Chapter 6 – SUBMITTING OBSERVATIONS TO THE AAVSO

In order for your observations to be included in the AAVSO International Database, you must submit them to Headquarters. There are several ways to produce reports and submit them to the AAVSO but it is important that you **use only one method and do not send the same observations more than once.**

No matter what the means of submission, reports must be in standard AAVSO format as described on pages 41-43 of this manual. It is essential that AAVSO formatting standards be followed in order to ensure the consistency of data in the AAVSO International Database. It also greatly facilitates the processing of the approximately 40,000 observations that come to the AAVSO each month.

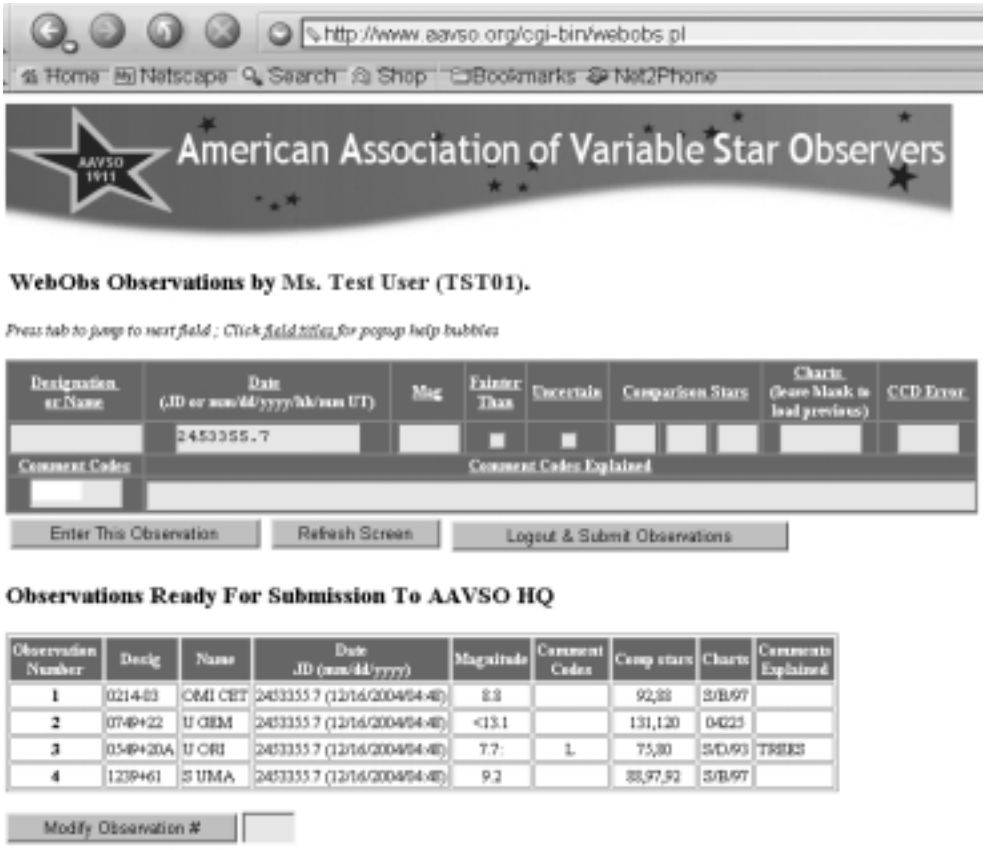
Observations received at AAVSO Headquarters are handled according to the method you used to submit them. Those sent in through the AAVSO website or via email are added automatically to the "Quick Look" online data files. Observations sent by telephone or fax are digitized and added to the "Quick Look" files by an AAVSO staff member. Observations sent by postal mail are digitized at Headquarters. After the end of the month all observations received during the month are processed and added to the AAVSO International Database.

If you belong to an astronomy club or make your observations in company with another variable star observer, please note that each person should make their observations independently and submit a separate report.

Internet Data Submission — WebObs

The preferred and by far the easiest way to submit observations to Headquarters is through the AAVSO website. There, you will find a system called WebObs that takes your observations and automatically submits them to the AAVSO. All you need is a connection to the Internet and a web browser. When you

Figure 6.1 – *WebObs Online Data Entry Form*



submit observations online, WebObs will automatically format them to AAVSO specifications. It will also perform various error checking procedures to make sure you entered the data correctly. In addition, a complete listing of your observations is always available so you can peruse and/or download your contributions to the AAVSO database at any time.

