

Astrofiles

Auburn Astronomical Society E-Newsletter December, 2013

Archived editions at: <http://www.auburnastro.org/> & click on "**Astrofiles**"
Use **Ctrl-Click** to follow links in the MS WORD and RTF files

In this Issue

[Events Calendar](#)
[Magazine Renewals](#)
[2014 Programs](#)
[2014 Proposed Calendar](#)
[Last Month](#)
[For Sale](#)
[Public Stargazes](#)

[Comets ~~ISON~~ & Lovejoy](#)
[Web Links](#)
[New Dark-Sky Sites](#)
[Member News](#)
[2014 Membership Dues](#)
[Planetarium News](#)
[Observing Report](#)

Events Calendar

We'll hold our regular monthly **meeting** on **Friday December 6**, in [room 215 of Davis Hall, the Aerospace Engineering Building](#), on the [main campus of Auburn University](#).

We've just missed the new moon weekend. Our next **star party** will be on the Saturday January 4 — the week before our delayed January meeting.

December 06, Monthly first Friday meeting in [room 215 of Davis Hall](#)
December 06, Venus at greatest brilliancy
December 08, [ISS pass](#)
December 09, [ISS pass](#)
December 09, 1st Quarter Moon
December 13-14, Geminid Meteor Shower (after Moonset at midnight)
December 17, Full Moon
December 25, 3rd Quarter Moon
January 04, January star party
January 10, Monthly meeting – postponed one week for holiday & bowl games
February 01, Forest Preserve Stargaze at [Kiesel Park](#)
February 08, Cloud date for the Forest Preserve Stargaze at [Kiesel Park](#)

Magazine Renewals

John B. Zachry

I finished sending in all club subscriptions November 13. Special thanks **to Chris Young** for helping us get the necessary 5 subscriptions for ASTRONOMY magazine.

Thanks – John

2014 Programs

Thanks to the considerable clout of our president, **Rhon Jenkins**, a **HD digital projector** suitable for use with laptops has been ordered by the AE Department and will be installed in room 215 and ready for use in time for our **January** meeting.

And, Rhon writes:

Below is a link to the description of our **new DVD collection**, entitled **[Impossible: Physics beyond the Edge](#)**. There are 4 discs with a total of 24 lectures of 30 minutes each. I think these are better than the previous set we saw. I'm not sure how to handle them. I think that an individual should be able to check out only one disc at a time. I'll pass the entire collection along to Allen at our next meeting.

http://www.thegreatcourses.com/tgc/courses/course_detail.aspx?cid=1299

2014 Proposed Calendar

Rodger Morrison

I have drafted a proposed [2014 meeting/star gaze calendar](#). I tried to keep the following in mind:

1. All meetings and star gazes are in the same locations as this year (On campus for meetings, and Little Texas for star gazes).
2. Avoid being on campus during home game weekends.
3. Avoid major holiday weekends
4. All club meetings are on Fridays
5. All New Moon star gazes are on Saturdays
6. Astronomy Day occurs twice in 2014 (10 May and 4 Oct). Assume 10 May to be a star gaze at Planetarium.
7. Note and include any unusual astronomical events (meteor showers, eclipses, major conjunctions, etc.)

Other comments for discussion:

1. We should probably begin looking for another place to hold our meetings.
 - a. On campus is inconvenient on home game weekends, and is at the will of Auburn University.
 - b. It can be inconvenient to carry things to and from the parking lot for "show-and-tell".
2. We should probably begin looking for another place to have our monthly star gazes also, which....
 - a. Needs to be a little farther away from Auburn than Cliff Hill's place because of the bright sky glow from Auburn.
 - b. Needs to be a darker place where the neighborhood lights are not so bright and that has a closer-cut surface than the high grass at Mr. Hill's place.
 - c. Would be best to not be in the middle of an active runway, though near an airport might be okay if dark enough.
3. Perhaps move monthly meetings to a dinner meeting immediately prior to our parties every new moon?
4. What is everyone's feelings about an all-weekend camping trip? Perhaps we can find a nice, clean place where we can get it VERY dark? I know of two possibilities.
5. Also, what about a BBQ day [Star-B-Q?], followed by a star gaze?

