



# Capitol Skies

The newsletter of the Madison Astronomical Society September/October 2004

## Young Astronomer Award Grows

by John Rummel

For the past five years, MAS has selected an area high school student to be the recipient of a loaner telescope for a period of one year. This award was initiated in 1998 following Wynn Wacker's report to the group on ways MAS could reach out to younger members of the community, and Tom Jacobs' observation that we have telescope equipment sitting around in the YRS clubhouse that is rarely or never used by members. Since then, MAS has organized an application process whereby area high school students can receive a quality telescope and training, as well as a one year student membership in the Society.

For the past four years, we have used the orange-tube 8" dobsonian as the "scholarship" telescope, along with a compliment of eyepieces, starcharts, and other accessories. Tom Jacobs has done a wonderful job keeping the telescopes in good shape between recipients. This year, we had numerous applications for the telescope, and it seemed like a shame that we were only able to reward one of the students. Tom journeyed back to YRS and selected a second scope, a 4.5 inch Newtonian on an equatorial mount, so this year, two students were awarded loaner scopes.



Pictured above are Lena Song (left) and David Yu (right), both seniors at West



MAS member Tom Jacobs explains the use of the 4.5" equatorial Newtonian to Lena, Lena's dad, and David at the May MAS meeting.

High School in Madison this fall. Lena has the Newtonian for the 04-05 school year, and David has the Dob. In the center is Elise Gorchels, last years' recipient. Elise is now attending the UW Madison. Previous recipients of the scholarship include AJ Carver, the first recipient, who has continued to be an active member of MAS. See page 5 of this issue for a letter to the Society from Elise following her year with the telescope.

## From the President

by Neil Robinson

Greetings fellow MAS members!

This summer has seen much activity. The club officer elections went forward at the June picnic meeting without any Florida style voting problems, thanks to the efforts of the election committee of Jeff Shokler, Chris Zeltner and Ron Woodward. Mark Hanson and former club President Greg Sellek were elected to the at-large board member positions, all other club officers successfully ran for reelection. I would like to thank Dan Strome (our web site administrator) and Tom Jacobs for their long service on the Board of Directors.

The club conducted a survey of member opinion on the course of the club and its YRS facility. A big thank you to Jeff Shokler for his time and very professional efforts on our behalf in organizing and administering the survey. And thank you to all who took the time to fill out and return the surveys. I have asked Jeff (as his final act in connection with this survey) to provide a thumbnail sketch of the results for the next edition of the newsletter.

The ad hoc committee on YRS held several meetings and focused on efforts to remount the C11 in its own facility. The plans are proceeding and call for a timber deck surrounding a concrete pier with an "off the shelf" plastic cabinet on a roll-off track mounting surrounded by a wood railing and featuring a wheelchair ramp.

We scheduled three summer star parties at YRS, partly in response to the survey results which called for "more astronomy, less politics!". July 10 saw a moderately good turnout and initially-good conditions for observing. August 7 was washed out by cloudy skies. We have another star party scheduled for the Saturday the 11th of September (the day after our September regular meeting). I hope the weather will cooperate and many MAS members will come out to YRS to share the view of the night sky.

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Madison Astronomical Society members are active in sharing the pleasures of astronomy with the public, acting as a resource for students and teachers, and exchanging information at Society meetings which occur monthly. The

Society continues to pursue its original goal to "promote the science of astronomy and to educate the public in the wonders of the universe."

For more information about the Society, please contact one of the officers listed above.

MAS thanks

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Visit MAS on the web at:

[www.madisonastro.org](http://www.madisonastro.org)

## New Mexico Skies -- A trip to remember

By R. A. "Doc G" Greiner

This past June Mark Hanson and I went for a week to New Mexico Skies Astronomy Resort. As they say in the comics, WOW, ZOWIE! It was a trip to remember. New Mexico Skies is one of the last sites in the US that has extremely dark skies, is located at a reasonably low latitude and has extensive facilities designed for amateur astronomers. The resort is located about 30 miles south of Alamogordo, NM. At the resort there are several small comfortable cabins, a large cabin and a lodge. As many as 17 guests can stay at the resort if all facilities are in use.

The astronomical facilities, shown on the following page, are quite extensive. There are a number of observatory domes equipped with various telescopes, on Bisque Paramount mounts, that are available for viewing and imaging sessions. We rented three of the telescopes for most of the 6 nights we were actively imaging.