Another advantage to using WebObs is that your variable star observations will be available for use much sooner than if you submit them using a method which must undergo more processing. For example, observations of cataclysmic variables or stars exhibiting unusual behavior will appear in the “Quick Look” files and “Light Curve Generator” within ten minutes of submission. This will also make them available for publcation in *MyNewsFlash* (see page 37) at the same time.

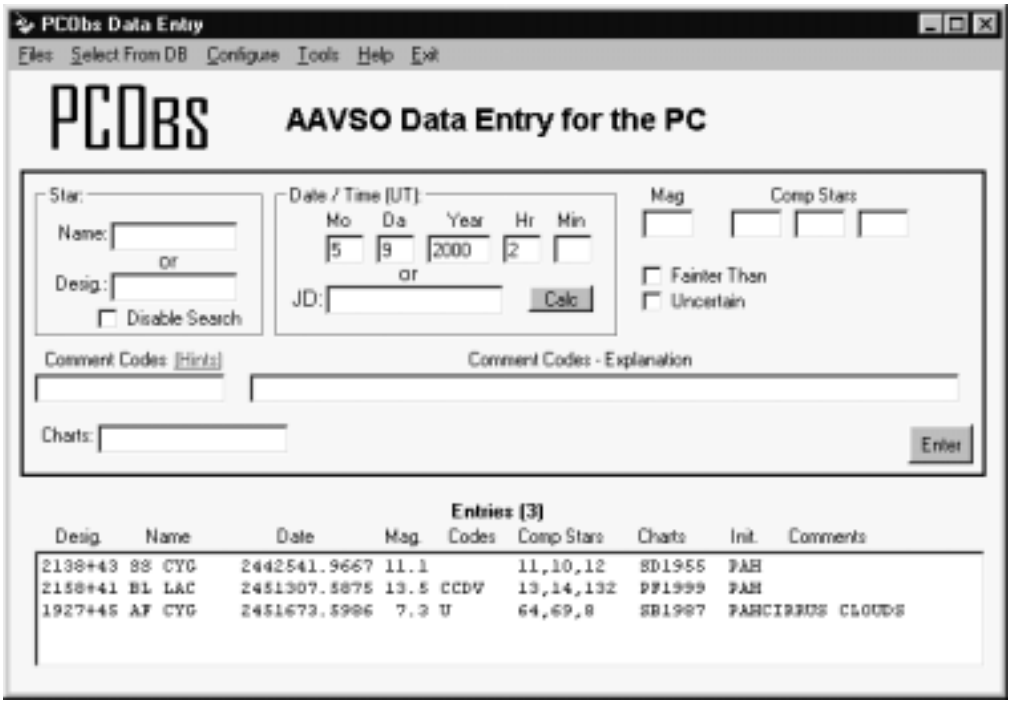
To start using WebObs all you need to do is fill out a registration form on the AAVSO website. Within about 2-3 business days you will receive an email confirming your registration and assigning you AAVSO Observer Initials (described on page 42). Then you can begin using the program. There are plenty of tutorials, “frequently asked questions” (FAQs), and help menus available for you. However, most people find it simple enough that they can use it right away. If you have Internet access, visit the AAVSO website (http://www.aavso.org/observing/submit/webobs.shtml) and take the "3-click Tutorial" on using WebObs.

Email Data Submission

If you do not have ready access to the Internet, but do have email, this may be the next best choice for submitting your reports to the AAVSO. Email reports can be sent to AAVSO Headquarters at any time. As with WebObs, all of your observations will be available for viewing with the “Light Curve Generator” or as part of the “Quick Look” files within ten minutes of when they were received. They will also be available for publication in *MyNewsFlash* whenever the next one is sent.

To send variable star reports by email, you must first create a text file version of your report in standard AAVSO format. Reports can be produced using software developed by the AAVSO or you may devise your own method of creating a report as long as the result is ***exactly*** the same. This is very important as any observations given in non-standard formats will not be accepted. If you decide to create your own data-entry program you should contact AAVSO for more details on output requirements.

Figure 6.2 – *PCObs Data Entry Form*



Once a text file is created, it should be sent as an email to the AAVSO "Observations" account (observations@aavso.org). The observations themselves could make up the body of the email or be sent as an attached file. Within five minutes you should receive a response. It will either be a confirmation of your observations or a note specifically explaining an error we found in the data. Fix the error and resend the data. Any additional questions or comments that are not part of the actual report should be sent as a separate email to aavso@aavso.org.

