

Gemini

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Okie-Tex 2006 They Call the Wind "Mariah"

By John Marchetti

This was my fourth trip to the Okie-Tex Star Party. While I have been to several other venues over the years, I look mostly forward to this star party. We begin evening observing with summer constellations high in the sky and then toward morning, we have the winter constellations nice and high. Usually Orion is almost to the meridian by dawn and Leo is well above the horizon. However this year, Okie-Tex was a little earlier in the fall, so we didn't get to see Leo.

The lower latitude also gives us an opportunity to see further south and we can view our normal sites higher in the sky. However, Okie-Tex has one trait that we don't look forward to-the occasional windy nights that sometimes occur. I remember when Greg and I were just getting onto Highway 65 around 11:00 a.m., we began to roll up the windows on a beautiful Friday, and Greg said, "Maybe we should just leave them down so we can get used to the wind." Little did we know then what lay ahead for us.

The drive was uneventful and we made our usual stop in Kansas City for some very tasty barbecue at Fiorello's Jack Stack, the restaurant that Doug Brown introduced us to about six years ago on our first trip to the Texas Star Party. I recommend it for great food at reasonable prices. Greg drove from Blaine to Kansas City in about eight hours. After we ate, I took over driving, having downed a fair amount of coffee at dinner. I drove through the night until Hugotown, which is about three hours from our destination, and since it was around 3:00 a.m., we decided to pull over and nap in the vehicle until 7:00 a.m. at which time Greg took over and drove to Boise City which is about 45 miles from Camp Billy Joe, the site of the Okie-Tex Star Party. We had a nice breakfast there and proceeded to the camp, arriving at about 10:30 a.m. after traveling 988 miles. There were only about six other people setting up, so we chose our spot and staked our claim by putting some of our gear down and then unloaded our personal items in the bunk house. Greg and I are creatures of habit so we went to the bunk house where we had stayed for each of the previous three years. However, a small lizard greeted us from the screen on the inside of the bunkhouse, and when we tried to get him off the screen and outside, he quickly raced into the bunkhouse under some bunk in the corner. We decided we weren't in the mood for "Night of the Iguana" so we went to another bunk house. Who said we couldn't change our ways? Well, since we were the first ones there, we quickly rearranged the bunks so that they formed the same layout as our former bunkhouse. One small change at a time is about all we could manage. We then set up our scopes and helped Dave Tosteson and Tim Parson set up their scopes near us, and then we showered and took a well-deserved nap.

Dave brought his 32 inch telescope and Tim had a 25 inch scope, while Greg had his new 20 inch scope. I had my trusty 16 inch Astrosystems that I've had for several years now. There is a big advantage to having the smallest scope in the group-no one bothered me. The many people who stopped by of course wanted to look through a bigger scope and the amazing thing to me was Dave's patience. While Dave does look at some typical "eye-candy," he also works on seeing some very esoteric objects. He studies and plans what he wants to look at, and without setting circles, works his way into an area and eventually often studies the final object with about 1000 power. Yes, I said one thousand power. As an example, he asked Tim, Greg, and me to confirm an object for him. They had a difficult time seeing it while I easily saw it, except that I was in the wrong field. At a thousand power, it doesn't take much to be out of the proper field of view. When I moved to the proper area, I believe I saw it, but it was extremely faint and difficult to hold with any consistency. With a 32 inch telescope, what object would be that difficult to see with your eye? How about the brightest galaxy in the Hubble Ultra Deep Field? It's an example of the type of objects that Dave likes to find and view. However, what was especially impressive to me, is how frequently he allowed himself to interrupt his quest to grant a passer-by an opportunity to look at something through possibly the largest telescope that he or she would ever experience. One evening Dave asked Greg and me if we would like to look through his scope at the Veil

Continued on Page 2

GEMINI INFO

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Text

Nebulae. We did, and until my dying day, I will never forget what I saw. The beauty and clarity almost knocked me off the ladder, and then we went on the Crescent Nebulae and again it defied description. It was simply stunning and unforgettable for us.



Text

Observing at Okie-Tex this year was pretty good. Saturday night started out warm and calm, and then a wind brought in a cold front necessitating the addition of warmer clothes. We observed most of the night, and one of the highlights on Sunday morning was looking at M42 with Greg's scope and seeing some dark areas close to the Trapezium that we had never noticed before. Greg's scope is an f/5 and can get some pretty high magnification that easily showed these darker patches. When I went back to my scope at much lower power, 16 inch f/4.3, they were there as well, and I could easily see them, yet I had never noticed them before.

It just shows you that even familiar objects should be studied longer to really appreciate them. Sunday night started out clear, but then clouded over for several hours, so we napped from about 12:30 a.m. until 3:00 a.m. and then observed until dawn. As usual, the sky became really steady in the wee hours of the morning. Monday evening was very clear and cool with no wind, and we observed all night. Tuesday was the same but a little warmer and a little breezier.

Wednesday was a total bust with clouds and occasional sucker holes early, but then solid clouds and lightning in the distance. We stayed up for quite a while and then went to bed for that mid-week good night's sleep that is always invigorating at a star party. At about 9:30 a.m., Minnesotan, Bill Bynum, woke us with an announcement that the winds were howling and Greg's new 20 inch telescope was on its side. We quickly dressed and went outside only to be greeted by 60 to 70 mph winds. A hurricane was blowing through the panhandle of Oklahoma! Indeed, Greg's scope was on its side, but fortunately it was pushed over on the side with the least amount of equipment (such as encoders and tracking motors). However, the two side truss tube blocks were broken. We disassembled his telescope in the high winds and took the tent down because wind gusts were twisting the poles badly. We use this tent to store our covers and other equipment so that the vehicle stays somewhat clean. I usually tie my scope down with a couple of lines pretty much in a horizontal position with the cage on a step stool so it was pretty anchored. However, we watched the wind lifting the back end a few inches off the ground while the front was anchored, and we knew the wind would twist the scope terribly if it got under the



Text



Text

cover, so I also disassembled my scope. We then helped others with their equipment, as the scene was quite chaotic, and including Greg's scope, I counted 10 telescopes pushed over by the high winds. Several portable toilets were also on their sides and many tents were destroyed. Paul Nelson and Steve Meisner, a couple of friends from the MNAA, had their tent and separate gazebo destroyed. After the winds died down in the late afternoon, people tried to fix the damage and get ready to observe that night. We used a couple of clamps to hold Greg's truss tubes in the broken blocks, and after we returned to the Twin Cities, he replaced them, so fortunately there was no permanent damage done. Bill Bynum wasn't so fortunate. He took his new solid sided pop up A-frame camper on its maiden voyage to this star party, and it was holding up well to the winds, but then someone opened the door on the north side with the winds coming out of the north. It virtually exploded the camper, ripping the top apart and blowing out the south side wall. He managed to get it together again and it was functional, but heavily damaged.

