

Long-term Photometry of the Symbiotic Star AG Draconis

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Photoelectric *UBV*-observations of the well known symbiotic star AG Draconis were obtained between 1982 and 1984 with the 60 cm photoelectric reflector II of Sonneberg Observatory. The light curve shows two large optical outbursts: (at JD = 244 5000...5500 and JD = 9000...9500) and two smaller eruptions (at JD = 6200, 6600). The recent outburst is the largest one since 1952.

During the quiet stage a significant variability with an amplitude of about one magnitude is only visible in the *U*-band. L. Meinunger (1979) detected a period of 554 days and calculated the following ephemeris:

$$U_{\max} = 243\,8900 + 554 \cdot E$$

All outbursts and smaller eruptions are correlated with the period of the *U*-maxima, the outburst maxima always coincide with *U*-maxima of the quiet stage, calculated by the above formula.

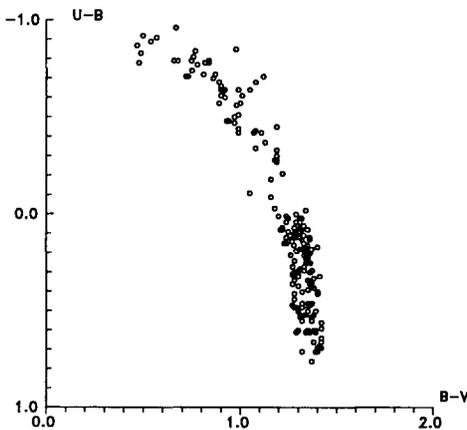


Fig. 1. Correlation between the color indices (*B* - *V*) and (*U* - *B*) of AG Dra.

The amplitudes of the outbursts differ also very significantly in color: the amplitude of the last outburst amounts to $\approx 5^m$ in *U* but only $\approx 1^m5$ in *V*. (*U* - *B*) varies from $\approx +0.8$ during the quiet stage to ≈ -1.0 during the large outburst maximum (Fig. 2). The variations of the color indices (*B* - *V*) and (*U* - *B*) are always strongly correlated (Fig. 1).

During the quiet stage the *V*-light curve shows small periodical variations of $\approx 0^m15$ with a period of ≈ 356 days. This period differs significantly from the *U*-band period. The cause of this variability is still unknown.

References

- Meinunger L., 1979, IBVS 1611
Luthardt R., 1983, Mitt. Veränd. Sterne 9.5, 130

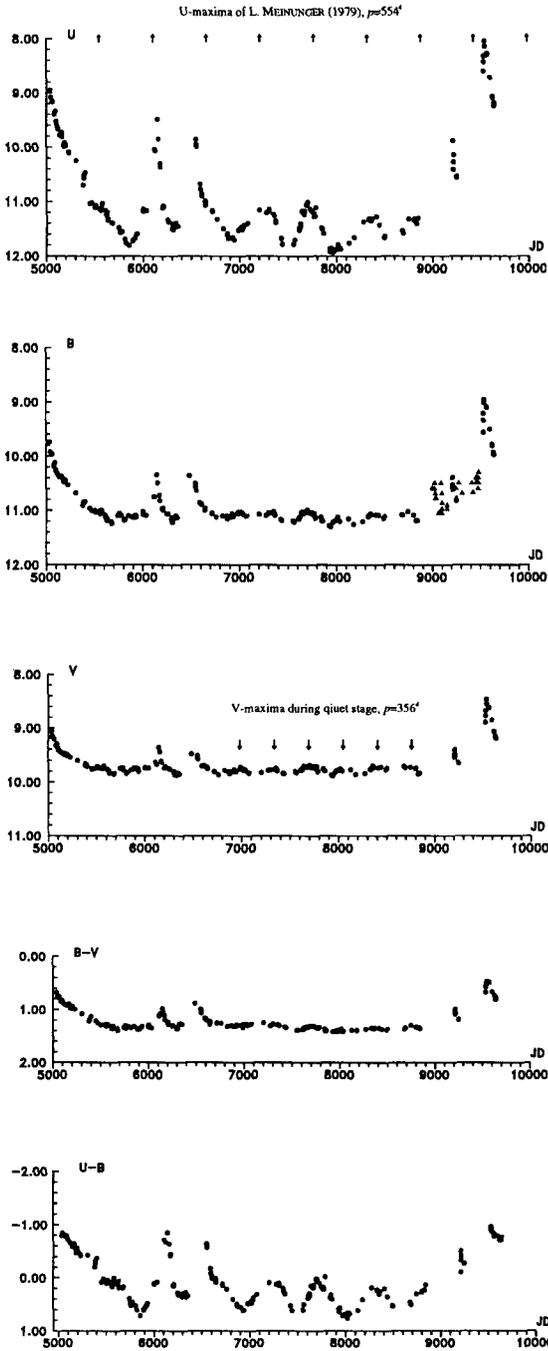


Fig. 2. *UBV* light curve of AG Dra (top panels) and the variation of the color indices ($B - V$) and ($U - B$) as obtained at Sonneberg Observatory over the last 12 years.