

The High Desert Observer

August 2018

The Astronomical Society of Las Cruces (ASLC) is dedicated to expanding public awareness and understanding of the wonders of the universe. ASLC holds frequent observing sessions and star parties and provides opportunities to work on Society and public educational projects. Members receive the *High Desert Observer*, our monthly newsletter, plus membership to the Astronomical League, including their quarterly publication, *Reflector*, in digital or paper format.

Individual Dues are \$30.00 per year
Family Dues are \$36.00 per year
Student (full-time) Dues are \$24.00

Annual dues are payable in January. Prorated dues are available for new members. Dues are payable to ASLC with an application form or note to: Treasurer ASLC, PO Box 921, Las Cruces, NM 88004. Contact our Treasurer, Patricia Conley (treasurer@aslc-nm.org) for further information.

ASLC members receive electronic delivery of the HDO and are entitled to a \$5.00 (per year) Sky and Telescope magazine discount.



Table of Contents

- 2 *What's Up ASLC*, by Howard Brewington
- 3 *Outreach Events*, by Jerry McMahan
- 4 *Calendar of Events, Announcements*, by Charles Turner
- 6 *July Meeting Minutes*, by John McCullough
- 8 NASA Space Place Partner Article
- 10 *Observing the Sun*: by Sidney Webb
- 12 *Photos of the Month*: E Montes, A. Woronow, D. Doctor, K. DeGroff, J. Johnson, J. Kutney, C. Brownwell

ASLC Board of Directors, 2018

Board@aslc-nm.org

President: Howard Brewington; President@aslc-nm.org
Vice President: Rich Richins; VP@aslc-nm.org
Treasurer: Patricia Conley; Treasurer@aslc-nm.org
Secretary: John McCullough; Secretary@aslc-nm.org
Director-at-Large: Steve Barkes; Director1@aslc-nm.org
Director-at-Large: Ed Montes Director2@aslc-nm.org
Past President: Chuck Sterling; csterlin@zianet.com

Committee Chairs

ALCor: Patricia Conley; tconley00@hotmail.com
Apparel: Howard Brewington; comet_brewington@msn.com
Calendar: Chuck Sterling; csterlin@zianet.com
Education: Rich Richins; Education@aslc-nm.org
Grants: Sidney Webb; sidwebb@gmail.com
Loaner Telescope: Sidney Webb; sidwebb@gmail.com
Membership: Open
Observatories:
Leasburg Dam: David Doctor; astrodoc71@gmail.com
Tombaugh: Steve Shaffer; sshaffer@zianet.com
Outreach: Chuck Sterling; csterlin@zianet.com
Web-Site: Steve Barkes; steve.barkes@gmail.com
HDO Editor: Charles Turner; turner@milkywayimages.com

Masthead Image: February 10, 2017 From Las Cruces, Moon rising over the Organ Mts in Penumbral Eclipse.

August Meeting --

Our next meeting will be on **Friday, August 24**, at the Good Samaritan Society, Creative Arts Room at 7:00 p.m.

Bert Verstraete will present the topic "TDRS Overview"
The presentation is about Tracking Data Relay Satellite

Member Info Changes

All members need to keep the Society informed of changes to their basic information, such as name, address, phone number, or email address. Please contact Treasurer@aslc-nm.org with any updates.

Events

ASLC hosts deep-sky viewing and imaging at our dark sky location in Upham. We also have public in-town observing sessions at both the International Delights Cafe (1245 El Paseo) and at Tombaugh Observatory (on the NMSU Campus). All sessions begin at dusk.

At our Leasburg Dam State Park Observatory, we hold monthly star parties. Located just 20 miles north of Las Cruces, our 16" Meade telescope is used to observe under rather dark skies. Please see *Calendar of Events* for specific dates and times.

What's Up ASLC?

August 2018

The 35th annual Okie-Tex Star Party is only a couple of months away. This year's event will be held during the week of October 6 to 14, and I am planning to stay for the entire time. This has become one of my favorite astronomical gatherings because it's conducted at a truly dark-sky location. And, the Milky Way is conveniently placed on the meridian as evening twilight ends, so one can get to work immediately with viewing or imaging its many wonders. Several other ASLC members are also planning to make the trek this year, and these individuals are willing to help novices learn the use/collimation of a telescope and/or imaging equipment. So, please consider joining us.



