This has been a momentous year for the club, marking the end on August 1st of our 19+ year partnership with the Canyon of the Eagles Resort and the Eagle Eye Observatory. Many members have fond memories of nights under the stars with friends, special star parties, innumerable outreach events, and the club’s yearly Central Texas Star Parties. We’ll leave with a fond goodbye to EEO and best wishes to COTE.

Bittersweet as it is, leaving COTE opens exciting opportunities for AAS to find new observing sites, new partnerships and most all new energy. For the last few years the COTE/AAS relationship has been a difficult and draining distraction from our main mission of promoting and enjoying our wonderful hobby.

The work is well underway, largely thanks to the efforts of Dawn Davies, Joi Chevalier, Joyce and Jim Lynch and Terry Phillips. We’re excited to be in an early discussion and trial stage with Pedernales and Inks Lakes State Parks. If you’re interested in joining in the planning for the club’s future observing sites, contact Dawn or any Executive Committee member.

Our most pressing need is to find a new home for our scopes and other equipment. Terry Phillips, Domingo Rochin and Greg Rhode are leading this effort. They will need help both mental and physical. Call Terry, Domingo or Greg to volunteer.

This is a fantastic opportunity for the club to move in new and even better directions than during the almost 50 years of the club’s life. New energy, new opportunities. Let’s set the club on an exciting new path. We have ideas for new formats for the monthly General Meeting, members special events and outreach opportunities. Join in and contribute your ideas for meetings, star parties, outreach any ways to increase the fun.
This month also marks the end of the 2017-2018 officer’s term. More next month on the new Board members.

**Friday May 11th, 7:30 pm - Monthly Meeting**

**NOT at UT this month – St. Stephens Episcopal School assembly hall**
We’re in for a treat. Frank Mikan, a truly inspiring science teacher, is hosting this month’s meeting. After a brief assembly we’ll adjourn to Franks’ classroom/observatory. Yes, it’s a real observatory and Frank’s classroom itself is a menagerie of vintage scientific instruments, an eclectic collection of physics publications, student projects and wonderful telescopes.

The evening promises to be clear and Frank will have a variety of telescopes available for our use. He also promises a variable star challenge for those who’re game. And, did I mention Pizza and Soft Drinks? It’ll be a fun and refreshing break from our usual meeting format.

The best way to enjoy a club is to participate in its direction and activities. Join in!

*Clear Skies,*
*Tim*

“For my part I know nothing with certainty, but the sight of stars makes me dream”. (Vincent Van Gogh)
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### AAS Affiliations

- [International Dark-Sky Association](http://darksky.org/)
- [Night Sky Network](https://nightsky.jpl.nasa.gov)
- [Astroleague](https://www.astroleague.org/)
- [Texas Space Grant Consortium](http://www.tsgc.utexas.edu/)
Executive Committee Minutes
For March 5th, 2018

The meeting was call to order at 7:03 PM at the Frisco Restaurant. Present were President Tim Brown, Vice-President Dawn Davis, Member Services Joi Chevalier, Treasurer Mark Lyon, Outreach Chair Dawn Davies (acting), Equipment Chair Terry Phillips, and Members at large Frank Mikan, Brian Lippincott, Dana Leary, Vanessa Perez, and Greg Rhode. Also present were Joyce Lynch, and yours truly: Domingo Rochin –Secretary.

Main topics on the Agenda handout are:
1) The upcoming elections –by Joyce Lynch
2) Tim’s update on COE
3) Officer’s reports

Elections. We only have few definite commitments for EC positions: Sean for Communications, and 4 members at large (Dana, Frank, Greg, and a new member Castillo). Tim nominated himself for President, and Terry nominated himself for Vice-president. Although Sidereal Times editor is not a GA elected position, it was announced that Nathan is the person who is now filling in that position, and EC voted to confirm his designation.

COE. Tim indicates that he will convey to Cindy that we are actively seeking out another place and that we could be out of COE within a year. Also, that we are not obligating ourselves after March to hold the Public Star Parties.

