ABSTRACTS OF PAPERS AND POSTERS PRESENTED AT THE 90TH SPRING MEETING OF THE AAVSO, HELD IN MADISON, WISCONSIN, MAY 3–6, 2001

THE DISCOVERY OF THE OPTICAL TRANSIENT FOR GRB 010222 (paper)

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On February 22, 2001, a very bright gamma-ray burst was detected by the Italian BeppoSAX satellite. The localization was posted about 4 hours after the burst. Prompt notification by phone and by the AAVSO Gamma-Ray Burst Network pager alert system resulted in the discovery of the optical afterglow within the first hour after the localization posting. This paper gives a brief history of the event and how the AAVSO was essential to the discovery.

AMATEUR AND PROFESSIONAL ASTRONOMERS TEAM UP FOR CHANDRA OBSERVATIONS OF SS CYGNI (paper)

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Triggered by alerts from AAVSO observers worldwide to AAVSO Headquarters, the Chandra X-Ray Observatory successfully observed SS Cygni in outbursts in September 2000 and January 2001 with its high and low energy transmission gratings (HETG and LETG). The HETG observations were for studying the spectrum of hard X-rays emitted by the tenuous upper "atmosphere" of the boundary layer between the accretion disk and the surface of the white dwarf, and the LETG observations were for studying the spectrum of the inner accretion disk of the boundary layer which peaks in extreme ultraviolet/soft/ X-ray energies. We discuss preliminary spectroscopic results of these observations.

ACTIVITIES OF THE WASVSO GROUP (poster)

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This poster outlines the goals, activities, and achievements of the Warren Astronomical Society Variable Star Observers (WASVSO), a special-interest subgroup of the Warren Astronomical Society in Michigan.

The WASVSO holds monthly meetings to discuss variable star behavior, terminology, current events, observing techniques, Internet resources, software, and of course, the weather.

Ongoing projects include monitoring cataclysmic variables, active galactic nuclei, and stars that need more observations from the AAVSO *News Flashes* and *Alert Notices*. We are also actively involved in "spreading the word" about AAVSO and variable star observing through presentations at star parties and a speaker exchange program with other astronomy clubs throughout the Midwest and Canada.

The WASVSO also maintains an impressive website featuring member areas, upcoming events, articles on variable stars and observing techniques, charts for obscure cataclysmic variables, utilities for observing, and links to variable star organizations and observers throughout the world.

Members of the WASVSO contributed 94% of all variable star observations submitted to the AAVSO from Michigan in the fiscal year 2000–2001, and our enthusiasm has catapulted Michigan from 20th place to 11th in overall numbers of US observations submitted to AAVSO in one year.

SINGLE CHANNEL PHOTOELECTRIC PHOTOMETRY OF RZ ARIETIS, 1983–2001

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The AAVSO Photoelectric Photometry Archives contain 568 *V* observations of the SRb star RZ Ari covering 17 years. During this time, there are 22 clearly defined cycles evident in the data, ranging from 26 to 71 days and giving an average period of 51.32 days. Assuming a *V* magnitude of 5.87 for the comparison star, RZ Ari varied from 5.45 to 6.19, giving an amplitude of 0.74 magnitude. When the complete data set is graphed, there is also clear evidence of a secondary period on the order of 1100 to 1500 days.

Catalogue data on RZ Ari differ from our findings. The *General Catalogue of Variable Stars*, *Bright Star Catalogue*, and *Catalogue 2000.0* are all the same: 5.62–6.01 *V* (amplitude 0.39 mag.) with a period of 30 days. Hipparcos values are 5.297–5.643 (amplitude 0.346 mag.) and no evident period. None of the catalogues mention a secondary period.

Abstract of paper presented at the 89th Spring Meeting of the AAVSO, April 15, 2000

SINE WAVES IN THE LIGHT CURVES OF RS CANCRI

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The light curve of a semiregular variable star is often erratic, sometimes showing considerable variability and other times showing virtually none. This behavior may be due to the interaction of multiple periods. During the past three decades, the light curve of the SRc variable RS Cancri has appeared to be sinusoidal on at least two, and possibly more, occasions.