Limited on-site bunkhouse-type lodging is available at Okie-Tex, which can be reserved on a first-come, first-serve basis. There's also lots of room for tent camping and travel trailers on the observing fields. ASLC members usually try to camp in the same area of the eastern field. Electricity is available via extension cords to power your telescope, computer, and CCD camera. Porta potties and hand-washing stations are scattered around the site, but flush toilets and hot showers are also available. You can bring food or eat at the Okie-Tex chow hall; breakfast, lunch, and dinner are served daily. Interesting evening speakers, door prizes, and astronomy vendors are also part of this event. And, as an annual tradition, the ASLC joins with some Houston amateurs to enjoy our Si Señor (potluck) chicken dinner on Monday evening, which is always a lot of fun.

During the day, of course, we sleep late. Then, some afternoons, amateurs hike the area for exercise, or visit with the vendors. Some of ASLC members bring their bikes and enjoy scenic rides in the surrounding area. And, there's a golf course nearby, so don't forget your clubs. I'm a golf newbie, but am looking forward to playing 9-holes when time allows. Pets, by the way, are allowed at Okie-Tex, so bring Rover along too. As usual, I'll be packing my ham-radio gear, so I can communicate with other ASLC members during the drive up to Kenton. Please feel free to contact me if you'd like to caravan. I normally drive to Las Vegas, NM on the first day and spent the night in the Walmart parking lot. From there, it's a quick and easy drive to the star party. You can learn more about Okie-Tex at: <http://www.okie-tex.com/>. I really hope to see you there!

Howard J. Brewington
ASLC President
August 2018

* * *

Outreach

Outreach is a very important part of ASLC. We are always looking for more volunteers to help us educate the public. Even if you do not have a portable telescope to bring to the events, please consider attending our public outreach programs to help answer questions, share knowledge and point out objects in the sky.

Outreach Events

July 2018 Report

by Jerry McMahan

Moongaze, Saturday July 21, 2018

Deming was well represented at our two Moongaze locations. Mike Nuss joined Chuck Sterling and I at the International Delights. Charles Turner joined Howard Brewington and Steve Wood at the Pan Am Plaza, as did Sid Webb.

Mike brought his refractor while Chuck set up his 10 inch. I had the Usual ETX 125. Charles manned his binoculars. Sid used his 10 inch Newtonian, while Steve set up his 8 inch. Howard was at his 8 inch Dobsonian.

Both locations reported good crowds, a big improvement from the previous month. I guess people were getting back from vacations to get ready for school to start. The skies were clear and the seeing was pretty. The Red Spot, on Jupiter and the Cassini Division, in Saturn's rings, were all visible. We even had a visit from the International Space Station.

Mars was visible from the Pan Am position, but still too low to be seen from the International Delights. I assume the low altitude and the dust storm on Mars, prevented any detail from being seen. Venus was also visible from both locations.

Leasburg Dam State Park, Saturday, August 4

We had a very large turnout of club members. Chris Brownwell brought his 120mm Orion refractor. He was aided by Mike Nuss. Steve Wood operated the 11 inch Celestron. Sid Webb set up his 10 inch Newtonian on the grass. Howard Brewington, Bob Armstrong and Charles Turner operated the observatory. I forgot my headlight so I spent the evening tripping over rocks and curbs.

The 16 inch had problems again. It failed in the first attempt, and would not move after that. Charles found a loose screw (in the electronics, not in Charles). Using his large inventory of allen wrenches and screw drivers, he tightened the screw and saved the evening. If you need to rebuild your car engine in the parking lot, ask Charles. He probably has the tools to do the job.

The night was mostly clear so targets included Venus, Jupiter, Saturn and Mars. The latter was still low in the sky so a boiling image made difficult to tell if the planet wide dust storm was still in progress. Howard thought he might have seen some hints of dark markings. The globular cluster M22 and the Lagoon Nebula were also observed as well.

Bad luck weather that we have often encountered, at Leasburg, did not effect a successful event this time.