Last Month

November Star Party Report

Rodger Morrison

Folks, last night's monthly stargaze was fun, but I'm afraid most of us had problems of some form or another. Our young newcomer, **Camryn**, arrived with her mom, **Melanie Folds**. She was able to come a little early to get some assistance in setting her new Alt/Az telescope up (I think 115mm??) and aligned properly, then got a good look at Venus to see its phase, but had to leave early due to little brother problems (he's 9 - we do understand). **Allen Cook** brought his Meade LX-50, but was missing a piece of equipment, so had to leave early also but I think he did get in a few looks before he left. We had a newcomer, **Laura**, show up without a 'scope but I did not get a chance to talk to her much. I trust she enjoyed herself before she left and will return. **Wes Schwarz** recently sent his OTA off to be factory cleaned, so he brought his CG-5 mount and used a borrowed 8" Ritchey–Chrétien (hope that's right, not sure of model) from **Phil Hosey**. However, after a few hours fighting the demon-possessed mount, it was determined that the mount keypad was not sensing the RA and DEC encoding signals. Luckily he was able to borrow one from another mount that someone had there but was not using. Alignment was tough though, and it took all 3 of us to get it set up (actually, that was fun and we did it while Phil's and my rigs were doing imaging runs). I think he finally got in an hour or two of imaging through it before the sun came up. Phil was there with his TMB 130SS (I think that's right) and was shooting 10 minute subs (I think at the Horsehead and Flame nebulas with Alnitak). I had my Heavily modified 10" Newtonian there (on a CGEM mount), and had a good evening, but had some field alignment problems early, which were fixed pretty quick. I got in quite a bit of exposure time shooting M33, M82, and a couple of open clusters. The breezes kept the dew away until a few hours before sunup, which was good, but it really hurt the seeing and made the temps feel much cooler. I had set up a 10'Wx10'Lx8'H windbreak out of tarps, poles, and ropes, so though breezy, it did not seem to bother my rig too much (this was dubbed a "Tarp-atory" by Phil's wife, Becky). Wes, Phil, Becky, and I stayed until sunup, and had a good time. Skies was clear all night, dew wasn't bad, and I did not notice any mosquitoes or other vermin (though the grass was thick and inconvenient). Temps got down to the low 40's and skies stayed clear all night. I'm sure you will be seeing some imagery soon, as many of our exposures looked promising. We missed our fellow club members that could not be there. Hope to see you at the next one!!

November Meeting

Thanks to **Maggie Murphy** for the best program we've had in a long time. For some of us, it was the first time "pushing glass". Thanks to Maggie for that experience.

We thoroughly enjoyed Maggie's presentation, her mastery of the subject, her determination to take on such a daunting project, and to see it through. We were all in awe. If you missed the meeting, here are some links to some photos.

[Lightbox](#) (to download individual images)

or

[Slideshow](#)

For Sale

Dave Burnett has updated his "For Sale" ad in AAS's [Astronomical Exchange](#)

FOR SALE - Starmaster ELT reflector with 11" Zambuto primary (f4.55)

PRICE - \$2000.00 (Compare to cost of new Starmaster 11" with similar features/upgrades: \$5450, which does not include shipping)

SHIPPING COSTS – Buyer pays

Photos posted on Flickr: <http://www.flickr.com/photos/27281827@N07/sets>

I purchased this scope second-hand via Astromart in the spring of 2004. Original owner bought scope from Starmaster in November of 2002. Scope has Sky Commander digital setting circles and a secondary dew heater that I have never attempted to use. Includes Feathertouch focuser upgrade and a Rigel Quickfinder. Primary & secondary mirrors are sleek and scratch-free. Scope structure is sound with only a few minor cosmetic scuffs & scratches on the rocker and mirror boxes. I've only had the scope out on 6 - 8 occasions, the last time being in 2006. It is boxed up and currently resides in my attached garage.

The mirror was re-coated in October 2012 and since its return has remained boxed up.

Thanks for looking,
Dave Burnett

C) 334.306.5451 (not after 9 PM, please)

W) 334.242.3559

Email: burnett (you know what goes here) knology.net

Planetarium News

Rick Evans

Things are moving along, one day it is light speed, and the next holding on the launch pad. The long story made short, is the projector is being manufactured with an anticipated delivery and installation date to be the end of January. We will close the month of February to remove the existing projector, and hopefully if all goes well be open the first of March. As Astronomy Day is May 10th next year, we should have all the kinks worked out for it, and will hopefully be show casing the new equipment.

