

The High Desert Observer



October 2015



Table of Contents

- 2 *From the Prez*
- 2 *Outreach Events*, by Jerry McMahan
- 3 *Calendar of Events*, by Charles Turner
- 4 *October Meeting Minutes*, by John McCullough
- 4 Announcements
- 7 *Back at the Telescope*, by Berton Stevens
- 10 *Photo of the Month*, submitted by Jeff Johnson
- 12 *Eclipse of the Year*, by John Gilkison

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.

October Meeting --

Our next meeting will be on **Friday, October 23**, at the DACC Main Campus, Room 141, Technical Studies Building, starting at 7:00 p.m. NOTE -This room is our OLD location.

The speaker will be Dr. Dave Doctor.

Topic: Astro-videography: to LDSP and Beyond

ASLC Board of Directors, 2015

Board@aslc-nm.org

President: Daniel Giron; President@aslc-nm.org

Vice President: Steve Barkes; VP@aslc-nm.org

Treasurer: Patricia Conley; Treasurer@aslc-nm.org

Secretary: John McCullough; Secretary@aslc-nm.org

Director-at-Large: Tracy Stuart; Director1@aslc-nm.org

Director-at-Large: Ron J. Kramer; Director2@aslc-nm.org

Immediate Past President: rrichins73@comcast.net

Committee Chairs

ALCor: Patricia Conley; tconley00@hotmail.com

Apparel: Ron Kramer; ronjkramer@aol.com

Calendar: Chuck Sterling; csterlin@zianet.com

Education: Rich Richins; Education@aslc-nm.org

Grants: Sidney Webb; sidwebb@gmail.com

Librarian: *****OPEN*****

Loaner Telescope: Frank Fiore; ffchilehead@gmail.com

Membership: Judy Kile; judykile3916@gmail.com

Night Sky Network: *****OPEN*****

Observatory:

Leasburg Dam: Rich Richins; rrichins73@comcast.net

Tombaugh: Steve Shaffer; sshaffer@zianet.com

Outreach: Chuck Sterling; csterlin@zianet.com

Web-Site: Steve Barkes; steve.barkes@gmail.com

HDO Editor: Charles Turner; turnerc@stellanova.com

Member Changes

Membership Chair, Judy Kile has asked that any member who has changes to their basic information, such as name, address, phone number, or email address, please contact her with an update to your membership stats. (jkile3916@gmail.com) .

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 constellations in the sky.

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.

From the Prez

October 2015

What's in it for Me?

In the days preceding the September meeting, I had been in communication with a small number of members about what we can do as a club to make things interesting to members, in other words, members only activities.

All of us joined the ASLC for various reasons but, I think everyone will agree that the underlying rationale is to enhance our experience in astronomy. So, we are looking for perks that make being a part of this club worthwhile and have us look forward in participating in club activities and meetings.

What we can do for ourselves as a club requires the involvement of all members, with a handful taking the lead in various activities. Suggestions have been given for several types of workshops conducted once or twice a year and field trips to New Mexico observatories with behind the scenes access and activities not given to the typical tourist. Research can be conducted at the LDSP Observatory for those interested in researching objects within the field of view of the observatory's scope. Once a year members and family only star parties at unique locations can be held. These are just a small example of members only activities we could do and by no means meant to be all inclusive.

Outreach is an important part of the ASLC but, doing interesting and fun things for ourselves is equally important so, we must have a balance. And, the more of the enjoyable activities for members we create, the better our prospects in increasing our membership.

So, what I want to ask of my fellow members is to bring forward your ideas on activities that we as a club can do that will make your membership in the ASLC worthwhile. Only five members have offered suggestions and we have over 100 members. Bring on your ideas and be willing to lead in activities in which you have something to offer.

I hope that over the remainder of the year we can have dialogue amongst ourselves at the meetings and through the Yahoo group mail. Together, we can make the ASLC an exciting and attractive organization.

Sincerely,

Daniel Giron, Jr.

* * *

Outreach Events

by Jerry McMahan

Sunrise Elementary, Thursday, September 17

At the meeting, Chuck talked about the large turnout at the school. We had a lot of telescopes set up, and we needed every one. Chuck Sterling set up his 10 inch, I had the ETX 125, Tracy Stuart is still waiting for parts for his LX 80 mount, but brought his small scope, which handled high magnification very well. Sid Webb brought his ten inch Dobsonian. Bert Verstraete joined us with his 8 inch scope. Chistina Lugo and Daniel Giron were also present.



