The Observe

The Official Publication of the Lehigh Valley Amateur Astronomical Society https://lvaas.org/ https://www.facebook.com/lvaas.astro October 2021 Volume 61 Issue 10





You might think due to the pandemic that not much is happening at LVAAS. If you do, you would be incorrect. This month I thought I would give an update to the various activities happening at LVAAS.

The September 11th Star Party had 25 members in attendance. The skies were clear and along with observing there were also Astro Photographers there imaging. All in all, a good crowd. Preston Smith even had the Red Shift fully operational. A special thanks to Rose Bachik for volunteering her time to help with the Red Shift!

LVAAS has started a new project. Last week Bill Dahlenburg, Ron Kunkel, and Frank Lyter purchased and retrieved a telescope enclosure from Steve Walters. Our intention is to build a new observatory with this enclosure. This observatory will be located at the current field pier. The dome and the four side panels are currently stored in the 40" building. Ben Long and Frank Lyter completed the conduit planning for running power to the pier. One interior disconnect box has been selected and plans made for mounting internal components that are required.



Ron Kunkel (pressure-washing,) Jim Farrand and Declan Long (not pictured) work to clean a telescope dome donated by society member Steve Walters. It is slated to house a 12-inch Meade Schmidt Cassegrain telescope at Pulpit Rock.

Photo courtesy: Frank Lyter

There has been recent work done to the Pulpit Rock Road by Frank Lyter, Roy Sousley (non-member), and Ron Kunkel using Roy's Steiner tractor with attached Harley rake. The road maintenance has been very successful, and the most recent rains did virtually no damage to the road.

Claudio Stabile hosted Boy Scout Troop 102 at Pulpit Rock the weekend of 9/17-9/19. Claudio was using the Tinsley and the roll off observatory. It looks like setting up the 12" Meade SCT to be used with a computer and Stellarium makes for an easier time hosting groups at Pulpit Rock.

Christopher Smith did an astronomy merit badge presentation for Troop 187 at their meeting location in Lehighton on 9/23 in preparation for their upcoming merit badge weekend at Pulpit Rock. The weekend of 10/15-10/17 is scheduled as a primary weekend for this activity and 11/12-11/14 or 12/29-12/31 as backup weekends dependent on weather.

The position of Star Party Coordinator still remains open. If anyone is interested in this position, please contact me at director@lvaas.org

There have been no changes to the state of Pennsylvania pandemic recommendations, so below is a list of the upcoming LVAAS activities.

- ✓ Star Party at South Mountain October 9th
- ✓ Astro-Imaging October 23rd
- ✓ Star Party at South Mountain November 13th

Ad Astra!

Thomas Duff

LVAAS Officers Election to be held at the October 10th General Meeting

A business meeting will be convened and the election of LVAAS officers for 2022 will take place during our regular general meeting on October 10, 2021.

Candidates for the position of director, assistant director, treasurer and secretary were announced at the September 12th general meeting.

The nomination process is now closed in accordance with society by-laws. The nominations for our officers are as follows:

Director – Thomas Duff

Assistant Director – Richard Hogg

Treasurer – Blair Hogg

Secretary - Michael Huber

Newly elected officers will assume responsibility December 1, 2021 and continue until midnight November 30, 2022.

Please plan to attend the October meeting to show your support for our candidates.

With much appreciation, we thank our current officers: Tom Duff, Rich Hogg, Gwyn Fowler and Dennis Decker for their hard work and dedication to LVAAS this past year.

Submitted by Bill Dahlenberg, LVAAS Elections Chair



Minutes from the LVAAS General Meeting – September 12, 2021

The September 2021 LVAAS General Meeting General Meeting was conducted electronically using an on-line service.

Approximately 40 people were in attendance.

Director Tom Duff opened the meeting at 7:00 PM.

The topic of the General Meeting's presentation was "The Search for Extraterrestrial Intelligence (SETI): An Insider Perspective" by Sofia Sheikh, PhD. SETI is one of the most fascinating astronomical disciplines, but also one of the most misunderstood. The talk walked through the various considerations and methods used by researchers when searching for extraterrestrial intelligent life in the universe. What do we mean by "intelligence?" What strategies do we employ in the search? What are the potential pitfalls? And why haven't we found aliens yet? As well as a brief overview of some of her recent projects and papers to show what a modern SETI search looks like.

