

Highlights of the May Sky...

--- 3rd ---

PM: Antares lower left of Moon.

Full Moon

--- 4th ---

PM: Antares upper right, Jupiter upper left of Moon.

--- 6th ---

AM: Eta Aquarid meteor shower (10 per hour).

--- 8th ---

PM: M35 star cluster 2° left of Venus next 2 nights.

--- 10th ---

Last Quarter Moon

--- 13th ---

Dawn: Mars right of Moon.

--- 16th ---

New Moon.

--- 17th ---

Dusk: Mercury lower left of Moon.

--- 18th ---

Dusk: Venus far upper left, Mercury far lower right of Moon.

--- 19th ---

PM: Venus near Moon.

--- 22nd ---

PM: Saturn lower right of Moon.

--- 23rd ---

PM: Regulus lower right of Moon.

First Quarter Moon

--- 28th ---

Pollux 4° upper right of Venus next 3 evenings.

--- 30th ---

PM: Jupiter upper left, Antares above Moon.

Full Moon

Prime Focus

A Publication of the Kalamazoo Astronomical Society

★ ★ ★ May 2007 ★ ★ ★

This Months KAS Events

General Meeting: Friday, May 4 @ 7:00 pm

Kalamazoo Area Math & Science Center - See Page 14 for Details

Observing Session: Saturday, May 12 @ 8:30 pm

Virgo Cluster Galaxies - Kalamazoo Nature Center

Board Meeting: Sunday, May 20 @ 5:00 pm

Sunnyside Church - 2800 Gull Road - All Members Welcome

Observing Session: Saturday, May 26 @ 8:30 pm

Moon & Double Stars - Kalamazoo Nature Center

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April Meeting Minutes



The general meeting of the Kalamazoo Astronomical Society was brought to order by President Richard Bell on Friday, April 13, 2007 at 7:14 pm. Approximately 33 members and guests were in attendance at the Kalamazoo Area Math & Science Center (KAMSC).

The feature presentation was given by Will Millar, Professor of Astronomy at Grand Rapids Community College and member of the Grand Rapids Amateur Astronomical Association. Will's latest presentation to the KAS was entitled *Observing Supernova Remnants Down Under*. His talk discussed his recent trip to Siding Spring Observatory where he is conducting research on the spectra of supernova remnants. This work is part of his Ph D. thesis from James Cook University in Townsville, Australia.

Will started off by explaining why supernovae and their remnants are important fields of study in astrophysics. Some of the reasons given were that supernova explosions are one of the key triggers of new star formation. Supernovae are also the key producer and distributor of heavy elements in the cosmos. Indeed, Will explained astrophysicists refer to all elements heavier than hydrogen and helium as "metals". Will then discussed the progenitors of supernova remnants. A star with a mass 8 times or greater than the Sun is likely to end its existence as a supernova. The star itself becomes either a neutron star or a black hole. There are many types of supernovae. The basic types are Ia, Ib, and II. Will also discussed many of the lesser known supernova types.

The evolution of supernova remnants was also covered. The first stage is called "Free Expansion". This is followed by the "Adiabatic" or "Sedov Stage" and then the "Snowplow Phase". Finally, there's the "Dispersal" stage. Will then moved onto the classification of supernova remnants. He then showed an image of [NGC 300](#), a flocculent galaxy located 7 million light-years away in the constellation Sculptor. This is the galaxy that Will studies supernova remnants.

Will then stopped here and played a 10 minute clip from the classic NOVA program *Death of a Star*, which discusses Supernova 1987A. This year marks the 20th anniversary of this event and part of the program was filmed at Siding Spring Observatory. Will spent the remainder of his talk giving us a tour of the 2.3 m telescope used to conduct his research.

After the snack break, Richard gave a brief president's report that mainly focused on Astronomy Day. We then discussed the highly successful Messier Marathon. Astronomical news included Natural Bridges National Monument in Utah becoming the first International Dark-Sky Park and the possibility of holding a "Lights Out Night" in Kalamazoo (that'll be the day). The meeting concluded at 9:33 pm.

Board Meeting Minutes



The KAS Board met on April 22nd at Sunnyside Church. President Richard Bell brought the meeting to order at 5:05 pm. Present were board members Jean DeMott, Rich Mather, Dan Morgan, Jack Price, Dave Woolf, and Roger Williams.

Rich Mather presented the Treasurer's Report, which showed total current assets of \$8,184.33. This total did not include a debit for the cost of the display panels purchased for public events and used for the first time at Astronomy Day, but that cost will be reimbursed from Jean's next Pfizer grant. Income during the last month included \$75 from Vicksburg Public Schools and \$125 from membership dues. Of the total assets, \$600.87 is designated for the land acquisition fund.

The Board discussed the just-completed events of Astronomy Day, for which we were treated to amazingly good weather (perhaps even too good, as observed by Jean, since the number of visitors seemed a bit lower than some years). The displays were well observed, activities well attended, and the only thing lacking seemed to be some sunspots or other more spectacular solar phenomena. In other follow-up business, the robotic telescope imaging session is planned for Saturday, June 16th, beginning at 9:00 am. A participation fee of \$5 will be charged. A list of candidates for observation is being compiled. Another topic becoming more important as we acquire more equipment is storage. Rental space, preferably in a climate-controlled area would serve, and Jean is looking at costs from various agents. Regarding a final (and eagerly-awaited) follow-up item, Dave Woolf reported that the equipment check-out form is ready for use so that club-owned items can be loaned to the members in a controlled manner.

In the New Business category, some summer outreach events were mentioned. Taste of Portage is scheduled for June 9th, but Richard had not yet checked whether we were invited again. The Kindleberger Festival is July 14th. Jack reported on plans to include an astronomy workshop in an upcoming church work project in Louisiana, and he requested the donation of a few items like books and planispheres. It was agreed that he would first check with a Rider's store and that KAS could also make a modest contribution. A short discussion was held on how to carry out effective publicity. Jean emphasized the importance of local newspapers and libraries, as well as clubs for kids, seniors, etc., in addition to our public outreach events.

In other business, Jack reported that the plastic pieces were in hand for an illuminated sign for public viewings. He was still looking for the LED kits required to complete the job.

Because of Mother's Day on May 13th, the next meeting was scheduled for May 20th, again at Sunnyside Church at 5:00 pm. The meeting was adjourned at 6:00 pm.



