Abstract Submitted
for the 4CS19 Meeting of
The American Physical Society

Preparing the 0.5-meter Telescope at West Mountain Observatory for Exoplanet Observation. GILVAN APOLONIO, MICHAEL JONER, Brigham Young University - Provo — Telescope tracking systems are particularly critical for long exposures and lengthy time series runs. Even small target drifts on the CCD impact signal/noise ratios due to pixel-to-pixel sensitivity variations. Differential photometry on faint objects, variable stars and transiting exoplanets is greatly affected by tracking issues. Keeping the target object on the same pixels in all frames cancels out many of the differential errors, thus improving overall signal/noise. Mechanical limitations can be overcome by software intervention to ensure precise tracking. The 0.5-meter telescope at the WMO has received a hardware and software upgrade to achieve improved tracking. An automated dome control has been also implemented, minimizing human error and insuring a clear aperture for the telescope. The most significant improvement, however, is in the control software. Features like Closed Loop Slew and periodic re-slews improve target acquisition and tracking correction, maintaining targets in a fixed position on the CCD. As a result, an improvement in the signal/noise ratio is expected, making this system suitable for long exposures and lengthy sets of time series observations.

Gilvan Apolonio
Brigham Young University - Provo

Date submitted: 12 Sep 2019 Electronic form version 1.4