AAVSO Data-Entry Software - PCObs

The AAVSO has created a Windows-based data-entry and report-formatting program called PCObs that may be used to record variable star observations and prepare monthly reports in AAVSO format. Figure 6.2 shows what the data-entry page look like. The text files created with PCObs may be sent by email, copied to a CD or diskette which you could send to Headquarters by postal mail, or printed on paper and sent by postal mail or by fax.

To obtain your own copy of PCObs free-of-charge you may download it from the AAVSO website (http://www.aavso.org/data/software/pcobsinfo.shtml) or contact AAVSO Headquarters to request a copy on CD or diskette. Instructions for use of the program is included with the files.

Postal Mail Data Submission

Another way to submit reports to the AAVSO is via postal mail to AAVSO Headquarters. Such reports should be sent in once per month, mailed as soon as possible after the first of the next month. The address is:

AAVSO
25 Birch Street
Cambridge, MA 02138 USA

Observers with a computer but no email or Internet access are encouraged to create a text file of their observations, copy them onto a CD or diskette, and mail it to AAVSO Headquarters. As with other computer-generated reports mentioned here, the data files can be created using any report generating software as long as the output is in standard AAVSO format.

If you wish to submit your reports in handwritten or typed form, please use the standard AAVSO report forms supplied with a new member kit or available free-of-charge upon request from AAVSO Headquarters. You may copy these forms or request more when you run out. The forms are also available via download from the AAVSO website (http://www.aavso.org/observing/submit/obsreportform.shtml). A usable blank report form can be found on pgs. 45-46, while a sample of a completed one is given in Figure 6.3, page 44.

Faxed Data Submission

The AAVSO also accepts reports by fax. The fax number of AAVSO Headquarters is: 617-354-0665 (Outside of the USA and Canada you will need to dial the country code, which is 01, as well as any additional numbers required for you to make an international call.) Since a faxed report must be typed into a computer by staff at AAVSO Headquarters, it is important that it be clear and complete, following standard AAVSO format. To produce such a report, you can either print out a file created by a data entry program or write your report by hand on an AAVSO Variable Star Observations report form (see page 45). Please use black ink so that the result will be legible.

Telephone Reports

If you would like to contribute timely data on special variable star events such as outbursts of cataclysmic variables or stars showing rare or unusual behavior, and you don't have internet access, you may report your observations by telephone on the night (or the morning after) they are made. Such observations will be added to the "Quick Look" files by AAVSO Technical Staff within one business day.

AAVSO Standard Report Formatting

No matter which method you decide to use for making and submitting your variable star reports, it is *required* that the data adhere to AAVSO report formatting standards. With WebObs and AAVSO produced data entry software, some of these formatting requirements will be met automatically.

Header Information

For proper documentation, it is important that with each report submitted, you include your name, complete address, the month of the year of your report, the time system used (GMAT), and equipment used for your observations. If you use WebObs, this is done for you from the information you supply when you fill out the registration form. The registration form need only be completed once. If some of the information on it changes, click on the button marked "Modify User Settings & Password" located at the bottom of the observation entry page. If you use AAVSO data entry software, you will be prompted for the same header information. If using the paper report forms, please fill out the front of the first sheet of your report completely. Put your name, Observer Initials, and the month and year of your report on the front and back of all subsequent sheets that have observations on them. If you do not know your initials, please leave the Observer Initials space blank.

AAVSO Observer Initials are assigned by AAVSO Headquarters technical staff upon receipt of your *first* report. Once your initials are assigned, you will be notified by postal mail or email, usually within 2–3 weeks.

General Layout

(Not applicable for WebObs or AAVSO data-entry program users because the software automatically accomplishes this.)

List the variables in order of right ascension from 00 to 23 hours. If you make more than one observation of a star, put them together in order of Julian Date. If two or more stars have the same right ascension, list the most northerly one first. For example: 1909+67, 1909+25, 1909-07.

(For information on variable star "designations" see pages 17-18.)

A single page should be numbered "page 1 of 1." If several pages are used, number them consecutively. Thus: page 1 of 4; 2 of 4; 3 of 4; 4 of 4. The last figure (4) is the total number of pages submitted. At the bottom of the first page of your report, please put the total number of observations.

