

Eugene Astronomical Society



Io

May, 2021



PO Box 591 Lowell, OR 97452

www.eugeneastro.org



[1] M51 - The Whirlpool Galaxy and NGC 5195 Companion

Mark Wetzel

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May Meeting - Thursday, May 20 7pm

PLEASE NOTE THAT ALL MEETINGS ARE CURRENTLY VIRTUAL

To Be Announced

April Meeting

We had a special double meeting this month with two short programs by Alan Gillespie and Bernie Bopp. Alan Gillespie gave a talk, "My Lunacy," about several alternative techniques that he has been using to process lunar images. After that, Bernie Bopp spoke on "Solar Nucleosynthesis, or How Does the Sun Work, Anyway?"

<https://youtu.be/oFqIQDeZdYs>

Lunar Eclipse

The only Total Lunar Eclipse of 2021 will occur during the morning twilight on Wednesday May 26. Totality will only last about 18 minutes as the moon barely cruises through the edge of the Earth's Umbra. This means that one limb of the Moon will be noticeably brighter than the opposite edge. Furthermore the eclipse will be happening as the sky is getting brighter from the morning dawn. However the Moon will be interestingly positioned 6 degrees West of Antares. So somebody somewhere is going to get a nice picture!

Here are some times and positions:

Wednesday May 26, 2021	Azimuth	altitude
2:45 Partial Eclipse Begins	204	20
3:23 Astronomical Twilight Begins	213	17
4:10 Totality Begins	222	12
4:16 Nautical Twilight Begins	224	11
4:19 Mid-Totality	224	11
4:28 Totality Ends	226	10
5:01 Civil Twilight Begins	232	5
5:35 Sunrise	238	1
5:45 Moonset	239	0
5:53 Partial Eclipse Ends		

Alan Gillespie



[2] Heart Nebula

Ronald Perez

Do you have something for the newsletter?

If you have an article, photo, meeting notes, stories, etc. that you would like to share with the members, please contact me, I'd be happy to add them to the newsletter. If you have photos you would like to submit, I'm trying to include more information about the process and equipment used.

Astrophotographers: I want to offer these pages as a way to not only show off your terrific photos, but to provide us with information on how they are taken and processed. Seeing the amount of work that goes into these amazing images is always fascinating, and makes us appreciate them even more!

Bruce Sackett - bruce@busymind.net

Star Party Stories

In July of 2018, I purchased a Celestron 9.25" SCT, CGEM II equatorial mount and accessories for beginning my astrophotography journey. I set the system up in my basement to learn how to align the mount and use the GoTo hand controller. Two weeks later, I packed up and drove to my first Oregon Star Party. I went to the camping area, passing the astrophotographer collective, equipped with carpets, generators and all the amenities. My plan was to sleep in the back of my truck. On my way to OSP, I stopped at Dick's Sporting Goods and purchased a \$50 canopy for shade. For me, some shade, no amenities. That said, I set up shade canopy and my rig behind my temporary abode, met my neighbors and had a cold supper. This was home for two nights. I secured my canopy with line and tent pegs. My, the ground was rocky and the pegs were difficult to anchor. I noticed my neighbor securing his canopy with five gallon buckets filled with stones.

By around 9:30PM it was dark enough to begin the task of aligning the mount and creating a pointing model in the hand controller. I really did not know the sky well, and I did not have SkySafari to help me navigate. So, I spent at least two hours attempting a two star alignment, over and over again. Altair was one of the few stars that I could recognize, so I kept returning to it as the first alignment star. Once a terrible alignment was completed, I then played with the GoTo function and looked for a few deep sky objects. M13, the Great Globular Star Cluster in Hercules was first. It was easy to find with a low power eyepiece. M92 proved more difficult. With a 2350mm focal length, I slewed to the Lagoon Nebula. I have poor night vision and the Lagoon was centered (I think), but I could not make out any details of the gas clouds; What nebula? I looked through a neighbor's 12" Newtonian and voila, there it was. Too much focal length! I struggled for two nights and I never did attach by DLSR camera. It was a great and humbling learning experience. This was not going to be an easy hobby.

In the afternoon the next day, a fierce wind appeared. Things all over the field went flying, including my \$50 canopy! It narrowly missed some scopes and fellow astronomers wrestled it to the ground. Now, I had no shade. It dawned on me why my neighbor used buckets full of rocks. Another lesson learned.

The Oregon Star Party was an inspiring event. There were about 600 astronomers there, and everyone was friendly and helpful. The volunteers and organizers were fantastic. The dark skies were beautiful, something I could never see back East. The kids were a delight as they were interested in science and astronomy. They will save us all. There were world class speakers and a very fun raffle. As an aspiring astrophotographer, I won a 10mm eyepiece! On the telescope walkabout, Mel Bartels amazed us with his latest 23" mirror fast Newtonian and Robert Asmendi showcased his binocular telescope. And yes, there were midnight hamburgers. The OSP experience made me hunger for more (than just hamburgers).

I returned in 2019 with some astrophotography experience under my belt. I stayed four nights with a better camping setup and four five gallon buckets to anchor a shade dome. On Saturday night, the skies were the best I had ever seen. The Milky Way just "popped". 2020 was a sad year for everyone and OSP was cancelled. I plan on going this year to capture those precious photons from the summer sky and meet new friends and fellow astronomers.