We will have the rights to member’s nights, we just won’t have them for “members ONLY”, March 17th being the last one –and also being the Messier Marathon. Also, Saturday, March 10th will be the last Public Star Party that we will be obligated to attend to outreach.

Officer and Chair Reports

President. Tim Brown
1. COE status –as above , with final remark on working the means to gain access at all times to the observatory.

Vice-President. Dawn Davies
1. For March presentation, we will have Don Olson instead of Bonnie Mankiewicz. Don will be talking about his latest book.
2. For April’s presentation, NASA has received our request for Don Pettit that he is available, and we are just waiting for NASA to give us the GO.
3. For May, Frank indicated that we should have the auditorium from May 11th for the GA meeting.

**Treasurer.** Mark Lyon
1. Amplify Austin was good. We got 700 in contributions.

**Equipment Chair.** Terry Phillips
1. Bought a new TELRAD for the 25” scope.
2. Loaner scope program is moving on. Some scopes are being returned and being handed out to new members.

**Member Services Chair.** Joi Chevalier
1. Messier Marathon on the March 17th 2018
2. Practical Astronomy for April – Mike will be showing how to make Galileo Scopes.

**Outreach Chair.** Dawn Davies (acting)
1. Dawn presented a handout that describes the efforts being made with Inks SP and Pernales SP.

**Communication Chair.** Sean Leary
1. Reports are uploaded
2. The new By-Laws are also up to date
3. Some EC members have been given AAS contact e-mail. If you have an e-mail in your box, please attend and copy other members so that we don’t bombard with several responses. Tim agreed to be the one who respond to Contact AAS e-mail.

**IDA.** Tim (acting).
1. Schedule meeting with John Cassidy (our IDA rep) and Cindy Bower of COE about promises made regarding keeping COE as a DARK Sky location.

**Members at Large:**
1. Dana.
2. Greg.
3. Vanessa.

Meeting was adjourned at 8:43 PM
Call to order: 7:45 pm at UT campus, ETC II 2.136
Quorum is met.
A motion to approve January GA minutes was made -Approved.

**President (Terry Phillips-acting):**
New members: Jessica Franchesca, John King.
Joyce Lynch: Still looking for candidates for EC committee.

Reports by officers.

**Vice President (Joi Chevalier -acting):**
1. Tonight our guest speaker is Don Olson, professor Texas State University who will do a presentation on his latest book The Celestial Sleuth.
2. For April we are making just waiting for confirmation to have astronaut Don Pettit, who has work time aboard the ISS. He has a presentation on science discoveries made by goofing-off in space.
3. Further on, in May, we will have Amy Jackson present her work in South America.

**Treasurer: Mark Lyon: Not present.**
1. Terry just indicated that we have about the same amount of funds –about 36K. And if anyone wants details about the budget it is published in the Sidereal Times.

**Outreach (Joi Chevalier –acting):**
2. Inaugural Star Party at Inks Lake on the 17th.
3. Inaugural Star Party at Pedernales Falls on April 7th.
4. GirlStart is every first Thursday of the month. It is a good opportunity for those seeking to do outreach.
5. Public Star Party at COE for the 10th of March is on scheduled.
6. Jim Lynch spoke about the success at Girls Day at UT on the 24th –huge event. He estimated that the attendance was 700 persons.

**Member Services (Joi Chevalier):**
1. Fast Track 307–Myths of the Sky presented by Dawn Davies and Joyce Lynch. Saturday April 7th at 6:00 PM at Pedernales Falls.
2. April Practical Astronomy will be on making Galileo Telescopes presented by Mike.
3. We also have Messier Marathon on the 17th –same day as Inks Lake Falls Star Party. Suggestion in to first go to Inks Lake and then hop over to COE for the Marathon.
IDA (International Dark Sky association) Representative: John Cassidy
John announced that IDA Texas is planning a Star Party and Dark Sky Outreach on April 7th. same day as our star party. They expect about 100 people to attend.

Equipment (Terry Phillips):
1. We have equipment available. If you need to check out equipment check with Terry or Domingo.

Communications (Sean Leary –not present):
Nothing new in communications. The report is

There were 45 persons present at this meeting
Meeting adjourned at 8:10 PM.

