

VARIABLE STAR ASTRONOMY IN HUNGARY

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Abstract

Hungarian amateur astronomy and its relationship to the AAVSO are described.

For members of the Pleione Variable Star Observing Network (in Hungarian: Pleione Változócsillag-észlelo Hálózat, PVH) the AAVSO means much more than an association of variable star observers. For decades the AAVSO was our only link to the western amateurs; through its sponsorship program many of us became AAVSO members. We received many useful publications and much information from the AAVSO. Its charts are also fundamental in our work. In 1986 we received many mirror blanks from the AAVSO, and most of them are used for variable star work. We also received photomultiplier tubes, but we still have problems building them into photoelectric photometers.

Our program contains more than 700 stars (cataclysmic, eruptive, and large-amplitude pulsating variables). Of course, most of these stars were taken from the AAVSO's main program. Most observers use AAVSO charts or sequences. Since 1979 we have published 15 sets of variable star charts whose sources are AAVSO and AFOEV charts.

The most closely observed stars are the brightest eruptive and cataclysmic variables (R CrB, T CrB, SS Cyg, etc.), brightest Miras (Chi Cyg, R UMa, T Cep, etc.), and easy-to-observe binocular variables (Z UMa, AF Cyg, R Sct, AC Her, etc.). We are able to plot light curves for some 200 variables; the rest are under-observed. We always suggest to the observers that they follow less "popular" variables, but the result is not impressive and each of them has a set of favorite (mainly over-observed) stars. We suppose this is a common problem of the variable star observing associations.

Computerization of our observations is coordinated by I. Tepliczky. Today 80% of our estimates are stored on a VAX computer. Data input is done on IBM-PC, Commodore, and Enterprise computers by the members.

Until the mid-eighties, only amateurs analyzed our data and determined periods, mean light curves, and other parameters of variations. Then a professional astronomer, Károly Szatmáry of József Attila University, Szeged, started to analyze our observations made on semiregular and Mira variables using the discrete Fourier transformation. Since then, about 30 stars have been analyzed by him, mainly bright semiregular variables which pulsate in two or more modes. His results appear in the variable star column of *Meteor* (which is published by the Hungarian Astronomical Association), so our observers can directly see the scientific result of their estimates. Endre Zsoldos of Konkoly Observatory also uses our observations to analyze period changes in certain RV Tauri stars.

We also publish computer-plotted yearly light curves which were developed by I. Tepliczky. The observers are informed via data lists published in *PVH Reports* (16 issues have been published to date) and in our quarterly report *Pleione*. Unfortunately

both publications were stopped last year for financial reasons, but our data are available to any person upon request.

In 1988 a new book was published for amateur astronomers, the *Handbook of the Amateur Astronomer*. It contains a chapter on visual variable star observing and two others on photographic and photoelectric observing.

Because our country is small, we can meet each other easily. Our spring and autumn meetings have been held since 1985. Usually 40-50 persons attend these meetings; most of them are members. We give talks on recent observations, observational methods, and interesting variables as well as long-term analysis of our observations on certain stars. We also have professional guests who inform us about recent developments in variable star astronomy and about their particular activities.

In 1988 a nova search section was established. It is coordinated by R. Fidrich. Both visual and photographic patrols are made by about 12 observers. Several known variables were "rediscovered" by them, showing that their methods could reveal a true nova. Visual supernova hunting is also planned, but better observing places and larger instruments are needed.

In 1989 we established an eclipsing binary section, which is supported by T. Hegedüs, a professional astronomer at Konkoly Observatory.

The Pleione Variable Star Observing Network has no financial support from the state or other sources. Our results were developed by our dedicated members (true lovers of astronomy and variable stars) and several amateurs who devote most of their time to coordinating the observers and collecting their data.

