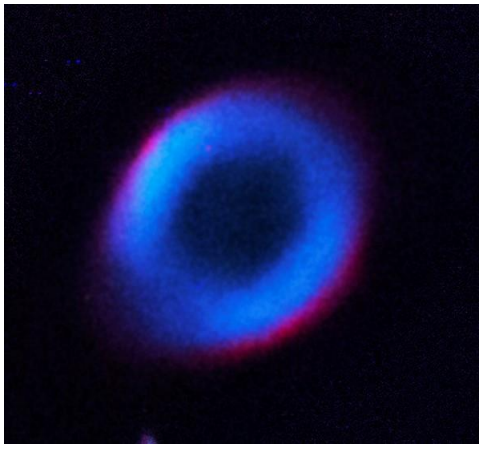
AAI Research Committee Report for May 2019

The big news this month concerns apparent changes in the Great Red Spot on Jupiter.

Solar system: Clif Ashcraft has imaged Jupiter several times just above the trees. The *Great Red Spot*, a cyclone seen in its cloud tops, appears to be shrinking at an accelerating rate. It seems to be sloughing off flakes or chunks which are carried away by the currents streaming past the GRS. Look at the "hairpin" of dark clouds hooking around the GRS from the right in this image from May 24 by Clif's friend Anthony Wesley from Australia. However, the hollow in which the storm resides is still large. It looks like there is a growing pale collar of fog around the top of the red spot itself.



Stars: Dennis Conti has organized a new AAVSO exoplanet transit list.

Tolga Gumusayak has begun to observe transits of exoplanets from his remote observatory in New Mexico.

Deep Space Objects: Isbel Gonzalez used the Sperry 24" to take a vibrant image of *M57, the Ring Nebula*. This is the first deep sky image he has taken since he came to the USA four years ago. We look forward to more images to come!

Presentations: Program for the Members Night, May 17, 2019:

Clif Ashcraft, Mary Ducca, Kathy Vaccari, Nancy Twaskas, Mary Lou West, Steve Lowe, Al Witzgall

1. Our Northern Lights Adventure – Mary Ducca, Kathy Vaccari, and Nancy Twaskas went to Tromso, Norway and Finland, above the Arctic Circle with Bill Gutsch's tour. They saw aurorae, M31, the Pleiades, radar experiments, and whales. They came back sleep deprived but very happy.
2. Solar and Lunar Eclipses in the Past Two Years – Al Witzgall takes images with various cameras, sensors, and telescopes. In Illinois during the great total solar eclipse of August 2017 he saw two stars, the Sun and Regulus. He used a silver blanket as a cooling shroud, but needed a warm parka for the frigid total lunar eclipse of January 2019. Looking ahead to April 2024, Al recommends going to Texas rather than Vermont.
3. Mars Through the Dust – Clif Ashcraft has found that a Near Infrared filter can peer through dust clouds and show details on the surface of Mars. A camera is necessary because our eyes cannot see infrared light. He observed fronts of dust storms moving at 20 miles per day, slower than on Earth.
4. Spectroscopy of roAp stars – Steve Lowe and Mary Lou West observed spectra with a medium resolution Alpy spectroscope at Steve's Westfield observatory. The roAp variable stars are Rapidly Oscillating A-type stars with peculiar chemistry. They have brightness variations of about 1% with periods of 5 to 24 minutes. Star HD 201601 was observed every minute for 90 minutes, and showed a period of about 10 minutes in the strength of the Strontium II line.

Other: Emily Mailhot is graduating from Lehigh University with a B.S. in Astrophysics.

Clif pointed out a new tension on the cosmological age question. Measurements of supernovae and of the cosmic microwave background imply that they differ by 9% in the age of the universe. Is the age 12.5 or 13.8 billion years? More research is needed, indeed.

John Kozimbo found that some nature preserves offer full moon hikes with naturalists. Opportunities include Kittatinny Valley State Park in Newton (Sussex County), Tenafly Nature Center in Bergen County, Schiff Nature Preserve in Mendham (Morris County), The Great Swamp in Harding (Morris County), Cattus Island County Park in Toms River (Ocean County), Cloverdale Farm County Park in Barnegat (Ocean County), and Bass River State Forest (Burlington & Ocean counties). These hikes offer an opportunity to see New Jersey in a whole new light.

Respectfully submitted, Mary Lou West, Research Chair