Observations

by [Richard S. Bell](#)

Most of the general meetings have guest speakers, the observing session season is off to a pretty good start, and Astronomy Day is now behind us. It's time to start planning some extra curricular activities for the members of the KAS. Our next special event is scheduled for June 16th. We're planning to hold a robotic telescope imaging session, but more on that next month.

There's plenty of stuff we can do close to home. The first that comes to mind is a private observing session on May 19th. On that night the Moon and Venus will have a very close conjunction in the evening sky. This is a prime opportunity for some stunning astrophotography and wide-field observing. There's nothing planned on the "official" schedule, so let's set something up at the general meeting on May 4th. Perhaps we'll go to the Kalamazoo Nature Center or maybe even another location. The lakeshore would kind of be fun, but might be kind of windy. What to do? The only way to find out is to attend the May 4th meeting. We've got a great guest speaker, so there's no reason to miss it!

A few members have also asked about an Owl Observatory training session. Two other Saturday's in May (the 12th & 26th) are already booked for public observing sessions. Therefore, May 5th may be the best date. Again, this isn't on the "official" schedule, so the only way to find out is to attend the May meeting. To take part in the training session you must be a KAS member in good standing for the past six months and regularly attend KAS functions (so we know who you are). These training sessions don't occur very often, so don't miss this opportunity.

The astrophotography workshops will also return this spring and/or summer. This is a great chance to get some one-on-one help with learning some astrophotography techniques. Normally, we hold three different workshops, but I may condense it down to two. That way we can repeat the workshops more often. You'll also be required to register for the workshops. There won't be a charge, but people generally come unprepared so I'll send you an e-mail message telling you what is required when you register. Keep your eye on the newsletter and web site for details.

We generally take our field trips in the fall, but how about some summer trips? There are some astronomical spots I've been wanting to visit in other parts of the state. Of course, I'm always interested in hearing your ideas. A group trip to the next Black Forest Star Party in Pennsylvania has already been discussed. The dates for this years BFSP is September 14th - 16th. Last year didn't work out too well, but that can't happen again this year. Can it? The Great Lakes Star Gaze, held near Gladwin, Michigan, is scheduled to take place at almost the same time as BFSP (September 13th - 16th). That's

closer to home, but I'd much prefer Black Forest. The skies are darker and the scenery is spectacular in north-central Pennsylvania.

One of my favorite things about the KAS is its level of activity. Plus, it's fun seeing members away from the monthly general meetings and observing sessions. So, what are we waiting for? Let's start some planning!



Seeks Grant Funding

by Molly Williams

There are a couple of major projects that the group would like to pursue. First, we would like to replace the equipment in the Owl Observatory, with a new telescope, a more stable mount, and updated accessories. This would allow us to offer better viewing during the public observing sessions, provide improved capabilities for our own membership, and have the capacity for some basic research.

Another long-range project is the acquisition of land in a dark sky location so that we can build and equip our own permanent observatory. The site would have to be near Kalamazoo, have access to utilities, and be secure.

Both of these major projects will require tens of thousands of dollars -- much more than we could raise through membership dues or occasional contributions.

We plan to approach several funding agencies to request help. Possibilities are local philanthropic foundations such as Kellogg Foundation or the Kalamazoo Community Foundation, or government agencies such as National Science Foundation, which have an interest in public science education as well as basic research. All of these funding organizations expect that there will be some public good resulting from their funding. They're not interested in buying us new toys for our own exclusive amusement. So, in order to make a strong case for funding, we should anticipate expanding our outreach through activities such as short courses, more public viewings, appearances at local festivals, and interactions with K-12 schools.

In addition, most agencies expect recipients to provide some matching funds. We have begun a fund for land acquisition, initiated and supported primarily through Jean DeMott's Perpetual Plant Sale, along with matching funds from Pfizer. However, if we are granted funds for either of these capital projects, we will probably have to embark on some additional local fund raising activities.

If anyone knows of other organizations (government agencies, private foundations, wealthy relatives, whatever) whom we might approach with grant proposals, please let Richard know about them.

Astronomy Day 2007 Report

by **Richard Bell**



On April 21st many astronomy clubs, planetariums, and science museums all over the world celebrated Astronomy Day. Its purpose is to “bring astronomy to the people” through educational displays, hands-on activities, lectures, and sharing the splendors of the sky. Normally, the Kalamazoo Astronomical Society holds its activities whenever the Kalamazoo Nature Center holds Free Admission Day. This year, however, those two dates were the same. So, the KAS held its Astronomy Day bash on the “officially” recognized date.

Preparation for April 21st actually began the day before. My Astronomy Day Co-Coordinator **Jean DeMott**, along with **Tim Kurtz**, **Rich Mather**, **Tom Roland**, and **Roger Williams**, met at the Nature Center to haul items up to the Glen Vista Room and set up as much as possible. Almost everything was set, but (naturally) there were a few items that we forgot to bring. Plus, we needed a way to hang up our banner. Thanks to Tim for buying some ceiling tile hangers.

The weather on Saturday, April 21st was fantastic! Skies were mostly sunny, with only thin clouds present throughout the day. The high temperature was a pleasant 74° F. Our Astronomy Day staple, solar observing, would have been a huge draw if it wasn't for the harsh reality of solar minimum. **Bill Nigg** shared views of the Sun with a white light filter on his 5” Astro-Physics refractor in the Nature Center's main parking lot the entire day. Not a sunspot or even a patch of faculae were to be seen. Those of us on the Glen Vista Deck didn't have much luck either, which was a shame since we had a record number of telescopes equipped with hydrogen-alpha filters this year.

Jim Kurtz came equipped with a Coronado SolarMax 40 mounted on his Tele Vue 85 refractor. **Roger Williams** again setup his Coronado MaxScope 60 and I had a SolarMax 40 filter on my Tele Vue Pronto. There was also the public debut of the KAS's Coronado Personal Solar Tele-



scope (PST) mounted on a Tele Vue Tele-Pod. Thanks to Tim Kurtz for keeping an eye on the PST and my setup while I was off taking pictures and making sure things ran smoothly. Unfortunately, the Sun only sported the tiniest of prominences. One filament was barely visible and it was best seen when I stacked my SolarMax filter onto the PST. That was cool!

As soon as patrons walked into the Glen Vista Room they were greeted by Jean DeMott and **Molly Williams** during the morning and again by Jean and **Rich Mather** in the afternoon. Thanks also to **Dave Woolf** for filling for Jean at the greeting table throughout the day.