Please use dark ink, a printer, or a typewriter with a dark ribbon to prepare your reports. If you prefer to use pencil, please use a dark, hard lead which does not smudge easily. If you write your report by hand, please print clearly! Do not leave any blank lines between stars.

Designation

The designation for each star observed should be listed in the first column of your report form. You can find the designation in the upper left corner of every AAVSO Variable Star chart if you don't already know what it is. On some of the older charts, the "+" or "-" signs have been left out in favor of an underlined designation for southern stars (e.g. 021403 instead of 0214-03). Always use the "+" and "-" signs when making your report. (See pages 17-18 for more about variable star names and designations.)

Variable Name

Please use only the constellation abbreviations approved by the International Astronomical Union (IAU) when reporting observations (see Table 3.1 on page 19).

NOTE: For an up-to-date list of stars (designations & names) in the AAVSO observing program, please consult the AAVSO website (http://www.aavso.org/observing/aids/validation.shtml).

Julian Date and the Decimal of the Day

The dates and times of observations must be submitted in Julian Date and decimal of the day in Greenwich Mean Astronomical Time (GMAT), not regular calendar or Universal Time dates. See Chapter 4 of this manual for more on this subject. The only exception to this rule is that if you are using WebObs, dates and times in UT *will* be accepted since the program will convert them automatically to JD. A Julian Day calendar may be obtained at no charge from AAVSO Headquarters or downloaded from the AAVSO website. New calendars will be sent each year by postal mail to all members and active AAVSO observers. A current calendar is included with the new member package.

The types of stars observed once a week should have the decimal of the day reported to one decimal place. The types of stars observed every clear night should have the decimal reported to

four places. See Table 6.1—*Precision of JD Needed*, for different variable star types. Chapter 4, page 25, gives instructions on how to figure the Julian Day and Decimal.

Magnitude

Visual magnitudes should be reported to ONE decimal place. Any visual magnitudes reported to two decimal places will be rounded off before they are added to the AAVSO International Database. Charge-coupled device (CCD) and photoelectric photometry (PEP) observations should be reported to one to three decimal places of magnitude depending on the level of precision.

If you wish to report a "fainter-than" observation (i.e. you could not see the variable) and you are using WebObs or PCObs, please click the "Fainter-Than" checkbox and enter the magnitude of the faintest comparison star you can see. If you are making a paper report, put a "<" symbol in front of the magnitude. For example, if you observe a variable and cannot see it, but the faintest comparison star that you can see is 14.5, put "<14.5" on your report.

If there is any uncertainty in your estimate, you may denote this by clicking the checkbox marked "Uncertain" (or putting a colon ":" after the magnitude if you are making a paper report) and indicating the reason for the uncertainty in the "Comment" fields.

Comment Fields

To make the best use of the observations you submit and to help AAVSO Technical Staff evaluate the data, it is very important to know why an observation is marked uncertain, and what comments you might have that affect that observation. The "Comment Code" and "Comment Code Explained" fields may be used for explaining the cause of uncertainty in an observation, for making comments about observing conditions, or for specifying the type of equipment or filter you are using. In the paper report form, these fields are referred to as "Key" and "Remarks" respectively.

Table 6.2 on page 47 contains a list of one-letter abbreviations for comments and their meanings.

Comparison star magnitudes

The magnitudes of the comparison stars that are used to make the observation should be included in the "Comparison Stars" field of the report. It is very important to include this information for each observation. It is not necessary to put the decimal point in the comparison star magnitude. (e.g. 98, 101, 106). If there is more than one comp star of the same magnitude in a variable field, include a compass direction with the magnitude so it will be clear which star you used (e.g. 83, 88NE, 92).

Table 6.1 – *Precision of JD Needed*

Type of Star	***Report JD to***
Cepheids	4 decimal places
RR Lyrae stars	4 decimal places
RV Tauri stars	1 decimal place
Long period variables	1 decimal place
Semiregulars	1 decimal place
Cataclysmic variables	4 decimal places
Symbiotic stars*	1 decimal place
R CrB stars*—*at Max*	1 decimal place
R CrB stars—*at Min*	4 decimal places
Eclipsing Binary stars	4 decimal places
Rotating stars	4 decimal places
Irregular variables	1 decimal place
Suspected variables	4 decimal places

*__Note:__ Symbiotic stars and R CrB stars may experience possible small-magnitude, short-period variability. If you are interested in looking for this, then observations should be made every clear night and reported to 4 decimal places.