The Astronomy site is located 8,000 up in the heart of the Sacramento Mountains. The mountains are covered with tall, straight pine and fir trees. In some areas the scars of several big burns show clearly. The area is extremely dry and forest fires are always a danger. The astronomy resort itself was spared from being burned down a few years ago by a wild fire through the efforts of the fire fighting crews. The fire stopped about 100 yards short of the property.

On arrival, our hostess Lynn Rice greeted us and showed us to our cabin which was to be our home away from home for the week. It is conveniently located slightly above the main lodge and about 200 yards away from the main cluster of observatory domes. The cabin had two nice bedrooms, bathroom and a complete kitchen with an attached sitting area. The sitting area is where we had breakfast and dinner and worked on plans for the evening imaging and on the computers used to drive the several cameras we were using. There was television, but that is not why we came. We did get weather reports from time to

time. I used the kitchen facilities extensively while cooking some very nice dinners and breakfasts for the two of us. We generally had breakfast at about 1 PM, and dinner at 7 PM in preparation for a night of work. Our schedule consisted of imaging from dark at about 9 PM until dawn at about 4 AM. Sleep came from dawn until noon or so.

The nights are short in June but we wanted to be there at this time of the year because the Milky Way rises at dusk and marches, in its glory, across the night sky. The center of the galaxy is loaded with "stuff." It is indeed a glory to behold in such dark skies.

The hour before darkness was used to get the equipment ready. This was easy since we had the same observatory buildings each night and thus could leave our equipment in place. Mike Rice, the proprietor of the site, saw to it that the observatories were opened for cool down well before sunset. Three of the observatories have 12 foot domes of the clam shell type by Astro Haven. The one housing the Takahashi 150 mm refractor is a 10 foot ProDome exactly like the one at YRS. The equipment is all nearly new and of very high quality. The telescopes were a Celestron 14", a Ritchey-Chretien 20" and the Takahashi 150 mm. All are mounted on completely automated Bisque Paramounts. Additionally, one of the domes houses a 16" LX200 on a completely rebuilt Meade fork mount. All setups are computer controlled from within the observatories using Bisque's Sky 5 planetarium and telescope control program. They can also be controlled from the Library located in the main lodge building.

One of the very important features of all of the instruments and equipment is that it is very carefully polar aligned, mechanically in excellent condition and set up with a large t-point model to insure excellent GOTO operation. The Bisque Paramount mounts are German Equatorial type. They are high precision mounts which work smoothly and quietly. They go to the meridian and then perform the



*This is our home away from home. It is a modern well equipment cabin with two bedrooms and a very spacious kitchen-sitting room. It was only a short walk down to the observatories along a well kept gravel path with tiny lights showing the way.*

GEM flip with the grace of a ballet dancer. All in all the equipment was excellent and everything worked perfectly in every way.

There are a number of other telescopes available including two large Dobsonians, a pair of binocular telescopes by JMI and a Meade LX200 12" mounted on one of the pads. There are additional pads for guests who bring their own telescopes. These various facilities are partially visible in the photo below.

All of the telescopes are equipped with CCD cameras. A number of different, but large format, CCD options are available. There is an Apogee Dream Machine camera on the C-14 telescope along with an SBIG STV guider camera on a separate guider scope. There is also an Apogee AP7, and/or an SBIG color camera on the 16" LX200. There are several SBIG cameras including two ST-10XME cameras and several other new SBIG color cameras available. The

camera options can be changed to suit user needs. All are large format cameras of considerable capability. The set up in each observatory was nearly perfect and a joy to use because everything worked well.

Both Mark and I used our personal Canon digital cameras for imaging since it was our goal for this trip to test these cameras under ideal dark sky and steady seeing conditions. Mark used his cameras mostly on the Takahashi and Meade telescopes. I personally used two cameras piggy backed on the C-14 at one time. On one camera I generally used a long lens and on the other a lens of much shorter focal length. This enabled taking a medium and wide field image simultaneously. For the relatively short exposure times of 5 minutes taken, the Paramount did not need any guiding equipment. The Paramount mounts are so very precise that they only need guiding attachments for much longer focal lengths or longer exposure times. The Paramount I used had an SBIG STV guider if I had wanted to use it. While I mounted the cameras on the C-14 OTA, I was basically just using the Paramount as a camera pointing machine (see sample photo on page 4).

