President's Message - May 2012

As I write this, several Society members are preparing for the upcoming Annular Eclipse on May 20. There will be a group at Morningside Methodist Church on Roadrunner Parkway, which has graciously agreed to let us use their parking lot. Our original venue, Veteran's Park (also on Roadrunner) had already been reserved for some graduation ceremonies.

I would like to thank our new Publicity Chair, Daniel Giron for working on the publicity for this event with the Bulletin, Las Cruces Sun-News, and Pulse newspapers as well as creating and distributing flyers at Papa John's outlets, Santa Fe Grill and other locations around the city. I would also like to thank Rich, Chuck, Patricia and others who helped coordinate the event. With luck, and clear skies, we should have a rather large crowd viewing this spectacular event.

Several people have commented that an annular eclipse does not have the "WOW!!!!" factor of a total solar eclipse. As someone who has viewed 12 total solar eclipses and one "total" annular (this will be my second), I disagree. While a Solar Eclipse does show the corona, offers the chance to see the beautiful "Diamond Ring" and "Bailey's (also "Baily's") Beads" and is truly an amazing thing to see, there is little to complain about when you see a thin, perfectly centered bright ring around the Sun.

Here in Las Cruces, it will only be a "partial" annular eclipse, which will look like a partial total solar eclipse, but still an amazing sight to see. It is a wonderful example of the motion of the Moon around the Earth.

Both events are caused by the same events; the Moon passes in front of the Sun, blocking the light of the Sun from reaching Earth. Normally, the angular diameter (apparent size of the object in the sky) of the Sun and Moon are about the same size (about ½°). However, since the Moon's orbit around the Earth is not a perfect circle,

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 club and public educational projects. Members receive the High Desert Observer, our monthly newsletter, membership in the Astronomical League, including AL's quarterly A.L. Reflector. Club dues are $30.00 per year, including electronic delivery. Send dues 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 $10.00 discount to Sky and Telescope magazine.

This Month's Observer

Next Meeting

Our May meeting will be held on Friday, May 25, in Room 77 at Doña Ana Community College, starting at 7:30 p.m. Do not forget that Show and Tell will start at 7:00 p.m.

This month's speaker is Fred Pilcher, who will be discussing NASA's Dawn mission, a spacecraft which is exploring the asteroid Vesta and will also be sent to the largest asteroid, Ceres.

Events

ASLC hosts both a deep sky viewing and imaging at our dark sky location in Upham and a public in-town observing session for the public at the International Delights Cafe. Both sessions begin at dusk. We also frequently provide solar observing at the Farmer's Market on Saturday mornings. For information on these and other events, please see http://www.aslc-nm.org .

Outreach

Outreach is a very important ASLC activity. We can always use more volunteers to help educate the public. Even if you do not have a telescope, we can always use more members to help answer questions at the events and point out constellations in the sky.

President's Message – May 2012

(Continued from Page 1)

but an ellipse, sometimes the angular diameter of the moon can be a bit smaller than normal. In this case, and if everything is perfectly aligned, we can see an "annulus", or ring, around the Sun.

I will be viewing the central eclipse from a mountain top, northeast of Grants, NM, right on the center line of the shadow. My imaging abilities are sorely lacking, but I will try to catch a few decent shots.

On another note, the Society is also getting ready for the June 5 Transit of Venus, when the planet Venus passes in front of the Sun. This is a very rare event, happening in cycles that repeat every 243 years, with pairs of transits eight years apart separated by long gaps of 121.5 years and 105.5 years. The most recent one was in 2004 and the next one will be in 2117, with another one in 2125. The pattern is due to the fact that the orbits of Earth and Venus are on different planes in the Solar System. Due to this difference, the three objects (Sun, Earth, and Venus) are only in perfect alignment rather infrequently. This will be truly the last chance you will have to see a Venus Transit in your lifetime. We will be viewing from Veteran's Park, starting around 3:00 p.m. or so.

On another note, the Leasburg Dam Observatory project is making good progress. The Parks Department has completed its archaeological due diligence and there are no barriers to start construction, other than getting all the paperwork in order. A "Cooperative Agreement" was submitted to Parks and we are waiting for their comments and revisions. There are a few minor requests from us on the building itself, but these are minor and should have little consequence on the timing of construction. We're hoping for groundbreaking in July and "first light" before the end of 2012.

