AMATEUR VARIABLE STAR OBSERVING IN JAPAN

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Abstract

Activities and publications of various astronomical groups in Japan are described.

1. Introduction

Roughly 100,000 observations were reported to the Japan Astronomical Study Association (JASA) and the Nippon Henkosei Kenkyukai, Research Group for Variable Stars in Japan (NHK), in 1988-1989. The number of observations is increasing more and more, due to the eager activity of some cataclysmic variable observers. The number of active observers is about 30.

International cooperation is becoming more active. For instance, NHK received a letter of appreciation for cooperating in the HIPPARCOS project. Not all observers in Japan are members of the AAVSO, therefore they report the data on HIPPARCOS stars to AFOEV via NHK. [Ed. note: AFOEV in turn sends to the AAVSO all HIPPARCOS data submitted to them. A person does not have to be a member of the AAVSO to submit observations to its archives or to participate in its programs.]

2. Specific Activities

The Japan Amateur Photoelectric Observers Association (JAPOA) carries out active observing. The objects of photoelectric observation were as follows:

1988: IU Aur, γ Cas, CU Eri, AM Leo.
1989: El Eri, V505 Mon, PV Pup, HD 116093.

The Inter-University Astronomical Fan Club had their 10th and 11th general meetings in 1988 and 1989 at the Seminar House of Hachioji, Tokyo. They chose the following stars to be observed for the training of freshmen:

1988: o Cet, AC Her, RY Sgr.
1989: RZ Cas, o Cet, SS Cyg, AF Cyg, AC Her.

The 5th meeting of the Central Japan Variable Star Observers was held in Nobeyama in 1988, the 6th in Toyama in 1989. In Nobeyama, the participants visited the Radio Observatory and were given a lecture titled "Radio Wave Observing of Mira Variables." In Toyama, we talked mainly about computerized archiving of variable star data.

The nova search bore fruit in these two years:

Supernova in M58 (NGC4579) on Jan. 18, 1988 by K. Ikeya.
Nova Oph 1705 on 29 Apr. 10, 1988 by M.Wakuda.

The *Cataclysmic Variable Circular* is being published by T. Kato and M. Watanabe. Number 31 of the *Cataclysmic Variable Circular* was issued in February 1990 and contained data to December 1989: 52 dwarf novae and 115 other cataclysmic/peculiar objects by 22 observers.

The "Rapid News Service on Variable Stars" by K. Hirosawa is changing to the use of computer communication.

3. The Variable Star Observers League in Japan (VSOLJ)

This league was formed by combining the above-mentioned organizations. The aims in establishing the VSOLJ were:

(l) publication of the *Variable Star Bulletin*, and
(2) archiving of variable star data in Japan.

The *Variable Star Bulletin* was published starting in June 1987 with great help from the late Dr. Huruhata. It describes the activities of Japanese variable star observers. It is written in English, and interested astronomers may get the recent issue, No. 11, upon request. The first meeting of the VSOLJ was held at the National Science Museum in Tokyo on September 23-24, 1989. The main subject of discussion was the cooperation between professional and amateur observers and researchers of variable stars. Professionals asked amateurs' cooperation for topics such as peculiar carbon stars (EU And, etc.), superhumps of dwarf novae, and the O-C variation of pulsating stars. This was the first chance to exchange opinions between professionals and amateurs. The second meeting will be held this autumn.

4. The MIRA Archiving Project

In 1979, Mr. K. Gomi, Mr. S. Kibe, the late Mr. S. Kaho, and the late Mr. G. Kuroiwa called for the archiving of variable star data in the monthly magazine of the Astronomical Society of Japan. They were the leading observers in the 1930's. In response to this appeal, we, the members of VSOLJ, are preparing a machine-readable archived database of the variable star observations in Japan. Since 1906 we have acquired roughly 1,000,000 observations (Figure 1). Therefore, we have given this the name MIRA Project: Million data Input, Reduction, and Archiving. We estimate that 30-40% of the work toward our goal has been completed.

Data management systems are mainly written by Mr. T. Kato. Most of the programs are written in C and are compiled using Turbo C (Borland International) to machine-executable object programs. These object programs only run on NEC PC-9801 series computers and compatibles (most widely used in Japan), but machine-independent source texts of function or program can be compiled by ANSI C (ANSI X3,159) compilers without much correction.

