Issue 2019-06

Eugene Astronomical Society

IO - June 2019

Eugene Astronomical Society
Annual Club Dues $25
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Oggie Golub, Jim Murray, Ken Martin.

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EAS is a proud member of
The Astronomical League

Next Meeting Thursday, June 20th, 7:00 p.m.

The Sun and the Seasons

by Larry Deckman

In honor of the onset of summer on June 21st, we'll examine the Earth's relationship to the Sun, and the resulting four seasons. We will look at the different "flavor profiles" of these time periods, noting how the seasoning increases with proximity to the poles. Finally, we'll take an historical view of the seasons in times past, gaining a better understanding of the origin of some of our culture's most pervasive concepts.

Larry Deckman always puts on an excellent program, so don't miss this one!

Club meetings are held at the Eugene Science Center planetarium, 2300 Leo Harris Parkway in Eugene (behind Autzen Stadium). Meetings start at 7:00 sharp. Come early to visit and get a seat.

Next First Quarter Friday: June 7th

Our May 10th star party was surprisingly low key. We had great weather for it and we had plenty of telescopes (at least half a dozen, maybe more), but only a couple dozen people showed up to look through them. Those who did, however, had a great view of the spring sky, including a Moon that was only 39% lit.

Our next star party will be June 7th. First Quarter Fridays are laid-back opportunities to do some observing and promote astronomy at the same time. Mark your calendar and bring your scope to the College Hill Reservoir (24th and Lawrence in Eugene) and share the view with whoever shows up. Here's the schedule for the rest of the year. Star parties start at dusk or 6:00, whichever is later. (9:00 in June.)

June 7 (27% lit)
July 12 (86% lit)
August 9, (75% lit)
September 6 (61% lit)
October 4 (44% lit)
November 1 (28% lit)
December 6 (76% lit)

May 16th Meeting Report

At our May 16th meeting, Jerry Oltion tried out the planetatium's full-dome projection system to illustrate his talk on "What's Up in the Spring Sky." Planetarium Director Haley Sharp had programmed all the objects that Jerry talked about into a lesson plan that he could run through in sequence, and she had provided photos of each object and one-touch controls for zooming in and out on the photos. It all worked beautufully, except when Jerry forgot to press "track" before he hit "zoom" and the object swept off the edge of the dome. We all had fun with the projection system and Jerry showed us many neat objects to look for (mostly galaxies) this time of year.

After Jerry's talk, Robert Asumendi showed us how he built a pier mount for his 8" binocular scope using his 3D printer for most of the parts. It's a sturdy mount that should hold his binoscope steady, plus it allows him to adjust the scope's height so he doesn't have to crouch down on the ground when viewing near the horizon. A mount this sturdy would cost well over a thousand dollars if purchased commercially (if such a mount was even available commercially), but Robert printed it and bought the few parts he couldn't print for just a few hundred dollars. Clearly 3D printing is the way to go for a lot of our amateur telescope making projects in the future.

ATIK Infinity Color Camera Report

by Jon Schwartz

I enjoy galaxy hunting and long looks at their variety of shapes, and the reality of what they are; their vast distances in the ocean of the night, their enormous troves of stars and nebulae. The Club loaned me the Infinity color camera together with its excellent software to test out early in May. The camera is in the intermediate price tier but especially suitable for those just getting started with Near Real Time viewing and imaging.

Even with the waning Moon in my narrow slice of backyard Eugene sky, with neighbors' lights on three sides and a streetlight over my roof on the fourth side, I was viewing the spiral arms of more Messier and NGC galaxies than the night or I had time for. Not with averted vision, or what we sometimes call "averted imagination," but more like the pictures from *Sky & Telescope* when I was a kid. From my back yard. With a modest 8" scope.

The ATIK Infinity Color Camera comes with everything you need, save a laptop computer.

Although it *will* help to at least skim the very brief Quick Start brochure, the setup is straightforward and the required software on a laptop or desktop computer is renowned for its user friendliness. I've only had the opportunity to use the Infinity on three nights but am impressed with the results so far. It's a fine addition to the Club's existing herd of telescopes and other equipment that members may borrow.