Charts

To avoid confusion in the data arising from revisions of AAVSO finder charts and comparison star sequences, and from any non-AAVSO charts/ sequences which may be in use, it is essential that you indicate in the Charts field the source and date of the chart(s) you used in making an estimate for every observation in your report. When there is more than one date given on a chart, please use the most recent one. If you report observations of a star not in the AAVSO's observing program, you must send a copy of the chart and comparison star sequence you used. Your observations cannot be added to the AAVSO International Database without this information.

Please double-check your report before sending it to AAVSO Headquarters!

Figure 6.3 – *Sample AAVSO Report*

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
25 Birch Street, Cambridge, MA 02138, USA

VARIABLE STAR OBSERVATIONS

Sheet 1 of 10 Report No. 294

For Month of March Year 1999

Observer John Doe

Street 13 Main Street

City Anywhere State MA

Country USA Zip Code 01234

Time Used, GMAT or

Instrument(s) 6 & 15 cm refr, 44.5 cm refl, 7 x 35 binoculars

AAVSO Observer Initials
DJQ

For AAVSO HQ Use Only
Received
Entered
Verified

Designation	Variable	Jul.Day+Dec.	Magn.	Key^	& Remarks	Comp. Stars	Chart/Date
0017+55	T Cas	2451242.5	9.2	U	Passing Cloud	86,90,94,105	~~85~~ 9/52
"	"	252.5	9.4			"	"
"	"	262.5	9.4	H		90,94,105	"
0017+26	T And	246.5	K13.7	B		137	1933
0022+17	TV Psc	242.5	5.3	A		48,54,59,61	2/64
0041+32	RW And	242.5	10.2			94,100,105,107	7/39
"	"	252.5	10.5			100,105,107,110	"
"	"	264.5	10.8			111,115,119	1928
0546-29	R Col	246.5	11.7	L		111,113,116,119,125	1933
"	"	261.5	12.3	L		116,119,121,125	"
0549+74	V Cam	242.5	9.1			84,93,100	5/39
"	"	252.5	9.3			"	"
"	"	262.5	9.6:	HO	Visitors distracted	93,100,103	"
0549+20a	U Ori	242.5	10.5			97,103,106,110	6/86
"	"	252.6	10.7			103,106,110	"
"	"	264.5	10.8			"	"
0549+07	alpha Ori	242.5	0.9			03,12	10/68
"	"	252.5	0.9			"	"

Total Number Observations Reported 463

^ KEY field contains AAVSO-selected one-letter abbreviations for REMARKS. See top of page for list.

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
25 Birch Street, Cambridge, MA 02138, USA

VARIABLE STAR OBSERVATIONS

Sheet ________ of _________ Report No. _________

For Month of ___________________ Year _____________

Observer _______________________________________

Street ____

City _______________________ State _______________

Country ___________________ Zip Code _____________

Time Used, GMAT or ____________________________

Instrument(s) __________________________________

AAVSO Observer Initials

____

For AAVSO HQ Use Only

Received ________________

Entered ________________

Verified ________________

Designation	Variable	JD & Decimal	Mag.	Key* &	Remarks	Comp. Stars	Chart and Date
				Total Number Observations Reported			

* KEY field contains AAVSO-selected one-letter abbreviations for REMARKS. Obtain list from AAVSO Headquarters or web site.

(turn sheet over)

AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
25 Birch Street,
Cambridge, MA 02138 USA

Observer ______________________

For Month of ______________ Year __________

AAVSO Observer Initials

____

For AAVSO HQ Use Only
Received __________
Entered __________
Verified __________

***Explanation of Key field characters**

IMPORTANT—If an observation is uncertain, please put this character **:** [a colon] immediately after the magnitude. Each time you use the **:** character, please be sure to include the reason(s) for the uncertainty in the Remarks field and the appropriate one-letter character(s) in the Key field. This will maximize the amount of information contained in your observations, as well as assist the AAVSO in its record-keeping.

The Key field is for AAVSO-selected one-letter abbreviations of comments about an observation, or for multi-letter abbreviations describing instrumentation such as PEP or CCD. The complete list of all these abbreviations may be obtained from AAVSO Headquarters or fromthe AAVSO web site (http://www.aavso.org). Use as many letters as needed for an observation. Even if there is no uncertainty, please use these letter characters whenever you choose to make a remark about any observation. (However, please do NOT use : if there is no uncertainty.) If you do not wish to make any remarks, please leave the Key & Remarks field blank.

