

The High Desert Observer

The Bulletin of the Astronomical Society of Las Cruces

Sharing the Universe with our Community for over 60 years



Photo by John McCullough

December, 2013

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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, which includes their quarterly publication, *Reflector*.

Individual Dues are \$30.00 per year

Family Dues are \$36.00 per year

Student (full-time) Dues are \$24.00

Dues include electronic delivery of the *HDO*. 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

ASLC members are entitled to a \$5.00 (per year) Sky and Telescope magazine discount.

ASLC Board of Directors, 2013

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December Meeting

Due to the Holiday Season, there will be no December meeting. Our next meeting will be on January 24, 2014.

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.

Annual Dues

Please note that annual dues are due in January, 2014. Please contact our Treasurer, Patricia Conley (treasurer@aslc-nm.org) for further information. Dues can be paid at the January, 2014 meeting or via mail, sent to Treasurer ASLC, PO Box 921, Las Cruces, NM 88004.

Your dues help support our outreach events such as star parties, MoonGaze, Renaissance Faire, Astronomy Day, Tombaugh Observatory, etc. They also support the Leasburg Dam State Park Observatory, our Annual Holiday Party and other Society activities.

Dues must be paid by the April, 2014 meeting

The President's column-inch...

The ASLC Holiday Party December 7th was quite a success, catered by Lorenzo's Italian Restaurant at their Saratoga Room. There were thirty-something members and guests attending, some gifts were exchanged, the food was excellent and plenty of it, live music was provided by Meredith and Jim, and a slide show, a recap of 2013 ran continuously. I handed the "trappings of office" (Projector, Christmas decorations, extension cord, the works) to Rich Richins, returning as ASLC President for 2014.



The same night two other events were logged, three if you count the Las Cruces High – Mayfield High football championship game (an excellent game by all measures except if your team lost). Steve Shaffer opened the Tombaugh Observatory at NMSU for the Sky Safari, and Jerry McMahan set up his ETX-125 at one of two Moon Gaze events this month, the second on the 14th. I think both froze their whiskers off; it was pretty darn cold out that evening. Our car had frost on it when we left the party. A few of us, including Steve Shaffer, Maria Elena and I, Trish Conley, and John McCullough met Jerry at the Moon Gaze as he sipped a hot chocolate and tried to stay warm.

December 21, a Saturday, is the Winter Solstice, and the Leasburg Dam State Park is having a full day celebration starting at 11:00 am and running until 10:00 pm. For our part it will include solar viewing, hopefully an observatory view of Saturn as it leads the Sun across the daylight sky, and a nighttime star party with several scopes including the observatory 16" and others brought by ASLC members.

Be sure to have a safe and happy holiday season. Keep looking UP.

Chuck Sterling, former ASLC President (in a few weeks)

Outreach Events for November/December by Jerry McMahan

Tuesday, November 12, 2013 at University Church of Christ

A star party for pre-school kids was held at the church. Despite cold and wind there was a good turnout. Chuck Sterling brought his 100mm refractor, Ed Montes brought the small refractor that he demonstrated at a club meeting and Nils Allen had 120mm and 66mm refractors on the same mount. Jerry McMahan brought the EXT-125, but it stayed in the car.

The Moon, Venus, Alberio and the Pleiades' were among the objects observed.

Friday, November 15, and Saturday, November 23, at Leasburg State Dam Park

I included these two scheduled events together since they had a lot in common, namely clouds. The second event had the added attraction of snow. Nothing could be seen on either occasion, so the first was treated as a training session. Chuck Sterling attended the second to indicate that we had not forgotten that something was scheduled.

Friday, December 6, open house at the Tombaugh Observatory

The NMSU Astronomy Department held their open house. Steve Shaffer operated the club's 12.5 inch Cassegrain. He was assisted by Jerry McMahan. Steve brought a counter to keep track of the number of observers we had. I was given the difficult job of clicking the device to keep count. We had 92 people (+ or – 5) depending on how many I forgot to click, or clicked more than once.

We had the Moon, as usual, and the other scopes looked at Venus, one of the open star clusters, the Double Cluster, and the Globular M15.

Saturday, December 7

There were three separate events on this night. The club's holiday party (for details, see *The President's column-inch...*), the Sky Safari at the Tombaugh Observatory and a Moongaze at the International Delights.

Steve Shaffer opened the dome at the observatory. The night before, he predicted that there would be a small turnout because of the open house on Friday. He was correct. The only clicker he needed was the fingers on one hand. The same sky objects were on display as the previous night.