Atik is known for its line of respected more traditional astrophotography cameras. Here is a brief description of the Infinity from Atik:

"The Atik Infinity is the first Atik CCD camera dedicated to video astronomy. The Atik Infinity is supplied

with our custom software dedicated to video astronomy, with a Sony ICX825 sensor embedded with EXview HAD CCD II™ technology has a generous 6.45 µm pixel size."

In other words, the Infinity is made specifically for near real time observing (NRT), not long exposure traditional astrophotography. Whether we call it that, or Electronically Assisted Astronomy (EAA), or Video Astronomy, the context is the same: Observing under the stars, with a delay of only from about a minute or so, up to perhaps 15 minutes depending on one's tracking mount.

NGC 4565, the Needle Galaxy. This is a stack of 103 5-second exposures.

There are a few requirements to use the camera. It is a USB camera, meaning that it requires just one cable that must be connected to a computer to operate. However like some but not all video type cameras, it must also be connected to a portable battery or AC outlet for power. The camera is shaped like a small traditional snapshot camera. It comes with a nosepiece that slides into the telescope's eyepiece barrel. The telescope needs to be on a mount that will track the stars with reasonable accuracy. As I discovered, "reasonable" can be quite forgiving in stacking mode, due to the excellent but proprietary Infinity software that comes with the camera. Installing the software is quite simple, and can be updated to the latest version from Atik's website. With camera, computer, power source, and telescope, we're good to go.

So how are the results? Excellent! I've wrestled with several other EAA cameras. I can say without hesitation that the Infinity software erases the problems I've experienced with matters like insufficient tracking stability and narrow fields of view. The Sony ICX825 chip is a bit long in the tooth nowadays. It's not as large as a variety of the CMOS sensors in newer cameras, but it IS a bit larger than the less expensive entry level or older cameras in under $1,000 and under $500 ranges. Why is this important? For finding faint fuzzies on your first Go To!

Globular cluster M3. Stack of 15 5-second exposures.

The larger the chip, generally the bigger the camera's field of view (FOV). That means you are more likely to see your Faint Fuzzy Of Choice on your laptop screen, the first time you look. For me that meant no fiddling around with the telescope controls trying to carefully sweep

around the area for the little bast...um, gem. Given past experiences, I was amazed to find whatever I sought, the first time and every time. More observing, less fiddling!

M65 and M66, 2/3 of the Leo Triplet. Stack of 128 5-second exposures.

Some details are in order. I use a Celestron 8" SCT on their Evolution go to mount. Mine is an early model, and prone to erratic tracking despite my best efforts. To power the camera I plugged it into one of those ubiquitous car battery jumpers sold inexpensively at places like Harbor Freight. To view, I connected a 15' USB extension cable to the shorter USB cable that came with the Infinity. I did that in order to observe sitting just inside our home, in the comfort of the dining room with its table for my laptop. To round out The Lazy Man's Observing setup, I control the Evolution mount with SkySafari Pro on an iPad. And to complete the utter slothiness, I align the scope using StarSense: Celestron's little platesolving camera. Scope alignment is critical for go to scopes, and also for EAA observing. You must be able to go to your FFC (Faint Fuzzy of Choice) and then keep it reasonably centered for at least a minute, preferably longer.

With the setup complete, the very first time I selected Denebola in order to focus the camera, it was nearly centered in the Infinity software display on the laptop. The software has a "Finder" mode with 1 second exposures and binned 4x. This translates into seeing fairly bright stars as the scope moves with just a one second delay. Focusing is made relatively easy with the software's feedback assistance. And now we're ready!

M101. Stack of 75 10-second exposures.

Once focused and then located on a deep sky object, switching the software to its "Capture" mode allows longer exposure times as well as image stacking. I won't go into the limited variety of image adjustments that the Infinity software offers apart from saying that by automating much of those found on other software such as SharpCap, any user new to EAA, video astronomy, can see the deep sky revealed with a minimum of fiddling. And the magic the software applies under the hood is quite impressive. It corrected tracking issues I'd experienced with other cameras and their software. For the experienced observer, hiding more advanced

controls could be a drawback. However I believe Atik has released drivers that permit the camera to be optionally operated with SharpCap.