This year's theme was NASA's Great Observatories. These include the Chandra X-ray Observatory, Spitzer Space Telescope, and the legendary Hubble Space Telescope. Due to time, space, and financial restraints we left out the now-defunct Compton Gamma-Ray Observatory. This year, our theme displays were the best ever.

We had a full compliment of hands-on activities this year. To go along with our theme, we brought back the Hubble Space Telescope models. Kids made their own mini-HST out of a 6 ounce tomato paste can and a toilet paper roll all wrapped in aluminum foil. Rich Mather and **Jack Roach** helped kids build little HSTs in the afternoon and brand new KAS member **Amie Harpe** and Molly Williams took over in the afternoon.

Our second hands-on activity allowed kids to cut out and decorate stars of different colors and shapes. We provided some whacky face stickers, star stickers, glitter pens, and other fun items so the kids could create a custom star pal. Tom Roland and **Norm Terry** covered the star table in the morning and my oldest niece, **Alexis Bell**, and her friend, **Amber Stilson**, took charge in the afternoon.



The third hands-on activity was the coloring table. We had six different works of art to choose from. **Robert Norton** covered the coloring table in the morning and **John Miller**, Professor of Chemistry at Western Michigan University, took over in the afternoon. Just goes to show you've got to have high credentials to work at the KAS Coloring Table! Again, thanks to all the KAS [and family] members that volunteered their time at the hands-on tables. It's easily the toughest job at Astronomy Day, but the most fun.

The KAS again had two special attractions at this year's Astronomy Day. The first was Astronomy Day Theater. We played all five features from the Discovery Channel's "Ultimate Space Collection" DVD set and the episode "Encyclopedia Galactica" from the classic and award winning series "Cosmos," hosted by the late Dr. Carl Sagan. The main reason for Astronomy Day Theater was to make use of the alcove in the Glen Vista Room and to give folks a nice spot to sit down and relax for a bit. However, I was surprised to watch some people actually sit down and watch entire programs. The biggest crowd was easily for "Cosmos". It just goes to show that Carl can still draw a crowd!

The other special attraction was a big hit. I've been wanting to do an "Ask the Astronomer" feature for sometime, but I was trying to think of something more interesting than someone answering questions at a boring table. One day it hit me - design a stand after Lucy's "Psychiatric Help 5¢" stand from *The Peanuts* cartoons. Luckily, someone agreed to build it. **Dick & Jackie Gillespie** took up the challenge and did an absolutely tremendous job. Dick did the woodwork while Jackie painted the lettering. The stand was perfect and I wouldn't change a thing. **Mark Miller** started off from 10 am - 12 pm and was followed by WMU Associate Professor of Astronomy **Dr. Kirk Korista** from 12 pm - 2 pm. Last up was KAMSC astronomy teacher **Mike Sinclair**. Mike would be very upset if I forgot to mention that he made the most money answering questions; a little over \$2! Of course, the 5¢ charge was voluntary. I must also thank Jack Roach for delivering and setting up the stand. Dick became ill just before Astronomy Day, so my only regret was that he couldn't see his great creation in use. Rest assured, we will use it again.

Main programming ended at 4:00 pm. Thanks to all those that stayed behind to help pack up and haul everything away.

Attendance wise, this year's event was very similar to 2006. The Nature Center doesn't have exact figures, since it didn't have anyone stationed at the parking lot gate house. However, they estimate 500 people attended Free Admission Day. It did seem like less adults were walking through our area, but we did seem to have more kids at the hands-on tables. The Nature Center's Free Admission Day is still our best option for Astronomy Day, since many of Kalamazoo's big attractions have vanished in the past decade.

Four hours later, several of us returned to the Nature Center for our regularly scheduled Public Observing Session. Jim Kurtz setup his Celestron 8" Schmidt-Cassegrain and Tim Kurtz brought his Meade 4" apochromatic refractor. Bill Nigg again setup his Astro-Physics refractor and Robert Norton provided his Celestron 10" Dobsonian. Roger Williams also setup his hand-crafted trischiefspiegler (folded reflector) on his new equatorial platform. Being too tired to bring out my own 'scope, I made due with the Meade 12" Schmidt-Cassegrain in Owl Observatory.



Thanks to the spectacular conditions, we easily surpassed last year's Astronomy Day observing attendance. We have a tough time keeping count of attendees, but approximately 50-60 people attended our first successful session of the year. The night time temperature was right where I like it, in the mid-40's. Like I always say: "too warm for frost, too cold for bugs." Interested patrons were treated to fantastic views of the Waxing Crescent Moon, Venus, and Saturn. Moonlight wasn't severe enough to effect views of deep sky objects, so we also got to treat visitors to the galaxies of Leo and Virgo. Lastly, I gave everyone a star map reading lesson and tour of the constellations with the KAS's new 55 mW green

laser pointer. No more squinting to see my 5 mW laser!

Jean and I worked very hard on this year's Astronomy Day. Of course, all of our work would have been in vain if it wasn't for all our dedicated members. Again, thank you for volunteering part of your weekend and thanks to those that at least showed up to appreciate our efforts. The KAS is fortunately to have so many generous members. Astronomy Day 2008 is already in the works. I hope you'll be there!

For more Astronomy Day 2007 images please visit:

<http://www.kasonline.org/astroday.html>

2007 KAS Messier Marathon

by Robert Norton & Don Stilwell

Last year, the KAS held the first successful February Freeze Out in eight years. This year the KAS held the most successful Messier Marathon since 1999. Indeed, the 2007 Messier Marathon can lay claim to being the greatest in KAS history. Both the transparency and seeing conditions were above average, which is a rare feat for Michigan's typically less-than-stellar observing conditions. During the 1999 Marathon, Mark Miller observed 103 Messier objects without the aide of a computerized telescope. The 2007 endurance award goes to Robert Norton and Don Stilwell. They observed 109 out of 110 Messier objects, but some were found with help from go-to telescopes. Have Robert and Don broke Mark's record? Read their accounts and decide for yourself.

This is What I Call Fun.

By Robert Norton

I started getting excited about the Messier Marathon about 6 weeks before it took place. Because of all the cloud cover we had been having, I was not sure if it would happen though. A few weeks before the Marathon, Don Stilwell and I were able to go out a few times to a pretty good secret location and do some viewing. Don wanted to start practicing for the Marathon with his 12" Dobsonian, so I started practicing as well. That night I got around 39 Messier objects without even taking it that seriously. Don calls me Hubble, Jr. because I seem to find galaxies easily most of the time. I think it is because I have 20/10 vision.