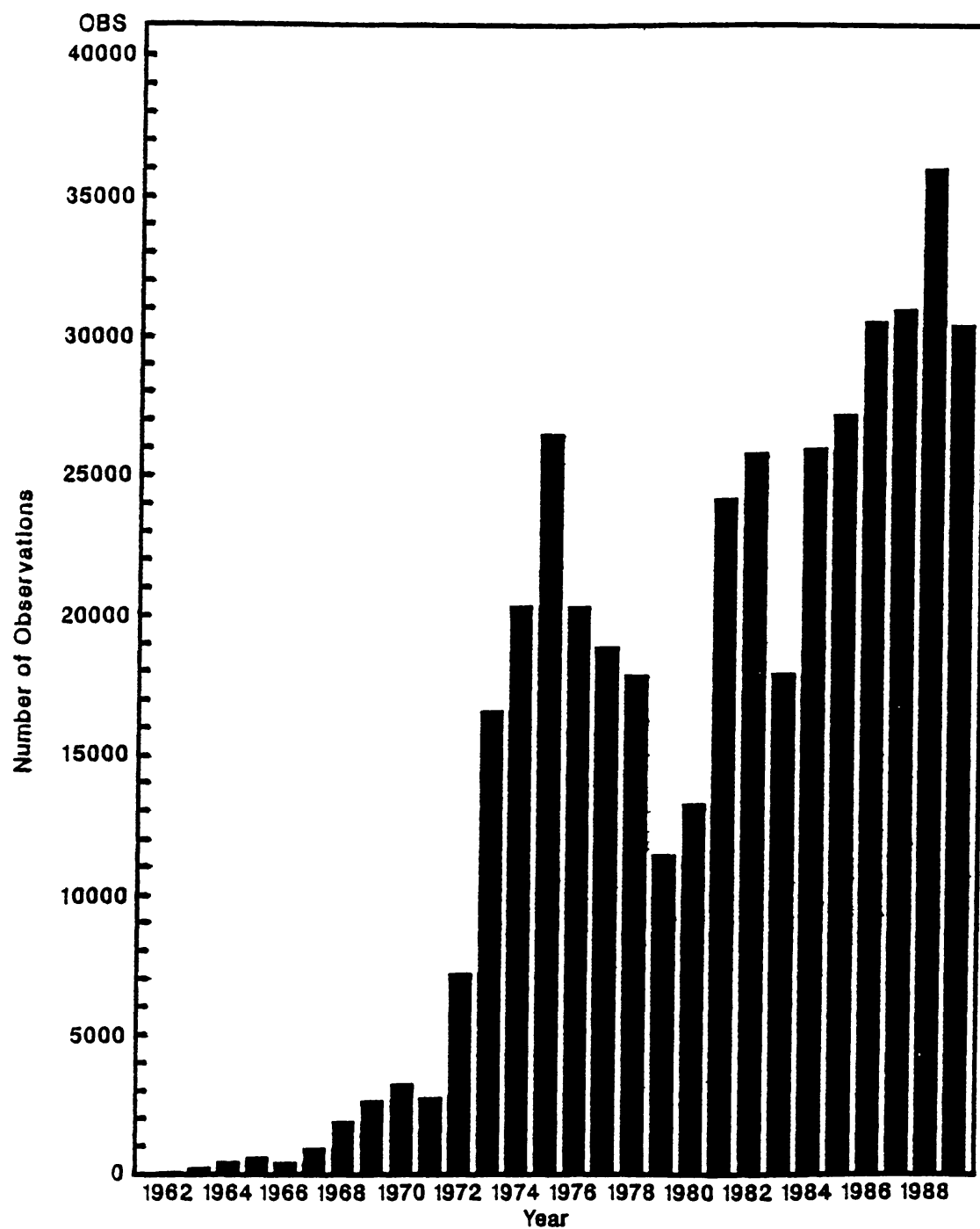


Figure 1. Number of observations received each year since 1962. The most successful year was 1988, when we received 36,120 estimates from 104 observers.