NOV 07 thru 08	Renaissance Faire, Young Park, Las Cruces - All Day
11 10:47	New Moon
14 17:00	Dark Sky Observing at Leesburg Dam State Park
18 23:28	First Quarter Moon
20 19:00	ASLC Monthly Meeting; DACC Main Campus, Room 141

NOTE: Meeting location has been moved back to Room 141 main campus. Check the club website for directions/maps.

20 19:00	NMSU: Tombaugh Observatory Open House
25 15:45	Full Moon
26 00:01	Thanksgiving: All Day

Be sure to visit our web site for the latest updates: www.aslc-nm.org

* * *

Announcements

New (OLD) Meeting Room: We have been told that our old meeting room, Room 141, will be available to us until next May 2016. We have decided to move back to this room because it is larger and the parking is more convenient.

Item For Sale: JMI Medium Universal Wheely Bars with large locking wheels for tripods with tip to tip distance between 33 and 43 inches. Wheely bars are open box partially assembled but not used. \$125 pickup in Las Cruces. Contact: David Dixon ddixon@lascruces.com

Correction to September HDO: Last months article about the Hong Kong Astronomical Society contained a typographical error. The email address for Eric Ng was incorrect. The **correct** email address for Eric Ng is: eric5hk@hotmail.com.

* * *

Meeting Minutes

by John McCullough

Minutes, September 2015 ASLC Meeting

Show & Tell:

Ed Montes started this month's Show & Tell with a brief review of David Levy's book on Clyde Tombaugh, "Clyde Tombaugh: Discoverer of the Planet Pluto", published prior to the International Astronomical Union's decision regarding Pluto's status. Trish Conley reported on donations the Society made in memory of Walter Haas: Mesilla Valley Hospice (\$50) and the Association of Lunar and Planetary Observers (ALPO). The ALPO sent the Society a copy of their issue of The Strolling Astronomer featuring Walter.

Sid Webb asked the group about setting up a solar scope so it will track the sun during the course of viewing. Several members provided suggestions and input. Sid encouraged members to join/support events at Leesburg Dam State Park (LDSP). He also mentioned the issue of light pollution at LDSP. Ron Kramer noted some improvements have been made regarding this issue in the last several years.

Call to Order:

Daniel Giron, President, Astronomical Society of Las Cruces (ASLC, the Society), called the September business meeting to order at 7:32 pm, 25 September 2015, Room 102, Doña Ana Community College (DACC), Las Cruces, New Mexico.

Daniel noted he had not intended to run for another term as President as he faces a potential job/career change next year which would necessitate his resignation. Steve had informed Daniel and the Board of Directors that he could not take on the responsibilities of President in the event Daniel resigned. After additional discussion by the members present, Cristina Lugo agreed to stand for Vice-President and accept all responsibilities of the office if elected. Ballots will be emailed to the membership and available at the October meeting.

Tracy Stuart, Fred Pilcher and Judy Kile will constitute the Elections Committee.

Daniel stated he considers the Society's focus for 2015 has been on outreach. He would like to support more activities for the general membership, i.e., "inreach", such as a star-b-que at the Upham DSO site. He would also like to encourage members' research utilizing the observatory at LDSP or other observatories in New Mexico. He would also like to consider tours similar to those conducted during ALCon, including possible Society members-only observing time at McDonald or Kitt Peak observatories. John Kutney noted potential weather-related issues at Upham, but offered input from the Okie-Tex event. Chuck Sterling agreed that road conditions impacted participation. Both noted the Society could utilize a location near Corralitos Ranch or other sites with paved access. More discussion regarding access and using the equipment at LDSP followed. Daniel's suggested home work for members: possible Society activities.

Old Business:

No Old Business was offered for discussion.

New Business:

1. RASC Handbooks – Bert Stevens asked if the Society planned to place an order for 2016 handbooks. After several members expressed interest, Bert agreed to place an order.
2. 2015 Renaissance ArtsFaire – Trish Conley has been in contact with the Dona Ana Arts Council regarding location for the Society's booth. She will be looking for volunteers in the near term.