Anyway, when the day for the Marathon came, I was so excited. The day just would not go by fast enough for me. I live in Union City, which is almost an hour from Richland Township Park, and I was the first one at the viewing site.

People started to show up, and we picked a spot to set up the telescopes. I think there were about 12 people total that showed up for the Marathon. Richard Bell, Russell Hills, David Latimer and family and others, who's names I do not recall. Finally, it got dark enough to start the Marathon. I was hoping to bag at least 60% of the Messier objects. For the task at hand, I had my Celestron 10" Dobsonian, 20x80 binoculars, and Norton Star Atlas. The night before I spent an hour and a half writing down where all the Messier objects were located in my Norton Star Atlas. I also had a copy of the Messier Marathon list that Richard had put on his personal website.

Now the Marathon was on! It started out well. I think I needed help with two or three of the first fifteen objects. **M77** was one of them. There were people there with go-to telescopes, like Don, Richard and Russell. I just asked them to point to the object in question. Before I knew it, I had the

first 38 or so bagged! I was very happy with myself. Next were the galaxies in and around Virgo. It took awhile for me to bag those. I had my Norton Star Atlas about 10 yards from my telescope, in the back of my car, so I was running back and forth all night to look things up. At least I kept warm doing it that way. I did take breaks from time to time for coffee and just to walk around and talk to others. Jack Roach had brought a heater, so every now and then a few of us would stand around it and talk.

Finally it was 3 am. I was at a stand still because I was at a point where I had to wait for the rest of the objects to come up. I then started to get a little cold and I could feel how tired I was. I even thought about quitting for a minute. I told myself that I would stay until the last person left. I do think this is the time that Jack decided to take off and go home. Jack had been keeping us fed with the graham crackers he had brought. Finally the last 20 or so objects were up and coming. I found a few more with the Dobsonian and then decided I was tired of hunting. I went over to where Don was viewing, and together we found the rest on his LX90. When we had two more objects to go, the Sun started to come up. I am not



Ladies and gentleman, children of all ages. . .Bob Havira prepares for action at the 2007 Messier Marathon. All images are courtesy of Mark Miller.

sure which one was second from last, but I remember it was tough to see it. We tried hard to see **M30**. We had the LX90 pointing right at it, but just could not make it out. And then the Marathon was over. I was so tired, but I had a lot of fun. The drive home was hard. It takes about 50 minutes to drive back to my house, but I made it. Next year I will come out again, but I don't know if I will stay for the whole thing or not.

Was it Worth the Toes?

By **Don Stilwell**

From my west-facing upstairs window in Battle Creek, MI, things were not looking good at 3:00 pm on Saturday March 17, 2007. The Kalamazoo Astronomical Society Messier Marathon was in jeopardy. Clouds were rolling in from the west, so how was I going to see the Phantom (**M74**) or for that matter any of the 110 Messier objects with these clouds? I scurried to my computer to look at the *Clear Sky Clock* for Kalamazoo, MI, which was close to our intended location for the Marathon, Richland Township Park.

The wide open spaces of the parking lot and soccer fields on top of a very slight rise with a very nice command of the sky almost down to the horizon at all the four winds was going to be wasted again like last year to the vagaries of western Michigan's ever changing weather. But Odin be praised, the



KAS President Richard Bell poses for a picture before completing the setup of his classic Meade 10" LX200 Schmidt-Cassegrain telescope. Richard observed 70 Messier objects (with the aide of the computer) before calling it a night at about 2:00 am.

Clear Sky Clock for Kalamazoo called for the skies to clear at just about sunset. There was hope and our club website, [KAS Online](#), contained no mention of cancellation.

I resolved to show up in Richland on time with my trusty Hardin Deep Space Hunter and my LX90 no matter what the weather showed from my house. Robert Norton and I had been practicing for two weeks prior at a secret location south of Battle Creek and that work could not be wasted. Also, I had been after my friend Dan Harrow to come out and view the heavens through my equipment for weeks and he was coming. Given those circumstances I had to show.

No matter the cloud situation, the weather reports showed the overnight temperatures to go down to about 20 degrees Fahrenheit and who knows what the wind chills might be. I packed on T-shirts, shirts, sweaters, coat, pants, coveralls, two pairs of socks and my warmest pair of boots. However, experience in the field with Robert and his ice fishing boots had taught me one thing, my feet would get cold but his would not.

I dropped off my daughter, Danielle, at her friend's house a little after 7 pm and left for the 25 minute drive to Richland. My last words to Danielle were, "I'll probably be back in a couple of hours." The clouds were still ominous.

As I pulled into the parking lot next to the soccer fields, about a half dozen KAS members waved to me and reminded me to keep my van off the grass as I prospected for the perfect parking spot. I needed to have the van no more than 25 feet from my LX90 setup because I used the van's battery to power the scope. Now it was already twilight and the others were completing their setup as I began mine.

I was a little distracted because I realized I had given Dan wrong directions to Richland Township Park. I correctly told him the entrance was across the street from the fire station but I said it was a little back towards town when it really is a little away from town. However, Dan realized my mistake and found us about 15 minutes later. After introductions all around, I looked up to notice the clouds were mostly gone. All right, the *Clear Sky Clock* predicted correctly!

Richard Bell chided me for my 8" LX90 being out of line with the other telescopes. The other marathoners were set up in a nice line on the slight rise about 40 feet from the parking lot while I was 22 feet from my van a little below them. Then I hauled out my 10" Dobsonian and set it right in line with the others making Richard's point moot. For the night's quick finding, a 2-inch 32mm Astrola eyepiece for about 40 power with a field-of-view (FOV) of about 55 degrees will remain in my f/5 Dobsonian, while the f/10 LX90 will use only a Meade 26mm Plössl at about 77 power and about 52 degree FOV.

From the west to east was Robert Havira with his LX90, Russ Hills from Holland, MI with his 10" Dobsonian, Robert Norton with 20x80 binoculars and his 10" Celestron Dobsonian, Richard Bell with his 10" LX200, me, Paul



People come from far and near to take place the KAS Messier Marathon. Russ Hills (left) drove from Holland, MI and observed with an Celestron 80mm refractor (see above) and a 10" Dobsonian. "Hubble, Jr." Robert Norton came from Union City and pulled an all-nighter to hunt down Charles Messier's "false comets."

