

The High Desert Observer

March 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.



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

March Meeting --

Our next meeting will be on **Friday, March 23**, at the Good Samaritan Society, Creative Arts Room at 7:00 p.m.

The speaker will be Dr. Al Grauer. The title of his talk is "2017, A Record Year For Asteroid Hunters".

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?

March 2018



For our March meeting, we have a very interesting presentation scheduled. Dr. Al Grauer is a senior observer with the Catalina Sky Survey and will explain why 2017 was a record year for CSS. Based at Mount Lemon Observatory north of Tucson, Arizona, their Near Earth Object search program is the result of a 1998 congressional directive to find and catalog all asteroids which were one kilometer or larger. NASA began funding such surveys after the world witnessed the impact of Comet Shoemaker-Levy 9 with the planet Jupiter in 1994. In addition to identifying impact

risks, according to Wikipedia, "The project also obtains other scientific information, including: improving the known population distribution in the main belt, finding the cometary distribution at larger perihelion distances, determining the distribution of NEOs as a product of collisional history and transport to the inner Solar Systems, and identifying potential targets for flight projects."

The high success rate for CSS is directly connected to sky coverage, of course, since they have robotic search programs in both hemispheres. A 1.5 meter f/2 scope employed at Mount Lemon and a 27-inch Schmidt near Mount Bigelow scan north of the celestial equator, while a 0.5 meter at Siding Springs Observatory in Australia covers the southern skies. Because of funding shortages, however, the southern hemisphere search program ended in 2013. CSS has always used 4096x4096 electro-cooled cameras and data-reduction software written in-house. Their sky coverage is focal-length specific and ranges from 1 square degree with the 1.5 meter to 9 square degrees with their Schmidt. An average exposure time is 30 seconds, and the 1.5 meter can reach a limiting magnitude of about 21.5V. You can find the CSS team hard at work every clear night with the exception of a few days of each month, which are centered around the full moon.

Along with their seemingly endless string of asteroid discoveries, CSS also finds undiscovered comets. The far-reach ability of their large patrol scopes locates these fleeting visitors months before they're available to the averagely equipped amateur astronomer. In fact, surveys such as CSS are the reason the Messier Era of visually discovered comets ended. Nevertheless, the triumph of robotic patrol scopes was inevitable, and CSS has created a means of rapid discovery, which easily advances the frontier of science. Such achievements are good for astronomy! I hope to see all of the ASLC members at our 23 March meeting for Dr. Grauer's presentation.

Howard Brewington
ASLC President
March 2018

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

Mar	01	18:05	Sun Sets
	01	17:52	Full Moon
	01	18:00	OUTREACH; Sunrise Elementary School Star Party, 6:00 - 7:30 pm
	09	04:20	Last Quarter Moon
	10	18:00	OUTREACH; Dark Sky Observing at Leesburg Dam State Park
	11	02:00	Daylight Saving Time begins
	16	21:00	OUTREACH; Tombaugh Observatory open at NMSU; 9 -10 pm
	17	07:12	New Moon
	20	09:15	Spring Begins: Spring Equinox
	23	19:00	ASLC Monthly Meeting; Good Samaritan Society, Creative Arts Room
	24	09:35	First Quarter Moon
	24	18:30	OUTREACH; MoonGaze, International Delights Café
	31	06:36	Full Moon, the second one this month!
Apr	01	19:27	Sun Sets
	07	19#0	OUTREACH; Dark Sky Observing at Leesburg Dam State Park
	08	01:18	Last Quarter Moon
	15	19:57	New Moon
	20	21:00	OUTREACH; Tombaugh Observatory open at NMSU; 9 -10 pm
	21	00:00	Astronomy Day - Everywhere
	21	19:30	OUTREACH; MoonGaze, International Delights Café
	22	15:46	First Quarter Moon
	27	19:00	ASLC Monthly Meeting; Good Samaritan Society, Creative Arts Room
	29	18:58	Full Moon

Be sure to visit our web site for ASLC information: www.aslc-nm.org

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Announcements

1. The program for the March meeting will be a presentation by Dr. Al Grauer The title of his talk is "2017 A Record Year For Asteroid Hunters"
2. The Good Sam Society has reported that the construction and remodeling of the Creative Arts Room has been completed, so we will be meeting in the usual location.
- 3 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!

* * *

The Sacramento Mountains Spectroscopy Workshop, 2018 ***Report by Charles Turner***

On February 16-18, 2018, ASLC members Dave Doctor, Steve Barks, and your editor attended a Spectroscopy Bootcamp, also known as the Sacramento Mountains Spectroscopy Workshop in the mountains near Mayhill, NM. The purpose of the workshop was to provide attendees with some background and enough information to get started with spectroscopy. There were about 20 attendees, most living in the area, plus some impressive professional astronomers who gave great presentations.

I used to think that to do spectroscopy you needed at least a 1 meter telescope on a million dollar mount, plus the spectroscope and cameras. If that was ever true, it is not the case any more. What has changed are the same things that have changed amateur astronomy and astrophotography in particular. We have a selection of very good mounts and fantastic cameras. There are also very good and quality spectroscopes designed for amateurs available. Shelyac Instruments in particular makes a range of spectroscopes designed for amateur astronomers. We were very lucky to have as one of the presenters at the workshop, Francois Cochard, General Manager of Shelyac Instruments and someone who is very knowledgeable about all aspects of spectroscopy, from the theory and design of the instruments to the operation and techniques used to obtain spectroscopic data, and including the software used to massage the data into something that represents the star or other object that we want to study.