Announcements:

No announcements were made.

Items for Sale:

No items were offered for sale.

Recognitions/Awards:

No recognitions were announced.

The business portion of the meeting concluded at 7:58 pm.

Presentation:

This month's presentation was by Dr. Michelle Creech-Eakman, Project Scientist at Magdalena Ridge Observatory and Associate Professor at New Mexico Tech. Her topic was: "NESSI – An Instrument for Exploring Exoplanet Atmospheres" (NESSI=New Mexico Exo-planet Spectroscopic Survey Instrument). Dr. Creech-Eakman described the development, design, and construction of the NESSI instrument and how she plans to use it.

At the close of her presentation, Daniel presented a crystal memento to Dr. Creech-Eakman. He then conducted the drawing for door prizes. Tracy Stuart received a book on Exo-Planets; Matt Zajac received a NOVA Alien Planets DVD.

The next general meeting will be 23 October. This meeting will be the Society's annual meeting.

The September 2015 meeting of the Astronomical Society of Las Cruces concluded at 8:57 pm.

-Respectfully submitted by John McCullough, ASLC SecretaryNew Business:

* * *

Back at the Telescope

by Bert Stevens

Astronomy has made great leaps in the ways to discovering objects in our sky. In the past, an amateur astronomer had to spend hours at the eyepiece to make a discovery. To find a new supernova, you had to memorize what any galaxy looks like that was bright enough for your telescope to pick up, and then go back to that galaxy on a regular basis and determine if any new stars had appeared in the field.

There were some superstars discovering supernova. The record holder for discovering these new stars is Robert Evans, who discovered thirty-two supernovae. Starting in 1981, he used backyard Newtonians for most of his discoveries. Ten of them were with a 10-inch telescope, one with a 12-inch, and eighteen with a 16-inch. The other three were discovered at a forty-inch at Siding Spring Observatory (Australian National University). Rev. Evans memorized over a thousand galaxies. His ability to remember a galaxy's appearance allowed him to survey many galaxies during the night without having to take the time to go to reference photos of those galaxies.

While Rev. Evans was patrolling the sky with his eyes, professional astronomers were taking photos of their target galaxies on film. After the film was processed, they would compare the photos with previous photos and look for supernova by eye, or with a blink comparator.

A blink comparator is the type of device Clyde Tombaugh used to discover Pluto. Two photos were placed in the machine and one was adjusted so the exact same area of the sky was visible in both images, a process called registration. The two images are then alternately fed to an eyepiece, so any difference in the photos would appear to blink. In Clyde's case, he could see Pluto flash from one position to another. The supernova simply flashes on and off as the reference plate and the new plate of the galaxy are alternately visible.