Dr. Sofia Sheikh is a postdoctoral scholar at the Berkeley SETI Research Center. She received her undergraduate degrees in physics and astrophysics from the University of California, Berkeley in 2017, and her PhDs in astronomy and astrobiology from Penn State in 2021. Her research focuses on searches for radio techno-signatures, but her interests also include pulsars, fast radio bursts, and techno-signatures/astrobiology more broadly.

Treasurers Report: Gwyn Fowler

• General Fund income since the last report is \$840.02. General Fund expense is \$950.96. There was also a one-time upward adjustment to the General Fund balance of \$304.60 following an audit of Fiscal Years 2018-2020. The upward amount reconciles the financial records we maintain in QuickBooks to the actual amount of cash on hand for the Red Shift. The Red Shift had \$178 in sales and \$1.54 in expense since the last meeting. The balances for all funds are shown in Table 1.

	07 Aug 2021	Income	Expense	12 Sep 2021	
General	40,726.22	840.02	950.96	40,919.88	
		304.60			
Red Shift	260.19	178.00	1.54	436.65	

• Table 1. Activity by Funds since August 7 (amounts in dollars).

• The following table summarizes our annual budget so far this fiscal year.

	Budget	Actual		
Income	20,000.00	18,881.28		
Expense	26,565.00 ^{Note}	14,890.89		
Net	-6,565.00	+3,990.39		
Note Includes \$4000 ea	rmarked for transfer to t	he Roof Fund by 12/31/2021.		

• Table 2. FY 2021 General Fund Budget (amounts in dollars).

Membership: Gwyn Fowler

- 2nd readings
 - Alex Krizel
 - o Benjamin Long
 - o Barbara Long
 - John (Jack) Paul
 - Cleon Swartzentruber
- 1st readings
 - Brian Simboli

General Comments:

Elections: Bill Dahlenburg

- Candidates for this year's election of officers are as follows:
 - Director Tom Duff
 - Assistant Director Rich Hogg
 - Treasurer Blair Hogg
 - Secretary Michael Huber

Astro-imaging: Tom Duff

• The next Astro-imaging meetings are scheduled for September 25th at 7:00 PM and October 23 at 7:00PM. The meetings will be held outdoors at South Mountain.

Planet Walk: Sandy Mesics

• On September 25th, LVAAS members are invited to take a guided tour of the Planet Walk in Allentown by Ray Harris. The Planet Walk was built by LVAAS in the 1990s to honor Ernie Andrews, a former Director.

Star Party:

• The next Star Party is scheduled for Saturday, October 9th.

General Meeting:

• The next General Meeting is scheduled for Sunday, October 10th. Please note this meeting will include the screening of the film "Luminous".

Note: These events will be held for LVAAS Members only. Please check the website to verify start dates and times.

The September General Meeting guest speaker presentation was recorded.

The meeting was adjourned at approximately 8:45 PM.

Submitted by Dennis Decker, Secretary

LVAAS General Meeting: Online via Zoom Sunday, October 10, 7:00 p.m.

A Screening of the Film "Luminous" With Q&A



Astronomy Professor Larry Molnar believes he can find the unfindable – a star that is about to explode.

When Larry and a small team of students stumble across a strange star, they embark on a dramatic journey of scientific discovery, which brings the unlikely team into the international spotlight. But others in the astronomical community are skeptical, and Larry's professional reputation hangs in the balance. In production since 2014, *Luminous*, a feature documentary by award-winning filmmaker Sam Smartt (*Wagonmasters*), follows Larry's journey to test his unprecedented prediction, knowing that its success or failure will unfold squarely in the international spotlight.

Watch the trailer.

Prospective new members who wish to attend the meeting should email membership@lvaas.org

Via Earl Pursell, UACNJ Liason: Presentations through October 2021

UACNJ provides FREE public programs at our Observatory in Jenny Jump State Forest from April through October on Saturday evenings. For the safety of the public and our volunteers, we will be operating the observatory much as we did last year: the entire event will be held outdoors with masks and social distancing required. Weather permitting, an astronomy presentation begins at 8 p.m. As you will be outdoors, please bring a chair or blanket to sit on and be prepared for cool weather. The presentation is followed by some stargazing and we will have screens set up to show live video from the observatory's telescopes until 10:30 p.m. These public programs are free but donations are appreciated. Note admission is limited and by reservation ONLY. For more information and free registration see our website: http://www.uacnj.org/index.php. Reservations for the following week's program go on sale Sunday at 12 noon. Please join us or watch our presentations online at youtube.com/UACNJ

Via Eric Loch: "Astronomy: Fun and Educational For All Ages, Through the Ages."