We are still looking for a Chair of our Fund Raising Committee. The Chair should have experience in writing grants and in general fund raising activities. Please contact me if you are interested. We will be working towards raising the necessary funds to add equipment to the new Observatory, including a CCD imaging system, computers, etc.

Don't forget we still have plenty of apparel for sale, including hats, t-shirts (short- and long-sleeved), hoodies and denim shirts. Please talk to Ann McPhee if you're interested in purchasing this gear.

If you have not already done so, please submit your Ballot for voting on the revised By Laws. There are changes to the revised By Laws which update the 1967 original document. These changed are mandated by State and Federal tax laws so it is imperative that voting is concluded shortly.

The revised Loaner Telescope Program is set to start on June 1, 2012. Briefly, we presently have four available telescopes; a 10-inch Dobsonian, a 12-inch Dobsonian, a 100mm (4-inch) classic Unitron Refractor and a Meade ETX-90 with Autostar. Additional equipment will be available in the future. These instruments can be borrowed by Society members in good standing. They can be borrowed for one, two or three months at a time, with a signed agreement, for the rate of $10.00 per month per instrument. After the loan period expires, if there is no request by another member, the agreement can be renewed. The borrower is responsible for pickup and delivery back to where the instruments are stored. Any loss or damage is paid for by the borrower.

This is a great way for someone new to the hobby to check out different instruments before deciding what to purchase. It is also useful for the individual who wants to study a specific object, but needs something a bit larger than what they already have (there is an amazing difference between a 6-inch and 12-inch Newtonian). Further information is on our website, at www.aslc-nm.org

I hope to see you at the May 25 meeting, starting at 7:00 p.m. "Show & Tell" starts at 7:00 p.m., and the business meeting begins at 7:30 p.m. Our guest speaker this month is our very own Fred Pilcher, who will be discussing NASA's Dawn mission, a spacecraft which is exploring the asteroid Vesta and will also be sent to the largest

asteroid, Ceres.

Your President,
Ron J. Kramer

April and May Outreach Activities Roundup

By Jerry McMahan

I will apologize, in advance, for forgetting any events and participants. Ron says it is senility, but I prefer to think it is because I was very busy trying to get students ready for final exams. My students would probably vote for the senility hypothesis. This also reminds me that when I went to the Community College, to help a student review, I saw Dave Dockery and his Blue Grass group perform. I listened for a while and again came to the conclusion that Las Cruces does have talent.

NMSU Astronomy Department Open House – April 27, 2012

The Astronomy Department held their open house and Steve Shaffer opened the Society dome. Besides Steve, Society members included Dave Anderson, John Kutney and Jerry McMahan. The event went well and Steve is fixing a problem with the 12.5-inch focuser.

Moongaze - April 28, 2012

The Moongaze was held at the International Delights. Society members in attendance included Chuck Sterling, Steve Shaffer, Dave Anderson (I think, see the above disclaimer), and Jerry McMahan. We had the Moon, Venus, Mars, and Saturn, which was the crowd pleaser as usual.

Dolores Huerta School

A star party was held at the Dolores Huerta School. We have been there in the past and, as usual, we had a large crowd of enthusiastic students, teachers and parents. As usual, they insisted on paying the Society for the party. I guess making a donation to the Society would be a better way to say it. Society members included Ron Kramer, Steve Shaffer, Chuck Sterling and Jerry McMahan. The thin crescent of Venus was nearly as popular as Saturn.

Mesilla Elementary School

Solar telescopes were taken to Mesilla Elementary for a late afternoon view of the Sun. Unfortunately the students were in the building with their science projects so we had very few people, other than Society members, to enjoy the view. Society members include Rich Richins, Ron Kramer, Chuck Sterling, Steve Shaffer, Trish Connely and Jerry McMahan. We outnumbered the observers. Steve and I did stay after dark to view Venus, the Moon and Saturn. We still did not have many customers other than a few teachers and their kids.

Sunland Park – May 12, 2012

A star party at Aguirre Springs, for some Girl Scouts, was canceled due to a lack of attendance. All was not lost that night since Cub Scouts were camped out in Sunland Park that night. It was a large group counting the Scouts and their families. Society members included Ann McPhee, Trish Connely, Rich Richins, Chuck Sterling and Jerry McMahan.