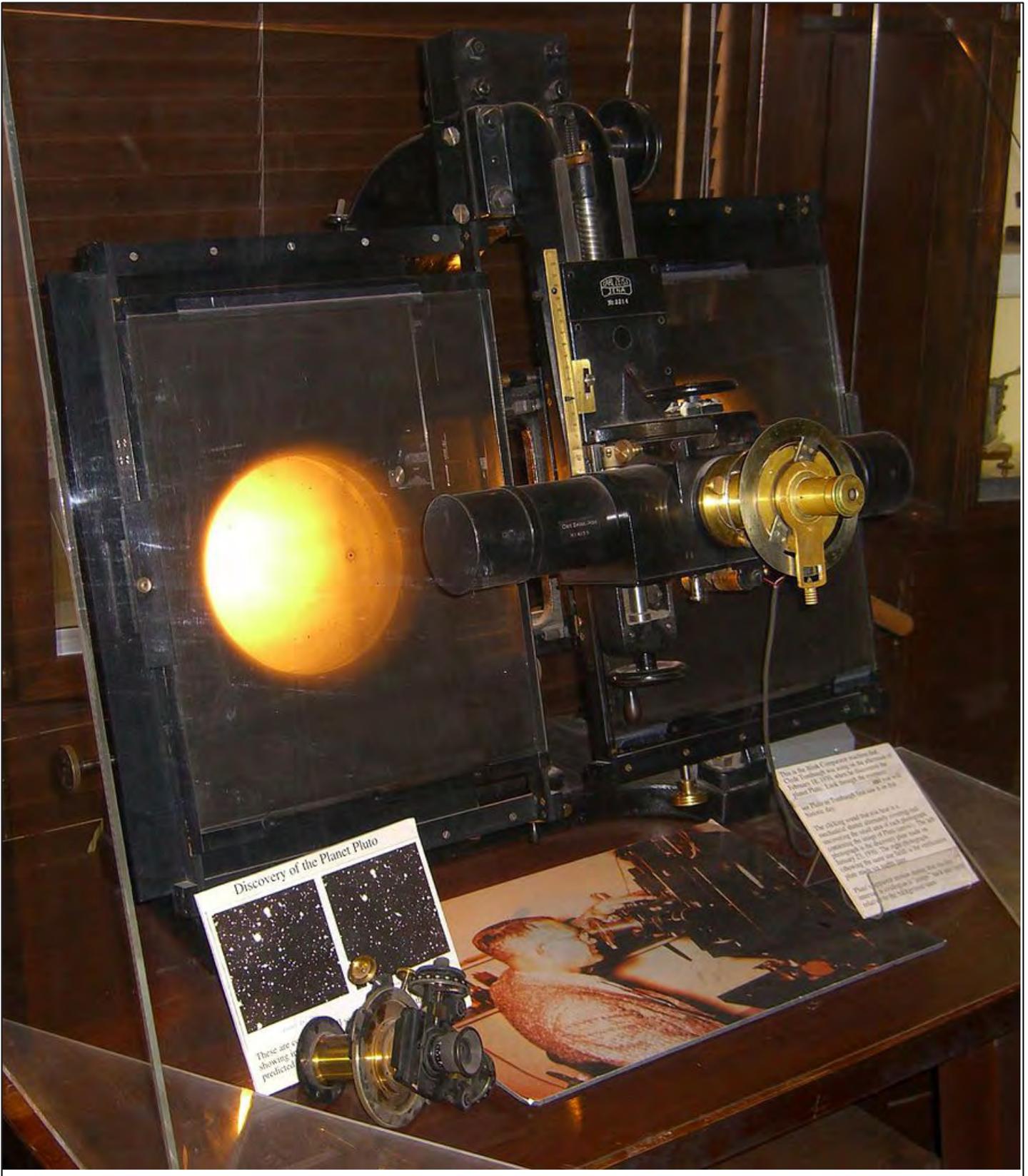
In the late 1980s, CCD cameras became available and were connected to telescopes. This completely changed the game. No longer did those plates need to be processed. The image was immediately available when the exposure was done. The computer could automatically register the images and flash them on the screen for the observer to check for a new supernova.

Computers became more powerful through the 1990s and 2000s. The additional power allowed it to not only register the images, but to actually compare the two images to highlight a possible

Rev Robert Evans

Robert Evans visits a meeting of the Chicago Astronomical Society in the 1990s. Rev. Evans, who hails from Australia, holds the record for the most visual supernova discoveries.





Blink Comparator

The blink comparator used by Clyde Tombaugh in the discovery of Pluto. Plates were put on each side and the person doing the reduction would look through the eyepiece as the image from each plate was alternately passed to the eyepiece. The person doing the reduction would see a moving object jump from one position to another.

supernova. The observer was alerted to verify the discovery, and if it was real, then an announcement would be sent to the International Astronomical Union's Central Bureau for Astronomical Telegrams (no, they have not changed their name yet). From there, telegrams (today, e-mails) would go out to subscribing observatories for verification and additional observations, especially spectrograms of the supernova to determine its type.

Computer programs were soon written to plan the observations as well as to make the observation. The program would determine what galaxies had not been observed recently, when they are best placed for observation and determine the most efficient observing sequence optimizing the time it takes to move the telescope from galaxy to galaxy. These surveys are called automated supernova search programs and are responsible for the majority of supernova discoveries today.