The word on the street is that we will be staying put at least for the interim. It is still possible that down the road we will move, but I highly doubt that.

Public Stargazes

Jennifer Lolley has asked that we postpone her Forest Preserve group's stargaze at [Kiesel Park](#) until February. We'll plan on February 1, and February 8, as a cloud date.

Maxwell Air Force Base Elementary and Middle School

At 12:02 PM 11/8/2013, Rebecca Hill, wrote:

I am a teacher at Maxwell Air Force Base Elementary and Middle school, and I am the STEM (Science, Technology, Engineering, & Math) coordinator for our school.

I am planning a STEM family night in conjunction with our book fair in April, "Reading Under the Stars". Would it be possible to have the Auburn Astronomical Society bring out the telescopes for this event? We are located on Maxwell AFB in Montgomery.

Thank you,

Becky Hill
Gifted Education/STEM
Maxwell Elementary/Middle School

Hello Becky,

Thanks for inviting us to share the stars with your school. I'm sure we can be there for this. Our most recent there visit was back in April, 2008
<<http://www.auburnastro.org/trips/outreach/maxwell.htm>> Here are our [Stargaze Guidelines](#). We usually try to have these school events near the 1st quarter moon. Let me know if you'll be planning around a specific date in April and what we'll need to have for entry onto the base. Thanks again for inviting us.

Web Links

From: Larry M Owsley: [Strange Space Rock](#)

From **Rick Pastorette**:

If you have questions, these guys probably have a discussion thread in progress; that said, you will most-likely spend a few hours here if you have time to spare.... I used [this particular link](#) as a reference point; there are tons of topics to choose from on the main page I usually visit the EE stack site for my engineering queries, but this site is cool , too(BTW, the answer to the question about the moon is, YES. And Mars as well)
<<http://space.stackexchange.com/questions/2723/would-it-be-possible-to-live-on-the-moon-with-our-current-technology>>

From: <rcp@alumni.stanford.edu>

Help the [Astronomy Legacy Project](#) digitize 220000 astronomical photographic plates from the last century and make them available for research over the net. There's a nice video showing the facility and the equipment they need to buy on Kickstarter:

From **Rodger Morrison**

I finally posted the last of the images from our November New Moon Stargaze on my FB album, but are also my web server at:

http://www.trustc3.com/astro/astronomy/NGC663_2Nov2013.jpg

http://www.trustc3.com/astro/astronomy/NGC136_2Nov2013.jpg

http://www.trustc3.com/astro/astronomy/M33_2Nov2013.jpg

http://www.trustc3.com/astro/astronomy/M81_2Nov2013.jpg

From **John Zachry:**

Mars orbiter spacecraft to leave Earth's orbit on November 30

BANGALORE: If things go as planned [by Isro, India's Mars orbiter](#) craft would leave the Earth's sphere of influence (SOI) shortly after midnight on Saturday (*November 30*) on a nearly 300-day voyage in deep space to the red planet after the "most important" maneuver of the ambitious mission... This enables orbiter spacecraft to escape from SOI and travel to the vicinity of Mars in September 2014, when the LAM is fired again to slow it down to be captured by Martian gravity into an orbit around it.

Chinese moon lander on the verge of launch

The [Chang'e 3](#) mission is China's third moon probe ... Chinese officials say the mission is set for launch in early December, with landing on the moon scheduled for mid-December. China has not officially disclosed the mission's launch or landing dates. But an aeronautical notice issued to warn pilots of an impending launch indicates the solar-powered rover is set for liftoff Sunday (December 1) shortly after 1720 GMT (12:20 p.m. EST) ...The lander reportedly weighs about 3,800 kilograms, or about 8,377 pounds, fully loaded with propellant. It's dimensions measure a bit larger than a sports utility vehicle.

Jupiter Images from: [Brian Combs](#) and [Christopher Go](#).