Respectfully submitted
Domingo Rochin
Secretary, Austin Astronomical Society
April 13, 2018
For the Executive Committee meeting in May 2018

1. Website:
   a. Updated AAS magazine subscription information
   b. Updated April Sidereal Times banner and link
   c. Updated Sidereal Times static page
   d. Image of the Month banner, links, and full image updated for April
   e. Took down Messier Marathon and Don Pettit banners
   f. Posted ALCON 2018 with embedded video.
   g. Added event for ALCON 2018
   i. Updated WA join page to select annual membership

2. Email blasts:
   N/A

3. Facebook
   N/A

4. Comms
   a. Fixed contactaas mailer to forward to Tim only.
   b. Fixed Caldera forms to forward to equipment, outreach, and contactaas only
   c. Reached out to equipment to improve the loaner telescope webpage.
      Mocked up some pages inspired by Houston astro society.
   d. Contacted potential website volunteer and MAL candidate
   e. Added Joyce to outreach mailer

Agenda:
Recommend updating the EC page and email redirects after tonight.
Website traffic for the past month

How many people are visiting the site?

What pages do they visit? & Who is sending us traffic?
April 2018 Treasurer’s Report

Deposits:

Dues payments
- Checks $0.00
- Paypal $0.00
Dues payments totals $0.00

Interest earned-checking $0.98
Interest earned-CD $0.49
Interest earned-CD $0.49
Total interest earned $1.96

Amplify Austin $611.68

Total Other Income $611.68

Deposit Totals April 1st through April 30st, 2018 $613.64

Expenses:

COE Internet Expense $69.35
COE Telephone $76.65
Storage space rental $65.00
Outreach $53.23
Repair Maintenance COE $322.49
Meeting Expense $580.00

Expense Totals March 1st through March 31st, 2018 $1,166.72

Bank Balances:

University Federal Credit Union Donations Savings $557.41
Paypal Account $983.29
University Federal Credit Union Checking $23,790.26
University Federal Credit Union C.D. $5,814.74
University Federal Credit Union C.D. $5,795.59
University Federal Credit Union Scholarship $465.61
Total Cash $37,406.90

AAS members on 4/30/2018: 535
Total AAS Memberships as of 4/30/2018: 375
Hi everyone!

Great turnout and lots of fun for our last Practical Astronomy of the year in April - Galileoscopes!

We had a presentation on Galileo, and teams of junior astronomers (with more ‘experienced’ astronomer help) put together Galileoscopes with eyepieces, and learned the basic functions of a telescope. Lucky young astronomers also got to take them home! Thanks to Dawn and Apollo for showing everyone how it’s done!

Typically, we have not had a member’s night in May as many are off at TSP or getting ready for graduations - but this year, we’ll do an impromptu one at Canyon of the Eagles on 19th May! Join us ahead of dusk to say hello to fellow observers, set up, enjoy some dinner - and then check out a great sky! Although we are not at TSP, we can still make some progress on our observing skills or any AL lists we’re working on! :) Join your fellow AAS members about 6pm for a bit of late Spring viewing!

Many congratulations to Vanessa Perez for taking up the mantle of Member Services Chair. I’ve been fortunate to have a great committee working with me the last two years, and I appreciate them immensely - their ideas, topics, interests, and knowledge have made for great programs. Thanks to Phil Schmidt, Larry Martin, Dawn Davies, and all of the AAS members who have graciously volunteered their time and knowledge for Practical Astronomy, Fast Tracks, our amazing Astro-photography exhibit, EEO Clean Up days, CTSP, Messier Marathon, New Telescope Workshop, movie previews, and the other technical and social activities we’ve gotten to share. I’ll be around to help Vanessa on her ongoing Member Services committee, and hope some others will volunteer their time and talents and continue to make Member Services a special part of AAS! I’m looking forward to seeing how the new Member Services calendar shapes up (after the summer heat :)).

