

Variable Star Program

Coordinator:

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Variable Star Program Introduction

Welcome to the Astronomical League's Variable Star Program. This is a joint program of the Astronomical League and American Association of Variable Star Observers. It uses AAVSO resources and provides valuable data for Astronomers and researchers.

Much that we know about stars and the universe came from studying variable stars. There are over 200,000 variable stars catalogued with many more suspected. With modest equipment any amateur can make observations that are valuable scientific contributions. The minimum required equipment for this award is a pair of binoculars, but any size telescope or go-to telescope can be used.

Variable stars are objects whose light is not constant. The observer's goal is to determine the brightness of the star when compared to stars of fixed brightness in or near the same field of view. The thrills of variable star observation are many - finding the right star in the patterns in the field; pushing the limits of your telescope and your observational skills to glimpse that mag 14.5 star; improving your observing methods, equipment, and ability to yield more and more variables per observing session; seeing your favorite stars change in brightness as you watch them from week to week; catching SS Cygni in outburst. You get all this plus you get to provide useful scientific data to scientists and other observers.

Rules and Regulations

To qualify for the Variable Star Program certificate and [award pin](#), you need to be a member of the Astronomical League, either through an affiliated club or as a Member-at Large and complete these observing requirements.

1. Make a total of 100 observations of at least 15 different Long Period (Mira), Semiregular (Betelgeuse), or Cataclysmic (SS Cygni) variables. At least one long period variable should be followed through a complete cycle.
2. Optional. Recommended for beginners. Cepheid - Observe Delta Cephei, Eta Aquilae, or another Cepheid through a complete cycle making observations nightly or through several cycles if weather

doesn't permit nightly viewing. Plot results on a light curve vs. time. Counts as 10 of your 100 observations.

3. Optional. Recommended for beginners. Binary - Observe Algol (B Persei), B Lyrae, or another binary through an eclipse or minima. Make estimates as applicable to star's period, for example Algol might be made every 15 minutes while Beta Lyrae might be observed nightly for a couple of weeks. Plot results on a light curve vs. time. Counts as 10 of your 100 observations.

Charts of these two naked eye variables and more are in the 10 Star Tutorial at the online resources link listed below.

Only AAVSO charts from the Variable Star Plotter on the AAVSO website or charts from the 10 Star tutorial may be used for determining Variable brightness to complete this program. All observations made in this program are to be submitted to the AAVSO database and will be used by scientists and other amateurs to advance our knowledge of the stars.

Resources

The AAVSO website has a wealth of information to help you get started. The following link has the resources listed below and many more.

[AAVSO Online Resources](#) Included is the AAVSO Visual Observing Manual. This is a great reference and learning tool.

[Variable Star Telescope Simulator](#) – Powerpoint training presentation

[10 Star Tutorial](#) – Naked eye stars including binaries and Cepheids listed above.

[Stars Easy to Observe](#) A good list of stars to start observing

[Request an Observer Code.](#) This will be needed to submit your estimates

[Charts](#) Download charts using the Variable Star Plotter

Any telescope 60 mm or larger or binoculars of at least 50mm objective are adequate to do this program. You may use star hopping or go-to telescopes. There is an AAVSO CCD program for observing variable stars. It requires much more expensive equipment and is more time consuming, but yields results for stars not reachable by visual observers. CCD observations correctly submitted to AAVSO are acceptable for this program.

To receive your Variable Star certificate and award pin; mail or email a copy of your observations to the AL Variable Program Coordinator. An AAVSO printout of your observations is also acceptable. Include your name, address, email, and society affiliation. Also include your AAVSO user name so submissions can be checked.

If you have any questions to help get you started or about your observations please contact me at eaquila@hotmail.com

Related Items

[Print this Program's Introduction](#)

[AAVSO Online Resouces](#)

[VSO Recording Sheet - Excel](#)

[VSO Recording Sheet - PDF](#)

[Find your Variable Star Program Award](#)