Star Party Site Selection Survey

Rodger Morrison had mentioned needing a place closer to his home for clear night imaging. I suggested the Fountain City Flyers field near Autaugaville, and mentioned that AAS member, **Ray Kunert**, is a FCF member had suggested that we go there.

Rodger replied:

Very convenient spot indeed, but I checked their website and they plainly state that only active club members can use their field. This is an insurance restriction, and it pretty clearly states that others would not be able to use it.

About the field. I was thinking about this and it seems almost as easy to just go lease an unused field ourselves. I mean, if the FCFs can lease or purchase their own field, what is stopping the AAS? We might be able to find a reasonably dark site that we could lease from someone fairly inexpensively. Cliff Hills place is nice, but Auburn's sky glow can be fierce to the North, and there is now a powerful street light across the road from where the windsock is (very problematic for sure). Also, only the center of the runway has been mowed the last few times I was out there, and the grass last night was pretty thick across from the windsock. We all had tarps to put down, but it was not very convenient and I was a little concerned about the possibility of vermin (snakes and such). I would just go ahead and mow it for Mr. Hill, but I think that would be very presumptuous on my part. However, if we had our own place about 15 miles or so ESE from Cliffs place (say a few miles NNW of Hurtsboro), we could get MUCH darker skies and we could just take turns mowing before our outings.

I thought about leasing an acre myself somewhere, and just keep it mowed flat so I could have somewhere to go without worrying about the owner. I still might do this at some point, but not right now. I'm saving my pennies to get my Canon DSLR modified to full-spectrum (this will take a while).

Russell again:

I'm sure you've noticed by now, that if you see something that needs to be done in our astronomy club, you pretty much need to take it on yourself. Picking out observing dates is something I'm more than willing to relinquish. If you're too modest, we'll declare you the official "observing coordinator". 😊 We really need someone to fill that void. Can we put you down for that? I was tickled to have **Robert Fuller** assume the Facebook responsibilities.

You've also learned that member participation at our star parties is pretty poor. It seems that for the past 3 or 4 years, we've never had more than half a dozen. And now with the conditions at Cliff Hill's runway going south...

Rodger replied:

I'll be glad to take on the "observing coordinator" job, and I don't mind also coordinating where we can meet and such. I am curious, though. Is there a good list of all club members available (with addresses and phone numbers)? I told my wife yesterday that I would soon be helping to find another viewing location, but needed to find out where our club members are located so I can identify our geographic center. I suspect that we will still need to be somewhere near Auburn, but really need to know a) who wants to attend stargazes and b) who wants to attend non-viewing meetings. It might also be helpful to know what kind of astronomy everyone is interested in. Some are into strictly visual stuff, and others (like Phil, Wes, and me) are into mostly astrophotography. Some might be interested in DIY mods, while others are not. It might even be that some folks are really interested in doubles, DSOs, minor planet astrometry, planets, lunar, solar, etc. You get the idea.

Like you, I note that our club meetings are thin on people, are mostly older men (but seems to be changing some), and most club members don't come out much. Perhaps we need to plan a special event or two just BEFORE a stargaze, like a family picnic or BBQ the afternoon of stargaze day. All of this would be relevant to identifying another site for both our stargazes and our meetings. I was thinking about trying to identify a country church or similar, about 10-15 miles farther out of town than Cliff's place, where we might be able to meet, but that also has enough space for us to have a fairly good stargaze (and accessible disconnects on any security lighting). If I could identify such a place, we might even be able to move our club meetings to a few hours before our star gazes, which should increase involvement in both.

We can talk more, but I'll proceed with trying to find something dark and usable. If I could get a membership list, that would be great.

I don't know the areas around Auburn, nor do I know how far everyone is driving to get there, so it will be hard for me to find a place that would be suitable. I like the area west of Lafayette, toward the Horseshoe Bend National Park, but the park is off limits after dark and it may be too far away for the Georgia folk. I also like the area just NW of Hurtsboro, but don't know anyone there either. I can take a day and start driving around, but we might be doing well to see what is for sale/lease in the area and start there. That being said, if the club is not interested in doing it as a club, then I don't want to put a ton of work into searching for land an hour away from my home (sorry, just being honest). If the club is not interested and I am going to be searching for a piece of land for just me, then I would probably be looking toward McWilliams, AL (northern edge of Monroe county), where the skies are the blackest in Alabama.