Clear Skies!
Joi Chevalier
**GIRLSTART OUTREACH REPORT**

By Dana Leary

Girlstart is an AAS outreach event. Because there will be three major meteor showers this summer (first is May 6,7), we talked to participants about meteoroids, meteors, and meteorites. We discussed how comets ‘break’ apart and how asteroids collide in space, leaving dust and rocks; how these pieces of dust/rock enter our atmosphere; and, why we see the meteors. Participants colored a picture of a meteor in our atmosphere, encouraging them to decorate the picture as they chose.

Submitted by:
Dana Leary
Member at Large
AAS Representative to Girlstart

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**AAS PLANETARIUM NIGHT**

By Terry Philips

At our June general assembly meeting, we will be premiering a new feature presentation. We’re calling this Planetarium Night. This will be a composite of about three to six short presentations by our club members of their favorite observing targets. One goal is to share our knowledge about some of the coolest objects to be found in the current season and how to locate them. We’ll use Stellarium to show the best strategies for star hopping to the targets, and we’ll demonstrate what you can expect to see through various telescopes.

This is a member participation event and we invite everybody to nominate a favorite object. If you have an object you’re really interested in, but you don’t feel like presenting yourself, then let us know and we’ll find someone who will present it. I you’d be interested in stepping up to bat for our first Planetarium night, contact Terry Phillips to propose an object. There is only about a month left to prepare, and the first object has already been selected: M104 the Sombrero Galaxy.
Hi AAS Outreach Fans,

There will be no presenter at this week's meeting as we will be guests of Frank Mikan and his amazing classroom on the St. Stephen's Episcopal School Campus (6500 St. Stephen's Drive, Austin, Texas 78746) following the business meeting. The meeting this week will take place in the Recital Hall.

Dawn Davies  
(Acting) Outreach Chair  
outreach@austinastro.org

Thursday, May 24th  
8 a.m. – 2 p.m.  
Mills Elementary School - Citizenship Day  
6201 Davis Lane, Austin, Texas 78749  
*Mills Elementary is highlighting volunteers on their citizenship day and are looking for folks to come talk for roughly 20 minutes about the work they do as amateur astronomers in outreach to the public.  
Please contact Kristina Kern (kristina.kern@austinisd.org) to sign up for a spot.*

Saturday, May 26th  
6:30 p.m. – 11 p.m.  
Inks Lake State Park - Star Party  
3630 Park Road 4W, Burnet, Texas 78611  
“That’s No Space Station... It’s a Moon”. In honor of May the 4th (May the Force...) Inks Lake is embracing that body of illumination astronomers tend to shy away from, the moon. Come prepared to talk about all things lunar and don’t forget those moon filters. We’ll begin with safe solar observing and transition to night time shortly after sunset.  
Go/No Go notification will be sent out by 2:00 p.m. due to possible inclement weather.  
Volunteers must RSVP to have their park fee waived. Email outreach@austinastro.org
**“Bootes” The Herdsman**

In Mythology, Bootes was the son of Jupiter & Callisto. He was imagined to be chasing the Great Bear around the sky. The meaning of the Greek name for the brightest star in the constellation is Arcturus meaning Bear-Guard.

Bootes is far off the Milky-Way and lacks open clusters and diffuse nebulae. It however is well populated with faint external galaxies. None a very bright, but many are interesting pairs or galaxy groups.

The Quadrantids, a rich meteor shower which peaks every January 3rd and 4th, radiate from northern Bootes.

Best Deep-Sky Objects:
- IC-1029, NGC-5529, NGC-5248, NGC-5676, NGC-5689.

Binocular Objects:
- NGC-5466, NGC-5529, NGC-5676, NGC-5689.