Jerry McMahan (me), was the only one to set up a telescope at the International Delights, since I was the only club member there, at least early on. I had the ETX 5-inch on the Moon, and later, at about 9:00, Jupiter cleared the building. At first the moons Io, Ganymede and Callisto were the only satellites visible, but within minutes Europa made an appearance.

At the risk of appearing to be a wimp, I will say, it was cold that night! There was not as much of a spectator turnout as normal, but it was more that Steve had at the observatory. Steve did join me when he finished at the open house. When the holiday party ended we were joined by John McCullough, Trish Conley, and Chuck and Maria Elena Sterling.

Calendar of Events: December 2013 - January 2014 (Mountain Time - 24 hr. clock)

DEC 21	10:11	Winter Solstice
21	18:00	OUTREACH EVENT; Leasburg Observatory; Public star party
22	07:00	Ursid Meteor Shower
25	06:48	Last Quarter Moon
26	19:10	Moon - Spica Conjunction
28	18:42	Moon - Saturn Conjunction
JAN 01	04:14	New Moon
01		Venus 15.9° east of the Sun
03	12:42	Quadrantids Meteor Shower
05	12:49	Jupiter Opposition
07	20:39	First Quarter Moon
11	19:00	SKY SAFARI, Tombaugh Observatory
12	01:36	Moon - Aldeberan Conjunction
15	21:52	Full Moon
22	23:29	Moon - Mars Conjunction
23	02:22	Moon - Spica Conjunction
23	22:19	Last Quarter Moon
24	19:00	ASLC MONTHLY MEETING, Room 77, DACC Main Campus
25	07:18	Moon - Saturn Conjunction
28	19:36	Moon - Venus Conjunction
30	14:38	New Moon
31	02:59	Mercury Greatest Eastern Elongation

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

ASLC Meeting Minutes, November, 2013

Show & Tell

John Kutney provided tonight's presentation by demonstrating recreational "canned" air for use at 8000 feet or more. He took some with him on his recent trek to the Datil area. He says it is available on-line in quantities of

five or more canisters. As he observed a large number of woolly-bear caterpillars on this trip, John also discussed various “folk” methods for weather forecasting.

Call to Order

Chuck Sterling, President, Astronomical Society of Las Cruces (ASLC, the Society), called the November business meeting to order at 7:30 pm, 22 November 2013, Room 77, Doña Ana Community College, Las Cruces, New Mexico.

President’s Comments

The President, Chuck Sterling, welcomed the group to tonight’s meeting and thanked John Kutney for his demonstration. Chuck also welcomed guests Charles Jackson, Charles Turner, Carlos Perez and Jacinto Salas (?). Charles Jackson has lived in Las Cruces the last four years and is expanding his educational background in astronomy and astrophysics. Charles Turner is a long-time amateur astronomer who has just moved to Las Cruces. Carlos and Jacinto attended a recent astronomy open house at NMSU and decided to attend a meeting. Chuck asked that all members and visitors check in on the sign-in sheets.

Secretary’s Report

The Secretary, John McCullough, reported that the minutes for the October meeting were submitted for publication in the November issue of the Society newsletter, the High Desert Observer (HDO). Ron Kramer noted that last month’s report on activities at the ASLC Observatory at Leasburg Dam State Park (LDSP) inadvertently reported that he, Ron, had provided stories at the last “Stars in the Park” event. Presentations were, in fact, provided by park ranger Alex Mares. Jerry Gaber moved that the minutes be accepted as corrected, Bert Stevens seconded and the motion passed by acclamation. John noted that the correction will be made in the electronic version of the October minutes. There was not an additional Secretary’s report.

Treasurer’s Report

The Treasurer, Trish Conley, reported on the status and balances of the Society’s accounts, including the amount spent on the Observatory at LDSP. Tracy Stuart moved that the Treasurer’s report be accepted as submitted, Ron Kramer seconded. The motion passed by acclamation and there was no additional Treasurer’s report.

Committee Reports

Apparel

Ron Kramer, acting Chairman, has \$380 of inventory available for purchase, but his stock is rapidly depleting. He is putting together an order and is accepting requests for specific items for next year. He noted he is waiting on the current state tax ID. Also, a full-time/permanent chair for this activity is needed.

Education

Rich Richins, Committee Chairman, had no star parties to report.