Read Eric's Interview for *Lifestyles over 50* magazine here: https://issuu.com/lifestylesover50/docs/lo50-fall-2021_final/24



Via Earl Pursell: Night Sky Network Survey

NASA's Night Sky Network is asking amateur astronomers to fill out a survey, mostly about outreach and how the pandemic has affected it, but also about how they can help clubs with outreach. Here's a link to the survey. I would encourage everyone to fill it out. https://skyandtelescope.org/astronomy-news/amateur-astronomy-in-2021/

Via Dave Raker: New Library Material Books:

The Astronauts: 25 Years of Manned Space Flight by Bill Yenne The New Solar System: Ice Worlds, Moons & Planets Redefend by Patrick Daniels Solar System by Marcus Chown

Via Earl Pursell: Lockheed-Martin Spacemakers Podcast

"We're launching a podcast on Wednesday, Sept. 1, to take YOU behind the scenes of some of the greatest space exploration missions of our time, and to chat with our experts about how these missions are shaping the future of space..." click here

Also, **Dark Skies** Talk by Douglas Arion: https://www.youtube.com/watch?v=zf9Lj5bymd4

Benefit from giving to LVAAS through your IRA!

If you are 70 1/2 or older, you can make a charitable gift directly from your IRA to LVAAS without paying income tax on the withdrawal. State laws about Qualified Charitable Deductions (QCDs) and how QCDs are handled vary. If interested, please consult an adviser so you can help LVAAS today! https://lvaas.org/page.php?page=using_rmd_to_support_lvaas



Cover image: The Milky Way Rising. Imaged by Richard Nelson. Camera Cannon R5 Lens Tamron 15-35 F 2.8 with adapter. Foreground 2.5 minutes 15 mm iso 1600 F2.8 single image Sky 33 seconds 15mm 1so 1600 f2.8 single image Blended in Photoshop. Shot at Johns and Olga's Farm near Coudersport Pa.

FOR SALE 3.5 " classic Questar telescope





It is a catadioptric apochromatic variable focal length telescope. It comes with two eyepieces (25 mm EFL and 10 mm EFL), a solar filter, legs for forming the tripod, power cord, and the case. The telescope and mirror are in nice shape and the clock drive runs. The number on the base reads 0-9953. I think it is at least 25+ years old.

\$2,000 (price lowered)

If interested or you want to see more photos, contact David Raker at draker@cedarcrest.edu



Night Sky Notebook for OCTOBER by Peter Detterline





From the LVAAS Archives:

A National Junior Astronomer Convention

by Sandy Mesics

From the mid-1960s through the mid-1970s, LVAAS hosted an active cohort of young astronomers. The junior members (those under the age of 18) formed their own organization, The Ursa Major Astronomical Society (UMAS). Meetings were held at the South Mountain Headquarters, usually immediately preceding the monthly general meeting. The group had its own monthly programs, occasional field meet observing sessions, published their own monthly newsletter, participated in LVAAS work parties, and even built the first new observatory at Pulpit Rock after its acquisition from Henry Kawecki, The Arthur Fox Memorial Observatory.



The UMAS was not unique: In the late 1960s and early 1970s, young astronomers were starting to organize all over the U.S., usually but not always as sub-groups of local astronomy clubs. There was briefly a publication called the *National Junior News Notes*, which chronicled the efforts of these regional junior clubs. Attempts were made to hold separate meetings for these budding astronomers, usually held in association with the national Astronomical League conventions. These national meetings met with varying degrees of success.

In 1971, the UMAS made the decision to hold one of these national meetings. This was an ambitious undertaking for a group of only 19 members, all under the age of 18. Of these, only about nine or ten members attended monthly meetings on a regular basis.

Astronomers Schedule Conference

An amateur astronomy group based in Allentown will be host on Nov. 20 to a two-state convention that will feature an auction of astronomical equipment, a planetarium show and lectures.

The Ursa Major Society Cumas, a branch of the Lehigh Valley Amateur Astronomical Society (LVAAS) will open its facilities to astronomers from Pennsylvania and New Jersey.

The facilities include a planetarium, workshop, observatory and library on South Mountain, and instruments at Pulpit Rock near Hamburg.

Conference activities will include a night of star-gazing at Pulpit Rock, which has three observatories and a concrete observation platform. An elevated observation deck is under construction.

"The convention has been organized to promote a stronger bond between student astronomers in the Eastern United States and to generate interest in astronomy and its related subjects," Kenneth Mohr, an Ursa Major officer, said.