* * *

Calendar of Events (Mountain Time - 24 hr. clock)

Aug	01	20:05	Sun Sets
	01	13:50	Jupiter Rises
	01	17:38	Saturn Rises
	01	19:59	Mars Rises
	04	12:18	Last Quarter Moon
	04	19:30	OUTREACH; Dark Sky Observing at Leesburg Dam State Park
	09	15:00	Jupiter Double Shadow Transit, Europa + Io, Alt 18°
	11	03:58	New Moon
	16	18:08	Jupiter Double moon Transit, Europa + Io, Alt 38°
	18	01:49	First Quarter Moon
	18	20:00	OUTREACH; MoonGaze, International Delights Café
	18	20:00	OUTREACH; MoonGaze, Pan Am Plaza on University Ave
	23	20:34	Jupiter Double Shadow Transit, Europa + Io, Alt 39°
	24	19:00	ASLC Monthly Meeting; Good Samaritan Society, Creative Arts Room
	26	05:55	Full Moon
	30	20:46	Jupiter Double moon Transit, Europa + Io, Alt 23°
Sept	01	19:31	Sun Sets
	01	17:23	Jupiter Transits
	01	20:33	Saturn Transits
	01	22"31	Mars Transits
	01	19:00	OUTREACH; Dark Sky Observing at Leesburg Dam State Park
	07	12:10	Neptune at Opposition
	02	20:37	Last Quarter Moon
	09	12:02	New Moon
	10	12:50	Jupiter Double moon Transit, Europa + Io, Alt 14°
	15	19:00	OUTREACH; MoonGaze, International Delights Café
	15	19:00	OUTREACH; MoonGaze, Pan Am Plaza on University Ave
	16	17:15	First Quarter Moon
	17	15:36	Jupiter Double moon Transit, Europa + Io, Alt 39°
	21	03:00	Venus - greatest illuminated extent
	24	17:00	ASLC Monthly Meeting; Good Samaritan Society, Creative Arts Room
	24	20:52	Full Moon

Note: For those using The Observer's Handbook 2018, or some other printed source, you may have noticed that they list more events than we have shown. We have only listed events, like eclipses and Jupiter shadow transits that are visible from Las Cruces, even if they occur during the day. Be sure to visit our web site for ASLC information: www.aslc-nm.org

* * *

Announcements

1. The program for the July meeting will be a presentation by Bert Verstraete "TDRS Overview" The topic of the presentation is about Tracking Data Relay Satellite. This is a constellation of satellites that can provide nearly constant communications with spacecraft and other satellites.
2. The agreement to use the facilities at Good Sam for our meeting prohibits members from bringing in ANY food or beverages, except water in a container with a screw lid. Take note: no more Starbucks or Saturn Cookies!

4. The field trip to Safford, AZ to see the Pope's Telescope and the Large Binocular Telescope has been set for September 22nd. Unless the mountain catches on fire again or some other calamity occurs, Mike Nuss will be presenting information and details of the trip in the near future.

The Large Binocular Telescope Observatory is a marvel of design and engineering. For more information, check out their web site: <http://www.lbto.org> . It's capabilities are unique in the world of professional telescopes. It has two identical 8.4 meter telescopes with an interferometric baseline of 22.8 meters and an effective aperture of 11.8 meters. It also has a modern, advanced, and effective Adaptive Optics System.



The Large Binocular Telescope Observatory: Located on Mt Graham near Safford, AZ it is home to twin 8.4 meter telescopes.

* * *

This article is distributed by NASA Space Place. With articles, activities and games NASA Space Place encourages everyone to get excited about science and technology. Visit spaceplace.nasa.gov to explore space and Earth science!



The Best Meteor Shower of the Year

By Jane Houston Jones and Jessica Stoller-Conrad

If you're a fan of meteor showers, August is going to be an exciting month! The Perseid meteor shower is the best of the year, and in 2018, the peak viewing time for the shower is on a dark, moonless night—perfect for spotting meteors.

The best time to look for meteors during this year's Perseid shower is at the peak, from 4 p.m. EDT on Aug. 12 until 4 a.m. EDT on the Aug. 13. Because the new Moon falls on the peak night, the days before and after the peak will also provide very dark skies for viewing meteors. On the days surrounding the peak, the best time to view the showers is from a few hours after twilight until dawn.