Asmus with his 90mm ETX, Jack Roach with his home built 6" Newtonian and standing champ Mark Miller (103 objects) with his 8" SCT. Mark having arrived a little after the others elected to set up 40 feet north of the line at the end of the parking lot rather than haul his equipment to maintain the line. Dick Gillespie was there to greet us at setup but brought no scope and left early, no doubt used to the balmy southwestern evenings in Texas. Dan Morgan also came with no scope but viewed with Richard until after midnight, probably needed to be awake for something on Sunday. David Latimer and his daughter viewed with for fun until just before midnight when they left saying the young ladies' feet were cold.

Directly after sunset, at about 8:30 pm, we all got our optics tuned and finders sighted as we, especially Jack, admired Saturn just off Leo's nose. Jack Roach did two things, which affected his night and one that affected my night. Influencing his personal marathon, he loves to view Saturn, which I admit looks great in his Newtonian. Second, about 9:30 or 10:00 pm, he broke his glasses, which discouraged effective use of his star charts. The thing I greatly appreciated for my personal marathon, was he brought a kerosene space heater, which he fired up when we all felt the temperature dipping. In the light breezes at twilight, we all felt the chill, but by midnight even though the breeze died out, we were all cold. By midnight, like the young lady's, my feet were cold.

Earlier I had looked at the order to look for the M's and had determined for our area, especially for the first half of the Marathon, the list provided on Richard Bell's website was the best. After aligning my LX90, Dan Harrow and I went over to my Dobsonian to find the illusive M74 and Cetus A (M77) both galaxies making their way into the western tree line. I knew seeing these was the key to doing well and bagging more M's than my 65, using only my go-to, last March 19th. On the first attempt I had no luck at M74 and after about 2 or 3 minutes went on to M77 with no luck. At this point, I decided to build some momentum and find super easy objects.

Also, I knew Dan would enjoy seeing these.

Starting with the easiest galaxy, the Andromeda Galaxy (M31) magnitude 4.5 and its buddies M32 & M110, I swung my Dobsonian straight to it after 2 minutes. I was a little worried, but it was still before 9 pm and Dan was duly impressed. Next, for the first time in my two years of Messier searches, I found M33 a magnitude 7 galaxy on the other side of Mirach from M31 in about 1 minute. And then right on to view M34 an open cluster in Perseus. Next we bagged the open clusters in Cassiopeia, M103 and M52.

Momentum was building and Dan seemed to enjoy this so we got off task for a minute. After I pointed to the Double Cluster, Dan found it with a 7x35 pair of Jason binoculars. Then we stepped over to Robert Norton's 20x80 Celestron binoculars to see the Double Cluster. Finally moving over to my Dobsonian, I asked Dan to use the finder to spot that cluster and then view through the Dobsonian. Dan caught on and put the cluster in the eyepiece. He appreciated the steps up in power but the steps down in actual field of view with each successive set of optics.

Around this time, Paul worked out a couple of issues with the guidance of his ETX so you could hear it whirring away next to us. Paul was helping Jack admire Saturn so Dan and I slid over to help with the admiration. Both views through the reflector and refractor revealed five or six moons and the Cassini Division. Richard also had Saturn on tap so we looked through his LX200. We all realized the seeing was improving and the clouds were not a factor.

As time marched on I remembered I still needed M74 and M77. I pointed my 10" Dobsonian to the western horizon where the sky had cleared and darkened. With minutes to go before they set into the trees, it was now or never for these faint, 10.5 magnitude galaxies. I started with M77 and to my amazement found it in a couple minutes of scanning. Now the make or break, I pointed my yard cannon at Eta Piscicum and worked back toward Aries. There for the first time I thought I saw M74. I quickly went to my LX90 and punched in "Messier Object" M74. It slewed into position, pointing to



Dick Gillespie (left) paid a brief visit to Marathoners Don Stilwell (middle) and Richard Bell.



the same area of sky as my Dobsonian. I looked into the eyepiece and with averted vision saw the Phantom (M74). At about the same time, I looked through Richard's 10" which had M74 for confirmation. Thank goodness, M77 and M74 were bagged.

Now it was Dan's turn to use the 10" Dobsonian for a while. At about 10 pm Dan was able to sight **M45** with his eyes then readily point the Dobsonian to the Pleiades, and I was able to point to the Crab Nebula (**M1**). Bully! Quickly on, he got the Beehive Cluster (**M44**) which was naked eye visible, yes still clear, and I found Cancer's open cluster **M67**. Dan pointed the Dobsonian to the Little Beehive (**M41**). From there we hopped on to the Milky Way open clusters of **M50**, **M46**, **M47** and **M93**. Paul and Jack next to us were working away in the Milky Way with us and we took a few peeks for comparisons through Paul's refractor and Jack's reflector.

The night was going well I thought. Dan and I had seen about 15 Messier's. Then I heard Robert Norton say he had bagged over 30 of Messier's false comets. Richard and Dan Morgan had seen about the same. And it was so clear now Dan Morgan was on his back on the ground probably bagging Messier's with his eyes.

Around 10:30 pm Dan Harrow said he was chilled and his head cold was kicking up. So I asked him to find two more objects before he left. Dan said sure so we both pointed to Orion. With the Dobsonian he easily picked out the Orion Nebula (**M42**) and its companion **M43**. Since this was Dan's first sighting of the Orion Nebula through a telescope, he let out a big "WOW!". The Orion Nebula may have bagged another amateur astronomer. Satisfied to end the night on a high note, Dan headed home.

About this time Robert Norton reported with a smile that he was checking off number 40. This report jogged my brain enough to realize I was out of sequence with my observing list. A glance at the sky told me if I wanted to stay in the quest to see all 110, I better find the Little Dumbbell (**M76**) and **M79** before they disappeared into the western haze. My LX90 quickly aimed at these two M's and saved my bacon. Right away I used my Dobsonian to click off **M78**, the Gemini Cluster (**M35**), the Auriga clusters **M37**, **M36** and **M38**. Next I worked back near the Milky Way to pick up **M48** and I was back on track.

As midnight approached, it was time to relax and talk a little and warm up, in particular my hands and feet. Around Jack's heater my hands and feet got their feeling back as Robert

Norton happily said he's at about 50. Richard and Mark Miller totaled about the same. At about half that, I knew I better take Robert's advice "Hey dude, just find it, check it off and move on."