Ann brought her 10-inch Dobsonian, Trish operated a small Dobsonian, Rich had his 11-inch Celestron, Chuck had the 10-inch Schmidt-Cassegrain, and I had the 5-inch Maksutov. Rich was on Saturn while Chuck moved around from Venus to the galaxy M81 and some other objects. Rich also likes to let people guess what they are seeing when a crescent Venus is in view. They are often convinced that they are looking at the Moon. Thanks to a half focal reducer, I was able to get the Beehive Cluster (M44) into the eyepiece of the 5-inch.

It seemed to be a very successful event.

Imaging with My Dobsonian Telescope.

By John Kutney

Introduction

Imaging with a large aperture reflector like an Obsession 18-inch Ultra Compact (UC) is interesting. The large light gathering ability means CCD exposure times can be very short - usually under a minute. Minimal guiding is required or none at all. Multiple images can be stacked in your PC to build up a vivid image. Field rotation at the focuser is eliminated with software. The challenge is that this scope was never designed for astro imaging; especially, the Ultra Compact version of this instrument.

My first attempt to image with the Obsession 18 UC was trying to capture Jupiter with a TouCam Webcam utilizing K3CCD software to manage the process. I had previously imaged Jupiter with my 4.5-inch refractor with reasonable results and was striving and expecting to get those super detailed images of the planet that one sees in the media.

After trying multiple accessories (barlows, Paracorrs, etc.) with the TouCam, it was still not possible to bring Jupiter into focus with the 18-inch UC. I also tried my other webcam (Logitech QC4) with the same results. This began my quest to obtain a focused image with the 18-inch UC.

The underlying the mission

After consulting with the manufacturer[1], it became obvious that I had to compensate for back-focus of the camera to achieve focus. The greater mission was to use a DSLR[2] with the UC for future planned collections of images of galaxies, galaxy groups, and galaxy clusters.

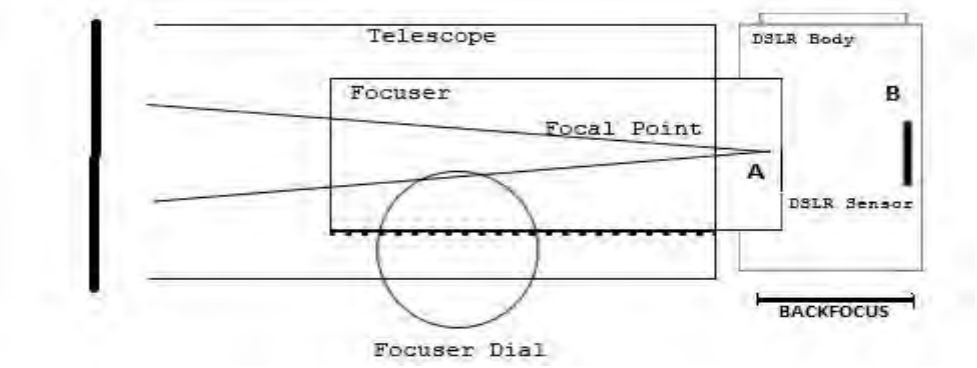
After the challenge to achieve the Astronomical Leagues certificate for the Flat Galaxies using visual observing, it was one of my goals to image the Northern ARP Galaxies and Galaxy Groups in lieu of visual observing. Imaging was especially relevant with the visual observing limitations of faint and small objects illustrated by the Visibility Software of Professor Jose Torres of Valencia University, Spain.

Recall that both NGC 100 in Pisces and IC 2233 in Lynx were not directly visible with average sky conditions even though both of these Flat Galaxies are at or below 13.6 in magnitude.[3]

[1] Obsession Telescopes; http://www.obsessiontelescopes.com/
[2] Canon EOS T1i / 500D
[3] Visual Observing of Flat Galaxies, HDO, John Kutney

Back-focus
I was not able to properly focus an image with my DSLR attached to the telescope. However, I was able to focus properly when I used one of the telescope eyepieces. The problem is not unique, and it's a matter of optics. When a DSLR captures an image the light hitting the sensor has already been focused. If the image is not in focus by the time it hits the sensor, the sensor will provide only a blurry image.