Our hosts for the Bootcamp were Ken Hudson and Joe Daglen, two residents of the area who have been doing spectroscopy for a few years. They have even attended amateur meetings and workshops on spectroscopy in Europe. Apparently, the European amateur astronomers are way ahead of the Americans in pursuing spectroscopy. There are a number of “experts” such as Francois Cochard, Christian Buil, and others, who are leading the way and showing what can be accomplished. There is also a large cadre of active spectroscopists who are producing valuable data.

This workshop was the brainchild of Ken and Joe. They worked hard on putting this all together for quite awhile. The goal of the Bootcamp was to try to jumpstart interest in spectroscopy among amateur astronomers with practical presentations, coaching and advice from people who have been doing this kind of research, both professional and amateur and bring it all together for the attendees in a friendly and relaxed environment. I can say that for me, it was the most fun I have had at an astronomy event in quite awhile. There have certainly been others, but it has been awhile. It was great to meet so many knowledgeable and accomplished astronomers, amateur and professional, who willingly share their knowledge and experience with others.

Another one of the great presenters was Stella Kafka, Director of the AAVSO. The American Association of Variable Star Observers is a non-profit scientific and educational institution that has been encouraging the study and collection of variable star data for over 100 years. They see great promise for amateur astronomers doing spectroscopy, and they want our data! They have a massive collection of data contributed by mostly citizen scientists who enjoy measuring the brightness of variable stars. They want to expand their database to include spectroscopic data. They also want to educate, train and promote spectroscopy among amateur astronomers and make the data available to researchers everywhere.

The presentations were detailed and thorough, covering all aspects of spectroscopy. An archive of some of the presentations has been established on the web. Of course, it does not include all the discussions, but it does show the slides of the presentations which is the outline of the topics covered. If you are interested in seeing some of what was discussed, check out the web address: <https://sites.google.com/view/spectroscopy-bootcamp/home>



Everyone felt that this workshop was a great success. Joe and Ken are considering doing another workshop next year. Of course, there are many possibilities. There may be a different format or even a different location. Once a decision is made and the dates are set, I will pass along that information in a future HDO.



Figure 1: Attendees at the Spectroscopy Bootcamp
Have you ever seen such a “colorfull” collection of astronomers?

Photo of the Month



IC 2574

IC 2574 is an irregular dwarf galaxy originally thought to be a nebula when discovered by Edwin Coddington in 1898. It is located in Ursa Major near M81 & 82. "Integrated Flux Nebula" is the faint dust around the main galaxy. This was a faint object but very accessible for the Las Cruces area as Ursa Major rises early in the East.

Epsilon 180/ QSI 6120/ SGP/ L 30x5min / RGB 15x5min/ CCDstack/PS6/

Las Cruces / 2-7, 2-8-2018 by John Kutney

Photo of the Month



The Moon

I took this with my iPhone thru my C11 while developing a lab for an Astronomy 105 class. These phones actually make a small movie with 20 subs, so I stacked them and got this. The image is of Mare Humorum with Gassendi Crater to the right (right is north).

By Rich Richins



OBJECT M51 The Whirlpool Galaxy

Exposures: H 11 x 1800", L 19 x 1200", R 12 x 1200", G 9 x 1200", B 9 x 1200"
TOTAL (21.8 hrs selected from 29 hrs available) Width of image ~36'
Scope: RCOS 14.5" at Deep Sky West Processing: PixInsight

M 51, the “Whirlpool Galaxy” and its companion (M 51B) have undergone a collision with the dwarf-galaxy B component, which is now emerging from M 51, and has suffered major disruption. This collision spawned an enormous amount of star birth in M 51. The blue regions are young, hot stars and the red regions are ionized hydrogen clouds—the stuff of which stars will yet be made. In addition to star birth, the collision has dispersed clouds of stars causing the “haze” surrounding both galaxies. (Often, those star hazes are suppressed in images of these objects.)

The Whirlpool, a Seyfert galaxy, has a super-massive black hole at its center surrounded by swirls of dust and stars. It lies about 23 million light-years from earth. Cheers, Alex Woronow

Photo of the Month



OBJECT NGC 7331 and Stephan's Quintet (Quintet to lower left, including tidal tail from NGC 7319)
Distance: 40 million light years to NGC 7331; Up to 300 million light years for Stephan's Quintet galaxies
Telescope: Takahashi TOA-130F @ f/7.7 **Mount:** Takahashi EM200 Temma II
Camera: QSI 690wsg @ -15C Night of First Light!!!
Filters: Astrodon Tru-Balance I-Series LRGB Gen 2
Guider: SX Lodestar
Settings: 7x10min L (bin1x1); 1x5min R, 2x5min ea GB (bin2x2); AstroArt5, CS4 (slightly cropped, 10xdarks/flats/fdarks/bias)
Date/Location: 12 December 2017 - Las Cruces, NM This image is LRGB - one of the R channel frames was lost (long story), so had to carefully manage color balance.
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