Fund-raising/Grants

Sid Webb, Grants Coordinator, stated that he has submitted the fourth (4th) report for the \$5000 grant received from the NASA/NM Space Consortium. He said the last request from the Society for \$450 had been approved and that approximately \$1100 is still available between now and the end of the year when the grant expires. Sid noted that NASA has been very accommodating with modifications to the original grant application.

Loaner Telescopes Program

Ron Kramer, Program Coordinator, reported there are four (4) scopes active in the program and two (2) that need some work. These include a classic 4” Unitron refractor, a 12” Dobsonian, and two (2) ETX-90’s available and a 10” Dobsonian that is in work. The fee is \$10/month or repair one of the non-working telescopes in exchange for two months use.

Membership

John McCullough, Committee Chairman, noted membership dues are payable by 01 January.

ASLC Observatory at Leasburg Dam State Park (LDSP)

Jerry Gaber, Co-chairman, reported on modifications and repairs at the Observatory. Some “bugs” in the Meade 16” Go-To system are still being worked on. There will be an Observatory training session on 26 November and another one in early December. Park personnel are planning an all-day public outreach Winter Solstice event for 21 December. They hope to include planetary viewing as well as solar observing during the day followed by a star party after dark. Contact Jerry, Ron Kramer, or Chuck Sterling if you can volunteer to support either daytime or night viewing activities. The events calendar for 2014 is essentially in place with most public events occurring on Saturdays closest to 3rd Quarter Moons. An event was planned for 23 November, but the weather forecast does not look promising. Ron Kramer, Co-chairman, reported on activities with the Friends of Leasburg Dam State Park group.

Tombaugh Observatory

Steve Shaffer, Coordinator, was not present. There was no report on open house attendance.

Outreach

Chuck Sterling, Outreach Coordinator, reported on upcoming events. There will be a star party on 24 January 2014 at Hillrise Elementary. Check the yahoo groups for details and to volunteer for these events.

Society Website

Steve Barkes, Webmaster, had no report.

There were no additional officer or committee reports.

Old Business

2013 Holiday Party - The 2013 Holiday Party will be at 6:00 pm on 07 December in Lorenzo’s Italian Restaurant Saratoga Room on University Avenue. A head count is needed no later than 05 December. Individual cost is \$12 per person and there will be a “bring one, get one” gift exchange of astronomy-related items under \$20. LDSP personnel will be invited as Society guests.

There was no additional old business for discussion.

New Business

1. High Desert Observer (HDO) - Ron Kramer, Newsletter Editor, reported there will be an issue published in December although there will not be a regular monthly meeting. A report on the Holiday Party will appear in the January 2014 issue. Send contributions to Ron.
2. Events - Rich Richins suggested that a Calendar Committee be formed to work with the Outreach Coordinator/Committee so that there are sufficient members available to support events. After discussion, Rich presented a motion to that effect; Steve Barkes seconded. The motion passed.
3. Annual Dues - The membership year runs from 01 January to 31 December and all member dues are payable on 01 January 2014.
4. Observer’s Handbooks - The RASC Observer’s Handbook are available for pickup for \$21 each. RASC Calendars are also available for \$12. Both items are available tonight or at the Holiday Party.

There was no additional new business for discussion.

Announcements/Awards

There were no awards announced.

There is a volunteer sign-up for the Winter Solstice event at LDSP on 21 December, an all-day event.

Thanks to all the members who made the Society's participation at the 2013 Renaissance Arts Faire a success.

There were no additional announcements made.

Ron Kramer moved to adjourn the business portion of tonight's meeting, Bert Stevens seconded. The business meeting concluded at 7:58 pm.

Presentation

This month's presentation was by Society member and Webmaster, Steve Barkes. His topic was *Spectroscopy 102*, the second of a series (Steve presented *Spectroscopy 101* at the June 2013 meeting). Steve began tonight's presentation with a recap of the "101" topics then moved on to resources available for amateur spectroscopy. These included internet sites, yahoo discussion groups, books, planning/design tools, software and hardware. Steve will post links to this information on the Society's web page. The next session, *Spectroscopy 103*, will be presented at the 28 March 2014 meeting. Steve noted the 2014 Messier Marathon is planned for 29 March.

The November meeting of the Astronomical Society of Las Cruces concluded at 9:10 pm.

-Respectfully submitted by John McCullough, ASLC Secretary

Back at the Telescope by Berton Stevens

Comet ISON (C/2012 S1) was one of the most exiting comets we have had in a while. As a sungrazer, it would approach the Sun slowly when it was far away and then travel very fast as it came close to the Sun. It also meant that it would change direction radically as it whipped around the Sun. It also had the potential to be a visually stunning comet, much like Comet McNaught (C/2006 P1) did for the Southern Hemisphere in 2007.

