

AAI Research Committee Report for August 2020

**Although Sperry Observatory remains closed due to the COVID-19 pandemic, personal telescopes have been more active than ever.**

**Solar System:** Jupiter and Saturn were the most popular targets. Clif Ashcraft and *Bobby Marinov* shared the *double shadow transit on Jupiter* on August 14. The shadow of Ganymede is above the Great Red Spot and Io's shadow is to the left. Clif also monitored the developing white cyclone storm on Jupiter and the large fuzzy patch in its equatorial region.



Jim Nordhausen used his 10" Dob to image Jupiter and Saturn to test the club's ZWO ASI290MC video camera, bought at NEAF 1.5 years ago. The camera worked very well.

Clif showed that the small dust storm on Mars has subsided. NASA's lander Phoenix on the surface of Mars has detected snow falling near its north pole. How cool!

Neil Yoblonski used his 4.5 inch Unistellar eVscope to take two images which revealed Pluto as a very faint (14<sup>th</sup> magnitude) moving dot. Modern technology is truly amazing.

**Stars:** Steve Lowe displayed some spectra of planets by Percy Jacobs from the recent AAVSO webinar. The spectra show that the giant planets Jupiter, Saturn, and Uranus have methane (CH<sub>4</sub>) in their atmospheres. However, only one of the planets, Jupiter, has significant ammonia (NH<sub>3</sub>) in its atmosphere. This is because the other giant planets are so cold that ammonia has snowed out of their upper atmospheres. Steve hopes to try his hand at taking spectra of the planets soon.



Bobbie imaged the open cluster NGC 6939 in Cepheus about 4000 light years from us, and the large globular cluster M13 in Hercules which is about 25 000 light years away.

**Deep Space:** Tony Sharfman imaged the *Dumbbell Nebula M27* which is only 1300 light years away, and also the Crescent Nebula NGC6888, which resembles a brain floating in space.

Bobby imaged the Bubble Nebula NGC 76359 in narrowband, the Fireworks Galaxy NGC 6946, and the Lagoon Nebula M8.

Aaron Zuckerman took some stunning time lapse videos of *the Milky Way* while camping in the Adirondacks. Note Jupiter to the left of the Milky Way band.



**Presentations:** Mark Zdziarski helped present an outreach stargazing event by Electronic Assisted Astronomy for the Newark Museum for about 300 people.

**Other:** Clif spotted an article on positronium, an electron and positron orbiting their common center of mass. A recent measurement of the difference between two energy levels does not match the calculated value by only .02% but this is more than the precision of the measurement. There is no explanation yet so perhaps new physics will be required.

Steve Lowe and Mary Lou West attended the AAVSO Zoom webinar on spectroscopy and found it inspiring.

Isbel Gonzalez, attended the AAVSO Zoom webinar on photoelectric photometry. He also recommended a site <http://uahirise.org/hiwish> from the University of Arizona's Lunar and Planetary Lab which allows you to browse Mars images yourself.

John Kozimbo announced that the US Mint plans to release a Christa McAuliffe \$1 coin in February, 2021. She was the school teacher who died in the Challenger explosion in 1986. He was also happy to point out that Lick Observatory near San Jose, California survived the recent wild fires. A bare mountaintop does not provide much fuel for a fire.

Bobby pointed out that observations by the Hubble Space Telescope of magnesium lines in the ultraviolet spectra of Betelgeuse show that it violently ejected hot plasma which cooled to dark dust to cause the dramatic dimming several months ago.

Bobby also provided an exam essay on how one student thought that Hell is endothermic because it has frozen over. Although this story is very funny, it is dismissed as a classic urban legend by the fact checkers at [www.snopes.com](http://www.snopes.com).

*Respectfully submitted, Mary Lou West, Research Chair*