Interesting Stars:
- Kappa / 17 Bootes Double Star Magnitudes 4.6 & 6.6; Sep. 13.4” 14h13.5m - +51 47
- Iota / 21 Bootes Triple Star Magnitudes 4.6 & 6.6; Sep: 38.5” 14h16.2m - +51 22’
- Epsilon / 36 Bootes Triple Star Magnitudes 2.9 & 4.9”; Sep: 2.8” 14h45.0m - +27 04’
- Xi / 37 Bootes Quadruple Star Magnitudes 4.7 & 7.0; Sep: 6.6”

14h51.4m - +19 06’

Mu / 51 Bootes Triple Star Magnitudes 4.3 & 7.0; Sep : 108.3 15h24.5m - +37 23”

All these stars are easy for 4-6” scopes and up. Many of these are bright and have pretty colors to them so enjoy them if you interested.
May in Texas - the doorway to summer: spring cool fronts take their last shot at keeping things green, mosquitoes & chiggers make their return known with a vengeance, and the summer Milky Way begins its rise in the east. For observers, that means if you can dodge the cool fronts and tolerate the bugs, a rich prize awaits. But as we head thru that door, this month offers a last look back at the galaxies of spring, before the glorious star fields of the Milky Way distract us for the rest of the summer. Enjoy!

Muphrid (Eta Bootis) rating: EASY
GMuphrid (Eta Bootis) rating: EASY
RA 13h 54.7m Dec +18d 23.9’ (2000)
Magnitude 2.7,
Muphrid (derived from an Arabic name meaning the Lance of the Lancer) is easily found just 20’ west and a bit south of Arcturus in Bootes. Muphrid is the closest stellar neighbor to Arcturus: the two stars are both the same distance from the Sun (37.2 light years) and only 3.24 light years apart. From Muphrid, Arcturus would appear about twice as bright as Venus; and from Arcturus, Muphrid would be over twice as bright as Sirius.

Muphrid is really the name of brighter component “Aa” of double star WDS J13547+1824 (WDS being the Washington Double Star Catalog). It’s a yellow subgiant star about 1.7 times the Sun’s mass and 2.7 times the Sun’s radius, in the process of evolving from the main sequence into a red giant. Muphrid is also one of a somewhat unusual bread of “super metal rich” stars, where “metal” - to astronomers - means any element other than hydrogen and helium: its “metal” abundance is twice that of the Sun.

Muphrid actually has two companions. The first is a spectroscopic companion that’s either a very dim red dwarf star, or possibly a dead white dwarf star. It orbits Muphrid with a period of 1.35 years, at an average distance about the distance between Mars and the Sun. The second, more visible, “companion” is a 9th magnitude star about 2 arc minutes away, easily seen in small scopes. But that companion is just a line of sight coincidence, and absolutely nothing is known about it - a bit odd for a star that bright.

NGC 5371 rating: MEDIUM
Galaxy & group in CVn
RA 13h 55.7m Dec +40d 27.3’ (2000)
Magnitude 10.8 dia. 4x2’
Despite its location in the emptiness of eastern Canes Venatici, this galaxy should be a relatively easy target in almost any telescope. To visually reach the neighborhood, start at 2nd magnitude Alkaid, at the tail end of the handle of the Big Dipper. From Alkaid drop south, to roughly the same declination as 3rd magnitude Cor Caroli (Alpha CVn). NGC 5371 is just a bit NE of this spot. A 6-inch scope will pickup a 4x1.5’ glow with some structure but no evident central brightening. An
8-inch will show hints of internal detail, including either a bright stellar nucleus or a foreground star superimposed on the galaxy’s center.

NGC 5371 is a symmetrical face-on Sbc barred spiral galaxy at a distance of 100 million light years. Originally found by William Herschel in 1788, it is also known as NGC 5390 due to its rediscovery by John Herschel in 1831, who mistakenly identified it as a new object. The galaxy is a supernova search candidate: it has already hosted at least one, SN1994Y, which reached magnitude 10.7 and was discovered by Texan William Wren of Fort Davis on August 19th of that year.

NGC 5371 is an outlying member of the “Big Lick Galaxy Group”, which consists of it plus Hickson compact galaxy group HGC 68, a quintet of galaxies about 25' ESE. The two brightest galaxies in HGC 68 are NGC 5353 and NGC 5354. Both are magnitude 11+, and form a striking pair almost in contact. NGC 5353, the brighter of the two, is a 1’ elliptical spindle; NGC 5354 is a spiral just 1.2’ north. Other galaxies in the group include spiral NGC 5350, the quintet’s largest galaxy, and two fainter 14th magnitude NGC 5355 and 5358, which both probably require a 10-inch scope.