That Thursday night was cloudy until about two in the morning when Dave, Tim, Greg and I along with a few other die-hards started to observe in very clear transparent skies. The highlight early in the morning was looking at the Flame Nebula through Greg's scope. Friday night was cloudy with some sucker holes, but still pretty bad, so we slept much of the night, checking for clearing every few hours. That night, we had also attended a talk about imaging with Meade's Deep Sky Imager camera and software. At the end of the talk there was a drawing for one of the cameras and my name was drawn. Don't expect me to set up a web page with beautiful images any time soon. Besides the fact that I don't own a laptop yet, I'm a pretty slow learner, but it is something I plan on playing with in the future. I also won a Telrad on Saturday night. I've mentioned it before, but will mention again that



Text

Okie-Tex has a several really nice giveaways. I was told that this year \$7,000 worth of prizes were distributed to lucky winners.

I should also mention that I apparently have developed a disease previously unknown to me. When clouds developed on Friday night, and we had been taking turns checking the sky every few hours, about 2:00 or 3:00 a.m. I was awakened to someone shaking me lightly and calling my name. When I opened my eyes, all I could see was a bright red light shining directly into my eyes. I immediately took a swing at this "night monster" but fortunately missed since it turned out to be Tim Parson. I have to say that I was startled. Dave, who is a physician, called this "somno pugilism" which apparently can only be cured by never sleeping. The incident provided many laughs among us.



Text

A total of 9 people traveled to Okie-Tex from Minnesota this year among the 300 plus attendees. While the "hurricane" made this a stranger year, I would say that overall, it was a pretty good year for viewing. The winds, except for that one day, were calmer than last year, and we had mostly good weather with some early mornings of great viewing. The food was good and the people are always very friendly. There are some natural sights around to see, but I enjoy just relaxing during the day and talking to the other astro adventurers and then viewing at night. One of the views I really enjoyed was following the winter Milky Way through Cassiopeia, extending past Auriga on into the feet of Gemini and further south where it is often lost in the Zodiacal Light. I have never seen that from home. I hope to go back next year and again I would recommend this 8-night star party to anyone. I hope to see more of you there next year. 🍻



Text

ATM Special Interest Group (SIG) Update

By Ben Mullin

The ATM SIG had another excellent meeting on October 24th at Bill Volna's shop. At the time I counted, we had eighteen people in attendance. That is one of the best turnouts ever in the history of the SIG.

The first thank you for this meeting goes to Bill Volna for making his front meeting room available to us and providing popcorn and pop (Bill P may have also provided some of the goodies). Thanks to Carl Anderson as well for bringing a box of cookies as usual.

Then we also need to thank those people who brought their projects to show. Dale Eason brought his Bath interferometer and the software he has authored to analyze the interferograms. The demonstration was extremely impressive. With a relatively simple setup and his fancy software, Dale is able to gather some extremely accurate data on the surface and figure of a mirror. If you check out the ATM section of the MAS forums you will find an offer from Dale to test club members mirrors. I would highly recommend checking into Dale's offer if you are interested in finding out how your mirror is performing by the numbers.

In addition to Dale's demonstration Mark Austin also brought his Foucault tester that he has outfitted with a video camera. Mark hopes to be able to use this as a teaching tool for showing a number of people new to the Foucault test how it works and what it looks like at the

same time. The demonstration wasn't ideal this time with the tester sitting atop a rubber made tub atop a chair. It sounded like Mark will be bringing it again to other meetings and we can all get a good Foucault lesson.

There were a few other goods on display that I didn't get a chance to explore in detail including Steve Emert's parallelgram binocular mount and some optics for a Ross null test. Bill also couldn't resist giving a tour of his little optics lab playground out back that I'm sure was enjoyed by many.

In all it was a very successful "meeting" and I hope to repeat the success again soon. Currently I'm considering the possibility of an early December meeting. If December looks poor with the holidays, I will be targeting the next meeting for January of 2007. Bill has offered his shop again since he claims to get lonely and enjoys talking astronomy with us so we will likely be there again next time. For those of you who go into astro-hibernation during the Minnesota winter, I would highly recommend that you keep an eye on the ATM forums, ATM email list, and general MAS email for an announcement of the next ATM meeting. While it may be too cold to put your eye to the eyepiece, the winter months are a good time to roll up your sleeves and get busy making your next telescope or astronomy accessory. Or if you don't want to get dirty, it is a good excuse to gather with other telescope enthusiasts, enjoy a pop and some popcorn, talk astronomy, and have a good time. Ben Mullin, ATM SIG Coordinator. ■

Dark Sky Selection (DSS) Committee Report

By Greg Haubrich

An agreement with the Long Lake Conservation Center for MAS Dark Sky Site use beginning Spring 2007 is imminent. This will include an Observing Field with 120-volt electrical service, overnight accommodations, flush toilets/showers, and no cost and no outreach commitments to individual MAS members! Oh, and did we mention that the skies are about as dark as they get in Minnesota!

A Final Memorandum of Agreement (MOA) between the MAS and the Long Lake Conservation Center (LLCC), having been approved by the DSS Committee and the MAS Board, has been sent to the LLCC for review. LLCC feedback from a preliminary draft of the MOA has been favorable with a couple of

clarifications suggested and incorporated in the final version now under LLCC review.