Meteors come from leftover comet particles and bits from broken asteroids. When comets come around the Sun, they leave a dusty trail behind them. Every year Earth passes through these debris trails, which allows the bits to collide with our atmosphere and disintegrate to create fiery and colorful streaks in the sky—called meteors.

The comet that creates the Perseid meteor shower—a comet called Swift-Tuttle—has a very wide trail of cometary dust. It's so wide that it takes Earth more than three weeks to plow all the way through. Because of this wide trail, the Perseids have a longer peak viewing window than many other meteor showers throughout the year.

In fact, this year you should be able to see some meteors from July 17 to Aug. 24. The rates of meteors will increase during the weeks before Aug. 12 and decrease after Aug. 13. Observers should be able to see between 60 and 70 meteors per hour at the shower's peak.

The Perseids appear to radiate from the constellation Perseus, which is where we get the name for this shower. Perseus is visible in the northern sky soon after sunset this time of year. Observers in mid-northern latitudes will have the best views.

However, you don't have to look directly at the constellation Perseus to see meteors. You can look anywhere you want to; 90 degrees left or right of Perseus, or even directly overhead, are all good choices.

While you're watching the sky for meteors this month, you'll also see a parade of the planets Venus, Mars, Jupiter and Saturn—and the Milky Way also continues to grace the evening sky. In next month's article, we'll take a late summer stroll through the Milky Way. No telescope or binoculars required!

Catch up on all of NASA's current—and future—missions at www.nasa.gov

Observing the Sun During a Solar Minimum

by Sidney F Webb

A few years ago, observing the Sun with a Hydrogen Alpha 'scope was fun and easy. Point the scope (any brand with an H-alpha filter would do) at the Sun and your field was filled with solar prominences, flares, sun spots, filaments and all the other delights outlined in nearly any reference one could find. Getting serious meant looking up the different forms that a prominence might take and deciding if what you saw was a single arch or double arch, a hedgerow or curved pillar, or some other mystery.

Today we're near a solar minimum and everything has changed. Most days are without any sunspots. So far in 2018 80% of the time there has been no evidence of sunspot or other activity on the Sun via land based telescopes. What has been alarming to me is that what does appear in my eyepiece does not correspond in location to what is reported by observers who post their photos on the web. Why is that? More research on my part was required. Here is what I found.

Observing the Sun from Earth requires attention to both geocentric and heliocentric parameters. Geocentric parameters orient the Sun as we see it from Earth. It is the western edge of the Sun that rises in the east in the morning and the western edge of the Sun that is the first part to set at sunset in the west. The easiest way to find the west is to note the drift of the Sun in the telescope with the motor turned off of any guidance system. Its drift is always west. Uniformity in reporting requires that the observer is aware of his latitude and longitude and the time of day and year of his observations. He also must factor in the changes in solar orientation if he uses an equatorial or an alt/az mount and if he is using a reflecting telescope or a refractor. The goal is to produce a picture of the Sun that shows true North, South, West and East from the observer's location at a specific time and date.

As a gas giant over a million times bigger than the Earth, the Sun has no "landmarks" to help us localize any events taking place in the photosphere or chromosphere.. Heliocentric parameters help define the position of the events taking place on the surface of the Sun relative to the Earth. What we can see depends on where Earth is in its orbit and changes due to the Sun's rotation. Heliocentric parameters define, from our perspective, the wiggle, wobble and circular dance of the Sun over the course of a year.

As a rotating gas body, the surface of the Sun that we see changes regularly. Rotation of a full circle (360 degrees) at the equator is 24 days but at the poles it is 38 days. The Carrington Rotation Number was developed in 1853 after determining the average time it took a sunspot to move 360 degrees from our vantage point was 27 days. By definition, each rotation begins at Noon, Greenwich Mean Time, when an arbitrarily defined longitude reaches the 90 degree junction in the center of the solar sphere in Greenwich, England. It has been used since that date to provide an approximate reference point to locate observations within the 360 degree circle of the Sun. Thus, observers need to know what the current Carrington Rotation is and how many days since it started to locate a specific meridian on the Sun's surface. The initials "Lo" are used to designate how many degrees from this central meridian localizes an observation. Professional astronomers use the full 360 degrees to chart activity on the front and back side of the Sun; others use a shorthand to reference only the front side of the Sun, with a Lo of "+" or "-" 90 degrees for visible objects only.

