

Rappahannock Astronomy Club

Minutes, February 21, 2018, Meeting

In attendance:

Jean Benson
Bart and Linda Billard
Don Clark
Barbara Deal
Glenn Faini

Chet Knights
Glenn Holliday
Scott and Kimberly Lansdale
Peter Orłowski
Matt Scott

The meeting began at about 7 p.m. Eleven members and a visitor were present. Some of the topics for the business meeting were moved ahead of the program to allow Myron Wasiuta time to arrive and set up.

Program

Myron gave a presentation and demonstration of the Mark Slade Remote Observatory (MSRO). He said he first joined the club, which was then called the Triangulum Astronomy Club, in 1996. It was about 6 years after the club was founded by Al Ventura. Myron said MSRO was built with help and donations from the club and some members, and he thought of it as an observatory that would allow members more opportunities to observe, helping with the time pressures of the day. The original equipment used to start the observatory was what Myron's friend Mark Slade had assembled for building his own observatory. When Mark passed away a few years ago, his widow Laura decided to donate the equipment so that Myron could build the observatory in Mark's memory and further his interest in sharing pictures and fostering interest in observing the night sky.

About that time, Myron learned that fellow club members Jerry Hubbell and Linda Billard, working with another person, Rich Williams, had just published a book with Springer on remote observing. Together, Myron and Jerry worked out the design of the observatory. With the help of other club members, they built a square building, which was placed around Myron's pier with Mark's dome on top. They worked through the process of getting the telescope and other components connected and working together. Over time, the original telescope had problems. Jerry's company, Explore Scientific, helped out with telescopes that could be used and tested in the observatory. The telescope was recently upgraded to the Explore Scientific 165-mm APO refractor, along with a 4-inch refractor piggybacked to it with a one-shot color CMOS camera. Myron showed an image of the Horsehead Nebula region made using the piggyback telescope. He said it was a 3-hour sequence that he set up and then was able allow the sequence to build up while he slept.

To make images like Myron's Horsehead Nebula region work, he said you either have to autoguide or measure and correct the errors of the telescope mount's drive (with accurate polar alignment). He said the main MSRO telescope used Telescope Drive Master to do the drive error correction and needed the most accurate polar alignment he had ever done.

Myron said the ability to use MSRO mainly involved learning how to log on and how to use two programs: Maxim DL and Cartes du Ciel. He said Cartes du Ciel was a very nice planetarium program that was available as a free download.

A goal for the observatory was to be able to observe on every clear night, Myron said. He said he and Jerry had looked at the MSRO Clear Sky Chart records and compared them with the imaging dates in the last year. They found that of 181 nights that were at least partially clear, MSRO had 144 nights with observations. Myron brought up the MSRO page on the club website, which had pictures of the observatory and the telescope inside. He said the picture was of the 152-mm telescope that had been installed earlier. It also had a smaller piggyback telescope that was later incorporated as MSRO3, and was the telescope he had brought in to demonstrate. Myron said the camera for the main telescope had red, green, and blue filters and a grating for spectroscopy. Recently, a V-band filter donated by a friend in Culpeper was added. It was the type of filter preferred by astronomical organizations such as the American Association of Variable Star Observers (AAVSO). The V band was designed to get more

consistent wavelength response from various cameras so that their measurements could be better compared. Glenn Holliday noticed vice-grip pliers below the telescope in the MSRO web page image and asked about them. Myron explained they had been needed to hold a nut on the pier and hadn't been taken out yet. He also pointed out a second door showing in the image inside the dome room. He said it was a provision for adding a "warm room" alongside the dome room, but so far, MSRO users had been able to use their own houses as their warm room.

Myron listed the three telescopes now at the site. In addition to MSRO and MSRO3, a C14 was set up on a pier in the yard with a roll-off structure to protect it from the elements when not in use. It looked a little like an outhouse. He said it was currently planned for use with an interferometer that Bart Billard had designed for making higher-resolution spectra. Myron turned to the demonstration of MSRO3. It was an 80-mm refractor on a mount and stand small enough to be taken to the mountains or moved around the yard to avoid obstructions. It was controllable by wired or WIFI Internet connection and used autoguiding through a smaller piggyback telescope with its own camera. He thought mini robotic observatory packages like it might be available commercially in a year or so. They could enable a network of observatories, along the lines of the GLORIA project that he said was tried some time ago but was limited by the size and expense of the telescopes. Myron suggested telescopes like MSRO3 could do something like it—allow a network of telescopes where an owner could use his own telescope or make it available for others when it was idle.

Myron finished by communicating with MSRO3 via his laptop. He connected using TeamViewer, which showed the MSRO3 computer desktop and allowed him to open Maxim DL and Cartes du Ciel and show how to connect to the telescope. After a few hiccups, he was able to get the telescope to unpark and slew to where the Orion nebula would be if it had been polar aligned. Peter Orłowski asked how polar alignment can use Polaris, which is not exactly at the north celestial pole. Myron explained the mount had a separate telescope on the axis of rotation and that a reticle was provided in the telescope. With the reticle properly adjusted for the sidereal time, pointing the mount so Polaris is in a small offset circle gets the center on the celestial pole. Glenn Holliday joked that you have to adjust your reticle every 400 years (because Earth's axis of rotation "precesses"), and Glenn Faini suggested that was "planned obsolescence."

Old Business

- Communications—Don Clark said he had created an archive album in the website gallery for past "image of the month" pictures. Since the move from the Library server (from about 2014), WordPress was not preserving the credits with prior images when a new one was posted. Don said he put those images in a separate album, Additions to Image of the Month, for members to identify the missing information for theirs or any images they recognize.
- Treasurer's Report for January 31, 2017—Tim Plunkett's report showed \$120 in dues received in January. The number of paid memberships for this year had reached 14. Barbara Deal said she had had trouble getting signed up on the club email list and also knowing whether her dues had been received.
- Recent Events Held—The February star party was cancelled because of weather. The January party was successful, with 30 people attending.

New Business

- How to Introduce/Welcome New Members—Chet Knights said that he was left wondering about whether the membership application he sent was received. He said he was still waiting to see the check cashed. Glenn Faini suggested sending new members an acknowledgement email with the current newsletter attached.
- Caledon Programs—Glenn Holliday discussed the list of suggested titles for Caledon programs that was included in the agenda. He said he was going to talk about Messier Marathons at the March star party at Caledon and invited others to volunteer to present some of the other programs. The April program suggested was "Strange Visitor from Another Sun" about the extrasolar object 'Oumuamua. May's was "How to Make a Moon" about competing theories of how our own Moon was formed. For June, Glenn had "Best Fishing Spots of the Solar System" about the search for life in other oceans that have been discovered in our own Solar System. The July topic was "How to See Nothing" about black holes. September's was "Class M Planets. Can we find one like ours?" October's was "Death from Above. Getting hit by an asteroid could really

ruin your day.” Glenn Faini asked about the Chinese satellite (Tiangong 1) that was expected to reenter in the near future. Glenn Holliday and Scott said they hadn’t been able to see it at the January star party. Glenn said he had seen news stories indicating it might reenter in March. He said it was the first Chinese space station, and it had not been in use for some time now. Its orbit had been decaying faster and faster.

Next Meeting

The next meeting is on Wednesday, March 21, 2018, at the Headquarters Library on Caroline Street, downtown Fredericksburg. We will be in room 2.