

Research Committee report for February 2016

The big news this month was the team effort for successful observations of exoplanet transits with the newly upgraded telescope. As a result, Union County astronomers have joined a Hubble Space Telescope support team!

On February 5 Gaston Baudat from Innovations Foresight (maker of our new ONAG on-axis guider) gave a talk and checked the 24" telescope with his Wave Front Analyzer. He found that the telescope was diffraction limited, so our main resolution problem is the local "seeing" or twinkling due to turbulent air.

Dennis Conti of AAVSO (American Association of Variable Star Observers, Exoplanet Division) trained our research group led by Jim Nordhausen, Tolga Gumusayak, and Mary Lou West who stayed up all night to observe an unseen planet go across the face of its star and reduce the star's brightness by 1.5%. A few weeks later we observed a transit of another star. Our accuracy improved and we agreed with HST results for the radius of the planet being 1.79 times the radius of Jupiter, a "hot Jupiter" in a close orbit around its star.

Another equipment development was Clif Ashcraft's trial of the ZWO ASI224MC camera he has been using for speckle interferometry. This camera which costs less than \$400 came out on top in a direct comparison with the Andor Luca \$14,000 EMCCD camera using the same targets on the same telescope in Arizona. He has now begun to test a prototype of the ZWO ASI290MM camera with a similar but monochrome low noise CMOS sensor and found to be even better than the 224. He has used this prototype to measure COU 37 and YSC 24 which are really close and faint binary pairs.

Two solar system objects were imaged: the Moon by Clif, and Jupiter by Tony Sharfman. The Great Red Spot was a prominent orange color.

Two deep sky objects were also imaged: open star cluster M50 in Monoceros by Helder Jacinto, and emission nebula Thor's Helmet in Canis Major by Tolga. He integrated for a total of 15.5 hours.

See our webpage: www.asterism.org, Activities, Standing Committees, Research. Star parties at Sandy Hook are scheduled for 3/19 and 5/14. We could always use help.

Respectfully submitted, Mary Lou West, Research Committee Chair



Emily Mailhot, Alan Midkiff, Jim Nordhausen, Dennis Conti, Mary Ducca, John Kozimbo, Mary Lou West, Al Witzgall, Tolga Gumusayak, and Clif Ashcraft