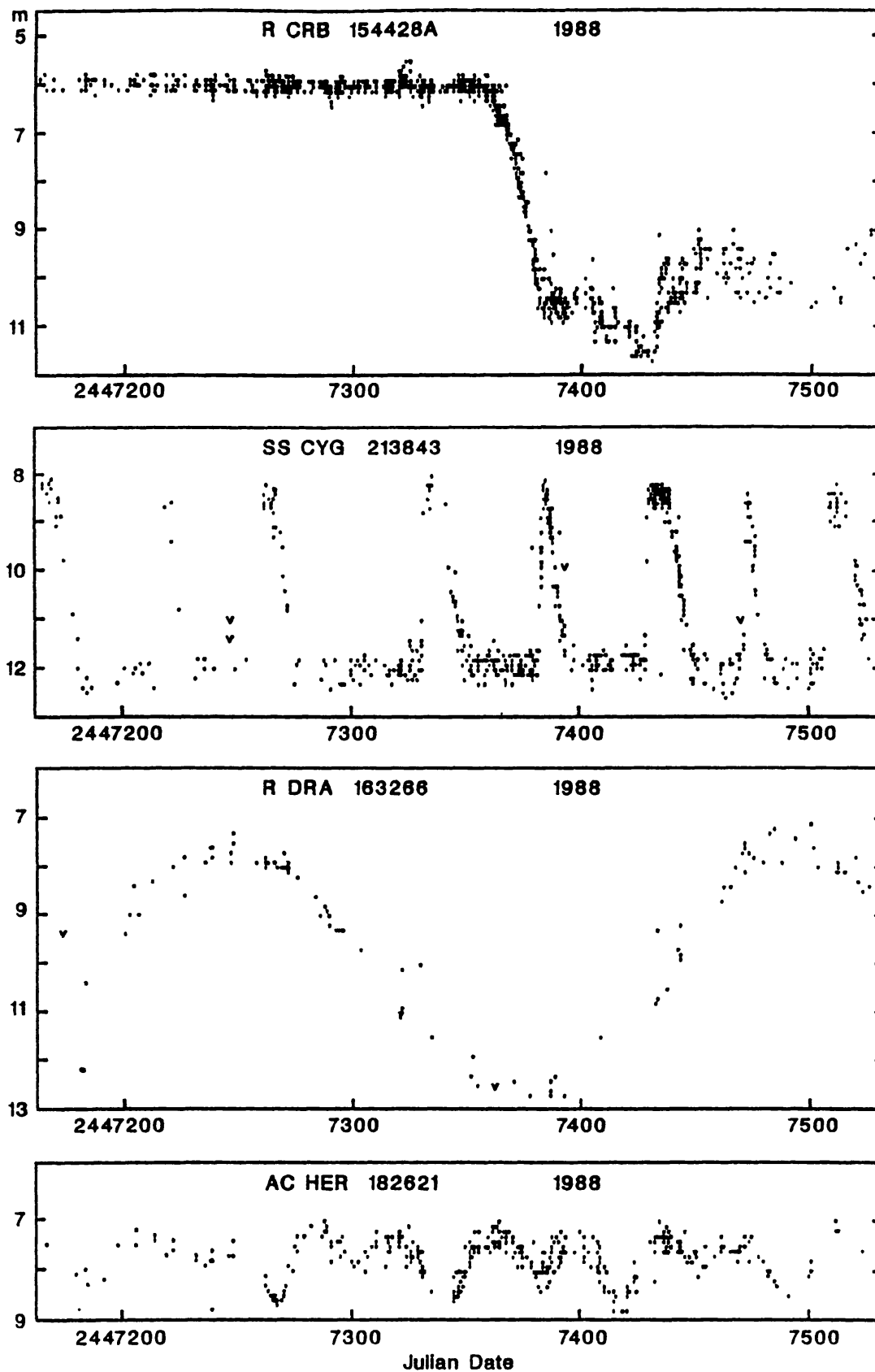


Figure 2. Light curves of some well-observed variables.