The orientation of the Sun's rotational axis is not perpendicular to Earth's annual orbit of 365 days and this causes the Sun to appear to "wiggle" right and left from our perspective. Therefore, what we would identify as the north pole of the Sun from our photographs is not the same as the actual north pole of the Sun. The apparent "tilt" ranges between +/- 7½ degrees. The angle in degrees is designated by the letter "p". Knowing the "tilt" of the Sun helps us better understand the path of sunspots or other phenomena over time.

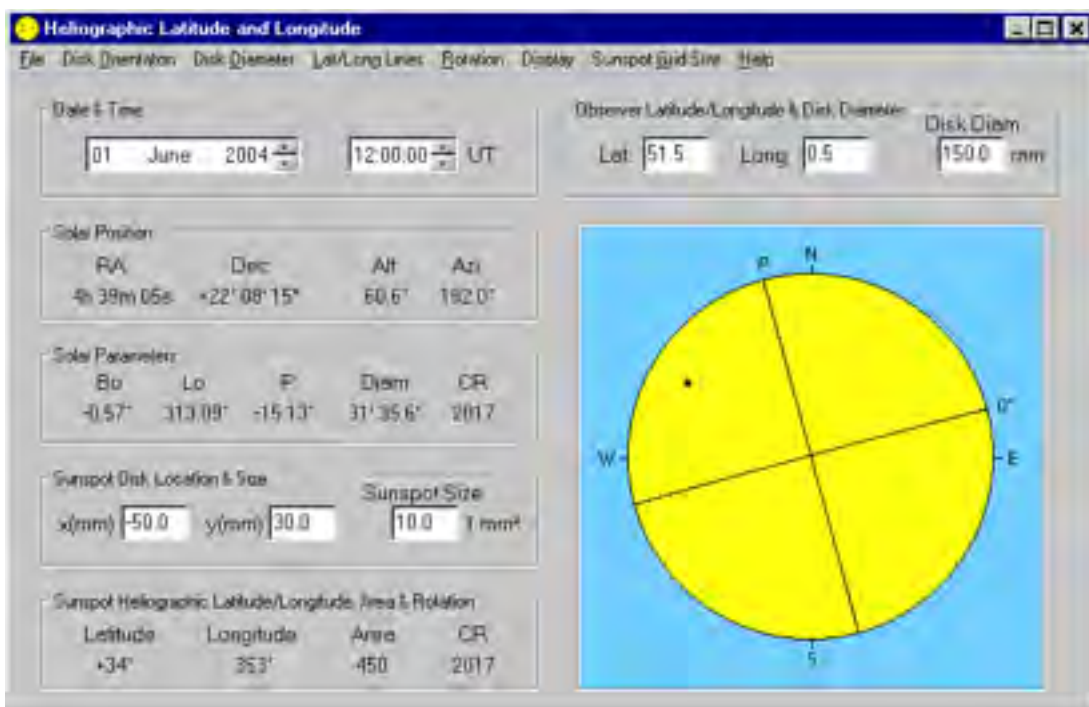
The Earth's daily rotational axis also is at an angle compared to our orbital path around the Sun. It is not a circular orbit. It is an elliptical and off-center orbit. These factors combine to create an "ecliptic" (the path of the Sun in the sky) that changes with the seasons. Where we are in our orbit determines the change in the ecliptic we see. This accounts for the apparent "wobble" of the Sun or our ability to see more of its north pole or the south pole depending on the season. It has been known for centuries that the ecliptic is not a constant and in this era it is calculated with Earth's apparent precession being taken into account. It changes daily and is designated by the characters "Bo".