The LLCC has already installed outlets for 120-volt service on the Observing Field for MAS Observers' use. Additionally, the LLCC has mentioned that they believe they can accommodate MAS use for 17 of the 18 Star Party Weekends next year. The actual list of dates and LLCC/MAS guidelines/rules for LLCC

use will be posted when finalized. We anticipate MAS Star Parties to begin at LLCC in Spring 2007.

Please check out the LLCC webpage: <http://www.llcc.org/>

On a parallel note: The DSS Committee formally requests your input in the form of an informal survey. The question is this:

"If you could have two more benefits beyond what the LLCC provides (namely access mid-week, and land for permanent MAS Member Observatories), would you desire, or be willing, to contribute monetarily to a fund for purposes of purchasing MAS owned land?"

One interesting suggestion was to look for land near the LLCC to be able to utilize the LLCC infrastructure such as overnight accommodations, showers, etc. along with this MAS owned land.

Please respond to this question by emailing greghaubrich@comcast.net with the wording "DSS

Survey" in the Subject line. Please note that this in no way would affect continuing relationships with the LLCC, but would be in addition to it. Additionally, MAS owned land may be a very long-term goal that may not be realized in even a few years due to funding limitations and suitable real estate availability. This is not something that the DSS has decided to follow up on yet.

Your comments will determine whether we move forward on this or not.

Be sure to check the DSS Forum Webpage for more details and on-going conversations.

Clear Dark, Dark, Skies, Greg Haubrich, For the DSS Committee. ■

Gone With the Light

By Laura Eagan

Editor's Note: In the last issue, Laura wrote a brief description of her limiting magnitude project. By special request, Laura is presenting a more detailed description in this issue. Well done, Laura!

Problem

What kind of effect is light pollution having on star visibility in Rochester?

Preliminary Research

Light Pollution

My definition of Light Pollution is any man made light that limits ones ability to see the night's sky.

Magnitude

The degree of brightness of a celestial body designated on a numerical scale, on which the brightest star has magnitude -1.4 and the faintest visible star has magnitude 6.5.

Limiting Magnitude

The magnitude (or brightness) of the faintest star that can be seen with a telescope

or the naked eye.

There are two limiting factors that can affect how many stars you can see. The human eye can see up to a magnitude 6 (as stated above) without the use of a telescope. The other factor is light pollution, which can decrease visibility further.

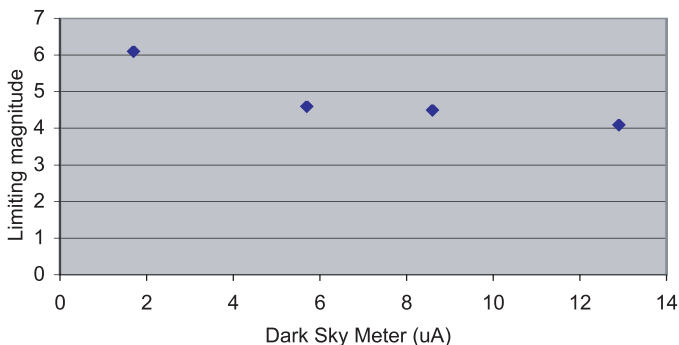
The limiting magnitude of Rochester is 4.5 in the center of the city according to my experiment.

Declination

Declination can be thought of as latitude on the earth projected onto the sky and is measured north (+) and south (-) of the celestial equator in degrees, minutes, and seconds of arc. The celestial equator is defined as being at declination zero (0) degrees; the north and south celestial poles are defined as being at +90 and -90 degrees, respectively.

Note: At our latitude, we can see star's from -43 degrees (on the southern horizon), to +90 degrees (North)

Light Pollution in Rochester



Right Ascension

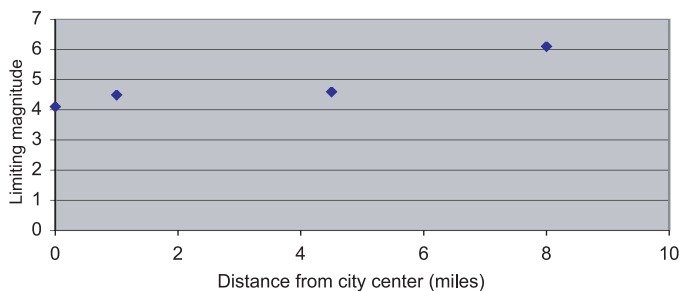
Right ascension can be thought of as longitude on the earth projected onto the sky. Right ascension is measured eastward in hours, minutes, and seconds of time from the vernal equinox.

There are 24 hours of right ascension, though the 24-hour line is always taken as 0 hours.

Hypothesis

In the center of Rochester I predict that you can only see half of the stars that would normally be visible in a dark sky. I also hypothesize that the number of stars you can see will have a positive linear relationship to the distance away from the center of the city.

Light Pollution in Rochester



Procedure

The first thing I had to do for my procedure was to choose some constellations that were easily seen in Rochester and have stars that had a variety of magnitudes. To determine this, I used a computer program called "Where the Stars Are." This is where I chose 5 constellations that were easily seen directly overhead. I chose constellations that were directly overhead because of two reasons; 1) They would be easier to find in the city, and 2) The stars in the constellations would be above the particular spot I was at.

After I had my list of constellations, I used "Where the Stars Are" to print out several copies of each constellation. These would be used to mark my observations.

I then selected three locations to make observations. One was in the center of the town (specifically, the Civic Center). The second was half way out of town but still in the umbrella of the city lights (Essex). I also chose to do a control run several miles out of town which I labeled North Rochester.

I drove out to make my first set of observations on December 19, 2005. I circled the constellation's stars that I could see in each particular spot on the constellation charts that I printed.

Then I built a Dark Sky Meter using the instructions found in Sky and Telescope Magazine in the February 2001 issue. After it was made I went out and collected a second set of data on February 23, 2006. I collected readings from the Dark Sky Meter along with star magnitude observations in the constellation Gemini.