Perhaps we can identify a number of potential sites on pasture land, then approach the owner(s) for permission to use it (or lease a small spot on a rolling lease). **Wes** identified a possible viewing location at a [private airport near Hurtsboro](#) (Google Maps pin). We plan to head over and check it out very soon, but it looks promising and should suit our needs nicely (provided we can get access permission from the owner when the time comes). It's 27 miles dead south of Toomer's Corner, so it is a little farther away than Cliff Hill's place, but the Dark Sky Map shows it to be MUCH darker (blue).

Russell again:

It sounds like it might be time to start looking for another dark-sky observing site. I've attached a [Google Maps location](#) for the "Auburn Planesmen R/C" site -- about 5-miles from Cliff Hill's place. I don't know if my other saved places or the dark-sky overlay will be included with the link, but we've used several sites in this area since the club's beginning: Moore's Meadow Observatory, Snipes farm, Troy Beatty's farm and Clem Torbert's farm, (all within a few miles of here) before Cliff's place. This R/C field looks to have a couple of power poles on the property, but of course, I can't tell if they have lights. I'm not sure how far we'd need to go to escape the stadium lights.

Anyplace we pick for the general membership will need to be a compromise of dark sky and convenience. Deep dark skies are different.

I was thinking that if the R/C club already had a lease they might even welcome some help with the costs and maintenance. There obviously would be no conflict with scheduling since they only fly in daylight and we would only need it at night. If they're open to this arrangement it might be the easiest quick term solution. We probably should have some discussion on this before we move on it, but if it seems worth pursuing, I'll contact the R/C folks. But, let us know if you find a better place -- that we can afford. 😊

Thanks for your report.

Rodger replied:

Check out <http://www.airnav.com/airport/AL05>

The property owner (and manager) is listed as follows:

MARY ANN WILLIAMS
6475 OLD WEST POINT ROAD
LA GRANGE, GA 30240

Me again:

I know this place. I don't know who owns the property now (it was sold in 2011 by the Lanier family in West Point GA), but I do still have a contact there who may be able to steer us in the right direction. I'll see if I can find out and I'll let you know.

And later:

I haven't heard back from my contact in Hurtsboro. You may already have this but here's what I found:

Sehoy Airport-AI05
1442 St Mark Church Rd, Hurtsboro, AL 36860
(334) 253-2100

Member News

AAS Treasurer, **John B. Zachry**, reports that the following people have already paid 2014 AAS dues:

Brandi McPherson, Auburn, AL

Chris Young, Auburn, AL, Celestron 9.25-inch NexStar GPS SCT

James Locke, Montgomery, AL, Celestron Celestar 8 SCT

Robert L. West, Prattville, AL

And one who has joined in November for the balance of 2013:

Grant Summerlin, Montgomery, AL

2014 Membership Dues

AAS memberships (\$20.00/\$10.00 for full-time students) are due in January. Make checks payable to "Auburn Astronomical Society". Families are covered with a single membership. If you're unable to attend our January meeting, mail your dues to:

Auburn Astronomical Society
c/o John B. Zachry, treasurer
501 Summerfield Road
West Point, GA 31833

Your dues allow us to purchase DVDs for programs, continue our affiliation with the Astronomical League, and to buy, upgrade, and maintain our loaner scope program and tape/DVD library.

We've never made a big deal about membership and encourage "AAS friends" to attend and participate in meetings, star parties, and public events. But, there are a few benefits restricted to members:

- Discounts on purchases from [Oceanside Photo & Telescope](#)
- Discounts on subscriptions for [Astronomy](#) and [Sky & Telescope](#) magazines
- Access to the society's extensive [video tape, book, and DVD library](#)
- Access to the society's [Loaner Scopes](#)
- Because the Auburn Astronomical Society is affiliated with the [Astronomical League](#) members are entitled to enjoy all of the benefits afforded to League members, including observing programs and quarterly issues of *The Reflector*.

If this will be your first time to join, please print out the [Membership Application](#) form, and include it with your check. We need your address to ensure that you'll receive your *Reflector*.

Special thanks to those members who do not attend on a regular basis but still want to help us out by paying AAS their membership dues.