When you can superimpose the heliocentric parameters onto a correctly oriented photo taken from Earth, you will know exactly where your sunspot or other finding is on the surface of the Sun. Knowledge of the parameters that locate what we see when we study the Sun is part of the challenge of today's amateur solar astronomy. At a very minimum, the observer needs to be able to orient the Sun according to standard, terrestrial North-South-East-West parameters so that people from around the world have the same perspective. When dealing with heliocentric parameters, most commonly the illustrations mark where the solar north pole is (P) and the number of the current Carrington Rotation number and the number of days since it began. Finally, the picture will have superimposed latitudinal lines determined by the Bo value. Together, this will allow accurate mapping of observed solar activity on our very own spherical, three-dimensional Sun.

So, is this fun? Of course it is. You just have to redefine the word "fun"!

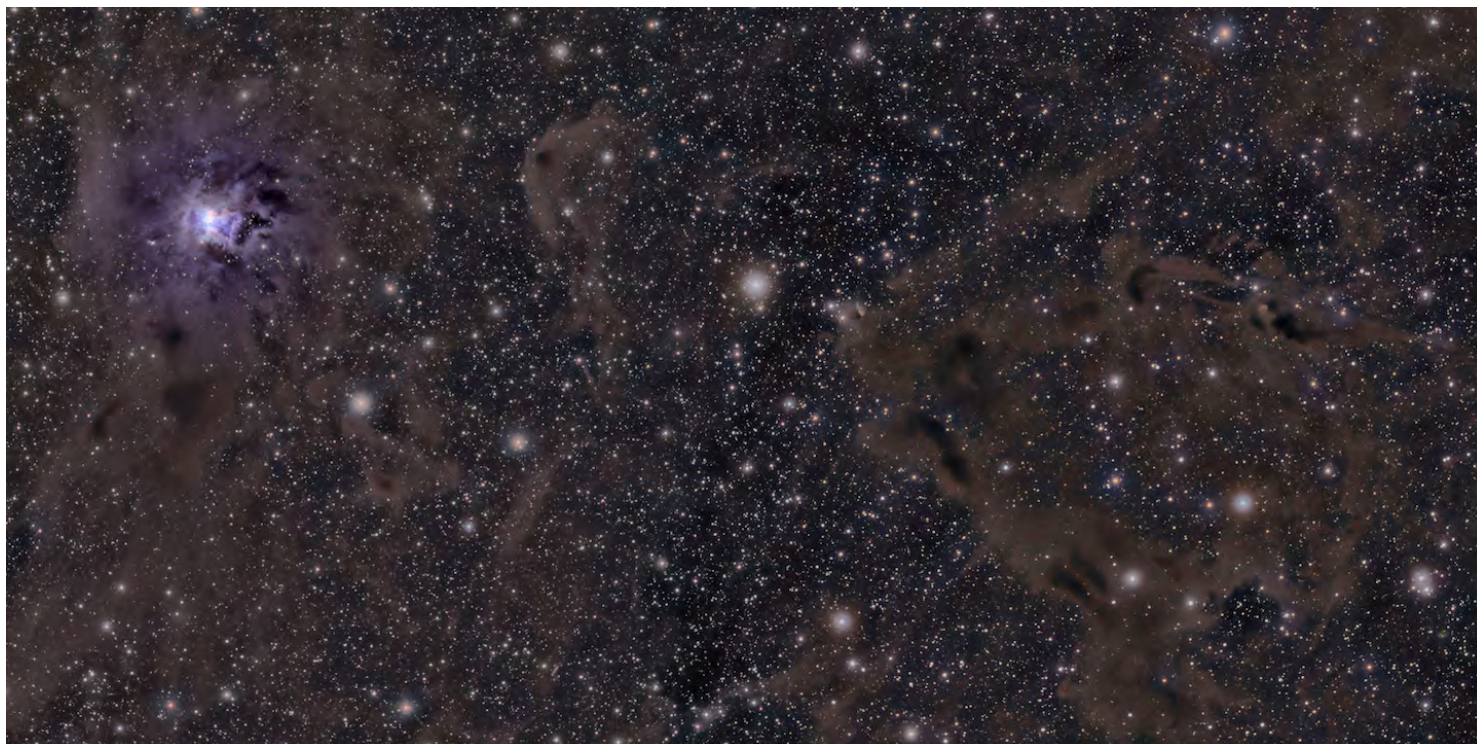
References: Jamey L. Jenkins. Observing the Sun: A Pocket Field Guide. 2013. There is much more in this book than I alluded to above. It is easy to read and answers many questions.