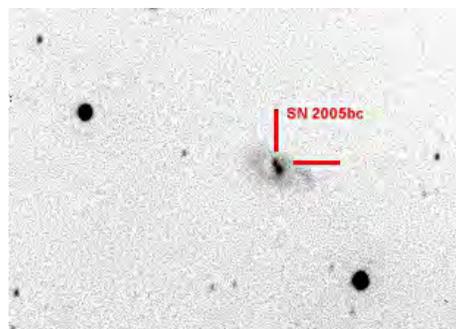
Amateur astronomers soon utilized the same techniques. Tim Puckett started a supernova search program at his Puckett Observatory. Using similar techniques to those used by professionals, Mr. Puckett and his team have discovered three hundred supernovae, most since 2000. Here are his statistics:

Year	Discoveries	Year	Discoveries
1994	1	2006	30
1998	1	2007	23
1999	6	2008	18
2000	20	2009	19
2001	14	2010	20
2002	17	2011	20
2003	18	2012	20
2004	8	2013	10
2005	37	2014	16



Supernova Hunter

Tim Puckett sits in front of the 24-inch Ritchey-Chrétien he built. It took nine years to complete and included a new type of hybrid disk/band worm drive designed by Puckett in 1993.



Supernova 2005bc

Supernova 2005bc was discovered by the Puckett Observatory team on April 2, 2005 at magnitude 16.4. The supernova peaked about a week later at magnitude 15.3 and then faded out of view over the next few months. The host galaxy, NGC 5698, is about 200 million light-years away. This makes this supernova a rather faint type Ia.

Mr. Puckett's discoveries were made primarily with a 24-inch Ritchey-Chrétien telescope that he built. His successes attracted NASA funding and allowed him to purchase larger and more efficient CCD cameras. One of his older cameras, an Apogee AP-7b, has ended up in my observatory, tracking minor planets rather than supernova. Mr. Puckett has moved on to other things, and is representing Apogee to the astronomical community.

While official supernova discoveries are announced by the Central Bureau, The Astronomer's Telegram service (<http://www.astronomerstelegam.org>) allows discovery announcements to be made directly to interested parties who have subscribed to this free service. The service allows any kind of astronomical observation to be announced, not just supernova discoveries.

When a new object is discovered and announced through the Astronomer's Telegram (ATel), it is usually referred to as an optical transient (OT). Other types of transients can span the electromagnetic spectrum, from radio all the way to gamma-ray. But optical transients are usually either supernovae in external galaxies or novae in our own galaxy. The All Sky Automated Survey for SuperNovae (ASAS-SN or "Assassin") frequently announces discoveries, while the Public ESO Spectroscopic Survey for Transient Objects (PESSTO) announces the spectroscopic classification of these objects. These are just two of the organizations, who announce their preliminary results through ATel.

At least for the moment, professionals again have the edge in supernova discovery. Their larger telescopes allow shorter exposure times so they can observe more objects per night, increasing the chance that they will discover a supernova. Nevertheless, the amateur is not cut out of the supernova discovery game. It is just a question of who gets to it first, a professional or an amateur. Unlike comet and minor planet discovery where the object is always there and the professionals have greatly reduced amateur discoveries, a supernova can appear right after the professionals have observed that galaxy and the amateur survey could then pick it up. Could you be a supernova discoverer?