The accompanying images are representative of what I saw live, on screen, during those nights of observing. Warts and all. Because I put the camera directly in to the SCT's eyepiece diagonal, the camera chip isn't fully illuminated. That produces vignetting. The Moon and ambient lighting plus Eugene's sky glow mean the sky is not going to be deep black unless artificially darkened — losing subtle detail. One night I didn't realize the camera wasn't focused quite as well as possible. This enlarges the star images a bit. Collimation issues along with irregular tracking can push star images out of perfect roundness. But for the near real time galaxy aficionado, these matters are not as critical as they would be for star clusters.

NGC 4535, a barred spiral galaxy in Virgo. Stack of 127 10-second exposures.

Lastly, a word about color versus monochrome. Color cameras like the Infinity can show the beauty of nebulae almost like we see in the pages of magazines or on line. However the technology that filters your photons into red, green, and blue pixels and then displays a colorful nebula also significantly reduces the sensitivity of the camera. Therefore an OSC (One Shot Color) camera like the Infinity will take a lot longer to capture faint fuzzies of any variety than the same camera in a monochrome version. The Infinity can be put into a binning mode, which makes exposures monochrome, and hence more sensitive. But the binning process will also reduce the resolution of the image. Compromises!

All in all, the Infinity camera and software were a pleasure with which to observe. I could see far more detail from my backyard than I could see from a dark sky site using the same telescope. There are always compromises. Stars are not the crystalline pinpoints as seen through pure glass of refractors. But you see more of them. You are tethered to a computer and a power source and a couple of cables. However unlike traditional astrophotography, you will be observing under the stars, not waiting on hours of exposure and post processing. Images you choose to easily save won't be as amazing as those. However, if you so desire, those souvenirs of your night's observing CAN be put through post processing in the same popular software packages astrophotographers use. And with skill, your images can be memorably enhanced as well.

Newer cameras are available nowadays, and that's bound to always be the case. For now, the Infinity camera and software remain a fine choice for an introduction to video astronomy and getting more out of the photons streaming to us from thousands, from millions of light years beyond.

The ATIK Infinity color camera was donated to the EAS by the Imaging the Sky Conference, and is available for loan to club members.