The name “Big Lick Galaxy Group” was originally suggested by John Goss, a member of the Roanoke Valley Astronomical Society. It honors the early name of Roanoke, Virgina (“Big Lick”).

NGC 5363 rating HARD
galaxy in Virgo
RA 13h 56.1m Dec +05d 15.3’ (2000)
Magnitude 10.2

Let’s finish with some typical Virgo denizens. NGC 5363 actually isn’t hard, with the possible exception that it’s not near anything bright that serves as a good pointer. 4th-magnitude Tau Virginis in eastern Virgo is as good a guidepost as any. Starting at Tau, move about 4 degrees NNW. There you’ll find NGC 5363, the brightest member of a small galaxy group a bit south of the Virgo/Bootes border and some 20 degrees east of the main core of the Virgo galaxy cluster.

NGC 5363 is visible at low power in a 6-inch scope, and exhibits a bright core and stellar nucleus in a 10-inch. It’s the brightest of a group that includes one other comparably bright member, 10.4-magnitude NGC 5364 15’ south. NGC 5364, although at 7’ larger than NGC 5363, appears fainter because it is diffuse and has a much lower surface brightness. That said, deep images show it to be a beautiful symmetric, coiled spiral that’s one of the most beautiful in the Virgo cluster. The other group members include NGC 5338, NGC 5348, NGC 5356, NGC 5360 and UGC 8818, all faint ghosts in the 14-to-15 magnitude range. Feel free to do some ghostbusting on these if your scope is good enough.
MEMBERSHIP CARDS NOW IN YOUR PROFILES

At last, Wild Apricot, our membership database vendor, has made available to its customers membership card templates. Now, under your AAS membership profile you will see a mockup of a card with your name, Membership ID and membership expiration date. You are offered two options for displaying your card: one which is suitable for displaying from a smartphone, and another printable PDF which you can cut and laminate to your heart’s delight.

WELCOME NEW MEMBERS!

Boyles, Jon  
Brown, Chace  
Criss, Charles  
Cruzada, Ramon  
Davies, Apollo  
Elledge, Don

Foster, Christopher  
Gammerdinger, William  
Lindemann, Carl  
Mears, Mike  
Snyder, Robert  
Ta, Dan
A Week At The Observatory
By Brad Riza

Recently I had an amazing experience that might interest the membership. I am retired and spend some of my time volunteering in the National Park System – most recently a couple of summers in Badlands National Park in South Dakota – I am one of the “Resident Astronomers” for the park mostly doing “outreach” astronomy for the park’s thousands of visitors each summer. I also do some research and photography, but mostly do night sky programs with a laser pointer and let the visitors look through one of the several telescopes we usually have set up at night. We also do a day program with a couple of Hydrogen-Alpha scopes – the park visitors love looking at solar flares.

The experience I mention started with a Thursday afternoon phone call. It seems that the NPS and the University of Texas had entered into a contract to help train some (mostly) new Park Rangers in how to interpret the night sky to their particular park’s visitors. Again, I am a volunteer, but I was asked to come to McDonald Observatory out near Fort Davis to help train and to be further trained by some of the staff at McDonald…so the

UT had bought 10 Celestron Nex-Star telescopes for the rangers to use in their training and I took my Coronado PST and my Celestron CPC 9.25 along to give the rangers some other perspectives. Since I had done a couple of summers in the Park System already, when I arrived, the McDonald “instructor” said, “You’re going to be my ‘graduate assistant’ and help with the training – some of these rangers have never looked through a telescope”! Again, remember that I am a volunteer in the Park System not a paid Park Ranger! I was the only volunteer invited to attend – a pretty high honor, I’m thinking.

The week consisted of making a simple planisphere, learning constellations, basic operation of the NexStar telescopes and a lot of night sky tours and telescope observing. By the way, the night sky around McDonald is to die for…but I’m sure that’s why it’s right there where it is! We often stayed out well into the early morning.