Data was gathered directly to our computers and later transferred to compact disks. I was constantly amazed by Mark's imaging prowess. He ran two telescopes at the same time and still found time to run over to my telescope to see how I was doing and to help me with some of the fine points of focusing. Yes, you read that right! He ran two scopes at the same time and helped me as well. He is not one to waste dark sky time running



*Here is Mark Hanson with the Takahashi 150 mm refractor on a Paramount. Mark has used this scope on several visits to New Mexico Skies. Mark not only ran this scope every night, but also an LX200 sitting right next to the observatory. I consider him a master imager and excellent teacher.*

just one scope. He insisted that excellent dark sky time is a precious commodity not to be wasted. I agreed, but could handle only two cameras on one scope at a time.

The skies were generally very good. Not all nights were perfect however. Some nights we had excellent skies all night. On a few nights we had partial clouds for a few hours and suddenly clearing skies especially in the early morning hours. It was necessary to be patient and stick with the imaging program to grasp every hour of best seeing. That means keeping at it from dusk to dawn without flagging. A few people there gave up about midnight because the skies were so-so. Suddenly an hour or so later the skies clear spectacularly. They missed the best of the night. Mark certainly did not miss these opportunities and I did only the first night. I also observed a phenomenon that I had never before experienced. I could



*Here are the main array of telescope observatories that are part of the observing facilities for use by New Mexico Skies guests. These are rented by the night. All of the equipment is computer controlled and is rented as a complete system. All of the equipment is excellent condition and highly maintained.*

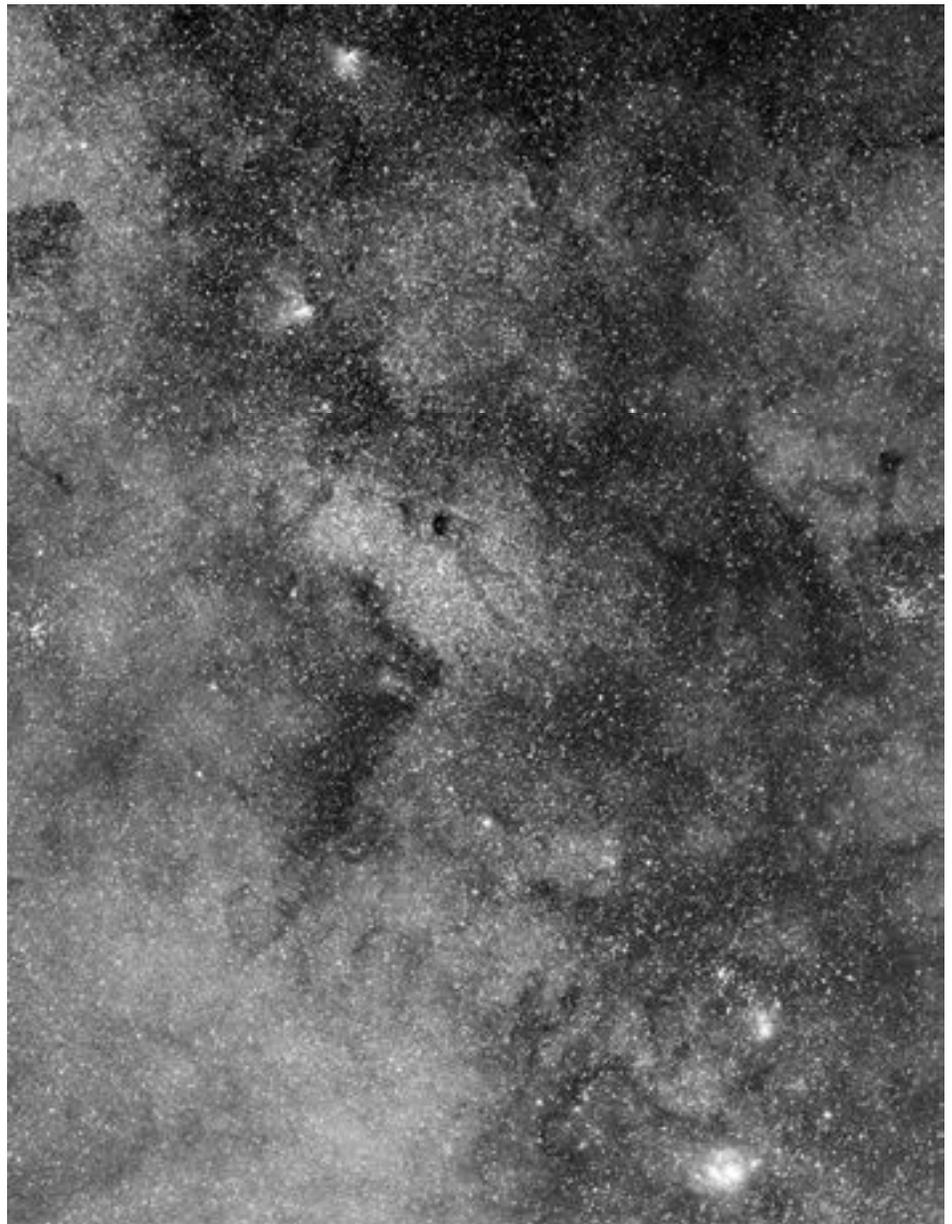
actually see my shadow by the light of the Milky Way. This was totally amazing to me. And, in addition, I found that it does not ever get totally dark, as it would in a sealed room. You can always see a bit by starlight.