The diagram below shows what is happening when a DSLR is attached to a telescope. A telescope bends the light and brings it in to focus at the focal point (A). When an eyepiece is used, the focal point falls inside the barrel of an eyepiece, and the eyepiece magnifies the image to the viewer. The position of that focal point in relation to the correct spot in the eyepiece is adjusted to achieve the proper focus using the focuser. The focal point (A) is always the same or fixed in the telescope even with different eyepieces. This fixed focal point causes the problem with the DSLR. In order to achieve focus with the physics going on with the telescope, the DSLR sensor (B) needs to be at the focal point (A) of the telescope. With my telescope, however, I am not able to slide the focuser far enough forward to bring the sensor to the focal point, so I am not able to capture an in-focus image. The DSLR sensor (B) needs to be moved to the focal point (A). This distance is the required back-focus length.

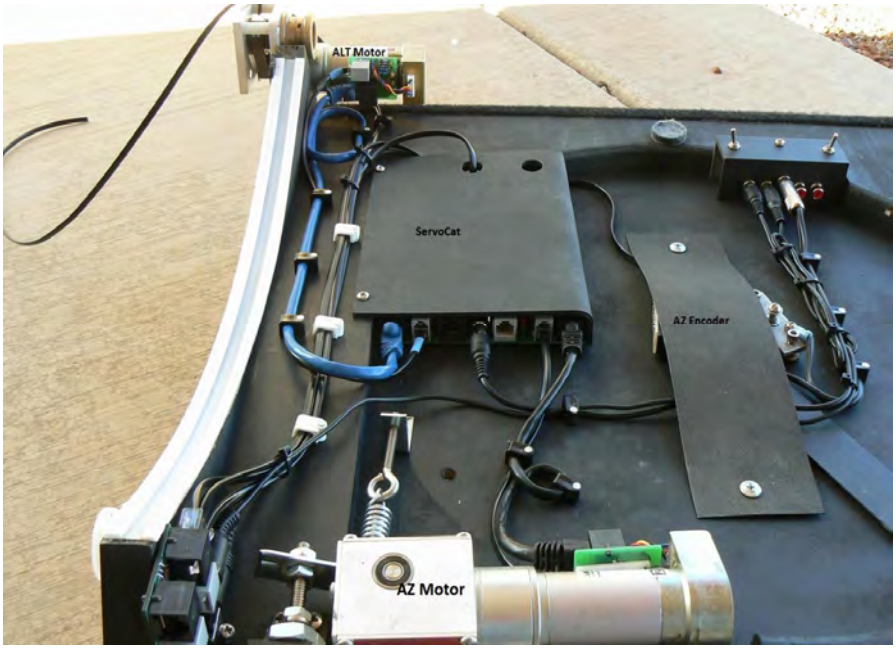


It required some research to determine the back-focus distance for the Canon EOS T1i. It required determining the distance from the image sensor to the middle of the bayonet flange. Also the T-ring adapter dimension has to be considered. It was determined that 44mm were required from the bayonet flange to the image sensor and another 12 mm was required for the T-ring adapter. All together about 2.25 inches of back-focus was necessary.

Solving the back focus problem for the 18" UC can be achieved by shorter truss poles or extending the mirror in the virtual mirror box toward the focuser. Since I wanted to retain my successful use with visual observing, I didn't want to move the mirror. So I required obtaining truss poles approximately 2 inches shorter to obtain focus with the DSLR.

Obsession 18" UC Setup
One great advantage of my 18" UC setup is the use of the **ServoCat**[4] computerized drive system and the **Argo Navis**[5] digital setting circles (DSC). The **ServoCAT** powers the Obsession telescope to provide sidereal tracking, hands off movement, and spiral circle location of objects. The telescope tracks well after alignment with the **Argo Navis** digital setting circles. The **ServoCat** can also track independent of the **Argo Navis** but it is more difficult to setup. The **ServoCAT** drive with **Argo Navis** and super-resolution 10,000 count encoders complete the drive system. The system can be radio-controlled or by direct wire. Below is a picture of the telescope base for the rocker with the electronic components and encoders installed.

