

Highlight of the May Sky...

... 1st ...

PM: Mars upper left of crescent Moon.

... 2nd ...

PM: Pollux upper left, Mars lower right of crescent Moon.

... 3rd ...

PM: Saturn left, Pollux right of crescent Moon.

... 4th ...

Jupiter at opposition.

... 5th ...

PM: Regulus left of Moon.
First Quarter Moon

... 6th ...

AM: Eta Aquarid meteor shower (10 meteors/hr.)

... 10th ...

PM: Spica upper right of Moon.

... 11th ...

PM: Jupiter left of Moon.

... 13th ...

PM: Antares lower left of Moon.

Full Moon

... 14th ...

AM: Antares upper right of Moon.

... 20th ...

Last Quarter Moon.

... 24th ...

Dawn: Venus lower right of crescent Moon.

... 27th ...

New Moon

... 30th ...

PM: Pollux right, Mars left of crescent Moon.

... 31st ...

PM: Saturn below crescent Moon.

Prime Focus

A Publication of the Kalamazoo Astronomical Society

★ ★ ★ May 2006 ★ ★ ★

This Months KAS Events

General Meeting: Friday, May 5 @ 7:00 pm

Kalamazoo Area Math & Science Center

Observing Session: Saturday, May 6 @ 8:30 pm

Kalamazoo Nature Center - Moon, Jupiter, & Saturn

Young Astronomers: Tuesday, May 16 @ 6:30 pm

Trinity Reformed Church - See Page 11 for Details

Observing Session: Saturday, May 20 @ 8:30 pm

Kalamazoo Nature Center - Galaxies of the Virgo Cluster

Introduction to Amateur Astronomy Series Continues

Kalamazoo Nature Center - See Page 11 for Dates & Times

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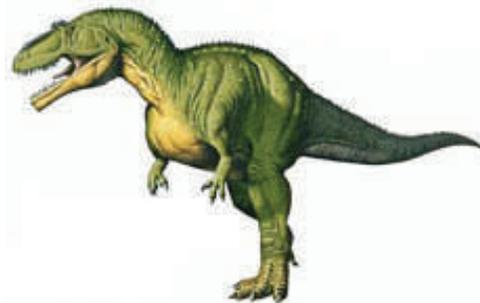
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April Meeting Minutes



The general meeting of the Kalamazoo Astronomical Society was brought to order by President Richard Bell on Friday, April 7, 2006 at 7:13 pm EDT. An astounding 60 members and guests were in attendance at the Kalamazoo Area Math & Science Center (KAMSC).

The special feature presentation of the evening was given by Associate Professor of Physics & Astronomy, Dr. Megan Donahue from Michigan State University. She is also co-author of the very popular astronomy textbook *The Essential Cosmic Perspective* (available in the KAS Library). Dr. Donahue's presentation was entitled *Measuring the Accelerating Universe*.

Dr. Donahue covered the basics of modern cosmology such as Hubble's Law, which shows that more distant galaxies move away from us faster. This discovery would not have been possible if it weren't for "standard candles" such as Cepheid variable stars or Type 1A Supernova. These objects allowed us to use the Inverse Square Law for Light to measure the distance to galaxies.

Hubble's Law shows us that the more distant the galaxy the greater it's spectrum is shifted to the red part of the spectrum causing the redshift. Dr. Donahue explained that the cosmological redshift is actually caused by the expansion of the universe. Dr. Donahue went over the implications for an expanding universe and then discussed the findings of Isaac Newton and Albert Einstein. Einstein discovered that the universe was expanding, but introduced a "cosmological constant" to make it stand still. This was considered to be his greatest blunder, but may actually have some truth to it.

Dr. Donahue then discussed the progress made with the Hubble Space Telescope, which has helped narrow down the Hubble constant, which expresses the current rate of expansion of the universe, to 70 km/sec/Mpc. This gives an age of ~14 billions years for the universe. Dr. Donahue then covered the discovery of the accelerating universe in 1998 and discussed the current theory that this is caused by a mystery force referred to as dark energy or Quintessence.

After the snack break, we held the vote to remove Newsletter Editor as an elected position as stated in the Bylaws and make it voluntary. The motion was approved by a vote of 27 to 1. Richard then gave a president's report and talked about a group of KAS members planning to attend the Black Forest Star Party in Pennsylvania from Aug. 25th - 27th. The comet Schwassmann-Wachmann 3 was discussed and many members are looking forward to observing the fragments when they come close to Earth in mid-May. After discussing upcoming events, the meeting concluded at 9:10 pm.

Board Meeting Minutes



The KAS Board met April 9, 2006 at Sunnyside Church. The meeting was called to order by President Richard Bell at 5:15 pm. Present were board members Beverly Byle, Rich Mather, Jack Price, Frank Severance, and Roger Williams.

The meeting began with the treasurer's report from Rich Mather. The current account balance was \$7546.92. Expenses during the last month included \$80 for dinner and the honorarium for Dr. Megan Donahue, whose presentation at the April meeting was regarded by all as a great success. Cash inflows included a \$75 donation from the Vicksburg schools, intended as thanks for the participation of several members in their program on March 15.