As 2013 progressed and Comet ISON brightened in our morning sky, arguments went back and forth. Would ISON live up to its billing as "Comet of the Century"? Would it completely disintegrate as it passed the Sun? Would it do a Comet Kohoutek (C/1973 E1) and be very faint after perihelion? Astronomers tracking the Comet indicated that it was not brightening as fast as expected, but as perihelion neared, ISON's tail grew longer and it became bright enough to see in a small telescope. Imagers also managed to get nice pictures of ISON during this period.

A two days before perihelion, I read a Central Bureau for Astronomical Telegrams flash (CBET 3720) reporting a new analysis based on the HiRISE camera images from the Mars Reconnaissance Orbiter taken on October 1 when ISON was near Mars. The analysis reported Comet ISON's nucleus was only 0.8 to 1.2 km across (0.5 to 0.8 miles) across. I knew that this was tiny even for a comet and if it was correct, there might not be much of ISON after perihelion.

ISON continued eastward, finally getting lost in the morning twilight before it could get high enough to be observed. It then became the province of the solar-observing satellites. One of these, SOHO, the Solar and Heliospheric Observatory (1995-065A) is located at the LaGrangian equilibrium point L1, which is directly between the Earth and Sun. SOHO has a number of instruments, including coronagraphs that constantly watch the solar corona and the giant clouds of gas that get blown off the Sun's surface, called Coronal Mass Ejections (CMEs).

But these solar telescopes can also see comets coming in toward the Sun, and so ISON became visible to SOHO as it entered the field of view of the C3 (wide field) coronagraph on November 26 around 7:44 p.m. MST. The comet looked rather bright, with a long tail behind it. As it continued to approach the Sun, it suddenly got brighter on November 27 around 11:30 a.m. The nucleus's brightness overloaded the coronagraph's sensor, causing the nucleus to "bloom" in the images. This continued for about twenty hours, peaking on November 28 at 12:08 a.m.

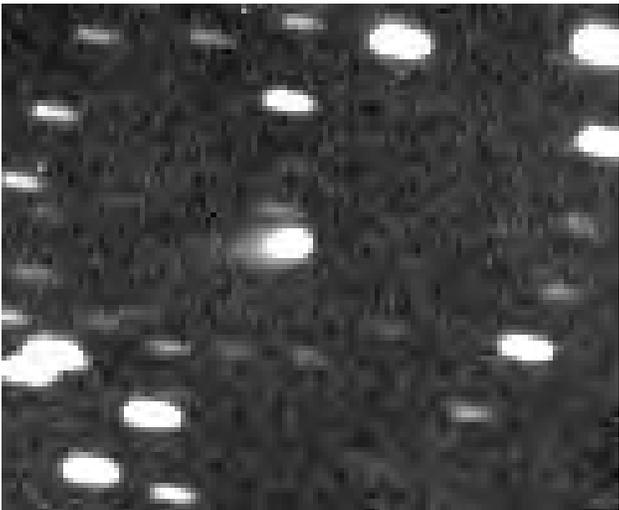
After that, Comet ISON's nucleus dropped in brightness even though it was still approaching the Sun. ISON was now visible on the C2 (narrow field) coronagraph since it had passed behind the occulting disc of the C3 coronagraph. Even as it approached the Sun, it continued to fade. So many people were watching it in almost-

real time on the SOHO website that the website slowed to a crawl and it at times it was not possible to even get the latest images!

In the C2 field, the comet continued to fade. The nucleus appeared almost non-existent and the brightest part of the comet was a bright segment of the tail, well behind the nucleus. As ISON passed behind the C2 occulting disc around 10:30 a.m. Thanksgiving morning, it appeared to have almost completely faded away. Now we would have to wait for it to reappear.

A faint ghost of ISON became visible around 12:48 p.m. As it pulled away from the Sun, it started to grow brighter, but there still did not appear to be a nucleus. Comet ISON almost started to look like a comet again, but it faded over the next few days as it moved further from the Sun. As it left the wide-field coronagraph, it was a faint cloud just barely visible. I have not heard any reports of ISON being observed from the ground after perihelion, but NASA will attempt to image it with the Hubble Space Telescope and a few other satellites.