Designation	Variable	JD & Decimal	Mag.	Key* &	Remarks	Comp. Stars	Chart and Date

	Total Number Observations Reported

* KEY field contains AAVSO-selected one-letter abbreviations for REMARKS. Obtain list from AAVSO Headquarters or web site.

(turn sheet over)

Table 6.2 – *Abbreviations for Comments on AAVSO Reports*

These comment letters go in the "Key" field on the paper AAVSO report form, or in the "Comment Code" field in electronic report files. If needed, use more than one letter, keeping them in alphabetical order. The letters should serve as a general guide to your comment; they needn't be an exact representation *of what's in the report. For example, if you note in the "Comment Codes Explained" field "a 12-day moon nearby", just put an "M" (for moon).*

:	*uncertain*
?	*(do not use this symbol)*
A	*AAVSO Atlas used*
B	*Sky is bright, light pollution, twilight*
F	*Unconventional method (out of focus, visual photometer, etc.)*
G	*Non-AAVSO chart with Guide Star Catalog magnitudes*
H	*Haze, mist, fog*
I	*Identification of star is uncertain*
J	*Non-AAVSO chart with Hipparcos magnitudes*
K	*Non-AAVSO chart - specify origin*
L	*Low in sky, horizon, trees, obstruction*
M	*Moon present or interferes*
N	*Angle, position angle*
O	*"Other" comment (last resort if no other code applies!) - MUST be explained*
R	*Color comment*
S	*Comparison sequence comment or problem; extrapolation*
T	*Non-AAVSO chart with Tycho magnitudes*
U	*Clouds*
V	*Faint star, glimpse, near limit*
W	*Weather, wind, poor seeing in general*
Y	*Activity in star - outburst, fading, flare, unusual behavior*
Z	*Possibly erroneous, doubtful, fatigue*

These multiple-letter comment abbreviations go in the "Key" field on the paper AAVSO report form, or in the "Comment Code" field in electronic report files. If you must use a one-letter abbreviation as well as a multiple-letter comment, skip a space between the two codes.

BLUE	*Blue filter used for the observation*
CCD	*Charge-coupled device (unfiltered)*
CCDB	*Charge-coupled device (Johnson blue filter)*
CCDI	*Charge-coupled device (Cousins infrared filter)*
CCDK	*Charge-coupled device (with K filter)*
CCDO	*Charge-coupled device (orange filter)*
CCDR	*Charge-coupled device (Cousins red filter)*
CCDU	*Charge-coupled device (Johnson ultraviolet filter)*
CCDV	*Charge-coupled device (Johnson visual filter)*
CCD-IR	*Charge-coupled device (with IR-blocking filter)*
COMB	*Observation is of nuclear and nebulous regions COMBined*
CR	*Charge-coupled device (unfiltered - magnitude reduced using R sequence)*
CV	*Charge-coupled device (unfiltered - magnitude reduced using V sequence)*
GREEN	*Green filter used for the observation*
NUC	*Observation is of the NUClear region*
PEPB	*Photoelectric photometer (Johnson blue filter)*
PEPH	*Photoelectric photometer (with H filter)*
PEPJ	*Photoelectric photometer (with J filter)*
PEPV	*Photoelectric photometer (visual band)*
PTG	*Photographic observation*
PV	*Photovisual observation*
RED	*Red filter used*
YELLOW	*Yellow filter used*

THE BIRCH STREET IRREGULARS:

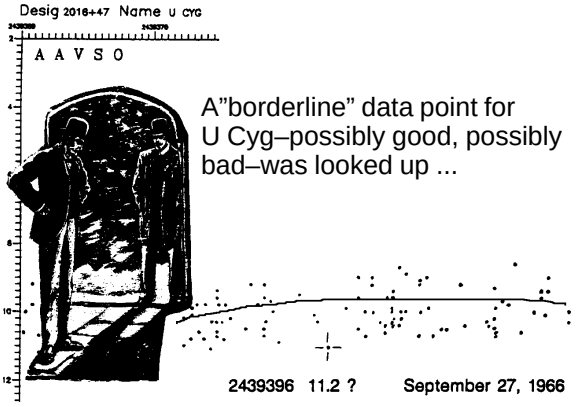
MYSTERIES FOUND AND RESOLVED IN THE AAVSO DATA ARCHIVES

by Sara J. Beck, Michael Saladyga, Janet A. Mattei and the AAVSO Technical Staff

(Adapted from a paper given at the 1994 AAVSO Spring meeting.)