As the others continued to take time out, I had to get serious with that Dobsonian. The weather was relentlessly cold, but the sky was beautifully transparent and the seeing very good for Michigan. The Big Dipper hung perfectly in the northeast. I checked off the eyepiece pairs near it: Bode's (**M81**) & Cigar Galaxies (**M82**), **M108** & Owl Nebula (**M97**) and the two stars of **M40**. Next, for the first time, I found **M109**, **M106** and the Pinwheel Galaxy (**M101**) with no go-to help. I continued to work in the Dipper handle/Canes Venatici area with excellent seeing. The Whirlpool (**M51**), Sunflower (**M63**) and Cat's Eye (**M94**) galaxies were presented in my eyepiece. A coup for me to find all these on my own, but it's about 1:00 am.

My feet were freezing but I moved on to Leo. With my Dobsonian still at work I placed the first eyepiece triplet galaxies of **M95**, **M96** and just barley, with imagination, **M105**. A Nagler eyepiece would certainly have contained all three. Now I hopped over to Leo's Triplet: **M65**, **M66** & **NGC 3628**, all galaxies and all actually in the eyepiece. Well, two counted, and again found on my own.

The Boötes area was the next target area on the list, and after slewing my Dobsonian back and forth and looking on my Messier star chart, I spotted the **M3**, **M53** and **M5** globular clusters. At this point object number 46 was checked off the list, and I decided to jump around on the list again to find more globular clusters. Hopping to the popping Hercules Cluster (**M13**) was a chinch, but finding its little buddy **M92** took time. Okay that was fun now back on the list and another first, with chart help I pointed the Dobsonian to galaxies **M64** and **M60** off Leo's tail.

That brought me up to 51 objects in the bag. Oh yeah! On the flip side my toes felt like ice cubes, so I danced the can-can to make them sting as proof of life. To further slap the smugness off my face. Robert reported he was at number 70 plus and the clock read well after 2:00 am. Regardless, I had to get close to the heater and warm my hands and save my feet.

About this time Paul's ETX batteries died, and satisfied with his efforts, he called it a night. Looking around revealed our numbers had dwindled down to Richard, Robert, Mark, Jack and me. Mark had gotten up around 74 objects and was

waking up from a nap in his vehicle. He was cold and tired and decided to retire, as did Richard after his LX200 could not find the next object (already about 74 objects in the bag) at about 3:00 am.

Decision time for me, I had enjoyed the night's seeing so far, but my toes were cubes again and I was tiring out. I had found a few more clusters, but I lagged behind at about 60 objects, less than last year's total of 65. Then Jack said he and his heater would soldier on and Robert said he would stay if I did. After dancing the can-can again my stinging toes gave me permission to hang in.

After this time the details of the rest of the night blur a bit. I found a few other objects with the Dobsonian; the Sombrero Galaxy (**M104**), Lyra's Ring Nebula (**M57**), and later an open cluster or two in Sagittarius, but my eyes were tired and my ability to find objects with the Dobsonian was effectively over. Between 3:30 and 4:30 am I worked my LX90 hard off Leo's tail, in Coma Berenices and Virgo, clicking off the mess of galaxies in that area. Also, the globular clusters in Ophiuchus needed viewing. After catching up with Robert at close to 85 objects, the heater did its best to bring life back to my toes, but they were feeling no pain.

Although my car battery was still providing steady power to the LX90's electronics, I found it necessary to align the scope again to put an object near the middle of the eyepiece's view. It was now after 5 am and Jack said he needed to head home so we all gathered around his heater one last time for the night. He left claiming about 25 Messier's bagged. Both Robert and I had reached our personal goals for the night, with around 85-90 Messier's in the bag, and my toes were solid cubes. (Oh, by the way, Robert's toes were doing fine in his ice fishing boots.) Would we go home so close to the full Messier list? No way, we decided again to stay on location until dawn.

Between 5 and 6 am Robert and I compared lists and caught up on a few skipped objects. Man was I tired and cold. Then as the LX90 lined up the beauties of Scorpius and Sagittarius in the eyepiece: the Butterfly Cluster (**M6**), **M7**, the Lagoon Nebula (**M8**), the Eagle Nebula (**M16**), the Omega Nebula (**M17**), the Trifid Nebula (**M20**) and the sweet open clusters of our galaxy center, we became re-energized. Now being after 7 am, we moved on to the rest of the summer open clusters: Aquila's Wild Duck (**M11**), Cygnus' **M39** and **M29**. We continued with mostly globular clusters notably the Pegasus Cluster (**M15**), a planetary nebula Dumbbell (**M27**) and an asterism (**M73**). Robert's opined, "Dude, were going to see them all!" I agreed, but time would tell, and the Sun may have the last word.

After 7:30 am now and our total Messier's bagged was well over 100, we used our remaining pep to pack up all our equipment except the LX90. This go-to gadget, we hoped, would be able to point through the pre-dawn light in the east and pick out the last two objects. We were starting to see light. I was hopeful. Robert was doubtful. To achieve a

mythical 110 of 110 Messier objects viewed in one night we had to see **M2**, a medium sized globular of 6.5 magnitude, in the eyepiece and **M30**, half that size and 7.5 magnitude.

Now about 10 minutes before 8 am we punched in "Messier Object", "M2". The SCT tube swung to the eastern horizon and with a "beep" stopped well above the treetops. Edging to the telescope, I peered in the eyepiece, and in the bottom left, amongst the growing white wash, I laid claim to object 109. Robert moved to the eyepiece and confirmed with, "We might do it." At that moment, I thought we would too. On the controller keypad I punched in "Messier Object", "M30". It immediately sounded a "beep" and the controller dutifully displayed "rises at 8:08 am", a good 15 minutes away. Robert and I realized our fantastic run would remain at 109 of 110.

We waited until it rose and pointed the LX90 amongst the trees to M30, but we could not see, nor could we even dream we saw M30. In the light of a brand new Sunday morning, the Sun had the last say. Purest might say we cannot claim 109 of 110 because we used finders, charts, other people's telescopes and go-to scopes. I say, in the end, Robert Norton and I saw with our little eyes 109 of 110 Messier Objects on the excellent night of March 17, 2007.

p.s. A couple of days after the marathon, feeling returned to my toes. So, it *was* worth the toes!

The 2008 KAS Messier Marathon will take place on Saturday, March 8 . . . weather permitting.