<http://www.petermeadows.com/indexsolar.html> "Solar Observing by Peter Meadows" This website is a great guide with illustrations and animations galore. It includes his "app" that provides the heliocentric parameters discussed above. All you need to do is enter your date and time of observing and location of observing. It provides everything else. An image of the app appears below. It is free.



* * *

Photo of the Month



OBJECT: NGC 7023 Iris Nebula and Surrounding DSOs -- A 2-Panel Mosaic

The image contains some interesting, but smallish, objects (see the linked image, which I annotated using SkyTools, Gimp, and PixInsight--yes all three. I don't have a real life!). Acquired in 2018

OTA: RH-305 (12" f/3.5) Camera: SBIG STX-16803 Observatory: Deep Sky West (NM)

EXPOSURES: Left Panel Right Panel

Red: 13 x 600 sec 13 x 600 sec

Blue: 7 x 600 13 x 600

Green: 13 x 600 12 x 600

Lum.: 11 x 600 11 x 600

(Twice as many subframes were acquired. These were the best. Shame that so few Blue subs in left panel... covering Mrs Iris.)

Total exposure ~15 hours Image Diagonal: ~3.7 deg

Processed by Alex Woronow using PixInsight and On1 in 2018

An overlay showing objects in the fov of this image is here. Those other objects include the variable nebula, Gyulbudaghian's Nebula (a variable nebula), LBN 648 and 487 (not labeled, but is the dark nebula containing LDNs 1148, 1155, and 1172) and a number of faint galaxies. Only LEDA 11648 is at all visible in this image. The LEDA objects are listed in the LEDA galaxy catalog.

The Iris Nebula (NGC 7023) in the upper left of this image is a bright reflection nebula and Caldwell object in the constellation Cepheus. NGC 7023 is actually the cluster within the nebula, LBN 487, and the nebula is lit by a magnitude +7 star.

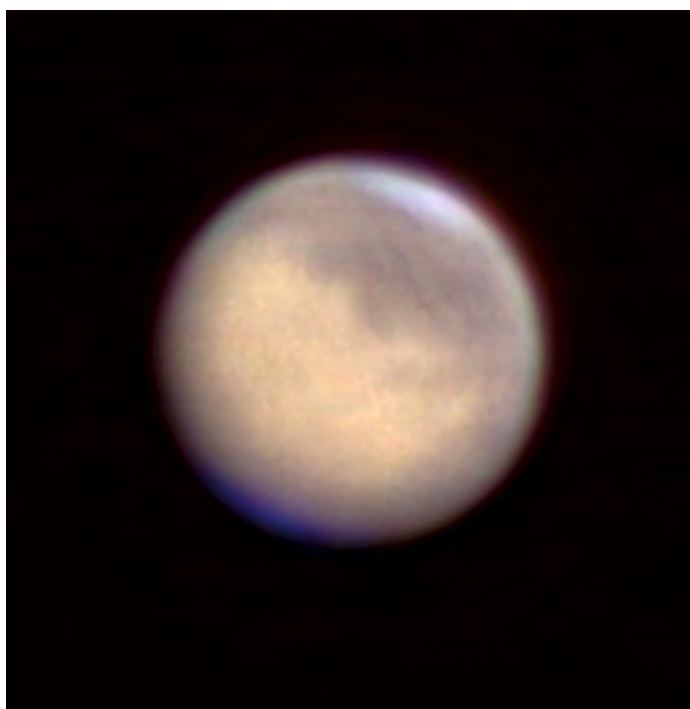
Gyulbudaghian's Nebula is a Herbig-Haro object (a newly born star). It has two jets of gas being ejected in opposite directions, from it's north and south poles, We see only one of the jets. This is a variable nebula whose intensity varies over a period of years. Another such object is Bernes 38. Where there are stars and interstellar gas, new stars are sure to follow.