We were kept very busy imaging intensively for many days in a row. Still we had time to enjoy the setting. We were able to visit Ron Wodaski, a well known astrophotographer and author, who has his observatory about 100 yards away; just across the road from New Mexico Skies. He has a 20" Ritchey-Chretien in a 12 foot clam shell observatory. The telescope is remotely controllable and is available to the general public via the internet.

In addition to the facilities we enjoyed, there are two very large roll off roof buildings on the property which house over a dozen telescopes. All of these telescopes are set up to be accessible only through the internet. Some of them are run for public use by private parties and some are strictly for individual private use. The persons who set up these facilities rent space in the buildings. In fact some space is still available for persons wishing to set up imaging facilities under the super dark



*The author with the C-14 telescope on the Paramount. I actually did mainly piggy back photography using two Canon D-10 digital cameras mounted on this scope.*



*Northern Sagittarius and region. The brightest nebula bottom right is the Lagoon Nebula (M8). Just above it is the Trifid (M20), above them (right edge of photo) is the globular cluster M23. Top left is the Omega Nebula (M16) and the Swan (M17). At the left center is the open cluster M25. This was taken by Doc G with a 100mm Canon lens at F2.8/ISO800/8-4 min exposures stacked and processed in Images Plus. Raw frames were converted to TIFF files, calibrated (dark subtract), aligned and combined using an adaptive filter. The combined image was stretched using Digital Development and saturation was increased. Processing by Mark Hanson.*

skies and superior clarity and steadiness of the skies in the New Mexico mountains.

Lynn and Mike Rice were fine hosts. The main lodge has a nice, large library with many books and computers. The computers can be used to access the internet with high speed connections or they can be used to run most of the telescopes remotely. Not the least, the

library houses the cappuccino bar where Mike Rice prepares cappuccino for everyone. Many nights pies were also available; brought in from Cloudcroft. These goodies were available at 11:30 to 12:30 each night. It was a good time take a break and meet other guests.

The trip was well worth while. It was fantastic! In fact, Mark and I are already making reservations for next June.

## Elise Gorchels' comments regarding the MAS student telescope loaner:

*I have thoroughly enjoyed having the opportunity this past year to use the MAS loaner telescope. Having never used a telescope on my own before, I found this one to be very easy to use and set up. I was surprised at the detail this telescope provided, even from my urban backyard in Fitchburg. Mostly I learned how to use the telescope over the year. I began with viewing the moon, an easy target, and soon progressed to planets. In the final few months during which I had the telescope I actually*

*began to sketch what I saw in the eyepiece, and very roughly tracked the movement of Jupiter's moons and what I thought to be Saturn's moon. Through the telescope I was happy to see that Saturn's rings were very clearly visible, and, if you looked hard enough, so were a few main bands on Jupiter. I was able to view Mars at its peak opposition, and on the same night even found the Andromeda galaxy from my backyard. I continued to search for other clusters and galaxies, but sadly never*

*was able to find any others.*

*My experience with this telescope has been a good one, and I feel very fortunate to have had this opportunity. I plan to continue viewing once I get another telescope (other than my clearance Menards's telescope my dad picked up for me), and I will hopefully have the opportunity to visit the Washburn observatory often in the coming year, which I will be spending here at the University of Wisconsin, Madison.*

## Transit of Venus Photos

by John Rummel

The much anticipated June 8 transit of Venus ended shortly after Wisconsin sunrise, and passed into the history books as the most photographed and observed event in astronomical history. Many MAS members were up to see and photograph this event, and many shared their experiences at the July MAS meeting.