Using the archived data, we have produced the following *Light Curves of Variable Stars by VSOLJ*:

No. 1. Mira-type Variable stars for JD 2445950-2447050, published;
No. 2. Semiregular and Irregular Variables (in preparation);
No. 3. Cataclysmic Variables (in preparation).

As by-products of the archiving work, a computer-aided chart-making program and a periodogram program were obtained.

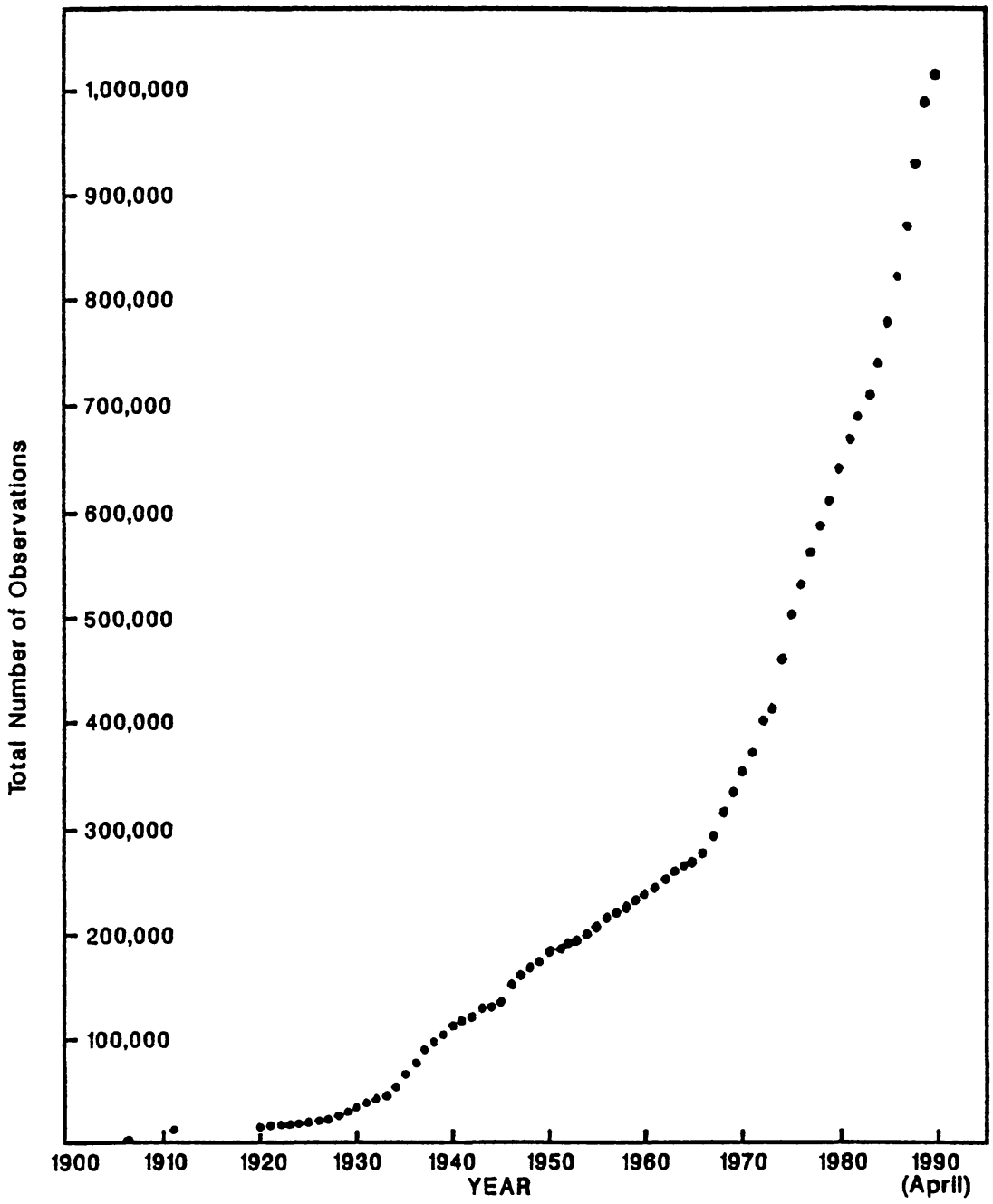

Figure 1. Total accumulated number of amateur observations in Japan, as archived by the MIRA project.