Photo of the Month



Milky Way from Africa, by Ed Montes

This is the Milky Way setting behind the mountains in the west. Several recognizable features are visible: The tail of the scorpion with the stinger pointing at M7, and M6 nearby; the Sagittarius teapot (upside down) pointing at Saturn; the Southern Crown; and Scutum. Also, the faint Telescopium is in there. With a good star atlas, or an app like Stellarium, you'll find more interesting gems.



Mars at Opposition - 2018

Don't image planets much but could not miss this as it was pretty historic. On July 31, Mars was at its closest approach to Earth, just under 36 million miles which is only 3 million further than the 2003 opposition. This is when this image was taken from my observatory here in Las Cruces. The disc is about 24" in diameter. South pole is up. Equipment: C14, Skyris 132M camera, LRGB. Unfortunately the maximum elevation of the planet was only 29 degrees making it unfavorable for imaging from the Northern Hemisphere. Still it was great fun to record it!

By Dave Doctor



Moon-Venus Occultation by Kent DeGroff

This occultation of Venus by the moon occurred in the morning of 17 July 2001. A series of continuous single exposures (roughly 2/sec) was made to combine into a video of the event as Venus reappeared from behind the moon. This necessitated knowing exactly when the reappearance would happen in order to take the exposures. A Nikon E950 digital camera was used with a 6-inch Newtonian reflector and the afocal method in conjunction with a 28mm eyepiece. Haziness is due to clouds. The event was not visible in the continental USA.

You can view the video at Kent's web site: https://www.flickr.com/photos/whiskey_creek_observatory/30057754538/ Kent DeGroff was a member of the Silver City Astronomy Club and an active imager from his observatory near Silver City. More info and images can be found at: www.flickr.com/photos/whiskey_creek_observatory

Photo of the Month



OBJECT **M51 - Whirlpool Galaxy.** Distance: 30 million light years

This is monochrome only (Lum channel) - I have color (RGB) data I am still finishing up!

TOA-130F, EM200, QSI690wsg

17x10min L

Image here is a 100% size center crop

Imaged from my backyard in Las Cruces (18 Jun 18)

Jeffrey O. Johnson

<http://jeffjastro.com>

Photo of the Month



OBJECT Lynds Bright Nebula 878

Lynds Bright Nebula 878 is embedded in Dark Nebula B35 in the constellation Orion. It is located half way between Betelgeuse and Meissa. This is a reflection nebula that is rarely imaged due to its small size and in an empty area of Orion. It has been processed with a combination of PixInsight and PS6.

RC10 with FLI ML 16200, LRGB 2x2,

By John Kutney Las Cruces, NM 1-12-18

Photo of the Month

~Continued from previous page:

The small spiral galaxy at the right side of the image is PGC 626897, magnitude 19.17. The spiral galaxy at lower left is PGC 62700, magnitude 14.93 and it is 2.5 arc minutes across. The large dark nebula associated with this area isn't shown as a discrete object in any of my charts or software, but it was originally discovered by James Dunlop and he cataloged it as Dunlop 559. This whole nebular complex is rather close at a distance of 450 light years. The cluster NGC 6723 is just over 28,000 light years away, the galaxies are probably in excess of 100 million light years away.

The data for this image was taken remotely with Chilescope #2 on the 3rd and 9th of August 2018. 4 luminance subs were taken, 120s, 300, 600, and 1200 for a total of 38 minutes. RGB data was 4 600s (40 minutes) through each filter. Total exposure time was 2 hours, 38 minutes, and all data was used. The telescope is a 20" f/3.6 flat field/coma corrected newtonian and the camera is a 16 megapixel FLI 16803. The subs were dark and flat field calibrated in Maxim DL and a defective camera column processed out with Maxim DL. Initial aligning, stacking, stretching, and deconvolution sharpening were done in CCD stack. Additional GammaLog stretching on the luminance data was done in MaximDL, LRGB image combining was done in MaximDL and noise removal done in Photoshop using the Topaz DeNoise plug-in. The image is slightly cropped, as the flat fielding was not 100% effective. All editing on the image was global, no masks or separate processing layers were employed. Chilescope subscription time for this image cost me \$107.00.

The original 87MB TIFF final image is stunning on my 4k monitor. The image attached here has been resized for 1080 vertical resolution and converted to a high quality JPEG. Hope you like it!

Chris Brownwell