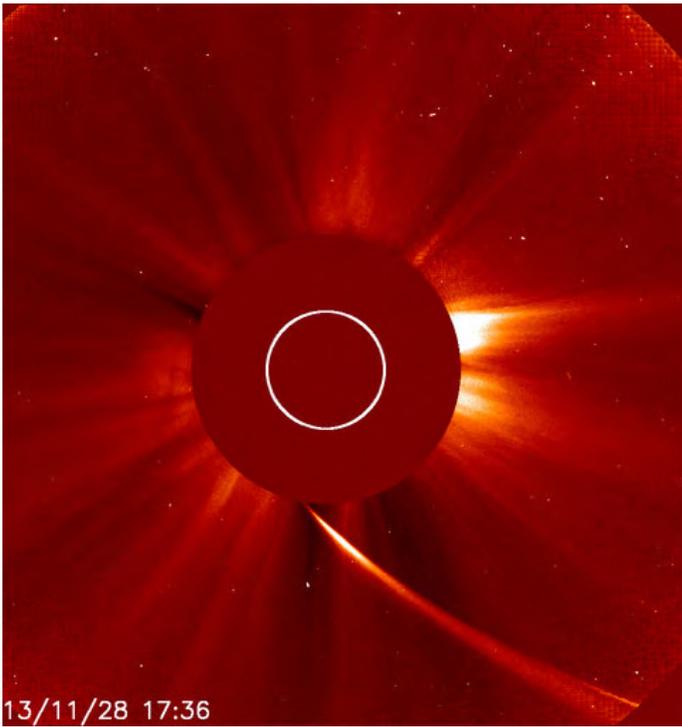
It appears ISON's tiny nucleus broke up and evaporated in the fierce solar heat a few hours before perihelion and the dust and gas continued around the Sun, giving the comet some life post-perihelion. So we must wait for another comet to become the "Comet of the Century". Meanwhile, Comet Lovejoy (C/2013 R1) is putting on a pretty good show in the morning as well. It is visible in a small telescope and has a nice tail on it. It reaches perihelion on December 22, 2013 so you have an opportunity to at least see this comet before it disappears.



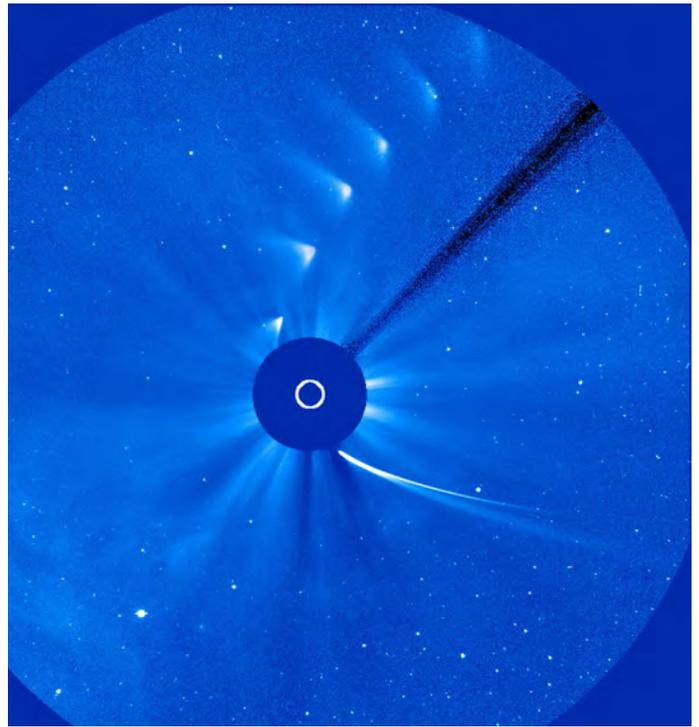
Comet ISON is seen here on February 26, 2013. The Comet was moving westward (retrograde) in eastern Gemini. In early April it reached its stationary point and turned back toward the east and its rendezvous with the Sun seven months later.



These two images were taken one day apart, on October 3 and October 4. Comet ISON had just passed around 8 million miles from Mars and it was only two degrees from Mars in our sky.



13/11/28 17:36
Comet ISON just before the nucleus disappears behind the C2 coronagraph occulting disc. The volatiles on the nucleus have already evaporated. They are left behind in the very bright segment of the tail just behind the nucleus.



The C3 coronagraph on the SOHO solar observatory took this composite of Comet ISON's perihelion passage. The comet comes in from the lower right, swings around the left side of the Sun at a distance of 1.9 millions kilometers (1.2 million miles) and exits toward the upper right. You can see the comet has no nucleus and becomes fainter and more tenuous as it moved away from the Sun.