Thank You Storage Junction

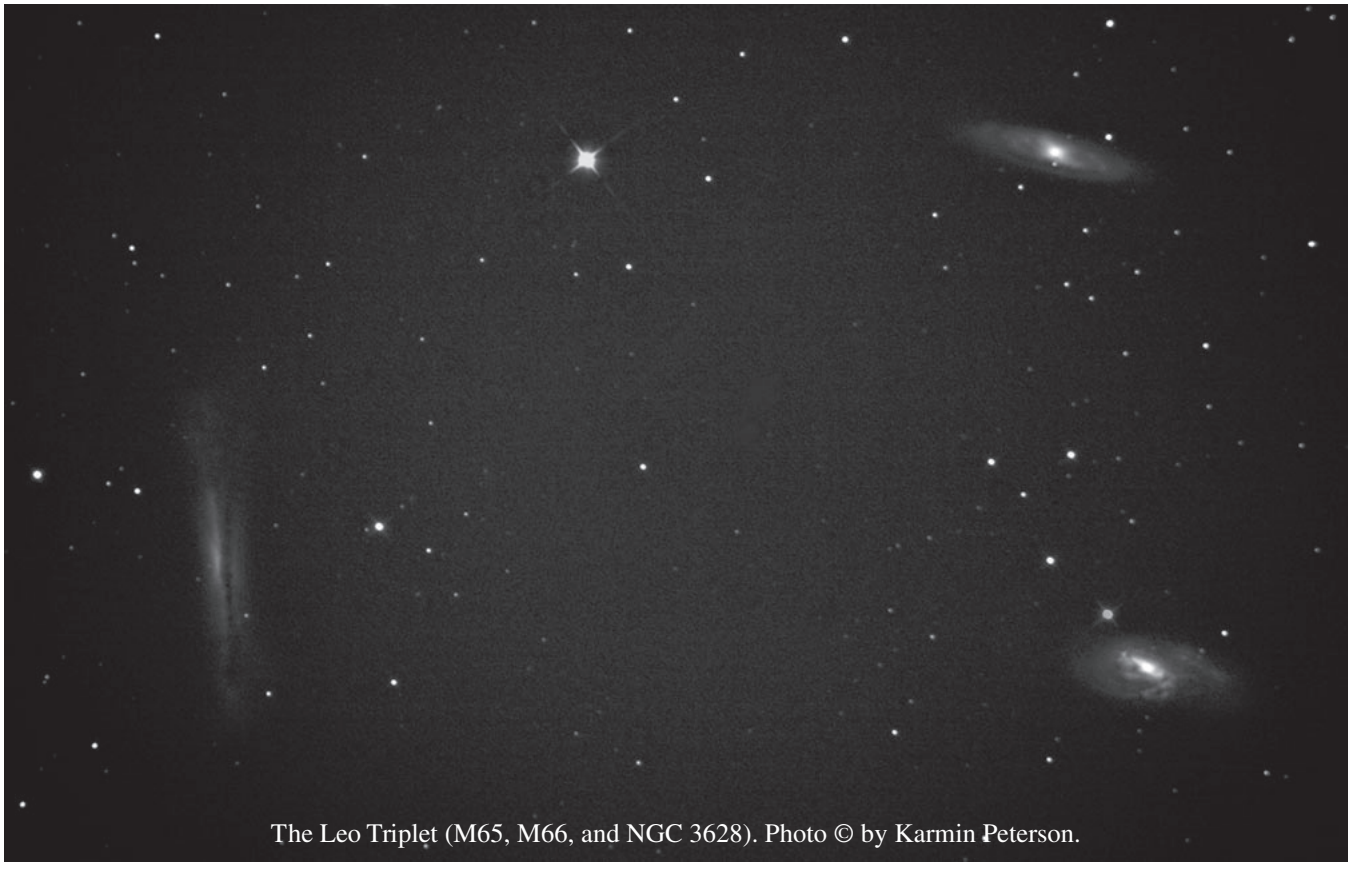
Storage Junction has donated the use of a storage unit for us to hold our loaner telescopes when they're not in use. EAS would like to thank Storage Junction for their generosity and support for our group. Please give them a call if you need a storage space, and tell your friends. Storage Junction is located at 93257 Prairie Road (at the intersection of Hwy 99 and Hwy 36, 3 miles south of Junction City) Phone: 541-998-5177

Gallery: May opened up a little for astrophotography. In addition to the shots Jon Schwartz took with the club's new ATIK Infinity camera (previous pages), Alan Gillespie took several good shots and newcomer to these pages Karmin Peterson got some nice deep-sky images. Zoom in a bit and enjoy!

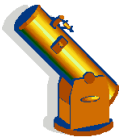
Moonrise early May. Photo © by Alan Gillespie.

The Virgo Cluster of galaxies, centered on Markarian's Chain. Photo © by Alan Gillespie.

M51. Photo © by Karmin Peterson.



The Leo Triplet (M65, M66, and NGC 3628). Photo © by Karmin Peterson.



Observing in June

New | 1st Q | Full | Last Q

June 3, 3:02 AM	June 9, 10:59 PM	June 17, 1:31 AM	June 25, 2:46 AM
Mercury Set: 10:11 PM	Mercury Set: 10:33 PM	Mercury Set: 10:41 PM	Mercury Set: 10:30 PM
Venus Rise: 4:36 AM	Venus Rise: 4:34 AM	Venus Rise: 4:34 AM	Venus Rise: 4:37 AM
Mars Set: 11:03 PM	Mars Set: 10:54 PM	Mars Set: 10:41 PM	Mars Set: 10:26 PM
Jupiter Rise: 9:12 PM	Jupiter Rise: 8:45 PM	Jupiter Set: 5:11 AM	Jupiter Set: 4:36 AM
Saturn Rise: 11:14 PM	Saturn Rise: 10:49 PM	Saturn Rise: 10:16 PM	Saturn Rise: 9:43 PM
Uranus Rise: 3:43 AM	Uranus Rise: 3:20 AM	Uranus Rise: 2:50 AM	Uranus Rise: 2:19 AM
Neptune Rise: 2:04 AM	Neptune Rise: 1:40 AM	Neptune Rise: 1:09 AM	Neptune Rise: 00:38 AM
Pluto Rise: 11:29 PM	Pluto Rise: 11:05 PM	Pluto Rise: 10:33 PM	Pluto Rise: 10:01 PM

