

Rappahannock Astronomy Club

Minutes, January 20, 2016, Meeting

In attendance:

Dave Algert
Bart & Linda Billard
Don Clark
George Clarke

Ron Henke
Jerry Hubbell
Scott Lansdale
Myron Wasiuta

The meeting began a little after 7 p.m., after introductions and some discussion of club activities. Nine members were present.

Program

The program for January was a planning session to learn about using the Sierra Stars Online Network (SSON) as an example of remote observing. Jerry Hubbell led the session with the help (via Skype) of Rich Williams, who runs SSON. Topics covered were the telescopes SSON offers, the basics of registering and purchasing credits for telescope time, how to select an object for imaging from the catalogs available, and how to schedule images of a selected object.

Rich described the SSON telescopes, saying he started with his own 24-inch telescope. He added the University of Iowa Rigel 14-1/2-inch telescope (now replaced by a 20-inch telescope) at the Winer Observatory in Arizona. This addition was a collaboration with Dr. Robert Mutel, a pioneer in robotic telescope technology, who facilitated expansion of the network. The network now also includes a 24-inch and a 32-inch telescope at Mt. Lemmon, AZ, and a 20-inch telescope at Warmbungle Observatory in Australia.

Jerry had the SSON website up to illustrate the steps from selecting an object from the catalog to planning and scheduling the exposure. Along the way, he pointed out the links for registering and purchasing credits. Credits represent exposure time on the telescopes, with the number of credits per hour depending on the telescope used. Scheduling starts with the "JOBS" dropdown by clicking the "CREATE SCHEDULE" choice. It brings up a form with five steps, starting with choosing an object. Jerry and Rich advised that the scheduling software works best to optimize when your object is imaged (near its transit, for example) as long as you allow it to do so by not choosing a specific time—and Jerry warned that it is easy to make a mistake trying to specify the best time. He also mentioned that he uses the planetarium program Cartes du Ciel, which he has set up as though it were at the observatory location when he is planning a job. It helps avoid picking an object that is not going to be up in the night sky for months.

To select an object, you can use a number of catalogs grouped into moving objects catalogs (asteroids and comets, for example) and stationary objects catalogs, or enter coordinates on the form. Next the form asks for a title and observer name to identify the job, followed by an optional date and time (per Jerry's recommendation you might only want to enter a date).

We finished the session by going through the steps of setting up a job for imaging the Tarantula Nebula in the Large Magellanic Cloud. For the catalog lookup, Myron Wasiuta came up with the NGC number (2070). The telescope needed for this object in the southern hemisphere was the Warmbungle Observatory telescope in Australia. Our job would use 300 seconds for each filter, with filters RBV and clear selected from the available filters for the telescope. The "visual" filter (V) is a green filter developed for photometry to help standardize the response of various detectors. Rich told us that 300 seconds is the maximum exposure that should be used for one image, and longer exposures can be obtained by taking more images and stacking. We chose three for the number of images per set. One of the reasons for limiting the exposure time is less data is lost if a satellite or meteor happens to pass through the field of view.

During the summary and question period, we learned you can check the weather for each telescope site. Also, the cameras on the telescope are not designed for planets. The image scale of these telescopes is

unlike that of 8- or 10-inch telescopes that many amateurs may be used to. Some of the favorite deep sky objects may not fit in the field of view, but for pretty pictures it is possible to get a lot of detail in smaller 1–2 arc minutes objects and obtain good aesthetic images.

After the SSON planning session, Myron provided an update on the Mark Slade Remote Observatory (MSRO). He said the computer is now in the observatory and currently communicates via wireless, which has allowed confirmation that remote access works. Cables still need to be in place for the bandwidth needed to control MSRO remotely.

In comparison with SSON, Myron noted MSRO is a hands-on type of telescope, not a queued system. The polar alignment and the tracking with the Drive Master are now pretty good. He showed some early pictures made with lousy seeing and cruder polar alignment. We could still resolve six stars in the Trapezium in one image with a 1-second exposure. Myron and Jerry have found there is more magnification than desirable, and they plan to add a focal-reducer/corrector lens when the focuser is upgraded.

Myron showed an Orion Nebula image he took with his DSLR after Bart suggested trying a DSLR in the meantime. He said the image was a stack totaling 5 minutes, and it was indicative of being able to track well enough for such exposure lengths.

Finally, Myron summarized what still needs to be completed. The shutter for the dome is not yet motorized. He is planning to add automatic dome rotation with Digital Dome Works. A weather station is ready to install and connect up. Referring to the surprise snow shower that started just before the meeting in advance of the record storm projected for the weekend, Myron noted he and volunteers had taken advantage of the good weather to get a lot done—now we may have wait for good weather.

Old Business

Out of concern for the unexpected snow's effect on driving conditions, we adjourned early. Ron planned to email his agenda for comments and discussion via the email list.

New Business and Astronomy News

Next Meeting

The next meeting is on Wednesday, February 17, 2016, at the Central Rappahannock Heritage Center.