After I had all my data I used the program "Where the Stars Are" to find out the magnitudes of the stars I could see in each constellation. These magnitudes can be found in the data section of this report.

I went to a website called vizier (<http://vizier.u-strasbg.fr/viz-bin/VizieR-4>) where I created a list of stars visible from Rochester throughout the year. I used this list to calculate the percentage of stars that could be seen at the three locations where I collected my data.

Results

As I predicted the effect of light pollution on the night's sky was positively shown the farther you got into the city (see graph). The results were not linear as I predicted. Only about 6% of the stars could be seen in the center of the city.

The Dark Sky Meter (DSM) data was consistent with my star observation data. I was able to plot those measurements and create a formula for converting the DSM reading into a limiting magnitude (LM) estimate. The formula that I came up with is:

$$LM = 6.5 - .23 * DSM$$

Conclusion

In my hypothesis I first estimated that I would be able to see half the stars from the center of the city that would normally be visible in a dark sky. In the end Rochester has a great deal more light pollution than I had realized. In truth, you can only see 6.2% of

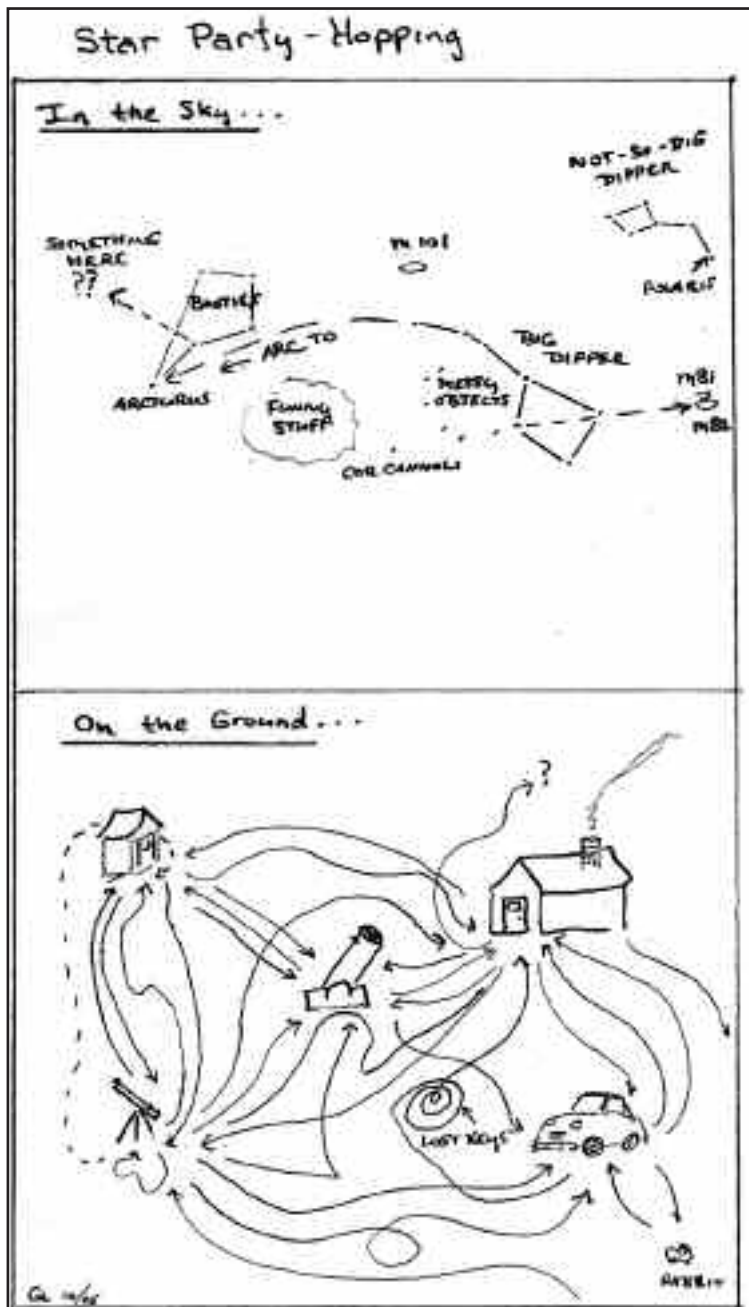
the stars that would normally be visible in a dark sky.

I also hypothesized that as I went farther from the center of the city I would see more stars, but, when I was at Essex Park (4.5 miles from the center), the number of stars that I could see was only 11.1%. At 8 miles away from the center of the city the night's sky was clearer and I was able to see 63.0% of the stars. Because of this my results turned out to be nonlinear.

The Dark Sky Meter proved itself to be a useful tool for quickly estimating the limiting magnitude of the sky. The whole process takes about a minute, as compared to the much more methodical process of finding stars of varying magnitudes. The error in these limiting magnitude estimates is probably around +/- 0.5. Also, it is interesting that the value of the limiting magnitude when the DSM current is zero would be 6.5, which is also considered to be the visible magnitude limit of human vision.

In the end there is a lot more light pollution in Rochester than I had predicted and to actually have clear and visible sight of the stars one must go well outside of Rochester's city limits. ■

Through The Looking Glass



Nametags At MAS Meetings

By Paul Wright

I have been making nametags, for members to get acquainted at MAS Meetings, for nearly ten years. I have developed some health issues that may prevent me from regular attendance at future MAS meetings. I would like to hand off the responsibility for making the nametags to another MAS member. The job

involves collecting requests for nametags at the MAS meeting and then making the nametags at home with a nametag machine. The boards for displaying the nametags as well as the active nametags are kept by Jay from the Science Museum.