Comets ~~ISON~~ & Lovejoy

Well, I had several links to finder charts and photo contests (thanks to our many contributors) for [comet ISON videos](#), all ready for this space.

We had our Thanksgiving meal at dinner, so all during the day Thursday, I'd sneak back to see the latest [AAS Facebook](#) post from **Rodger Morrison** on the "Comet of the Century's" close encounter with the Sun. Apparently the comet manufacturer's warranty expired on November 28.

Allusions filled the Internet with "Icarus" flying too close to the Sun, "moth to the flame", the "rise of the Phoenix", Mark Twain's reported death exaggeration, then finally ISON's demise being an bad omen for a #1 ranked football team.

If you'd like to do a post mortem, there may be a orbiting rock pile at magnitude 8 or dimmer. If ISON was the James Dean of comets, at least we still have the Rodney Dangerfield of this year's comets, [Comet C/2013 R1 Lovejoy](#) and be sure to click the "update chart" button.

Observing Report

Rodger Morrison

Location: Paul M. Grist State Park (32°35'43.81"N, 86°59'16.98"W)
(South end of lake)

Date: November 29/30, 2013

Observer: Rodger Morrison

Condition at sunset: 40°F, dew point 34°

Condition at sunrise: 27°F, frosting

Equipment (Mount #1):

Celestron CGEM mount

Orion ShortTube-80 refractor (w/2" GSO focuser)

Orion 2" field flattener, w/UHC-LPR filter

Orion Magnificent Mini Deluxe & Starshoot Autoguider

Canon 550d (T2i) unmodified

Controlled w/BackYard-EOS

Everything powered by 12v Deep-Cycle Marine battery

Equipment (Mount #2):

Celestron CG-5 mount (Hypertuned)

Canon 18-135mm kit lens

Canon 600d (T3i) unmodified

Mount powered by 12v emergency battery

Camera powered by dual-battery Canon handgrip

Other Equip: Celestron 15x70 binoculars, camera tripod, laptop & table, etc.

Well, this turned out to be a VERY enjoyable night, though it was a little colder than I was comfortable with. I knew it would be cold, so I made sure to wear thermal underwear and layered clothing before starting the evening. I also made sure to have a full tank of gas in my wife's Durango so I could avoid getting TOO cold. Paul M. Grist State Park (PMGSP) is a very nice place, but one has to be there a little

before the gates close at sunset. If you check it out on Google Earth, you will see that the main feature of this 1,080 acre park is it's 100 acre lake. They have camping, swimming, boating, and more, but you can read about that at <http://www.alapark.com/PaulMGrist/>. Check out an overhead view on either Google Earth or Google Maps, though, and you will see that this is not the best layout for observing skies in all directions. I've been here before, and in fact have taken quite a few nice astrophotos from here, so I knew that the south end of the lake is for primitive campers only and there would be no artificial lighting. The north end of the lake has powered sites for 11 RVs, plus a bathhouse and a few other things. They also have a few security lights, so it doesn't get really dark on that end. The south end, however, does. I figured I had a few things going in my favor this particular night. First, the day before was Thanksgiving and I figured there would be few people out for a weekend camping as most would be with their family. Second, this sunset fell on Black Friday so again, my thinking was that's just fewer campers. Third, the next day was Iron Bowl Saturday. Folks going to the game would not be camping 2 hours away from Auburn, and folks wanting to watch it on TV would not be doing so where there was no electricity. Finally, it was going to be cold, VERY cold. Most of the campers I know would not even attempt to camp without electricity in below-freezing weather, at least not without good reason. I was right. I got there right at sunset and had the entire south end of the lake to myself, though a couple of people came in about 10pm, set up camp about 150yds away, and went straight to bed. I could see no artificial lighting anywhere, except for a very faint glow to the NNE, which I think was Plantersville, about 6 miles away. The Dark Sky Map shows the area to be in a solid "BLUE" zone, and the skies this night were clear with good seeing, especially near zenith. There was no detectable breeze, and the only sounds I could hear was coming from my equipment. All things pointed to a productive evening. There was only one thing that really spooked me for a minute. Either bigfoot lives near here and likes to throw big rocks in the lake to scare campers, or there is a really big monster living in the lake's depths. Just as I was getting set up, a big SPLOOSH happened about 30' off the bank near where I was standing. It was the monster. Monster catfish that is. I was watching the lake for a few minutes to see if there was anyone around throwing rocks (seriously, sounded JUST like a cinderblock hitting the water), when I caught a glimpse of the water being disturbed in the reflections on the surface. Then, I saw what looked to be a 2'-3' catfish come out of the water while feeding. Whew! After making a mental note about packing fishing gear on my next trip here, I could concentrate on what I came here for.