Paul Shenkle, assistant director of LVAAS, will present the planetarium show. The lectures will be given by members of the visiting societies.

UMAS publishes "The Messenger of the Skies," a monthly periodical devoted to items of local interest. The UMAS officers for 1971 were Kenneth Mohr, Director, Eileen Youse, Assistant Director, and Christine Smith, Secretary/Treasurer. The UMAS was notably progressive for the time, having young women as officers and active members. UMAS was struggling to maintain and improve the Fox Observatory. In May 1971 Ken Mohr reported that the Fox Observatory was in "awful" shape. In September 1971, the UMAS presented their definition to be included in the LVAAS revised constitution as follows: "The Ursa Major Astronomical Society is a self-governing student group devoted to Astronomical activities which holds regular meetings and is open to all interested members."

On November 20, 1971, the UMAS held "The Mid-East Regional Junior Convention of the Astronomical League. Attendees, however, were limited to young amateurs from Pennsylvania and New Jersey. Plans were for a tour of the South Mountain headquarters, a planetarium program, presentations from various attendees, and a tour and observing session at Pulpit Rock.

There were 28 attendees, representing UMAS, Warrington, and Willingboro clubs. The event opened with a business meeting. The discussion centered around "plans for joint publication of details of observations of meteor, lunar and planetary objects made by all junior astronomers."

A paper session followed. Mark Adams from the Warrington Astronomical Society spoke on meteor observing and noted that "meteors increase in number during the period of midnight to dawn and noted the apparent ratio between sporadic and stream meteors. He added that the color of meteors and their trails is apparently subjective and varies with [the] observer. He briefly noted the value of simultaneous observations of meteors from two stations."

Other papers from the members of the Willingboro club included a discussion of elliptical galaxies and observable planetary characteristics.

The afternoon session concluded with a planetarium program by Paul Shenkle. There was also a sell and swap table of new and surplus optical items. Looking back, Ken Mohr recalled that they had the meeting at the South Mountain headquarters and had a banquet at the Burger King on S. 4th Street in Allentown. The group then went to Pulpit Rock for an all-night observing session, which was hampered by cloudy sky. Ken recalled that there were 20-30 attendees, and it went very well.

THE MESSENGER	OF THE SKIES					
Monthly Newsletter Vol.	VII NO II	November, 1971				
FELLOW ASTRONOMERS:						
In the name of the Ursa Major Astronomical Society, I welcome you to Allentown and the UMAS facilities. We truly hope that this convertion will prove to be the reunifi- cation and start of a closely bonded, productive junior astronomical league Might I point out the entnusiasm created by organizational observations, exchange lectures and many other multi-society programs endeavored. This convention may be the spark long needed to set ablaze the potential of young astronomers. We wish this function to be a friendly get together of great spirits with a serious purpose in mind.						
Don't hesitate to ask for help bunch. Enjoy your stay), if nothing else, w	e're a friendly				
	Astronomically yours	,				
	Ken Mohr Jr., Director, UMAS					

The UMAS continued intermittently in one form or another for quite a while. For one year in 1978, UMAS was referred to as the Ursa Major Explorer Post. After reorganizing in 1979, the UMAS had a resurgence in 1980 and continued intermittently through the early 1980s. An attempt to revive the group in 1990 met with some success, but by 1996, UMAS morphed back into an Explorer Post. It continued in that form until it was disbanded in 2010.

Many UMAS members went on to have successful professional careers in the sciences, healthcare, the law, and leadership, and no doubt were fostered in their formative years by involvement in the UMAS.

The author wishes to thank Ken Mohr for his assistance in preparing this article.

References

Ken Mohr interview. *The Messenger of the Skies*, Vol. 3 No. 2, November 1971. *Morning Call*, November 15, 1971. *The Observer*, December 1971.



In last month's article about our 40" Cassegrain telescope project, I wrote about how I had converged on the specs for the main baffle tube, about 66 inches long and 7 inches in diameter, and how I had become more comfortable with the idea of using fiberglass tubing rather than aluminum. I also talked about the general process of shopping for the raw materials. I submitted the article for publication, and then a few days later I remembered something that had faded to the back of my mind.