If you would liked to make a contribution to the success of the MAS by making the nametags for future members, please contact Paul Wright at mrcoda2@charter.net or phone at (651) 423-5006. ■

30 Years Ago in Gemini

From the archives of Bob Schmidt

FLASH FLASH FLASH FLASH FLASH

Electricity is now available at the Metcalf site to all who bring an extension cord. Northern states Power Company provided the service lines and the Science Museum paid for the box and installation. ■

2006 Observing Special Interest Group (SIG) Report

By Bill Kocken, Observing SIG Coordinator

Early this year, I took over the Observing Sig Coordinator duties as Greg Haubrich's successor. He assured me that the duties were minimal, that I didn't need to be an expert observer and that of course it would be fun. He was right on all counts, but the job isn't without it's challenges.

The primary duties are to set up the star party schedule, make "the call" as to whether the SP is on off for any given night and to handle the spring Messier Marathon (MM), the Virgo Venture (VV) and the MAS Fall Mini-Messier Marathon (4M).

Setting the SP schedule proved to be a fun exercise. I downloaded times for sunrise/set moon rise/set, astronomical twilight and the moon's illuminations. I crunched all that data into a huge, complex spreadsheet and developed a formula to determine the best nights for the SP. Too bad I didn't have detailed long range weather forecasts. Of course when all was said and done, Cherry Grove ends up with the SP nearest the new moon. Onan usually gets 1st quarter and Metcalf gets last quarter.. I could have done it with a simple calendar!

Making the Call

The first "you make the call" challenge of the year happened on the first scheduled star party; Feb 17 and 18. The skies were crystal clear, but temps were hovering just below zero, with 10 mph winds and -20 wind chills. With guidance from Mike Kibat and others we called it OFF. We're from Minnesota, but we're not insane.

Of course then there was the Beginners SIG Star Party at Cherry Grove where we were going to showcase the 24" Starmaster. The Clear Sky Clock predicted clear skies, but poor transparency. Where's Mike Lynch when you really need him? Poor transparency can also mean low level clouds. We had at least half a dozen eager observers show up. We sat in the warming house for about an hour, looked at the Big Dob stored in it's shed, and went home disappointed.. On the way home, small, temporary patches of clearing appeared, just to tease us.

I've blown a few other calls this year and I don't promise to never do it again. As always, if we call the party "Off" and you disagree, head on our to your favorite observing site anyway. There may be fewer other astronomers there. If you don't want to be alone, call an astro-buddy.

The Main Events

I eagerly awaited the first really big observing event of the year, the MM. This was not to be this year. April 24 and 25 were clouded out. This year, the calendar favored us with another good weekend, April 30 and May 1.. They were also clouded out.. I'd like to thank Steve

Minnesota Astronomical Society Notice

Executive Board Member Election

Elections for three Executive Board positions will take place during the December 2006 general membership meeting of the MAS. The December meeting takes place on Thursday, December 7th. The meeting begins at 7:00 p.m. and takes place in the 2nd level classroom area at the Science Museum of Minnesota in downtown St. Paul. At the meeting, MAS members will elect new officers for the 2007/2008 term. The candidates are:

President - (to be filled in after November 2nd meeting)

Emert for volunteering to handle that second weekend. (I was in Hawaii, where I got to "observe" the summit of Mauna Kea and the Keck I telescope, but that's another story.)

Next up was the VV. April 21 was cloudy, but at last we had a good night for an event on April 22. About 10 of us showed up and worked our way through the Virgo Cluster or worked on our Messier lists. We had some competition in the form of Virgo Bingo. Prizes from Radio City were awarded to the 1st Bingo and the first to cover the entire card. We had a great time that night. I am not an expert observer, and it was my first successful tour through the Virgo galaxy cluster. Lest you think you need a large scope, the winner that night used a scope with a 6" f8.7 hand ground mirror.

The skies favored Astronomy Day this weekend, for a change. The crowds were probably the largest in history as the Onan folks showcased the club's new gear. It really is amazing to see M51 and NGC5195 and the connecting bridge live on video. If you haven't had a chance to observe through the wonderful new equipment at Onan, you must make the trip.

Of course the success of Astronomy Day came with a price. Many more nights than usual through the summer were clouded out, especially new moon nights. I was hopeful that the 4M could be held this year, but you guessed it. We had 4 possible nights slotted and all 4 had to be called off.

The highlight of the observing year for me was a trip to the Long Lake Conservation Center to evaluate the site. We were chased away by clouds on that Friday evening, but Saturday was the most spectacular viewing I've ever seen in Minnesota. I can't even begin to say how eagerly I await the chance to schedule and attend some MAS star parties there next year. This will be a fantastic opportunity for all of us. It also affords us some added flexibility. If Cherry Grove or Onan are clouded out, there is chance that LLCC could be clear.

What are my hopes for next year in the Observing SIG?

First, would be just a few a few good weekends for our highlight events; MM, VV Astronomy Day and 4M. Please!!

Second, I'd like to see more observing reports posted to the MAS discussion groups. I spend a fair amount of time on Astromart and Cloudy Nights reading the observing reports posted there. We should do the same for ourselves.

Third, I'd like to put Greg Haubrich back to work. He is still the Astro League liaison. I'd like to see him deluged with submissions for the Messier Certificates, the Herschel 400, the Lunar Observer and any of the numerous other certificates offered. by the Astro League.

Finally, I'd like every new moon weekend to be cloud free, transparent and with excellent seeing and a sudden power failure that renders light pollution non-existent. ■

Secretary - (to be filled in after November 2nd meeting)

Board Member at Large - (to be filled in after November 2nd meeting)

If you wish to cast your vote and are unable to attend the meeting, contact MAS Secretary Steve Emert no later than November 15th to obtain an absentee ballot. E-mail lakeaires@msn.com or call 651-226-6820 or postal mail to 2173 Lakeaires Blvd., White Bear Lake, MN 55110. Absentee ballots must be completed and returned by November 30th. ■

The Minnesota Planetarium Special to Gemini

The Minnesota Planetarium and Space Discovery Center is “making excellent progress” according to the President of the Minnesota Planetarium Society, Parke Kunkle.

Kunkle, who is also a faculty member at the Minneapolis Community and Technical College (MCTC) in Physics and Astronomy noted a number of milestones had been reached in the Society’s effort to build the new Minnesota Planetarium as the fifth and sixth floors of the brand-new Minneapolis Central Library. Current schedules call for the Minnesota Planetarium and Space Discovery Center to open its doors in mid-year 2009.

