

AAVSO Support of the TESS Follow-up Observing Program (TFOP)

Revision 1.1

June 5, 2018

I. Background

In support of the TESS mission, ground-based, follow-up observations will serve two purposes:

1. To identify false positives in order to help confirm a candidate exoplanet.
2. To help refine the ephemerides of exoplanets after they have been confirmed.

To support the first purpose, a Seeing Limited Subgroup-1 (SG1) has been established, as part of TESS' Followup Observing Program (TFOP), to coordinate and accept ground-based observations to help with the detection of false positives. SG1 observations are sent to the TESS SG1 Chair and some very specific data products from the observations are expected to be uploaded to a password-protected part of NASA's ExoFOP-TESS database

Participation in SG1 is approved by Karen Collins, SG1 Chair, and is generally limited to those who have demonstrated their ability to conduct high-precision, exoplanet observations. The TFOP Charter allows an approved member of SG1 to include observations of others who wish to participate, however, the approved member "is responsible for the conduct and behavior" of such other participants, who are also "bound by the same conduct and behavior rules as the approved member." The term "sponsored contributor" shall refer here to those participating in SG1 under the auspices of an approved member.

To support the second, longer term purpose of TESS ground-based observations, namely refining the ephemerides of confirmed exoplanets, NASA will eventually open its ExoFOP-TESS database for the general community to upload their observations once an exoplanet has moved from "candidate" to "confirmed" status.

II. AAVSO Sponsorship in SG1

This section describes the process how an AAVSO member can participate in SG1 as a sponsored contributor. Note that some AAVSO members are already approved members of SG1. Furthermore, those that are initially sponsored may themselves move to full member status subject to the approval of the SG1 Chair. References below to the "AAVSO Exoplanet Chair" also imply possible designees of the Chair.

To help facilitate AAVSO participation in TESS, the following documents are available:

1. "A Practical Guide to Exoplanet Observing" (click [here](#)) –a description of best practices in exoplanet observing, as well as a step-by-step guide to AstroImageJ.
2. "Exoplanet False Positive Detection with Sub-meter Telescopes" (click [here](#)) – an overview of false positive scenarios and methods used to detect them.
3. "Amateur Participation in the TESS Exoplanet Mission" (click [here](#)) – an overview of how amateur astronomers can participate in TESS.
4. "TESS SG1 Submission Guidelines" (click [here](#)) – guidelines on how to submit SG1 observations.

In addition to the above documents, the AAVSO offers a CHOICE course on Exoplanet Observing at least twice a year.

The following are the steps that an AAVSO member can follow who wishes to participate in SG1 as a sponsored contributor:

1. The member shall first review and certify that they have read the above four (4) documents.
2. The member shall submit to the AAVSO Exoplanet Section Chair a sample observation of an exoplanet transit that the member has conducted.
3. If the above observation is of good quality, the member will next be given a set of raw images and calibration files representing an actual ground-based observation of a TESS target that contains a known false positive. The member will then be asked to conduct an analysis of this data and submit the results to the AAVSO Exoplanet Section Chair.
4. To conform with the TESS TFOP requirements, the member shall read the TESS TFOP Charter and Publication Policy and then send an email to the TESS SG1 Chair, with a copy to the AAVSO Exoplanet Section Chair, stating that they agree to abide by the Charter and Publication Policy (a copy of which will be provided to members wishing to participate as an AAVSO sponsored contributor).
5. If the analysis of the false positive detection is satisfactory, then the AAVSO Exoplanet Section Chair will recommend to the SG1 Chair that the AAVSO member be given access privileges to the TESS Transit Finder (TTF) and the TESS Observations Coordinator (TOC). The TTF is a restricted online utility for identifying TESS candidates for an observer's location and the TOC is an online utility for recording what targets the observer is intending to observe that evening. In addition, information on the observer's location will be added to the list of TTF list of "observatories."
6. Observations by the AAVSO member will be reviewed by the AAVSO Exoplanet Section Chair before being formally submitted to SG1 and uploaded to the password-protected part of the ExoFOP-TESS database. The first upload of the member's observation will be done by the AAVSO Exoplanet Section Chair as an example for the member to model. Subsequent uploads will be conducted by the member, but will be monitored by the AAVSO Exoplanet Section Chair.

III. Contact Information

AAVSO members who wish to participate as a sponsored contributor should contact:

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