Mark Wetzel

Star Party Stories (continued)

On the night of June 4th, 2014 about half a dozen EAS members took telescopes out to Sky Camp on Fall Creek Reservoir to put on a star party for Springfield's Two Rivers/Dos Rios School. There were 60-70 kids of various ages, many of whom had never looked through a telescope before. We had a beautiful waxing crescent Moon to show them, along with Jupiter, Mars, Saturn, M13, and various other sights, so the "Oohs" and "Aahs" were flying thick and fast.

Colin and Casey Miller reported the following exchange:

5th-grade girl, looking through telescope, hugely impressed: (gasps in wonder) "Wow! . . . I want to be what you guys are!"

Colin: "Well, we're just a couple guys with a telescope."

5th-grade girl, now clearly less impressed: "OK, I want to be what you guys are. And a veterinarian."

It's good to keep things in perspective. This girl will undoubtedly go far in life.

Jerry Olton

I think back to star parties I did 25 years ago, with my first telescope. Setting up in a grassy area of an eastern Oregon campground and letting pretty much everyone there look at the sites. Shoemaker-Levy, when we set up at the old WISTEC as a community outreach thing, not expecting to be able to actually SEE the impact points! When the news broke, we were flooded with people coming to look. Trying to debate a particularly persistent fellow about being able to see the Moon bases he knew were there. Hanging out and listening to John Dobson and his funny stories. Going to a scout camp on a cloudy night, with only a couple of telescopes because the weather was bad, only for the clouds to break and spending the night with hundreds of kids (and adults) getting a fast peek at the stars. I look forward to the return of all that when the world becomes normal again.

Bruce Sackett

Our PO Box has changed!

PO Box 591

Lowell, OR 97452

Annual Club Dues \$25

EAS is a proud member of The Astronomical League.

Member Astrophotography in this issue

[1] M51 Whirlpool Galaxy and NGC 5195 Companion in Canes Venatici (hunting dogs) by Mark Wetzel

Casitas de Gila, Gila, NM

April 7 - 8, 2021

During my April 2021 Canes Venatici (the hunting dogs). M51 and its companion NGC 5195 are one of the most observed and photographed deep sky object. I captured Hydrogen- α , Luminance, Red, Green and Blue filter subframes over two very long nights, imaging from 9:00PM until 5:00AM the next morning. To date, this is one of my best galaxy images showing good detail, a large number of star forming regions and the grand distortions caused by the gravitational interactions.

M51 and NGC 5195 are prime examples of gravitational interactions between galaxies. The Whirlpool galaxy is a spiral type SA(s)bc pec. It is about 76,000 light years in diameter, and it is ~26 million light years from Earth. M51 has a very active supermassive black hole in its core. This and the interaction with NGC 5195 have promoted massive star formation as seen in the red emission nebula regions of the spiral arms. These galaxies are part of the M51 group.

NGC 5195 is a barred spiral type SB0 pec galaxy. It is 25 ± 3 Mly from Earth. The galaxies are connected by a dust-rich tidal bridge. The dust in this tidal bridge can be seen silhouetted against the center of NGC 5195, demonstrating that NGC 5195 appears to lie behind the Whirlpool Galaxy. The small galaxy has been gliding past the Whirlpool for hundreds of millions of years. The encounter has significantly enhanced the spiral structure of M51. (NASA and Wikipedia).

There are several very faint and distant galaxies in the image; the edge on spiral IC 4277, and IC 4278.

For this project, I reduced the camera sensor cooling to -15°C . This reduced the noise significantly relative to the -10°C temperature I had been using. While the sky had good transparency, the Jet Stream was directly overhead causing the seeing to vary between average to below average. Temperatures in the high desert dropped by 16°C , so frequent refocusing was necessary. I had struggled with Sequence Generator Pro's auto focus routine with the C9.25 at its 2350mm focal length. Once I found the correct settings for minimum star size (6 pixels) and the step size (400 – 450 steps for the Pegasus Astro Focus Cube 2), then the focus routine worked well with the few stars surrounding the galaxy. However, seeing conditions and occasional wind affected autoguiding and the stars were a bit bloated.

Imaging details:

Celestron 9.25" Edge HD SCT with off-axis guider

Celestron CGEM II mount

ZWO ASI 1600MM Pro cooled monochrome camera (-15°C)

ZWO 36mm Luminance, H-alpha, Red, Green and Blue filter

Member Astrophotography (continued)

Software:

Sequence Generator Pro, PHD2 guiding, Celestron CPWI mount control, PixInsight and Photoshop CC 2021

Hydrogen-a 10 min x 14 subframes (140 min), Gain 139, Offset 21, 1x1 binning

Luminance 2 min x 120 subframes (240min), Gain 139, Offset 21, 1x1 binning

Red 4 min x 32 subframes (128 min), Gain 139, Offset 21, 1x1 binning

Green 4 min x 28 subframes (112 min), Gain 139, Offset 21, 1x1 binning

Blue 4 min x 26 subframes (104 min), Gain 139, Offset 21, 1x1 binning

[2] The Heart Nebula by Ronald Perez

"There are many things in life that will catch your eye, but only a few will catch your heart. Pursue those." - Michael Nolan

I am fortunate to have a permanent pier in my backyard with a clear view in every direction. This gives me the opportunity to get started on an object before I go to bed and to wake up with a whole slew of photos to process in the morning. I captured the hydrogen, oxygen, and sulfur data for the Heart Nebula over the course of three days in August of 2020 for a total of approximately 15 hours. The majority of the processing was done with PixInsight with some contrast/color work done in Photoshop.