A few years ago, we were invited to remove anything we wanted from the observatory that belonged to Spacek Instrument Company in Pottstown, PA, before it was sold. (The owner, Mike Spacek, was a long-time supporter of LVAAS before he passed away, and one of our observatories at Pulpit Rock is named in his honor.) One of the treasures that we latched onto was a collection of composite tubes intended for telescopes, and they were stored in the basement of the Schlegel Observatory building at Pulpit Rock. Was it possible that any of them were close to what we need? So, one evening I met Frank Lyter at the site, and he helped me pull a few candidates from the stack to bring home for further evaluation. Below is a table with the dimensions of the four tubes that I selected.



Since I knew I wanted something close to 7 inches outside diameter, you can understand how happy I was to find these four tubes in the collection. In particular Tube A looks like a very good candidate to form the top end of the primary baffle.

Label	Length	OD	Wall Thickness
А	28"	7.0"	0.138"
В	30"	7.655"	0.128"
с	49.15"	7.375"	0.170"
D	49.75"	7.375"	0.192"

Of course, it is not long enough by itself, but it will "telescope" into either Tube C (with a bit of "wiggle room") or into Tube D (quite snugly.) Tube C also fits closely into Tube B. I can just barely get one end of Tube D started into one end of Tube B, but it's really tight. (Clearly, the OD's of C and D are not exactly the same, but they are very close.) But that's OK. Tube A nested in Tube C (or D) will make a fine baffle. These are not fiberglass, rather they are apparently a paper-based phenolic, but they seem quite strong and durable, with no obvious deterioration from years of storage in the unheated Spacek facility.

My design for the main baffle assembly is shown at right. Tube A is nestled into Tube C, after both are cleaned up and painted black, and secured with four machine screws and nuts spaced around the circumference of the tube.

At the bottom end, the assembly needs to be mounted to a flat aluminum plate (not shown), from which it will extend the required 66 inches, and it must be held square to the plate to maintain the required alignment. My idea here is to build up a stack of rings cut from 1/2" fiberglass plate, to a thickness of at least 2 inches, maybe more. The



rings would be drilled through for a pattern of 8 mounting bolts to secure it to the aluminum plate. The rings will be laminated with epoxy, and we'll probably epoxy some blind nuts to the top of the holes to make it easier to attach it.

Then the whole stack gets epoxied into the bottom of the tube, to form an inside flange. I think this will be plenty strong and durable, but I'm also thinking about adding a pattern of screws from the outside of the tube through to the inside of the flange stack, as shown. This is so that we have a fail-safe to prevent the baffle tube from coming loose and damaging the mirror surface, just in case the epoxy joint or the material fails in some way we don't anticipate.

Also not shown: the inner surface of the baffle will be covered with a layer of FlockBoard for maximal absorption of any stray light that impinges on the inside of the tube.

StarWatch

by Gary A. Becker

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G.O.A.T Mode - Capricornus Revealed

Almost hidden among the 12 original zodiacal constellations is Capricornus the Sea Goat, the most difficult star pattern to be seen along the yearly path of the sun. Half goat, half fish, Capricornus can be found in the southeast, right after it gets dark, in the water section of the heavens, along with other obscure fall constellations like Pisces the Fish, Cetus the Whale, and Aquarius the Water Bearer. Currently, the location of the Sea Goat is more readily observable because it is flanked by the bright planets, Jupiter on the left and Saturn on the right.

> University, that region of the sky is devoid of stars. Even from suburbia. only а few of Capricornus' brighter stars are revealed. However. using binoculars in the suburbs will uncover а host of fainter luminaries, starting just below lead Jupiter that like а well-trodden trail from Jove downward to a broad angular vertex which is the base of the constellation, and then up again past Saturn to a peak. A less conspicuous path leads back

again to Jupiter. The whole ensemble might look like the mouth of a laughing giant, or if you are into Star Trek, the insignia of the United Federation of Planets worn by Captain Kirk and the rest of the *Enterprise* crew.

Why choose a goat for that region of the sky? Perhaps you're familiar with "G.O.A.T. mode" as portrayed in Ford Bronco Sport commercials. It's that gear you engage when you take your vehicle off-road and want it to "Go On Any Terrain" and have the "Greatest Of All Times." That's exactly what the ancients had in mind when they envisioned a goat as the manifestation of that part of the heavens.





Two thousand years ago, it was at the border of Capricornus and Sagittarius that the sun after a six-month descent reached its nadir, its lowest position in the sky, marking the winter solstice as well as the shortest day of the year. Since the sun was considered a god, and gods could be capricious, there was no promise that Sol would reverse its trek and ascend back into prominence, even though its descent had slowed, indicating that a reversal might take place. Then as the sun entered Capricornus, it went into "G.O.A.T. mode" and began to climb higher into the sky making everyone very happy.