I elected not to bring my big Newtonian with me this time, for a number of reasons, choosing instead to concentrate on something different. I have been using my little ShortTube-80 refractor as a guide scope, but wanted to see what it could do as a wide-field imaging tube. The 10" Newt's FOV is just less than a degree, but the ST-80's is over 3 times that. I had it set up about the time it was dark enough to see Polaris for an initial polar alignment, then used AstroPhotographyTool (APT) to focus and drift align, and was ready to start imaging about the time it got good and dark. With not much weight to speak of on the CGEM, it really slewed quickly with little effort. My biggest pain in setting up was figuring out how to balance the mount with this small amount of weight on it. I ended up using a weight from the CG-5 I had with me. Once I got that done, however, I was good to go and it was time to get started imaging. 80mm is not a lot of aperture, so I knew I had to choose my targets wisely and I would need to stay on each one of them for quite a while. Before I left home, I went over my targeting wish-list and decided to focus big and bright stuff until I got used to the little refractor's quirks. M31 is very bright, and

very large, so I thought it would be a perfect place to start. Slewing to it, everything worked great and I got started fairly quickly setting everything up in BackYard-EOS (BYE). This is nice software, and has a lot of nice features, but the thing I like the most about it is that I can tell it to image a target with multiple ISO/Exposure combinations and it does it automatically. It also controls my autoguiding software, PHD, so that the photos are dithered frame-to-frame. To avoid blowing out M31's galactic core, but also get enough long-exposure shots of the dim stuff, I needed a combination of long exposure and short exposure shots. Because I was using only 80mm, I also needed to use a higher ISO than I normally like to use. I chose to shoot three sets, 45 ea @ ISO1600 @ 30sec, 45 ea @ ISO3200 @ 30sec, then 45ea @ISO3200 @60sec. Because the new GSO focuser I was able to acquire from eBay just a few weeks ago had a focusing scale, I chose to hold off on shooting the flats and dark flats until another day. I also have an extensive library of dark and offset (bias) frames, so I could avoid those as well and concentrate only on light frames during this outing.

However, not long after the first imaging session started, PHD beeped at me. That is, the "ding" alarm bell went off a couple of times. I went over and saw that it had an error message for "New Connection", which I had not seen before, but it was still guiding normally. Weird, but because it was working normally otherwise, and because the guiding graph seemed to be tracking sub-pixel, I just decided to keep an eye on it and let it continue. Later research revealed that BYE connects to PHD only when dithering, then disconnects. Each time it connects, PHD sounds an alarm but otherwise continues normally. Once I had M31 going on the CGEM mount, I set up my little CG-5 mount. I wanted to get a wide-field view of the Milky Way, which is a VERY challenging target to do well and requires a VERY wide-field lens. A wide field of view also means, thankfully, that one does not have to be quite so exact with alignment as long as the exposures are kept short. I have been trying this for a while now, with almost no success, but was optimistic about this attempt. I attached the 600d to the mount, along with the 18-135mm kit lens that came with it. At 18mm, the diagonal field of view across the sensor face is 74.3 degrees, which is quite a chunk of sky. However, without any heaters or anything else to keep away the dew, I had to keep an eye on it all night and pause my imaging long enough to periodically take the camera to the truck to warm everything up. I did have a rubber glare shield, which actually seemed to work well in keeping me up and running longer between warming breaks. I could get in a series of 75ea x ISO3200 x 30sec before I had to intervene. One headache though, is the fact that it is almost impossible to focus a camera lens unless one points to a very bright star and zooms in to 10x with the LCD. Nevertheless, I got it started and then had two mounts working away. Oh, I forgot to mention that I have Magic Lantern loaded on both cameras, which allows me to set some pretty extreme exposure settings. It also allows me to take more than the 10 frames allowed by the Canon firmware. At this point, I had two rigs running, the ST-80/CGEM imaging M31 and the 600d/CG-5 imaging the Milky Way.

