

Rappahannock Astronomy Club

Minutes, June 20, 2018, Meeting

In attendance:

Jean Benson
David Bentz
Bart and Linda Billard
Scott Busby
Don Clark
Glenn Faini
Robert Gupton

Glenn Holliday
Jerry Hubbell
David & Kyle Irby
Payal Patel
Ryan Rapoza
Matt Scott
Myron Wasiuta

The meeting began at about 7 p.m. Sixteen members were present.

Program

Scott Busby presented a program on several astrophotography topics. He said he would provide an introduction to a couple of cameras he brought in to show. He also said he would show how to use the stacking programs, AutoStakkert and DeepSkyStacker. He mentioned a final step he does at home is to process the final image with Photoshop but said he would not be able to cover that step.

The first camera Scott showed was the ZWO ASI 120 monochrome camera. He had the box it came in and showed it came with the cables needed and a nosepiece for installing it on a telescope like a 1.25-inch eyepiece. He said he also had a color version of the camera, which took the video of Mars that Scott had playing on the screen. Scott said the camera came with SharpCap 3.0 software for capturing the video. He preferred using SharpCap because of its support of proprietary camera features. He did not trust other programs that might rely on ASCOM drivers that might result in some quirks in the operation of the camera.

Scott said he used AutoStakkert for planetary images and would demonstrate with the Mars video. The other stacking program, DeepSkyStacker, was what he used for deep-sky images. Both are available as free downloads. He started AutoStakkert and opened the Mars video, then showed settings he used. He chose "Planet" and "Dynamic Background," which he says he always uses, and set it to use the 75 percent best quality frames. After clicking "Analyze," he chose TIF for the output and checked "Normalize Stack," "Sharpened," and "RGB Align." Scott said RGB Align was not really needed for color video. He then chose stack points and their size. Clicking in the image of Mars placed dots with squares around them that the program would use in lining up features in the stacked image. Scott showed the different sized squares that could be chosen and said he found 48 was a good size to pick lots of features to align. The largest size would cover the whole planet, while the size he chose allowed him to cover the image with a couple dozen or more somewhat overlapping squares. There was a feature called "Drizzle" which he said he keeps turned off. When the stacking was complete, Scott saved the result as a TIF file on the desktop.

The next step was to adjust the image with RegiStax 5.1. Scott first made some display adjustments, mainly reducing the gamma some to make the features show better. Then he showed how he used the wavelets tools to make the image sharper. It involved some experimenting with the settings of how strongly they acted and which ones worked best for the features in the image. When the image was sharpened to his satisfaction, Scott made a little more adjustment of the gamma. He pointed out a pair of bright spots he said were the start of dust storms. Myron Wasiuta said he and Jerry Hubbell had made an image 3 days later that showed the storm had clearly spread. When asked about dust storms, Myron said there are dust seasons on Mars, and this opposition is occurring in one of the dust seasons. Glenn Faini asked what wavelets were. Scott said he could not explain them, but just played with them until he got the results he wanted. Jerry Hubbell said they are like spatial frequencies.

Scott also said he preferred to try for a more "natural" look. He was willing to risk not getting all the detail as long as the result looks natural. Scott said that although opposition was still about a month away, this was the best apparent size Mars has shown in several years. Myron said Mars was already 18 arc

seconds and would reach 24 arc seconds in July. Scott explained that he used AutoStakkert for the stacking because it avoids some quirks he has seen in RegiStax. Robert Gupton thought problems with stacking large videos in RegiStax might have to do with a CPU setting. Glenn Faini described using another program to select the best quality frames in the video and save the resulting smaller file without the poorer frames for stacking in RegiStax. Scott ended the discussion of planetary imaging with a comparison of the Mars image before and after the RegiStax processing.

Scott showed his ZWO ASI 1600 camera that he used for deep-sky astrophotography. He had a Canon EOS lens attached and was thus able to demonstrate how to capture video. He said he used "Mono 8" format for easier conversion to JPEG. He preferred a monochrome camera for the detail. To get color, he had to use color filters on the filter wheel he got with the camera, and he takes fewer color images as a result.

Scott opened DeepSkyStacker and used it to open FITS images of NGC 891. He said the first step was to look through the images for any bad ones to throw out. For example, tracking might have been poor during one exposure, the mount might have been bumped, or maybe an airplane flew through during another. Once the bad images were deselected, Scott started the stacking, and there was time for some discussion while the program worked. Glenn Faini asked whether 60 frames per second was better than 30 for planetary imaging. Scott said he was not able to get such frame rates with his camera. Jerry said faster exposure was better for capturing moments of good seeing. Robert asked whether the deep-sky camera had cooling. Scott showed that it did but mentioned that the power supply's cable is very short and required an extension cord that could cause problems around the mount.

When the stacking was complete, Scott demonstrated some adjustments to bring out details of the galaxy. He also showed a few other images he had previously stacked. One of them was M51, and he varied the adjustments on the image to show how he tried to get details of the smaller interacting galaxy's tidally dispersed bands of stars without making the result look unnatural to him.

Old Business

- Treasurer's Report—Glenn Holliday showed Tim's report, which had a net \$20 incoming dues. Elizabeth Baldwin had paid Tim dues at the last meeting in case the check she sent had been lost. Tim had found the check later and refunded the duplicate dues payment. For the year, 18 members have paid dues.
- MSRO Update—Jerry said they were planning on getting a new camera and had put a video camera in place of the ST2000 camera for a while before the new camera would arrive. There have been a lot of poor nights for observing for a while, but recently some decent nights permitted the first planetary work in a while. Payal Patel asked about how some of the new people learning to use MSRO could get a chance to watch the work going on. Jerry said it would be best to call when it appeared clear weather was expected, either the day before or in the evening before dark. They usually could accommodate viewers logging in to MSRO to watch online.
- Events Held—The June 9 Caledon event was rained out. Glenn Holliday said he went by in case some visitors showed up but found none.

New Business

- Planned Outreach Events—The Astronomy Festival on the National Mall was coming up on June 23, from 6 to 11 p.m. It was moved to a Saturday this year. Jerry said he had sent out information on the event to our Yahoo group mailing list. He also sent a form to fill out for those who wanted to participate. The event was organized by Hofstra University and the contact person was Bob Moore. The next Caledon star party date was July 7.
- Meeting Programs—The program planned for the July club meeting was Astronomy in the News.
- Website update—Don was again working offline to get ready for moving to the new version of WordPress after returning from his trip but saw no reason to make any changes in the immediate future. He said he still needed help providing details on some of the old Image of the Month pictures for the archive and pointed likely photo authors to the gallery to see ones that were still unidentified.
- Yahoo Group—Scott discussed the problems he had been encountering with the operation of rac_group, with our mailing list, event calendar, and other services. He said in past years he had been able to enter events such as star parties and club meetings in the calendar near the start of

the year and could set reminders as needed to be sent out automatically 3 days prior to an event. Now it had become very quirky. Reminders no longer worked. His calendar entries had disappeared more than once and he had given up reentering them. Technical support was not helping. He suggested we need to get away from Yahoo. Don summarized information he sent via email about Google Groups as a possible alternative. However, Scott was against Google and indicated he would not be interested in managing it. Jerry said another possibility was Groups.io. His understanding was other organizations that used Yahoo Groups and had become unhappy with the service have transferred to Groups.io and found the transition was straightforward.

Next Meeting

The next meeting is on Wednesday, July 18, 2018, at the Headquarters Library on Caroline Street, downtown Fredericksburg. We will be in room 2.