

Abstract Submitted
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Search for Transiting Exoplanets at Austin College’s Adams Observatory in Support of NASA’s TESS Mission TANNER O’DWYER, CHLOE SCHNAIBLE, BRETT SKINNER, DAVID BAKER, Austin College — NASA’s Transiting Exoplanet Survey Satellite (TESS) utilizes the transit method to detect exoplanet candidates. As an exoplanet passes between its star and the telescope, the exoplanet blocks a small amount of light from the star. This reduction of light is recorded as a “dip” in the star’s light curve. Due to the TESS space telescope’s wide field of view and large pixel size, high precision ground-based observations through the TESS Follow-up Observing Program (TFOP) are needed to confirm planetary transits and eliminate false positives. The Adams Observatory at Austin College is a contributing member of TFOP. During summer 2020, we observed and analyzed 11 stars identified by the TESS team as possible exoplanets. Our procedure used the software package AstroImageJ to calibrate images, conduct differential photometry, and generate light curves. Of our 11 observations, four observations showed an event detected on the target star, and these targets have been elevated to Verified Planetary Candidate (VPC) status. VPC’s will be given priority for additional observations by other exoplanet detection methods. One Adams Observatory observation revealed a flat light curve on the target star but a deep transit on a nearby star, indicating a Nearby Eclipsing Binary (NEB). The other six observations showed flat curves on the target and nearby stars, which may indicate inaccurate ephemeris timing, a planet (and dip in the light curve) too small to detect, or a false positive.

David Baker
Austin College

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