When I first got into astronomy, a wise older person said, “I’ll give you one piece of advice: never look through a telescope that you can’t afford to buy – if you do, you’ll never be happy with your tube ever again.” Well, here I am at McDonald…our head instructor called my name one night and said, “Hey, Brad, come in here and help one of the other students.”

Here’s the exterior of the Hobby-Eberly Telescope

And here is the 107"
So, I entered this dome and there is a 36” reflector...and I said to myself, what the heck – I KNOW I’ll never afford something like this but I’m sure not going to pass this up!!! As you know, most research ‘scopes use CCD or similar electronics for image acquisition, but this 36” actually had an eyepiece! Sometimes you needed to stand on a stepladder to get up to it, but what an amazing view. Want to see the Orion Nebula? Sorry, it’s too big...how about the four stars in the Trapezium? That fits in the field of view! When it came time to shut down the 36 that night, I told the McDonald staff that I could stay there the rest of the month if they would just order in pizza and a little bottled water. I didn’t want to leave that “little” ‘scope. But the next day, we toured an 82” reflector and then a 107” reflector – now that’s a telescope. I later had the opportunity to “run” the 82. I’ll see if I can attach a photo. We also toured the new Hobby-Eberly Telescope. It is a unique spherical mirror design where the secondary mirror moves to track the galaxies that they are studying – it has 91 hexagonal mirrors (and four in reserve or restoration). The 91 mirrors are Schott glass from Germany and when mounted in the HET, it becomes an 11-meter telescope! If I did my math correctly, that is 35.75 FEET!! It is a spectroscopy device that is actually studying 140+ galaxies at a time – light from each individual galaxy it taken off the secondary in a bundle of fiber-optic cables and moved directly into one of the 140+ light spectrum processors. They are researching black matter.

So this was basically a week-long immersion into astronomy for most of the park rangers. It was an amazing experience. If you ever have a chance to go to McDonald, please do and take the tour. They often also do star parties behind the visitor center. There is a fee for the star party and they sell out very quickly – so if you know you are headed out that way, call ahead and get some tickets!

As payback for the week of training, I will again head north and be the Resident Astronomer for Badlands National Park again this summer. So by the time the “Sidereal Times” comes out, I’ll be in the dark skies of South Dakota. It’s a tough job, but someone has to do it! Consider coming north for your vacation! Maybe you can help with one of the outreach programs!!!
Congratulations to Ross Abel, NGC 2264

by Ross Abel

Cone Nebula and Christmas Tree Cluster
**Members’ Gallery**

**by Andrew Umholtz**

Mars, 4min video, sorted and cropped in PIPP, stacked best 20% of frames in Autostakker3 (7800 frames total), wavlets in Registax. Used my 80mm f/7 triplet refractor, Explore Scientific 3x Focal Extender, ZWO ASI224, on an iOptron cem25p.

**by Rathijit Banerjee**

*M81 and M82*

OTA: Stellarvue SVR102T + Field Flattener
Camera: ZWO ASI071 Pro
Filter: Astronomik UV/IR Cut Filter 2”
Mount: Losmandy G-11G
Guiding Scope: Astro-Tech AT60ED
Guiding Camera: ZWO ASI174MM
Integration Time: 16.7 hours (200 x 300 seconds each)
Location: Backyard (Austin, Texas)
Suburban Skies with SQM reading of 18.80.
Software Used: Sequence Generator Pro, AstroPixel Processor, Photoshop CC.

**by Robert Pettengill**

*Earthshine on a waxing crescent Moon*

Taken from Austin Texas with a Questar 3.5” telescope with a Sony NEX-5N camera at prime focus. Earthshine - 14 frames exposed 2.5 sec at ISO 800 taken 13 Jan. The crescent Moon 15 Jan 00:46 UT with 9 frames exposed 1/15 sec at ISO 200. Stacked in Nebulosity and Lynkeos, deconvolved in Nebulosity, with HDR stacking in Photoshop.
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Matthew Wayland
My cat. I know he’s cute.
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Joseph Macry writes a weekly column for Manor Community News: “This Week in Astronomy”. You can read the online edition here: [http://manorcommunitynews.com/](http://manorcommunitynews.com/)