I wanted to stack a dozen or so pictures of a bright star so I could see what the diffraction pattern was like on the ST-80, so I took a dozen of Betelgeuse after finishing the M31 imaging session. It only took a few minutes to get what I wanted there, then I shifted my attention to the Rosette Nebula (Caldwell 49) and the open cluster within it (NGC2244/Caldwell 50). This is another target that is too big for my Newtonian, but fits nicely in the ST-80's field of view. I set up for a lot of exposures to get the dim stuff, but as there is an open cluster in the center rather than M31's

galactic core, avoiding blow-out was not as important. Still, I added in a dozen shorter exposures for good measure.

About 2am, I was checking on the 600d and noted that the CG-5 mount was not moving. Hmm. Turned out that it had gotten too cold for the hand controller to function. Frost was forming on the mount itself, so I decided to call it quits with this rig, break it down, and put it in the Truck. This left me with only the CGEM still on the Rosette Nebula and nothing else for me to do but wait, so I decided to get out my Celestron 15x70 binoculars, mount them on my camera tripod, and see what I could see. The view of a rising Ursa Major was one of the best I had ever seen, so I set up the binoculars to see what was viewable in that direction (M101, M51, M63, M81, etc.). As I was scanning, something fuzzy and bright caught my attention between Nekkar and Seginus, near the chin of Bootes. It was fuzzy, about magnitude 8 or so, but seemed to be drawn out more on one side than the other. Puzzled and not finding it on my printed star maps, I opened Stellarium on my laptop and zoomed in to the area in question, only to find that I was peering at C/2013 R1 (Lovejoy). WOW!! My first good look at a bright comet in dark skies. I was almost done shooting the Rosette Nebula, so a few minutes later I swung the little ST-80 at the comet and it's wide field of view was perfect. I shot one image to see what I would get and that single image made my heart about leap out of my chest with excitement. It was GORGEOUS! There in front of me was the prettiest shade of pale green I had ever seen. I slewed to put the comet in the lower right side of the field, so that I could get as much of the tail as I could, and quickly set up an imaging sequence with different ISO/Exposure combinations. I wanted the comet's head to not be blown out, but I also wanted as much of the tail as I could get, so I set up a series similar to what I had set up for M31 and let 'er rip. Frost was becoming an issue and was forming on the tripod legs, my power box, the table my laptop was sitting on, and almost everything else, so I moved what I could to the truck then covered what I could of the rest. As I was warming up in the truck, I could see the images flash up on the camera's LCD for an instant between each frame, which looked okay, so I sat there warming up and letting it run.

The crescent moon rose before the sun, as expected, and soon started to brighten the sky. I had hoped to get a glimpse of what was left of comet C/2012 S1 (ISON), but high level clouds forming toward the east were going to block any hope I had of seeing it. That was my cue to call it quits, pack it in, and head for home, so I left at about 6:10am or so. I later found out that what looked like a remnant of ISON's nucleus after perihelion turned out to be only a debris cloud and had rapidly disintegrated. Oh well, that's okay. It was fun updating our Facebook pages as it happened. I went out this time for M31, the Rosette, Betelgeuse, the Milky Way, and a comet. I got everything I came for, except the comet was not the one I expected but it turned out to be even prettier.

Conclusions: 1). PMGSP is a nice place with dark sky, but one must choose a viewing location carefully and the horizons are not as apparent as at other places. 2). The CG-5 does NOT do well in near-freezing temperatures, but I don't know why yet and am sure it is just not cold-friendly. 3). Catfish make a lot of noise when they feed at night and really do sound like Bigfoot throwing a cinderblock into the water. 4). I really need to run 2 laptops and 2 autoguiders if I want to image with 2 cameras on 2 mounts. 5). The ST-80 seems to be a good wide-field scope, especially when autoguided on a solid mount, but only if one has a field flattener. 6). Imaging with a telephoto lens is easy enough, but dew control is much more difficult and one needs some way to secure the lens rings in place so they don't drift.

Hope to see everyone at the meeting,

Russell