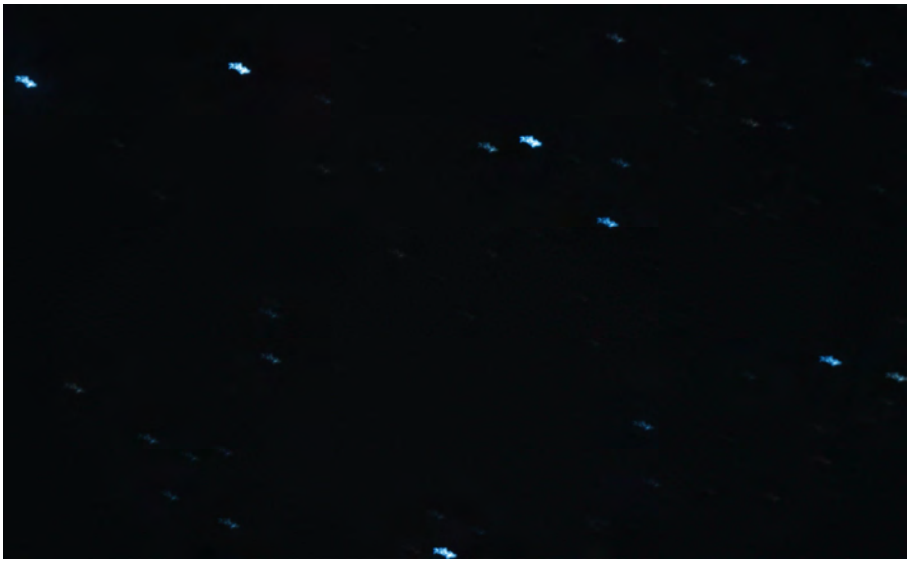
[4] http://stellarcat.com/
[5] http://www.wildcard-innovations.com.au/



The system can track an object with good consistency depending on location in the sky. It clearly is not a match for an equatorial mount but I have tracked an object over one hour. Guiding is supported by the **ServoCat** but there is no practical way to mount a guide scope on the 18" UC. A Telrad is used for locating object areas. The tradeoff is tremendous light gathering but only for shorter intervals.

In addition to the accessories mentioned above, I have added a shroud made from Kydex to cover the upper area of the scope. This was required to eliminate headlights, yard lights, and other light distractions when using the telescope in my backyard. Balancing the scope was the only drawback with this addition.

First Attempts
First images with the back-focus solved were not very successful or promising. There were star trails and other signs of scope movement. See star field image below of 120 seconds at ISO 200.



My inclination was that scope was not tracking properly. I spent several attempts using a manual iterative visual method suggested by **ServoCat** to determine the optimal gear ratios for altitude and azimuth for improved tracking and also for determining the backlash inherent in the system.

Manual Method for Tracking Adjustments

I used the following tracking adjustment manual procedure provided by **ServoCat** to determine the best gear ratios and backlash adjustments. Perform a two star alignment using Polaris and one other known star position. It is expected that the AZ and ALT axis settings/directions on the scope are correct.

1. During the night find an object that is due south – a bright star is fine. Find one that is within 20 degrees of the horizon.
2. With the object centered turn off the motors on the ServoCAT.
3. Note the direction of drift in the eyepiece.
4. Turn motors on re-center the object.
5. Note whether the object is still moving in the same direction it was, but slower or if it is now moving in the opposite direction.
6. If the same direction, then increase your AZ axis gear ratio number by 5% if it is slowly moving away from center (minutes) or 10% if faster.
    a. You will want to increase the ratio if the object, when tracking, was moving in the same direction as when the track was off.
    b. Decrease the value if it is moving the opposite direction when the tracking is off.
7. Repeat the above process for the ALT axis by pointing the scope either to the east or west and again low to the horizon.

Fine tune the system at this point. If after changing the value by, say 5%, it is now going the other direction, then reduce the adjustment down a bit. By using this method the exact ratio needed to precisely track can be determined.

Example of AZ tracking tune:

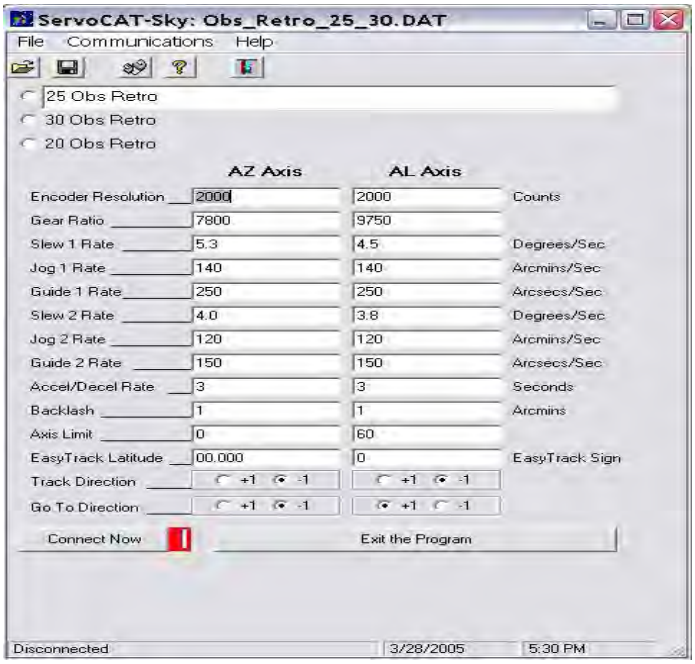
- Ratio thought to be and programmed as 5000
- With telescope south and at 10 degrees up from horizon a star is centered
- With tracking off, the star drifts to the right in the eyepiece view (this is at sidereal rate)
- With track on, object centered… it slowly drifts still the same direction as above
- Increase ratio to 5250.
- Re-center object, now it is going the opposite direction
- Change value to 5150.
- Object now tracks.

Back-lash determination

Back-lash can be determined for both the AZ and ALT axis with similar type of approach as with tracking adjustments.

The screen at right is available from the **ServoCat** software to change the parameters in the system. After fine tuning the tracking one enters the new gear ratios in the appropriate slot. After calculating gear ratios and back-lash adjustments, they were updated into the system for the 18” UC.

This is an example for the 25-inch Obsession telescope. Gear ratios for tracking and backlash adjustments are made here.



Next Image Attempts

The results of my next attempts at imaging were not what I expected. I did obtain some reasonable results and with the confidence that my tracking and backlash were under control it became clear what the main culprit was. The main problem with a large reflector is that the "wind" is a main contributing factor for both star trailing and bumping artifacts. However, this was the breakthrough that I required to obtain reasonable results for the images. This lead to the development of a formula for a technique that provided for more reasonable results. I needed to stiffen the scope and avoid wind that interferes with stabilization of the image.

Technique for Imaging with 18" UC

Setup

Use a reticle eyepiece with centering, target to optimize the polar alignment.
Use reinforcing bars (accessory for the UC 18-inch) to stiffen the truss poles.
Ensure collimation is perfect.

Find the target object

Even with the shortened poles one can visually find the target with an eyepiece extension. One may star hop with the Telrad or use the **Argo Navis** to locate the target.

Obtain focus

Live View, available on the Canon DSLR, is a real short cut to obtain focus. Only problem is if there is no bright stars in the immediate area since Live View cannot pick up faint stars very well. One may have to move the telescope to an area with a bright star before or after obtaining the target.

Back-lash removal

Once the object is located and focus has been affirmed the telescope has to be moved in a positive ALT and clockwise AZ directions so the scope will stay fixed on the target. This final telescope movement eliminates the back-lash so the telescope will remain on the selected target. Otherwise the FOV will move off if/when the backlash occurs.

Tracking

The telescope is now tracking properly and should hold the object in place similar to an equatorial mount without guiding. The telescope was able to stay on the FOV for over one hour. My best results were for objects to the Southwest.

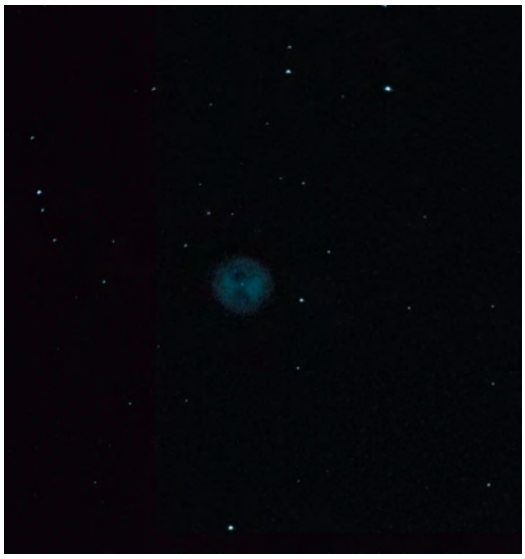
Testing/Timing

Based on the environmental conditions (wind), test images from 10 seconds through 60 seconds are used to confirm all the variables.