Photoelectric (V) data on RS Cnc obtained since 1983 by the author or other observers as part of the AAVSO Photoelectric Photometry Committee's observing program (Landis 1997) were examined for sinusoidal behavior. Also examined were visual observations of RS Cnc from the AAVSO International Database for 1961–1982 (Mattei 1997). The interval December 1993–May 1994 was seen in the author's photoelectric data to be somewhat sinusoidal (Figure 1), as was the 1989–1990 interval in the AAVSO's photoelectric photometry archive (Figure 2). A third sinusoidal interval, less clearly defined, was seen in the AAVSO visual 1982–1983 data (Figure 3) and reinforced by photoelectric data from one observer, while an additional possible interval was seen in the visual data for 1969 (Figure 4).

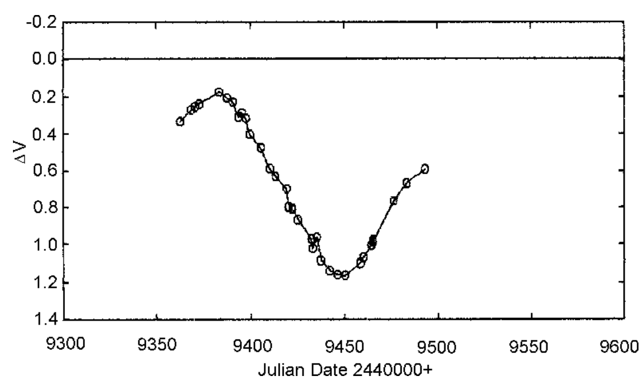

Figure 1. The author's photoelectric light curve of RS Cnc from December 12, 1993, to May 28, 1994. The shape is an almost perfect sinusoid, although it is not quite complete.

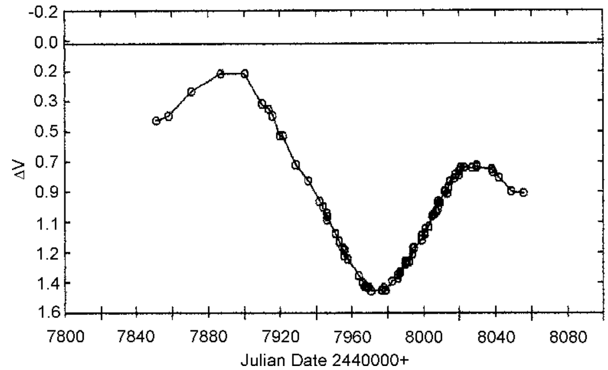

Figure 2. Light curve of RS Cnc from AAVSO archival photoelectric data. Observations run from November 19, 1989, to June 12, 1990. The curve defines a period of 143 days.

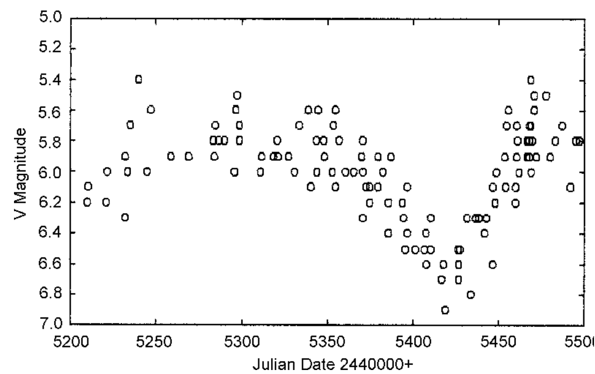

Figure 3. AAVSO visual observations from August 1982 to June 1983 show a closer approach to a sinusoid with scatter nearer 0.4 magnitude. The shape of the curve was partially confirmed by 8 observations from a single PEP observer (see text).

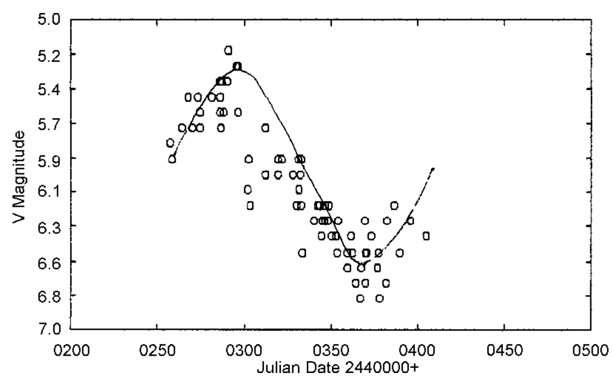

Figure 4. AAVSO visual observations of RS Cnc from January to July 1969. The scatter occupies almost a whole magnitude, but a sinusoid can be drawn through the middle. Its validity, however, is doubtful.