

HM Sge still evolving

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In their study on C/N/O abundances in red giants, planetary nebulae, novae and symbiotic stars Nussbaumer, Schild, Schmid and Vogel (1988: *Astron.Astrophys.*198, 179) pointed out that among symbiotic stars HM Sge is quite exceptional, in that its C/N/O abundance ratios rather resemble those of novae and not of symbiotic stars.

In 1975 HM Sge brightened within a few months by at least 4^m . The object has been observed in radio, visual, X-ray, and since 1978 with IUE. Here we show the changing level of activity in the UV. Figure 1 gives the FES (IUE fine error sensor) counts, representing an integrated flux at visual wavelengths. This flux shows a general decline with a secondary maximum in 1982. – Our m_{FES} is at variance with the visual magnitude estimates given by Munari and Whitelock (1989: *Mon.Not.Roy.astr.Soc.* 237, 45p). They report high brightness up to at least the end of 1984.

In Figure 2 we show examples of the 1200 Å – 3200 Å continuum. Of particular significance is the fact that the short wavelength continuum ($\lambda \approx 1500$) takes part in the variation.

The emission line spectrum has also seen significant changes, as shown in Figure 3. [Mg V] which was absent at least up to April 1982 is suddenly one of the strongest lines in the long wavelength UV-spectrum. Not shown in this figure are [Ne V] $\lambda 1575, 2973$ which made their appearance at the same time as [Mg V]. Ipatov and Yudin (1986: *Astron.Astrophys. Suppl.*65, 51) report the appearance of [Ne V] $\lambda 3426$ already for June 1983.

The UV line and continuum fluxes show a decrease in the continuum together with a trend to higher stages of ionization. The appearance of [Ne V] and [Mg V] was accompanied by a slight increase in He II $\lambda 1640$, and a drop in UV continuum. There have also been significant changes in line profiles. On symbiotic timescales HM Sge is still evolving at a rapid pace. We suspect this to be due to a post AGB evolution with the formation of a planetary nebula. – An extended description of past IUE observations, together with some theoretical considerations will be submitted for publication.

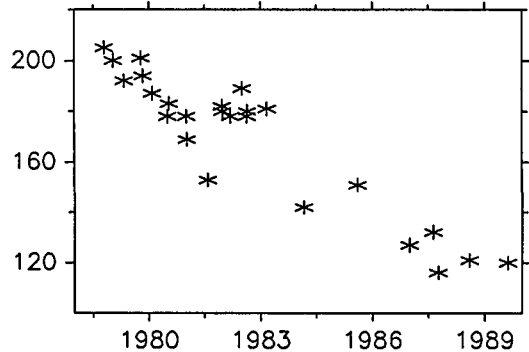


Fig. 1. Corrected FES counts of HM Sge.

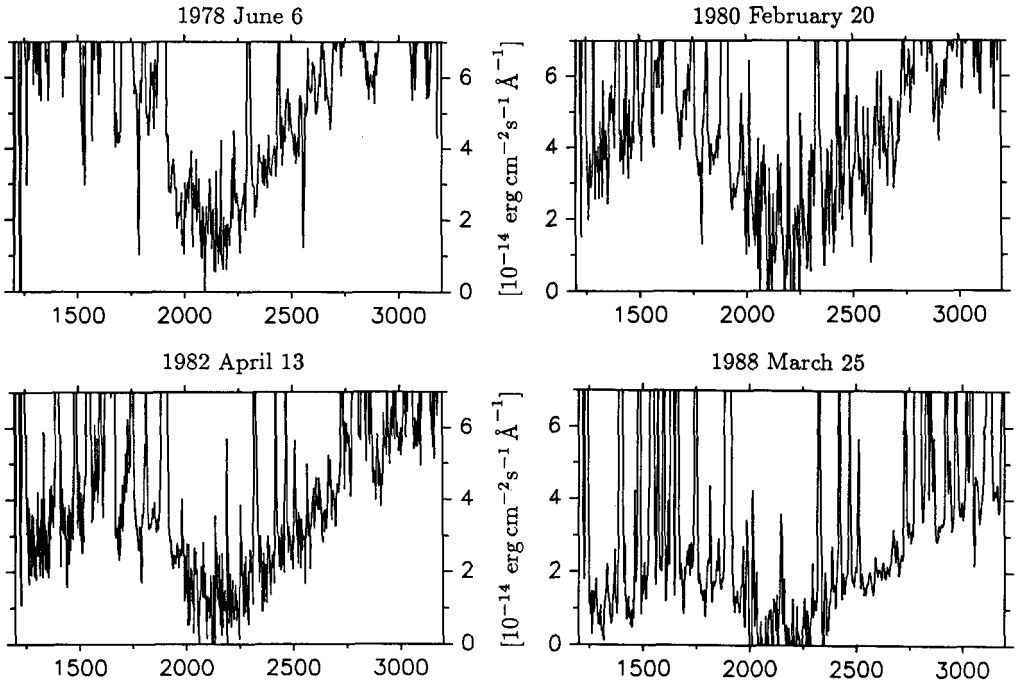


Fig. 2. Evolution of the UV continuum radiation of HM Sge.

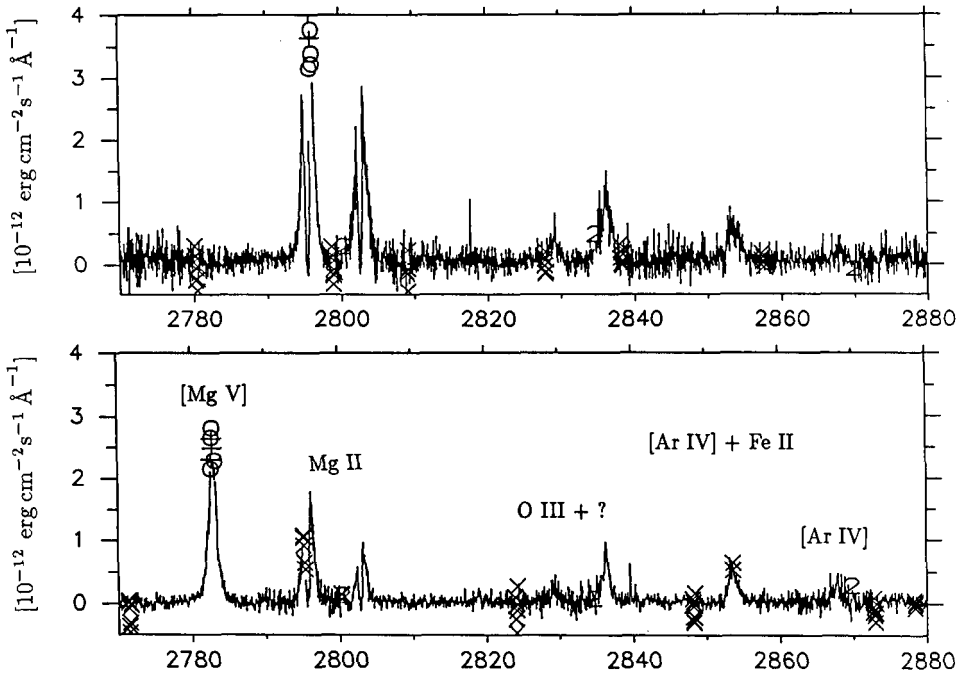


Fig. 3. High resolution spectra of HM Sge of April 1982 (top) and March 1988 (bottom).