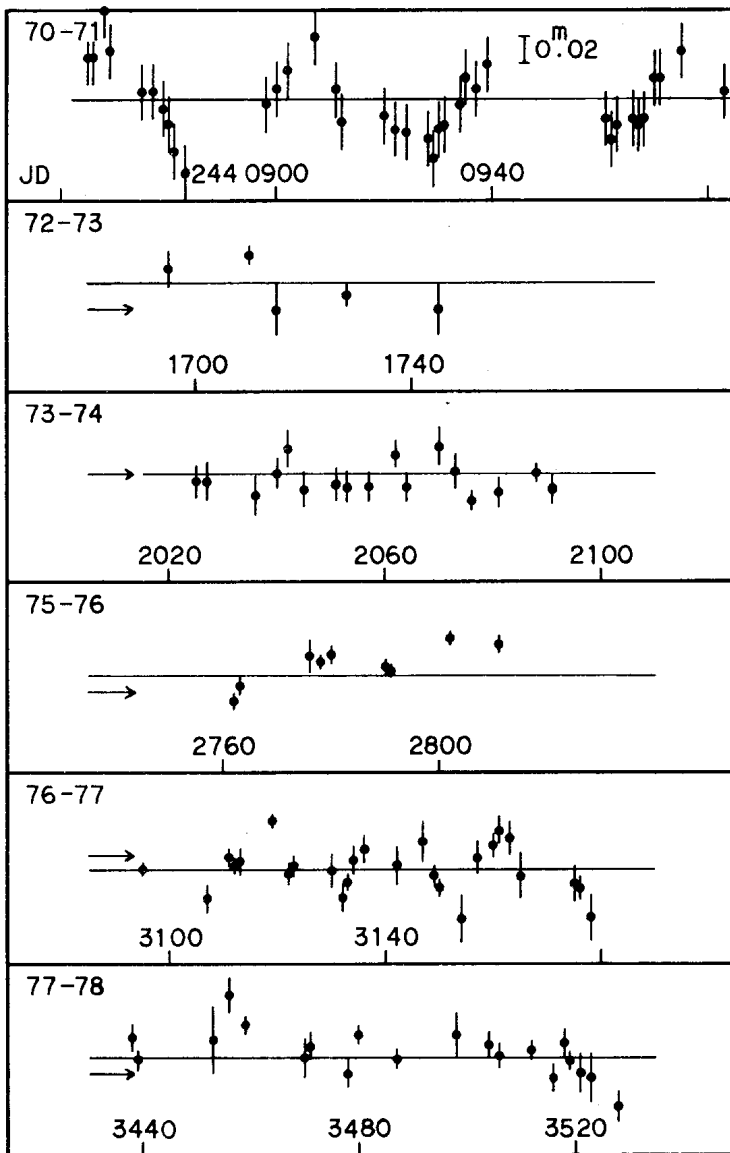
We have made photoelectric photometry of υ Aur (GM1) which is assigned as suspected variable in the Yale Bright Star Catalogue 1). All observations were made in the visual band. Observed seasons, comparison stars (all in Auriga), and observers are listed in the following table. The telescopes we used were the

Season	Observer	Comparison Stars
1970-71	Hamada	υ τ ϕ
1972-73	Tamura	υ τ ϕ
1973-74	Mizuno	η λ μ υ τ ϕ
1975-76	Nitou	λ μ υ τ ϕ
1976-77	Inagoya	λ μ υ τ ϕ
1977-78	Nitou	λ μ υ ρ τ ϕ 2

20 cm reflector in the 70-71 season, and the 40 cm reflector diaphragmed to 30 cm in other seasons. Normally, each star was measured 4 or 5 times on one night. Almost all measurements were made with zenith distance less than 45° , none more than 52° .

Except for the 70-71 season, extinction correction and transformation to the Johnson system were applied for all stars. For the observation in the 70-71 season neither extinction correction nor transformation was made, but the result has significance because the comparison stars are relatively near and the measurement was not made at large zenith distance and our instrumental system is reasonably close to the Johnson system. In fact, the range of variation of the magnitude difference between τ and ϕ which is 3 times distant compared with the angular distance between τ and υ , is up to 0.02-0.03 mag and no correlation was found between the variation of τ - ϕ with that of υ .

Results are shown in the Figure. Dots are observed values. υ - τ values and V magnitudes are plotted for the 70-71 and other seasons, respectively. Attached bars give seasonal mean of nightly mean standard errors for the 70-71 season and nightly mean of standard errors for other seasons (both including errors in ob-



servation of comparison stars). Horizontal straight lines are mean lines and arrows indicate Arizona-Tonantzintla Catalogue²⁾ magnitude. Magnitude scale is also given. It should be remarked that errors here given are internal ones. Unfortunately our photometric equipment is not of high quality and the external error up to about 0.02 mag may have crept into our results.

From this Figure and the variation of comparison stars which is presumably due to the observational errors, υ Aur appears to vary in the 70-71 and 76-77 seasons. The result in the 70-71 season seems to indicate regular variation with $P=35-36^d$ and the range of 0.1 mag while in the 76-77 season suggests rather irregular variation. On the other hand, the observation in the 73-74 season indicates no significant variation, because the variation in this season is similar to that of comparison stars. The result in the 72-73 season also suggests no significant variation. Observations in the 75-76 and 77-78 seasons seem to suggest irregular variation, but the number of the points appreciably deviating from the mean lines are rather small.

We feel that υ Aur is probably variable but the evidence is not so strong. Further observation is necessary. Detailed results will be published later in the Science Report of our University.

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