If you have your binoculars handy, the two fairly bright stars above Saturn at the right apex of Capricornus are double stars. The upper luminary is fourth magnitude, Algedi (the baby goat). It has a fourth magnitude companion star just 1/10th of a degree to the right. That's bright enough and far enough away to be a visual double star not requiring any optical aid if you are in a rural locale with keen eyesight. Binoculars will be required from the suburbs or the city. The third magnitude star below Algedi, which is named Dabih (lucky stars), is a double too, but it needs binoculars to be discerned. Its fainter sixth magnitude companion can also be seen to the right of Dabih, separated by 1/20th of a degree.

Have fun going into "G.O.A.T. mode" with the star pattern of Capricornus. Ad Astra!



Download your free "The Planets" poster here:

https://www.open.edu/openlearn/tv-radio-events/tv/download-your-free-the-planets-poster

Sky Above 40°33'58"N 75°26'5"W Wednesday October 6, 2021 23:00



Your Sky was implemented by John Walker in January and February of 1998. The calculation and display software was adapted from Home Planet for Windows. The GIF output file generation is based upon the ppmtogif module of Jef Poskanzer's pbmplus toolkit, of which many other components were used in creating the images you see here.

ppmtogif.c - read a portable pixmap and produce a GIF file Based on GIFENCOD by David Rowley

Lempel-Zim compression based on "compress"

Modified by Marcel Wijkstra

Copyright © 1989 by Jef Poskanzer.

Customize Your Sky at http://www.fourmilab.ch/yoursky/

OCTOBER 2021

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					<u>01</u>	<u>92</u>
03	<u>04</u>	<u>05</u>	New Moon <u>06</u>	<u>07</u>	<u>08</u>	Members Only Star Party 09
General Meeting - 7:00 <u>10</u> PM	ц	First Quarter Moon <u>12</u>	13	14	15	<u>16</u>
17	18	<u>19</u>	Full Moon 20	21	22	Astro Imaging at SM 23
Deadline for submissions 24 to the Observer	25	<u>26</u>	27	Last Quarter Moon 28	<u>29</u>	<u>30</u>
LVAAS Board of <u>31</u> Governors Meeting						

NOVEMBER 2021

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	<u>01</u>	<u>02</u>	<u>03</u>	New Moon 04	<u>05</u>	<u>06</u>
Daylight saving time ends <u>07</u>	08	<u>09</u>	10	First Quarter Moon <u>11</u>	12	Members Only Star Party 13
General Meeting - 7:00 <u>14</u> PM	15	16	17	18	Full Moon <u>19</u>	20
Deadline for submissions 21 to the Observer	22	23	<u>24</u>	Thanksgiving 25	<u>26</u>	Last Quarter Moon 27
LVAAS Board of 28 Governors Meeting	29	30				

Publishing images is a balancing act!

When preparing your images for publication in The Observer, please consider the following guidelines:

Put the quality in:

- Considering the "print" size of the image, make sure you have at least 150 pixels/inch.
- Use a reasonably good quality for the JPEG compression ratio.

But watch the "waistline"!

- Don't go too much above 200 pixels/inch max.
- Use the lowest JPEG quality that still looks good!
- Shoot for <300KB for a 1/2 page image or <600KB for a full page.

Tip: If you're not Photoshop-savvy, you can re-size and compress undemanding images ("human interest" not astroimages), with an online tool such as:

https://www.ivertech.com/freeOnlineImageResizer/freeOnlineImageResizer.aspx. It will also tell you the pixel size and file size of your original, even if you don't download the processed copy.

The Observer is the official monthly publication of the Lehigh Valley Amateur Astronomical Society, Inc. (LVAAS), 620-B East Rock Road, Allentown, PA, 18103, and as of June 2016 is available for public viewing. Society members who would like to submit articles or images for publication should kindly do so by emailing *The Observer* editor at editorlvaas@gmail.com. Articles submitted prior to the Sunday before the monthly meeting of the board of governors (please see calendar on website) will appear in the upcoming month's issue. PDF format is preferred. Early submissions are greatly appreciated. Articles may be edited for publication. Comments and suggestions are always welcome.

LVAAS members please feel free to submit ads for astronomy equipment you have for sale, and additionally you may sponsor a maximum of three ads from non-members per year. Please submit your finished ad as a PDF, with pictures and text. Every attempt will be made to include submissions in a timely manner.

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Existing members please update your LVAAS profile information by emailing the membership director at <u>membership@lvaas.org</u>

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