First 3-D Images of the Sun

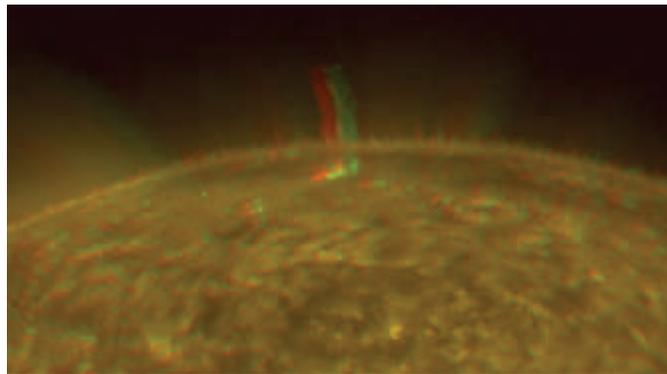
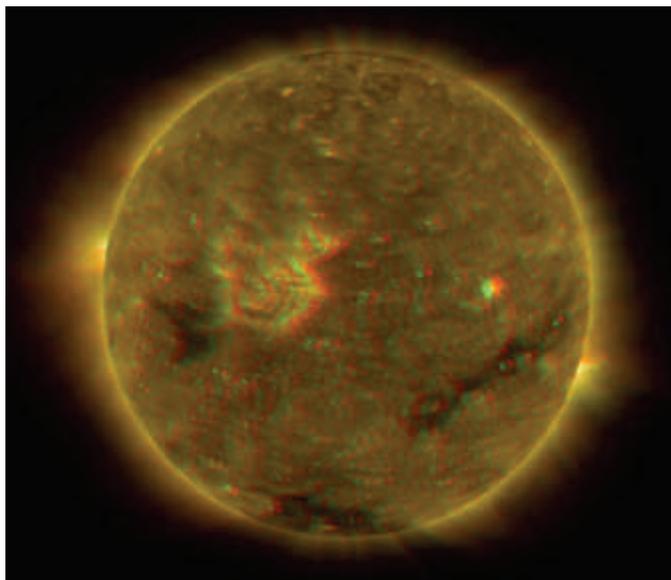
NASA's twin Solar Terrestrial Relations Observatory (STEREO) spacecraft have made the first three-dimensional images of the Sun. The new view will greatly aid scientists' ability to understand solar physics and thereby improve space weather forecasting.

"The improvement with STEREO's 3-D view is like going from a regular X-ray to a 3-D CAT scan in the medical field," said Dr. Michael Kaiser, STEREO Project Scientist at NASA's Goddard Space Flight Center, Greenbelt, Md.

The STEREO spacecraft were launched October 25, 2006. On January 21 they completed a series of complex maneuvers, including flying by the Moon, to position the spacecraft in their mission orbits. The two observatories are now orbiting the Sun, one slightly ahead of Earth and one slightly behind, separating from each other by approximately 45 degrees per year. Just as the slight offset between a person's eyes provides depth perception, the separation of spacecraft allow 3-D images of the Sun.

Violent solar weather originates in the Sun's atmosphere, or corona, and can disrupt satellites, radio communication, and power grids on Earth. The corona resembles wispy smoke plumes, which flow outward along the Sun's tangled magnetic fields. It's difficult for scientists to tell which structures are in front and which are behind.

"In the solar atmosphere, there are no clues to help us judge distance. Everything appears flat in the 2-D plane of the sky. Having a stereo perspective just makes it so much easier," said Dr. Russell Howard of the Naval Research Laboratory, Washington, the Principal Investigator for the SECCHI (Sun Earth Connection Coronal and Heliospheric Investigation) suite of telescopes on the spacecraft.



"With STEREO's 3-D imagery, we'll be able to discern where matter and energy flows in the solar atmosphere much more precisely than with the 2-D views available before. This will really help us understand the complex physics going on," said Howard.

STEREO's depth perception also will help improve space weather forecasts. Of particular concern is a destructive type of solar eruption called a Coronal Mass Ejection (CME). CMEs are eruptions of electrically charged gas, called plasma, from the Sun's atmosphere. A CME cloud can contain billions of tons of plasma and move at a million miles per hour.

The CME cloud is laced with magnetic fields, and CMEs directed toward Earth smash into our planet's magnetic field. If the CME magnetic fields have the proper orientation, they dump energy and particles into Earth's magnetic field, causing magnetic storms that can overload power line equipment and radiation storms that disrupt satellites.

Satellite and utility operators can take precautions to minimize CME damage, but they need an accurate forecast of when the CME will arrive. To do this, forecasters need to know the location of the front of the CME cloud. STEREO will allow scientists to accurately locate the CME cloud front. "Knowing where the front of the CME cloud is will improve estimates of the arrival time from within a day or so to just a few hours," said Howard. "STEREO also will help forecasters estimate how severe the resulting magnetic storm will be."

"In addition to the STEREO perspective of solar features, STEREO for the first time will allow imaging of the solar disturbances the entire way from the Sun to the Earth. Presently, scientists are only able to model this region in the dark, from only one picture of solar disturbances leaving the Sun and reaching only a fraction of the Sun-Earth distance, said Dr. Madhulika Guhathakurta, STEREO Program Scientist, NASA Headquarters, Washington.

For STEREO images, visit:

http://www.nasa.gov/mission_pages/stereo/main/index.html

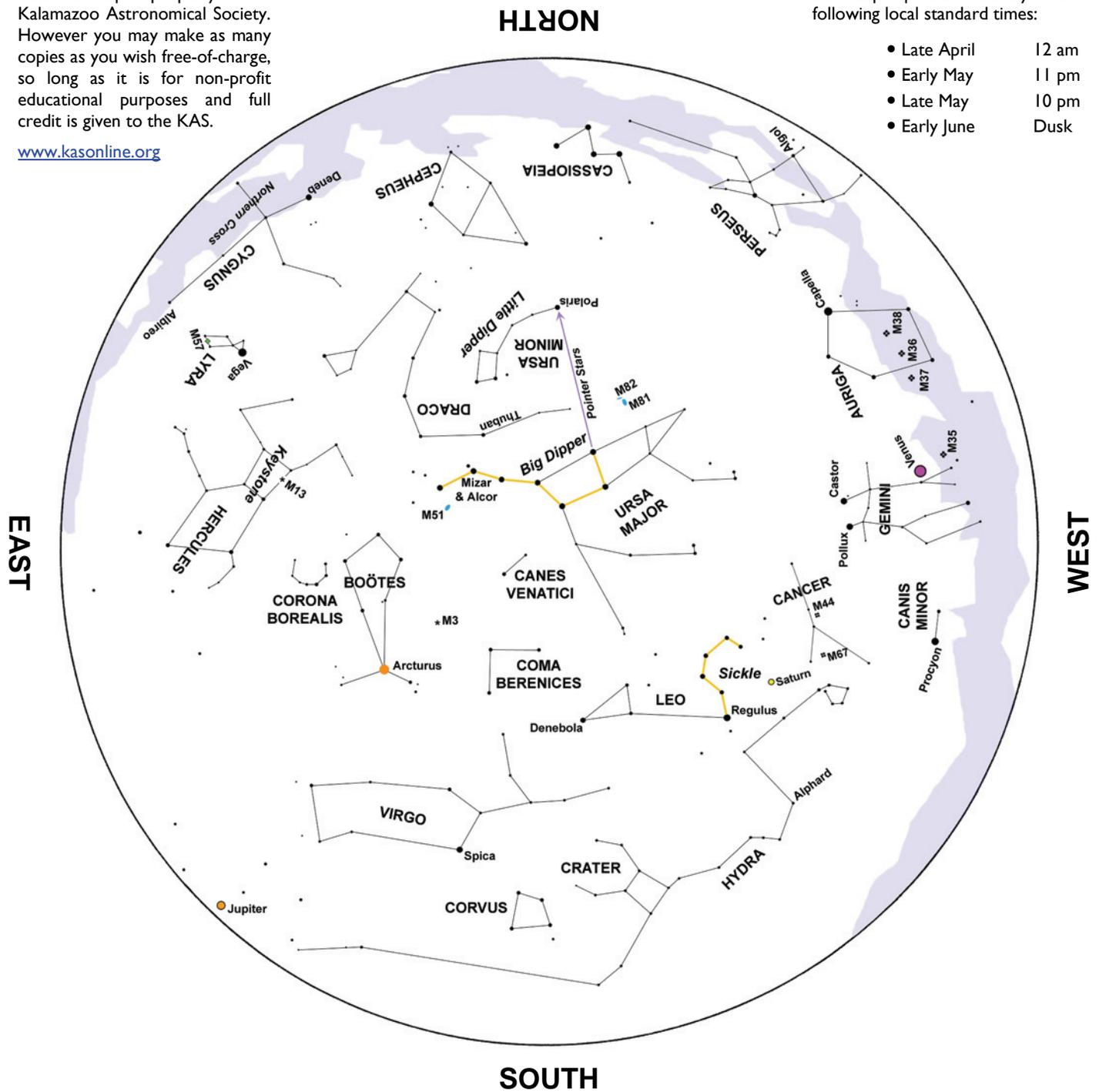
May Night Sky.....

This star map is property of the Kalamazoo Astronomical Society. However you may make as many copies as you wish free-of-charge, so long as it is for non-profit educational purposes and full credit is given to the KAS.

www.kasonline.org

This map represents the sky at the following local standard times:

- Late April 12 am
- Early May 11 pm
- Late May 10 pm
- Early June Dusk



May is filled with planetary conjunctions and close celestial encounters. On May 9th Venus passes less than 2° from the open cluster M35 in Gemini.

The Waxing Crescent Moon will make a

very close pass of Venus on May 19th. The best time for Michigan observers will be around 11:00 pm EDT. At this time Venus will have an angular separation of only 41 arcminutes from the southern “horn” of the crescent Moon!

The Moon makes a close approach to Saturn on May 22nd. They’ll be about 3° apart just as the sky gets dark.

Finally, the Waxing Gibbous Moon comes within 2° of the bright star Spica in Virgo on May 27th.

KAS OFFICERS

PRESIDENT

Richard S. Bell
373-8942
richard.s.bell@gmail.com

VICE PRESIDENT

Jack Price
343-3193
ka8aob@arrl.net

TREASURER

Rich Mather
629-5312
rlm512@yahoo.com

SECRETARY/ALCOR

Roger Williams
375-4867
ngcphile@sbcglobal.net

MEMBERS-AT-LARGE

Jean DeMott
381-1406
jeamott@hotmail.com

Dick Gillespie
966-9653
rwgillespie@comcast.net

Dan Morgan
964-3156
speedster2333@comcast.net

Dave Woolf
762-8268
medalguy@netzero.net



May 2007

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PST Now Available for Checkout!

The Kalamazoo Astronomical Society's Coronado Personal Solar Telescope (PST), mounted on the ultra-portable Tele Vue Tele-Pod, will be available for checkout starting with the general meeting on May 4th.

A drawing will be held to see who can checkout the PST first. To be eligible, you must be a KAS member in good standing for the past six months. Checkout is available for one month. Please be sure to bring your membership card.



Kalamazoo Valley Museum *Planetarium Show Schedule*



Mystery of the Missing Seasons

Saturday 11:00 AM, Sunday 1:30 PM

ASI: Cosmos

Wednesday 3:00 pm & Saturday 2:00 PM

Explorers of Mauna Kea

Saturday & Sunday 3:00 PM

Planetarium admission is \$3.00 per person. The Kalamazoo Valley Museum is located at 230 North Rose Street in downtown Kalamazoo. For more information please call (269) 373-7990 or visit us on the web at www.kalamazoomuseum.org

☆☆ **GET OUT & OBSERVE!** ☆☆

MAY OBSERVING SCHEDULE

Kalamazoo Nature Center
7000 N. Westnedge Ave.

Saturday, May 12 @ 8:30 pm

Galaxies of the Virgo Cluster

Saturday, May 26 @ 8:30 pm

Waxing Gibbous Moon & Double Stars



with the **Kalamazoo Astronomical Society**

General Meeting Preview



WAITING for the BIG ONE

The Next Milky Way Supernova

Presented by **Dr. Horace Smith**

Professor of Astronomy, Michigan State University

Ancient observations report the appearance of new stars in the sky that rivaled Venus in brightness before fading to invisibility. We now realize that these signified the explosive deaths of stars -- supernovae. Why do these violent events occur? What is the likelihood that the next supernova in the Milky Way will happen soon? Which stars are candidates to explode? What are the odds that you will witness the next Milky Way supernova?

Friday, May 4 @ 7:00 pm

*Kalamazoo Area Math & Science Center
600 West Vine, Suite 400*

Kalamazoo Astronomical Society
c/o KAMSC
600 West Vine, Suite 400
Kalamazoo, MI 49008

STAMP