According to Kunkle the relevant milestones include:

- * The 2005 award of \$22 million in bonding authority for the Planetarium by the Minnesota Legislature.
- * The launch of the “quiet phase” of a private fund-raising effort to attract about \$20 million in additional funding from corporate and foundation resources.
- * The commissioning of a new comprehensive business plan by a specialist firm that is expert in the non-profit museum and educational attraction industry.
- * The hiring of the Society’s first Interim Executive Director, Frank Parisi.
- * The purchase of a new Explora Dome - a portable, inflatable 20-foot dome that can bring gripping digital graphics to virtually every school throughout the state (See related story).
- * The expansion of the Planetarium Society’s web site (www.mplanetarium.org).
- * The creation of stunning new graphics and collateral materials by advertising/branding powerhouse, Fallon Worldwide - and they’re doing the work on a pro-bono basis.

Kunkle said plans for the new, family-friendly attraction in the heart of the Twin Cities would cover about 37,000 square feet on two floors, including a 60-foot dome Sky Theater that will accommodate about 200 visitors for each show. This element will be interactive and will provide full dome video capabilities.

In addition, the Space Discovery Center will feature the Earth and

EXPLORADOME AND ASTRONAUTS VISIT “TIES” CONFERENCE DECEMBER 4 & 5

The Minnesota Planetarium and Space Discovery Center has hit 2, count ‘em - 2, home runs on behalf of science teachers throughout the state of Minnesota.

The first comes with a two-day presentation of the new and unique “ExploraDome” during the TIES Conference at the Hyatt Hotel in Minneapolis on December 4 and 5. The ExploraDome, which is a portable, inflatable 20-foot dome, will be on demonstration both the 4th and 5th of December at the Hyatt for the estimated 1,500 science teachers to experience.

The ExploraDome - and its stunning digital graphics program - will be available to schools throughout the state of Minnesota through the Minnesota Planetarium and Space Discovery Center. The ExploraDome can accommodate about 25 students comfortably and can be set up in virtually every school in the state.

Space Exposition Hall, which will provide viewing areas for some of the most dramatic traveling shows produced throughout the world.

Add to that, Galileo’s Rooftop - an outdoor facility on which experts will be able to demonstrate the proper use of a variety of telescopes.

And there’s more: An eight-foot globe will be suspended for visitors to watch real-time examples of weather, global geology, ecology and plate tectonics. It will be unique in the Upper Midwest in its ability to directly link via satellite to observatories - and scientists - around the world. Among other things this system will enable visitors to view the nighttime sky in Australia in near-real time.

The facility will also provide areas for teacher training, summer space camps for students and other attractions. It will even be available for rental as a corporate-event location.

“At its core, the Minnesota Planetarium and Space Discovery Center is a sophisticated teaching tool that enables students to experience breathtaking demonstrations of astronomy, physics and the other sciences,” Kunkle said.

“Our digital graphics will be the absolute last word in new technology and will enable us to show students real science in real circumstances with graphics that can compete with any videogame in the marketplace,” he added.

“While the new Minnesota Planetarium and Space Discovery Center won’t single-handedly solve the so-called STEM-related (Science, Technology, Engineering and Math) weaknesses in our national education system, it will prove to be an exciting tool for parents and teachers, alike,” Kunkle said. Showcase local schools.

The Minnesota Astronomical Society (MAS) will play an important role, supplying local expertise for telescopes and exhibits and showcasing the real sky at locations such as Onan Observatory. The MAS will finally have a permanent home for its monthly meetings.

Finally, the Minnesota Planetarium and Space Discovery Center will provide the perfect platform from which to showcase the outstanding work being done at the University of Minnesota and the GEMS program at Augsburg, among others. ■

The Minnesota Planetarium Society will accept requests for the ExploraDome on a first come, first served basis beginning (January? -We will still be testing in Mpls and SP in January. But we can just turn people down and say we are busy. The bigger issue is when we will buy our own projector and when we can hire someone to take it around.).

The second “home run” will be the appearance by two Minnesota-born and bred NASA space personnel: Astronaut, Heidimarie Stefanyshyn-Piper and Mission Director, Paul Dye who will visit the Twin Cities and the TIES conference under the sponsorship of the Minnesota Planetarium and Space Technology Center.

In addition to speaking at the TIES conference, our home-grown heroine and hero plan to visit schools in the Minneapolis and St. Paul districts during their stay in Minnesota. Details will be announced when plans are confirmed. ■

The Board Report

By Steve Emert, MAS Secretary

Something that was a staple of the Gemini editorial content in past years was a summary report of the MAS executive board discussions and actions from their monthly meetings. Of course any MAS member is welcome to attend any of board meetings. But as our hard working Gemini editor recently pointed out, we have gotten away from the practice of reporting board activities to the membership in Gemini in recent years. This report will be our first attempt to correct that oversight. Since this will be the first report for this year, I'll attempt to summarize the major items tackled in the board meetings in 2006.

Guidelines for Standing Committees: In 2005, the board had created a document called "Guidelines for Forming and Governing MAS Committees" in order to formalize some processes in the operation of "standing committees" (of which there currently are three: the Onan Observatory operations committee, the Cherry Grove operations committee, and the Dark Sky Site committee). In board meetings early in 2006, we came to realize we could improve the accessibility and openness of committee membership appointments as well as improving communication between the MAS membership and committees themselves. In March, revisions were approved to the guidelines document which formalized the committee member appointment process and provided several means for MAS members to obtain more open access to the committees.

Onan Committee discussions: In May, the Onan Committee submitted a revised charter statement which eliminated some inconsistencies between it and the "Guidelines" document. In June, the Onan committee membership changed somewhat. Among other changes, David Schultz was appointed as a new member of the committee. Astronomy Day always generates a lot of activity within the MAS and a lot of interest from the public. In May, the board also discussed several cost and revenue items resulting from Astronomy Day activities at Onan.