All times Pacific Daylight Time (March 10 - Nov. 2, 2019 = UT -7 hours) or Pacific Standard Time (November 3, 2019 - March 8, 2020 = UT -8 hours)

Date	Moon Rise	Moon Set	Twilight Begin	Sun Rise	Sun Set	Twilight End
6/1/2019	04:47	19:03	03:15	05:33	20:48	23:07
6/2/2018	05:20	20:12	03:14	05:32	20:49	23:08
6/3/2019	05:59	21:20	03:13	05:32	20:50	23:10
6/4/2019	06:46	22:25	03:11	05:31	20:51	23:11
6/5/2019	07:41	23:23	03:10	05:31	20:52	23:12
6/6/2019	08:46		03:09	05:30	20:52	23:14
6/7/2019	09:56	00:13	03:09	05:30	20:53	23:15
6/8/2019	11:09	00:55	03:08	05:30	20:54	23:16
6/9/2019	12:23	01:31	03:07	05:30	20:54	23:17
6/10/2019	13:36	02:03	03:06	05:29	20:55	23:18
6/11/2019	14:48	02:31	03:06	05:29	20:55	23:19
6/12/2019	15:59	02:59	03:05	05:29	20:56	23:20
6/13/2019	17:10	03:27	03:05	05:29	20:56	23:21
6/14/2019	18:19	03:57	03:04	05:29	20:57	23:22
6/15/2019	19:27	04:30	03:04	05:29	20:57	23:22
6/16/2019	20:31	05:08	03:04	05:29	20:58	23:23
6/17/2019	21:30	05:52	03:04	05:29	20:58	23:23
6/18/2019	22:22	06:41	03:03	05:29	20:58	23:24
6/19/2019	23:06	07:35	03:03	05:29	20:59	23:24
6/20/2019	23:44	08:33	03:03	05:29	20:59	23:25
6/21/2019		09:33	03:04	05:29	20:59	23:25
6/22/2019	00:16	10:33	03:04	05:30	20:59	23:25
6/23/2019	00:44	11:33	03:04	05:30	20:59	23:25
6/24/2019	01:09	12:33	03:05	05:30	20:59	23:25
6/25/2019	01:33	13:34	03:05	05:31	21:00	23:25
6/26/2019	01:56	14:35	03:06	05:31	21:00	23:25
6/27/2019	02:20	15:38	03:06	05:31	21:00	23:24
6/28/2019	02:47	16:44	03:07	05:32	21:00	23:24
6/29/2019	03:17	17:52	03:08	05:32	20:59	23:23
6/30/2019	03:52	19:01	03:09	05:33	20:59	23:23

All times are for Eugene, Oregon Latitude 44º 3' Longitude 123º 06'

Items of Interest This Month

Good month for Mercury just after sunset.

Asteroid Pallas in Coma Berenices again this month.

6/2 Io shadow transit 11:01 – 1:13. Callisto crosses under Jupiter's S. pole while Io transits just behind its shadow.

6/4 Red spot centered 11:22 PM.

6/7 First Quarter Friday star party. Ganymede and Europa pass one another from 11:00 to midnight.

6/10 Jupiter at opposition. Visible all night.

6/11 Ganymede and Io shadow transits 8:30 – 10:53 PM

6/16 Red Spot transits 11:14 PM.

6/17-6/18 Mercury within 1/4° of Mars

6/18 Moon 2° from Saturn at Moonrise (10:30 PM). Io shadow transit 9:18 – 11:31 PM.

6/21 Summer solstice 8:54 AM. Europa shadow transit (the hard one) 9:04 – 11:32 PM. Red Spot transits 10:21 PM.

6/23 Mercury at greatest eastern elongation. Red Spot transits 11:56 PM. Io and Europa pass one another 11:00 – Midnight.

6/25 Io shadow transit 11:13 PM – 1:25 AM.

6/28 Red Spot transits 11:07 PM. Europa shadow transit 11:39 PM – 2:08 AM.