Identifying Possible Transiting Exoplanets in the TESS Database

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What percentage of stars initially identified by the Transiting Exoplanet Survey Satellite (TESS) as planetary candidates are actually planets? In the process of my research, I take pictures from ARCSAT (a telescope at Apache Point Observatory, New Mexico) of the stars that TESS has chosen as potential targets and refine the data through a program called the Image Reduction and Analysis Facility (IRAF). Then I use the AstroImageJ program to perform extensive procedures to get the most accurate results as possible. This includes locating other nearby stars to compare the target star's luminosity to. I can then create graphs of the star's luminosity over time to determine if there is indeed a transiting exoplanet around the target star. Over the course of 10 months, I have analyzed over 30 targets. 13 were found to have exoplanets while 15 did not. The rest of the targets were inconclusive due to various conditions. My findings suggest that only 46% of TESS's observed targets were planets suggesting TESS has many false positives.

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