Results

Since I am fairly new with this technique of using the 18-inch UC, my images have been of short duration, usually one to two minutes. I have not used stacking on multiple results since the wind has been rather unpredictable in March and April 2012. The Canon EOS T1i prime focal setup with the 18-inch UC provides a FOV of approximately one degree. Below are several images that I have taken from my backyard in the light polluted skies of Las Cruces. The results will never win any contests but will serve as a basis for obtaining images of the galaxies in a reasonable timeframe that are part of my future endeavors. The 18-inch UC is considered a "fast" telescope at f/4.2 so the edges are not expected to be very sharp, even under favorable conditions. They have been converted to .gif or modified for this article so they have lost some of their attributes

M42 and Orion area, 25 sec, ISO 800



M97 the Owl Nebula, 60

The Flame Nebula (NGC 2024) with Alnitak (double star very visible in original image) 60 seconds, ISO 3200.

Conclusion

After several trials and tribulations I have a good grasp on what is required for taking a reasonable image with the 18-inch UC Dobsonian. This, along with favorable conditions, should provide a feasible direction to capture the planned future galaxies with DSLR images.

Minutes, April 2012 ASLC General Meeting

By John McCullough, Secretary, ASLC

Show and Tell:

David Anderson presented a couple of filters he made that fit his 60 mm home made PVC telescope.

Call to Order:

Ron Kramer, President, Astronomical Society of Las Cruces (ASLC), called the business meeting to order at 7:30 p.m., 27 April 2012, Room 77, Doña Ana Community College, Las Cruces, New Mexico.

President's Comments:
Ron Kramer welcomed the group, thanking David Anderson for presenting the "Show & Tell". Ron noted that almost any subject is fair game for a "Show & Tell" topic. Ron also welcomed Kenneth and Judy Kile, first-time visitors. The Kiles have relocated to El Paso from Florida, where they were active in the South Florida Amateur Astronomers Association (SFAAA), and are looking for a society to join. Mary Hill joined the meeting later. There were no other guests or new members present.

Secretary's Report:
The Secretary, John McCullough, reported that the minutes for the March 2012 meeting were submitted for publication in the Society newsletter, the High Desert Observer (HDO), thanks to Tracy Stuart for taking minutes during John's absence. Robert Williams moved that the minutes from the March general meeting be accepted as submitted; Fred Pilcher seconded. The motion passed by acclamation. There was not an additional Secretary's report.

Treasurer's Report:
The Treasurer, Trish Conley, reported on the status of the Society's accounts, including income from astronomy image sales at Earth Day 2012. There was not an additional Treasurer's report.

Committee Reports:

Apparel Committee:
Ann McPhee, Committee Chairman, reported total sales of Society-logoed apparel at $1,636.50 to date with $559.60 worth of inventory remaining. She still has items available for purchase following tonight's meeting. This is a fund raising effort for the Society.

Loaner Telescope Program:
Ron Kramer, acting Committee Chairman, presented the new agreement he will use to loan equipment to Society members. He also presented a list of the Society-owned equipment available for use by members. He noted that if members have Society-owned equipment in their possession, they need to return it to the Society or begin to pay the Society for its use. Ron stated that excess equipment items may be sold to raise funds for the Society. See him after the meeting if you have questions, including the method for making equipment donations to the Society.

Membership:
Ron Kramer reviewed the benefits of Society membership, including use of several research quality telescopes and observatories.

Leasburg Dam State Park (LDSP) Observatory Committee:
Ron Kramer reported that he had a meeting that morning with LDSP management regarding progress on the observatory construction. Initial contracts for concrete and electrical work at the Park are being let. The

Observatory construction is expected to cost the State of New Mexico $55,000 to $65,000. The Society will provide the 16-inch Meade LX2-00 main telescope and 8-inch Cassegrain "finder" scope. Ground breaking is expected in June or July. An observatory director or Observatory Committee Chair is required to direct this effort.

Tombaugh Observatory:
Steve Shaffer, Committee Chairman, was not present. He is at the Observatory on campus assisting with New Mexico State University's (NMSU's) Astronomy Department's monthly star party.