Douglas and Mercedes Russell had an excellent vantage point from atop the VA hospital in Madison. Neil Robinson and family were in their backyard observing sunrise and the transit across the waters of Lake Mendota. Greg Sellek chose a park just west of Madison. John Rummel and a contingent from Memorial High School including Geoff Holt, Art Camosy, and several students went to the golf course in Mt. Horeb. Eric Theide journeyed to the northeast, observing

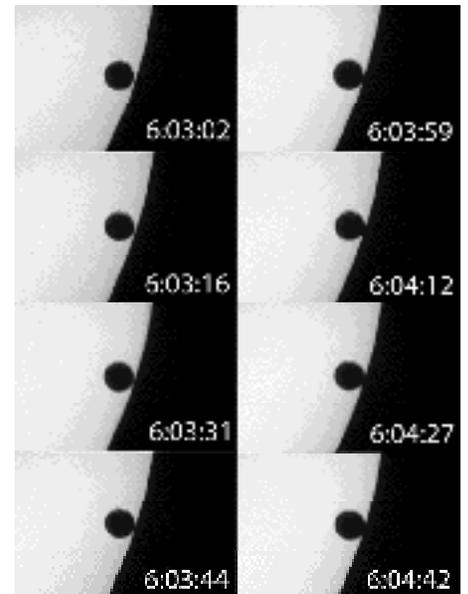
from near Northwood, New Hampshire.

Shown at right is an image obtained by Douglas and Mercedes Russell, who shared an experience repeated by many North American observers. For many, the skies were clear but hazy, thus obscuring the sun for several minutes after the actual sunrise. When it did begin to pierce the haze, it was naturally filtered by the thick haze, giving many a chance to photograph the sun without filter. Douglas and Mercedes' excellent photo captures what many will remember as the defining moment of the transit, the Big Red Ball with a black spot!

My own imaging was quite successful. I have included here a sequence surrounding the fourth contact. I did not observe the ballyhooed black-drop effect, but did observe a haze or flattening effect connecting Venus to the limb of the sun.



*Filtered only by the morning haze at sunrise. Douglas and Mercedes Russell, Celestron 11", Canon EOS SLR at prime focus, f/10, Kodak 400 film, 2004 June 08. Shot from the Madison VA Hospital Roof.*



*Image sequence from 4th contact. Shot with Nikon Coolpix 4500 through C8, 14mm Scopetronix WA eyepiece. Image times are superimposed. John Rummel, Mt. Horeb golf course.*

## MAS members write for Astronomy



If you have not yet looked at your September issue of *Astronomy*, check out page 84 where our own Mark Hanson and Doc Greiner have written a detailed review of the Canon 10D digital camera, the very same camera they used at their recent visit to New Mexico Skies (See page 2 of this issue). Congratulations Doc and Mark!



*Capitol Skies*  
 2810 Mason Street  
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**First Class**

*MAS would like to thank:*



*for hosting our web presence*

This resource list is made up of people who have special interests which they are willing, even eager, to share with others in the Society. Many members, not listed, also are interested in particular aspects of astronomy and have considerable expertise in viewing and imaging the skies. Members are encouraged to come to the monthly meetings, not only to get to know the other members, but to discuss and enjoy their special or general interests in various aspects of astronomy. This is a Society of beginners and experienced amateurs. From time to time we have seasoned professionals attending. The meetings are a good time to meet these people as well. See you there.

### Resource People and Special Interests

The resource list is currently being revised and rebuilt. If you would like to be listed as a club resource, please submit your name and contact info to darksky25@charter.net.

Possible areas of expertise include:

- Variable stars
- Planetary and lunar observing and imaging
- Deep space object observing and imaging
- Solar observing and imaging
- Observatory design and construction
- History of astronomy
- Computers and software
- Comet and asteroid astrometry and photometry
- Occultations and grazes

<b>MAS Membership Form</b>	
Name:	_____
Address:	_____
City/State/Zip:	_____
Phone:	_____
Email:	_____
Please circle membership type: <i>Enclose check and make payable to the Madison Astronomical Society. Mail to MAS Attention: Mary Ellertsd, 2810 Mason Street Madison, WI 53705</i>	
Student (\$5.00)	<input type="checkbox"/>
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