Later in the year the Onan committee requested, per committee rules, to reallocate \$650 of current Onan budget to purchase and install a weather resistant sweeper brush system to help seal the lower edge of "Papa Bear" from the weather. The reallocation was approved. The flashing and brush system has since been installed. Come out and check it out at the next star party!

As many of you know, the Onan committee has been working on plans to install a handicapped-accessible pathway or driveway from the parking lot to the observatory. The Onan committee has been keeping the board apprised of their progress at board meetings throughout the year. While funds have been slowly building, they are not yet at sufficient levels to pay the anticipated costs for surveying, grading and paving.

Dark Sky Site Search Activities: In April, Greg Haubrich first informed the board of Long Lake Conservation Center's interest in hosting our Dark Sky Site. Greg and the DSS kept the board and the MAS membership apprised of progress throughout the year, working toward a mutual understanding

allowing the MAS to use LLCC facilities as a dark sky site. Late this summer, several members of the DSS committee and the board attended a meeting with LLCC leadership and had an observing outing at the site. The skies are tremendously dark at LLCC! As of October we have a draft Memorandum of Agreement that has been sent to the LLCC director, and are hoping we'll soon have a signed MoA which will allow us to begin planning star parties at LLCC starting in the spring of 2007.

Additionally, in October, we were contacted by an amateur astronomer that lives near the Carlos Avery Game Preserve near Stacy. Carlos Avery is a 23,000 acre wildlife area and has two very nice fields along its northern edge which could be used as observing sites. This astronomer has volunteered to contact the DNR and act on the behalf of the MAS in obtaining a conditional use permit, allowing observing outings and star parties at the Carlos Avery Game Preserve. If approved, this site has the potential to become a very nice, relatively close alternative for MAS members, especially those on the northern side of the Twin Cities. Stay tuned! We should learn more in the next month or two.

Winter 2006/2007 Social Event. Initial ideas for a mid-winter MAS major speaker event or social event had started to be discussed as early as July. Unfortunately we found out how expensive some of the nationally known astronomy-related speakers can be. At this time we are anticipating hosting a "spouse friendly"

Duke Skywatcher



(e.g., not too deeply immersed in astronomy topics) social event in February 2007. It will be a dinner, with a main speaker (to be announced) and activities including “astro-karaoke”, roasts and other light entertainment.

Cherry Grove Committee Discussions: In 2006, the Cherry Grove committee (formerly the BAD committee) had lost a couple of members and had several others volunteer to replace them. After review by the board, Paul Walker, Ken Hugill and Dave Wieber joined the Cherry Grove committee this fall. We’d like to thank Deane Clark, Greg Haubrich, Tom Lindquist and Bill Kocken for their service on this committee.

Over the summer, the Cherry Grove committee, with additional help, had replaced the observatory roof and had cleared out some

of the brush and trees. They also experimented with shields to block glare from headlights on the adjacent roads. The committee preliminarily approached the board to request additional budget for landscaping and a new shed due to storage considerations of the light shields that are being planned. It looks like that will have to wait for the budget meeting this winter.

Those were the major items tackled in the board meetings in 2006. Some additional items discussed included the MAS Library (yes, there is one - housed at Eisenhower Observatory on the third floor of the Eisenhower Community Center in Hopkins), the Summer Solstice Swap Meet held in June, and several other miscellaneous subjects. ■

Minnesota Astronomical Society Treasurer’s Report.

By Bob Benson, Treasurer MAS

At the end of the third quarter:

Income

Membership dues, interest and contributions are the Society’s means of income. Please note the report does not show income for fourth quarter. At the end of the third quarter we have a shortage in dues, but we still have another quarter to go. It was unknown what impact the increase in dues would have on our budget since it did not go into effect until April. I expect we will not reach our budgeted goal and will be about \$ 700.00 short. Fortunately that has been offset by the generous contributions of our Patron members. Also we have done better than expected with the dividends paid by our money market account. I still project a positive variance in Net Income / Expense by the end of the year.

Expense

The expense side of our Society can get a little complicated as you can see by the numbers in the variance column of the report. I have projected a cash surplus after final expenses for the year but there are several expenses that haven’t yet been accounted for. The Science Museum has not billed us for the monthly meetings yet and the donations to special projects income has not been used. Our insurance is due in November and we have two more Gemini newsletters to pay for. This year has been a challenge for me as a first time Treasurer; I’m still learning how the MAS operates. The next job for me will be to put together a budget for 2007 and present it to the board and then to the membership. I believe I have gained the experience to do that. If any of our members have any questions concerning this report or related subjects please feel free to contact me.

Clear Skies Bob Benson ■

Minnesota Astronomical Society Treasurer’s Report

	<u>30-Sep-06</u>	<u>31-Dec-05</u>	
Cash and Cash Equivalents	\$27,601	\$26,340	
	Actual through <u>9/30/06</u>	Annual <u>Budget</u>	Variance Positive <u>/(Negative)</u>
Income:			
Dues	\$6,064	\$8,780	\$ -2,716
Donations	\$3,262	\$2,160	\$ 1,102
Interest	\$ 724	\$ 127	\$ 597
Other	<u>\$ 202</u>	<u>\$ 0</u>	<u>\$ 202</u>
	\$10,253	\$11,067	\$ -814
Expense			
Astronomical League	\$1,980	\$1,975	\$ -5
Observatory Operations (Metcalf & Cherry Grove)	\$ 901	\$1,456	\$ 555
Monthly meetings	\$ 299	\$ 780	\$ 481
Public Outreach and PR	\$ 190	\$ 400	\$ 210
Special Projects	\$ 0	\$2,160	\$ 2,160
Gemini	\$2,179	\$3,180	\$ 1,001
Insurance	\$ 81	\$ 800	\$ 719
Other	<u>\$ 816</u>	<u>\$1,039</u>	<u>\$ 223</u>
	\$6,446	\$11,790	\$ 5,344

2006 Star Parties

Star parties are held on Friday if weather permits, otherwise they are rescheduled for Saturday.