* * *

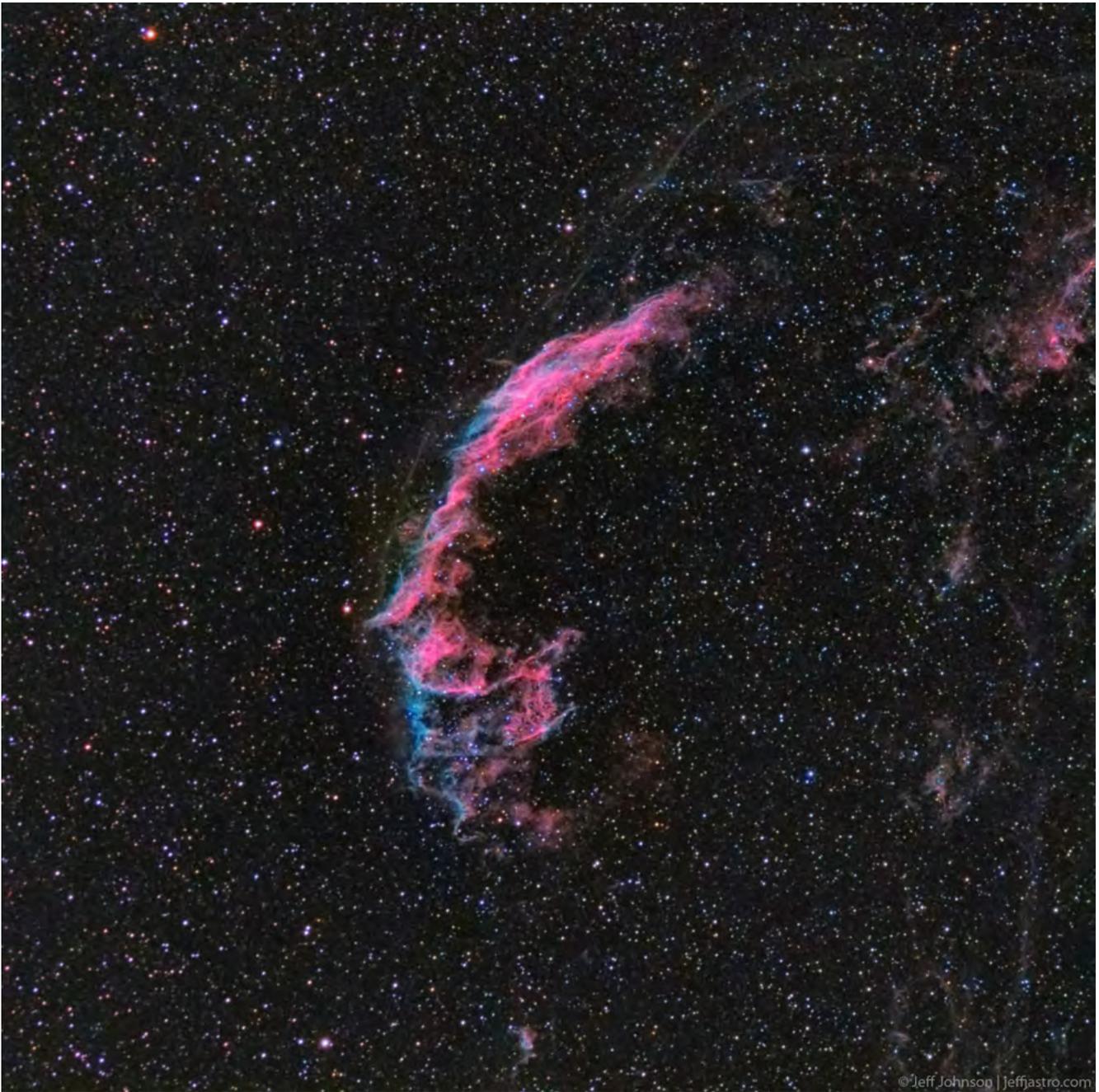
Photo of the Month

OBJECT	Eastern Veil Nebula (including NGC 6995 and Southeastern Knot).
Distance:	1,470 light years
Telescope	Takahashi FS-60C @ f/6.2
Mount	Takahashi EM200 Temma II
Camera	QSI 540wsg @ -10C
Filters	Astrodon Ha (3nm), Astrodon Tru-Balance I-Series LRGB Gen 2
Guider	SX Lodestar
Settings	9x20min Ha, 3x5min L (bin1x1); 3x5min ea RGB (bin2x2); AstroArt5, CS4 (slightly cropped, 10xdarks/flats/fdarks/bias)
Date/Location	12 June 2015 - Las Cruces, NM

Notes This widefield view of the area around the Eastern Veil Nebula includes NGC 6992 (top part of main nebula); NGC 6995 (near center); IC 1340 below NGC 6995; the Southeastern Knot as a lone nebulous area near bottom center of image; and finally NGC 6974 at edge of upper right portion of frame. This deep image is LHaRGB, including 3 hours of Ha data, where Ha was used in combination with Luminance and Ha:R (80:20) was used for the Red channel. Published in Cosmic Pursuits, 11 Aug 15.

Copyright Jeffrey O. Johnson

Photo of the Month



©Jeff Johnson | jeffastro.com

Eclipse of the Year

John Gilkison hosted a Total Lunar Eclipse program for the public at Rock Hound State Park on Sunday September 27th, 2015. We had a couple dozen people in attendance and I used the recently built 13 inch dob for the program that was featured in the September HDO. We had a superbly clear and calm night for the program and observed several deep sky objects as well as the eclipsed moon.

John Gilkison - NPO President