Outreach Committee:
Chuck Sterling, Outreach Coordinator, reported on recently completed and upcoming scheduled events. A monthly Moon Gaze was held 31 March at IDC, Earth Day at Young Park on 22 April and a star party at Cesar Chavez Elementary on 14 April. Upcoming events are the Moon Gaze on 28 May, solar viewing at Mesilla Valley Bosque State Park for the Girl Scouts and star parties on 01 May at La Academia de Idiomas y Cultura (8-10 pm, 100-130 students, 4 scopes committed), Mesilla Elementary Science Night on 03 May (6:30-7:30 pm), annular solar eclipse on 20 May (Chuck will have scopes set-up at Veterans' Park), a Las Cruces Public Schools event at Young Park on 22 May, and Venus Transit on 06 June. Refer to the yahoogroups.com for details.

Publicity:
Raymond Madson had volunteered to coordinate publicity efforts for the Society. However, for the last three months, very little has been accomplished. Ron stated another chairman is needed (Daniel Giron will take over this effort).

Society Website:
Steve Barkes, web master, was not present.

There were no additional committee or officer reports.

Old Business:

ShareFair 2012:
This event has been canceled for the 2011-2012 academic year. The Society will evaluate its participation if the event is announced for next year.

Society By-Laws:
Copies of the proposed By-Laws revisions and ballots for members to indicate their preference have been sent out. Copies of the revisions are available for review and ballots are available for voting at tonight's meeting.

2012 Messier Marathon:
John Kutney reported on the event held on 23 March. Five observers "caught" all 110 objects, several others got 109. The weather was good and all participants had a good time.

Texas Star Party (TSP) 2012:
None of the Society attendees were present to report on this year's TSP. Robert Williams reported they had good weather for a change.

There was no additional old business discussed.

New Business:

Fund Raising:
A chairperson with grant writing experience is needed. A $5,000 grant is available through the Space Consortium (Dr. Pat Hynes).

Swap/Auction:
This may be the topic of a future meeting. Two books are available tonight.

2012-2013 Budget:
The budget is in progress. The President, Treasurer and a member-at-large (Robert Williams) will finalize the budget and present to the membership.

There was no additional new business for discussion.

Announcements:

Items for Sale:
No items were announced for sale.

Announcements:
There were no announcements made.

Recognitions/Achievements:
John Kutney has received the Herschel 400 observing award from the Astronomical League (AL). He has also completed the carbon star observing list.

There were no additional recognitions or achievements announced at tonight's meeting.

Robert Williams moved to adjourn the business portion of the meeting at 8:00 p.m., Tracy Stuart seconded. The motion carried.

Presentation:

The April program was presented by New Mexico State University (NMSU) Associate College Professor of Anthropology Beth O'Leary, Ph.D., on "U.S. Lunar Lander Sites". Dr. O'Leary's areas of interest include both cultural anthropology and archeology. She is an expert in the archaeology of outer space. In June 2009, "The Handbook of Space Engineering, Archaeology and Heritage," a seminal volume that she co-edited with Ann Darrin of Johns Hopkins University Applied Physics Lab, was published. With over 25 years of experience in cultural resource management in New Mexico, she is currently vice-chair of the New Mexico Cultural Properties Review Committee, a policy making board of nine individuals appointed by the governor. She created a NASA-funded project to make the 1969 Apollo 11 Landing site on the Moon a National Historic Landmark. This will be a first for doing cultural resource management in space. Dr. O'Leary gave a detailed accounting of the human artifacts left on the lunar surface over the last 55 years.

Her most recent keynote address was at the ICOMOS 2007 Conference on Extreme Heritage in Cairns, Australia. Another recent article on space heritage can be accessed in Antiquity at http://antiquity.ac.uk/ProjGall/oleary/index.html article).

For more information on this project, go to the Lunar Legacies site.

The April meeting of the Astronomical Society of Las Cruces concluded at 8:55 p.m.

-Respectfully submitted by John McCullough, ASLC Secretary

Calendar of Events May/June 2012 (MDT)

May	25	7:30 p.m.	May ASLC General Meeting
	28	2:16 p.m.	First Quarter Moon
June	05	9:35 p.m.	Full Moon
	04	5:12 a.m.	Full Moon – Partial Lunar Eclipse
	05	Late afternoon	Transit of Venus
	11	4:41 a.m.	Last Quarter Moon
	19	9:02 a.m.	New Moon
	20	5:09 p.m.	June Solstice
	22	7:30 p.m.	June ASLC General Meeting

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

ASTRONOMICAL SOCIETY of Las Cruces
PO Box 921
Las Cruces, NM 88004

ASLC - Sharing the Universe
With Our Community
for Over 50 Years