Call the MAS hotline at 952-467-2426 after 5 p.m. (3 p.m. in the winter) to hear a message about the status for that night.

Public stargazing nights at Onan Observatory at Baylor Regional Park are staffed and held whether it is clear or cloudy.

Date	Alternate or Time	Event	Location
11/24/06	11/25/06	Baylor star party	Baylor Regional Park (Onan Observatory)
12/8/06	12/9/06	Metcalf star party	Metcalf Nature Center
12/15/06	12/16/06	Baylor star party	Baylor Regional Park (Onan Observatory)
12/22/06	12/23/06	Cherry Grove star party	Cherry Grove Observatory

Directions to the Star Party Locations

For maps and further details about the sites, please go to our website at www.mnastro.org/facilities. You can also check the MAS online calendar at www.mnastro.org for a complete schedule of all MAS events.

Baylor Regional Park

To reach Baylor Regional Park, head west on Minnesota Highway 5, through Chanhassen and Waconia, to the town of Norwood-Young America. Turn right onto Carver County Road 33 and continue approximately two miles north. Baylor Regional Park is on the right side of the road, marked with a prominent sign. When entering the park, stay to the right and follow the road approx. 1/4 mile.

For an alternate route from the southern suburbs, take U.S. Highway 212 west to Norwood-Young America. Turn right at the second traffic light onto Carver County Road 33. Continue two miles north to the park entrance.

When visiting the Baylor Regional Park, MAS members are requested NOT TO PARK OR DRIVE on the grass. There is a parking lot just past the observatory.

Cherry Grove

Cherry Grove is located south of the Twin Cities, in Goodhue County, about 20 miles south of Cannon Falls. To reach Cherry Grove, head south on Highway 52. On 52 about six miles south of Cannon Falls, and just past the Edgewood Inn, is a large green highway sign for Goodhue County Rd. 1 "WEST". Turn right, and follow County 1 straight south for about sixteen miles until you arrive at a "T" intersection with County A. The observatory is immediately at your right, nestled in the shoulder of the "T". Parking is permitted on the site, or along the road, preferably County A.

Metcalf

To reach Metcalf, head east from St. Paul along Hwy. 94. About four miles east of the I-694 / I-494 crossing is Minnesota State Highway 95, also known as Manning Avenue (exit 253). Turn south (right turn) and then almost immediately turn left onto the frontage road (Hudson Road S). Continue east on the frontage road for about one and one-half miles. Turn right onto Indian Trail, checking the odometer as you turn. Follow Indian Trail south for just about one and one-tenth miles, where you'll see an unmarked chain-link gate on the right, opening onto a dirt driveway with slight up-slope. This is the entrance to Metcalf.

Beginners Special Interest Group (BSIG)

By Bill Bynum

Well on October 14th we had our long-delayed BSIG meeting and observing session out at Metcalf. Unfortunately the skies didn't cooperate very well, going from clear to cloudy between dusk and about 9:00 p.m., and it was a bit chilly, but that didn't stop a baker's dozen of us beginners and not-quite-beginners from getting out and looking up at the stars. Even considering the conditions, everyone seemed to have a good time. The setup was extremely informal, with the more experienced observers wandering among and talking with beginners about whatever came up. We talked about general equipment topics, shared a few tips and tricks and actually did some OBSERVING!

People brought a wide range of equipment from binoculars to a go-to Schmidt Cassegrain. The binoculars were used to star-hop to a pretty open cluster in Ophiucus (IC4665) as well as to see Herschel's Garnet Star in Cepheus, and the go-to was manually driven successfully to various objects. A classic "department store" telescope with pretty sharp optics but a wiggly mount was used to observe the famous double star Albireo and dobsonian

mounted reflectors showed several globular clusters including M13 in Hercules and M15 in Pegasus nicely. The Andromeda Galaxy (M31) was the most popular object of the night, with just about everybody getting a look in one instrument or another.

Heaps of thanks from the BSIG to the underappreciated folks who keep the Metcalf grounds and that wonderful warming shack in such great shape!

The next BSIG meeting will be 7:00-9:00 the evening of Wednesday, December 13th at the Brooklyn Park Library. This will be an indoor meeting and the main topics we will be discussing will be Astro-Goodies for Christmas (Naglers make great stocking stuffers!) and the winter constellations. If it's clear and people are interested, there will be a short observing session at my house (about a mile north of the library) after the meeting. ■

Brooklyn Park Library information:

Address: 8600 Zane Ave N, Brooklyn Park, MN 55443

Phone #: 952-847-5325

Website: <http://www.hclib.org/AgenciesAction.cfm?agency=BP>



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How to pay your dues

Your MAS membership expires at the beginning of the month shown on your Gemini mailing label. Send your payments to the MAS Membership Coordinator at: Minnesota Astronomical Society, Attn: Membership Coordinator, P.O. Box 14931, Minneapolis, MN 55414. Make checks payable to MAS or you can pay by PayPal on the MAS web page. The current annual membership dues and subscription fees are: \$24 for regular memberships (\$56.95 including a Sky and Telescope subscription discounted to the annual member subscription rate of \$32.95), \$60 for patron memberships (\$92.95 including Sky and Telescope subscription) and \$12 for student memberships (\$44.95 including Sky and Telescope subscription).

To Renew Your Sky and Telescope Subscription

If you get Sky and Telescope at the club's discounted rate, you must renew your subscription through the club. When you get a renewal notice from S&T, send the notice along with a check for the amount indicated on the notice (currently \$32.95) to the MAS Membership Coordinator at: Minnesota Astronomical Society, Attn: Membership Coordinator, P.O. Box 14931, Minneapolis, MN 55414. Make your check payable to MAS. If desired, you may renew your MAS membership at the same time, and write one check to cover both payments.

To subscribe to the MAS e-mail list visit:
<http://lists.mnastro.org/mnastro/listinfo/>
and follow the subscription instructions.

There is a general list (MAS) as well as special interest group (SIG) lists. Archives of the lists are also available by visiting the listinfo page for a specific list.

The MAS list has about 40% of the membership on it.