As AAVSO data are evaluated, AAVSO Technical staff and the Director run across several kinds of errors which are tracked down and rectified–a process requiring skillful investigative techniques, a good head for deduction, and dogged tenacity. With apologies to Sir Arthur Conan Doyle, author of Sherlock Holmes, here are a few of the many success stories of the detectives known as the Birch Street Irregulars. These cases also provide the new observer with an idea of some of the common pitfalls experienced by their predecessors.

THE ADVENTURE OF THE DANCING DATA

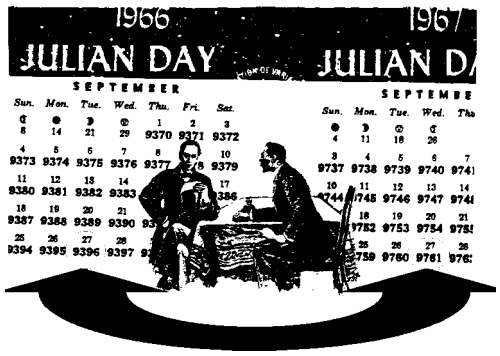


A"borderline" data point for U Cyg–possibly good, possibly bad–was looked up ...

A check on the observer's report showed that the Julian Dates for not only U Cyg, but for the entire report, were off by more than 300 days compared to the month and year written in the header.

NATION	VARIABLE	JUL.DAY &DEC.	MAGN.	I
354	U Per	2439397.0	(11.1 ?)	
78	S Vul, Mic	" 9391.0	10.7	
10	U Ser	" 9347.1	9.8	
15a	S Aql	" 9397.0	9.5	
38	RS Cyg	" 9396.1	8.1	
201647	U Cyg	" 9396.0	(11.2?)	
235525	Z Peg	" 9396.1	9.3	

In comparing the JD calendars for the year of the report and the previous year, it became obvious that the observer had copied the JDs from the previous year's calendar.

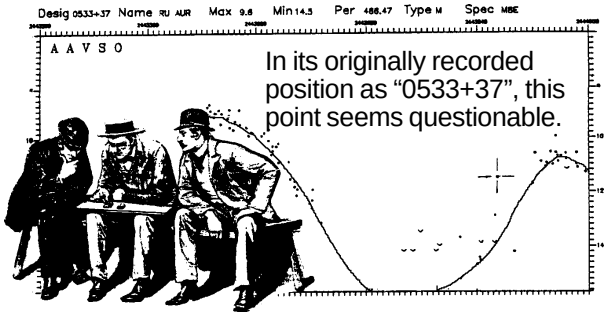


A CASE OF IDENTITY

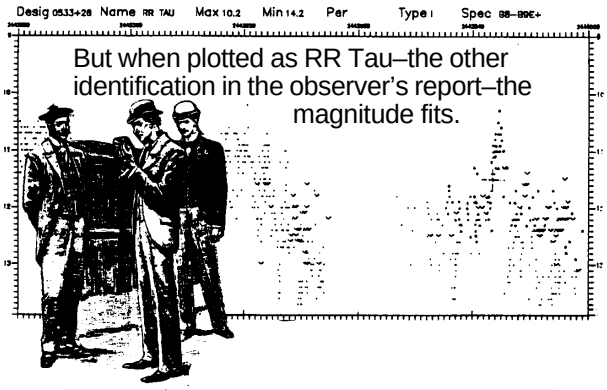
053337	RR Tau	3849.6	12
		3869.7	11.

A curious case: the designation and star name do not agree! Which star did the observer intend to record? Was it 0533+26 RR Tau or 0533+37 RU Aur?

The problem: many observations in the archives were recorded with a name and designation for two different stars. The usual causes include: (1) The observer reading the designation or name from the line above in the report form; (2) giving the wrong component letter, or none at all, in the designation; or (3) simply writing one star's name while thinking of another star (for example, WX Cet and WX Cyg).



In its originally recorded position as "0533+37", this point seems questionable.



But when plotted as RR Tau–the other identification in the observer's report–the magnitude fits.

THE ADVENTURE OF THE GREEK INTERPRETER

194632	X CYG	11	83

In this instance of star name and designation disagreeing, the observer meant to record chi Cyg, but the handwritten Greek letter chi (χ) was read as "X" by the data entry technician.

Solution: Always write out the Greek letter names. (eg. beta Per rather than β Per)