Concerning the current general meeting format, Frank commented that having a staffed membership table to hand out name tags and record attendance was really working out, although it was agreed that we need alternate volunteers so that the same person doesn't always have this responsibility. Richard reported that he plans to begin assembling the New Member Packets that we have been planning for some time.

Richard also reported on plans for the remaining 2006 meetings for which the program had not been decided. In June, Rick Krejci will give a presentation on digital image processing. He is a nationally-known practitioner of the art, and we feel fortunate to have him appear. For July, Richard is looking for a speaker from the Grand Rapids club, who had members travel to the path of the recent solar eclipse.

Roger reported that the application form required to get a group insurance rate quote had not yet been submitted, and some advice was requested on the appropriate attendance numbers for our various functions which are required by the form. It will be submitted during April.

Details were discussed for the Astronomy Day program, to be held in the KNC Interpretive Center on April 22nd. See page 4 for a full report.

In other business, the board decided to complete the waiver required by Portage for appearance at the Taste of Portage festival on June 10th. We have also been asked to appear at the Relay for Life at Loy Norrix High School on June 17th-18th. Only handing out materials and solar viewing are planned, as another night observing session is stretching our resources pretty thin.

The next board meeting was set for 5:00 pm on May 7 at Sunnyside. The meeting was adjourned at 6:25 pm.

Respectfully submitted by Roger Williams



What a great month April turned out to be! All of our events for the month were a great success. I was very happy with the attendance for the April meeting and I enjoyed Dr. Megan Donahue's presentation. We have another astronomer from Michigan State University speaking at our next meeting on May 5th. Dr. Stephen Zepf will discuss his personal experience with the Hubble Space Telescope. We should have a tremendous crowd for that talk as well, so you'd better show up early and get a good seat!

I didn't plan to have two MSU astronomers in-a-row, but that's the way it turned out (we planned to invite Dr. Donahue to speak in November). My long-term goal is to have every professional astronomer at MSU lecture at one of our general meetings. After May we'll have three down (Dr. Timothy Beers of MSU spoke in April 2005) and who-knows-how-many-to-go! Maybe we'll tackle the University of Michigan after that!

Amazingly . . . incredibly . . . fantastically, we pulled off *BOTH* Public Observing Sessions in April. The other shocking thing is that we did the same thing last year. If you're thinking "we're going to pay for this down the road" you may be right! About 50 people attended the first public session of April (and the year) on the 8th. Several KAS members dusted off their telescopes and/or binoculars and brought them out to KNC. These members include Royce Goodchild, Russ Hills, Jim Kurtz, Time Kurtz, Bill Nigg, Robert Norton, and Don Stilwell.

Astronomy Day 2006 was also a big success. It was pretty slow in the morning, but things really picked up in the afternoon. You can read my full AD2K6 report beginning on page 4, but I wanted to send out my sincere thanks to all those that made this year's Astronomy Day a success. We may not pick up any new members from Astronomy Day, but we did accomplish the main goal which is to simply bring astronomy to the people.

The last event of April, the first installment of the *Introduction to Amateur Astronomy* lecture series, may be a big success, but I can't say for sure since it hasn't happened yet! The majority of the lecture series takes place in May and I'll need your help to pull it off.

The second installment on May 7th, *Astromedia*, deals with books and software for the beginner as well as learning to read a star map. Feel free to bring any books you found helpful or any programs you use to plan your observing sessions. It's pretty obvious what you should bring for the

third installment on May 21st, *Binocular Basics*, but I'm especially looking for binocular mounts and observing chairs. There are specific telescopes I'd like to have for the fourth installment, *Telescope Tutorial*, on May 28th so you may be hearing from me fairly soon. The last installment, *Astrophotography*, is on June 4th; more on that next month!

Once we get past May, we'll schedule some other activities some of you have been asking for recently. The first is an Astrophotography Workshop (or two). Just make sure you plan to attend the June general meeting and the Astrophotography section of the Amateur Astronomy lecture series!

A handful of you have also been asking about being trained in using Owl Observatory and the Meade 12" LX200 inside. I have been keeping a list of those interested, so expect to here from me within the next few weeks or so. The training session will not be announced in the newsletter, so let me know if you'd like to add your name to the list (e-mail being by far the best way).

One thing we haven't talked about doing yet is taking a field trip. However, many KAS members are planning to attend the 2006 Black Forest Star Party in Pennsylvania, which is scheduled to take place from August 25th - 27th. Are you interested in attending BFSP with your fellow KAS members? Then you'd better print and fill out the registration form and send it in ASAP. The star party is limited to 475 participants and nearly half of those slots will probably be gone by the time you read this. The form is only available online, so visit the BFSP web site today:

<http://www.bfsp.org/starparty/index.cfm>

The quality of the night sky at Cherry Springs State Park (where BFSP is held) is well worth the drive. Let's just hope the weather was as good as last year. That will be a tough act to follow though!



Astronomy Day 2006 Report

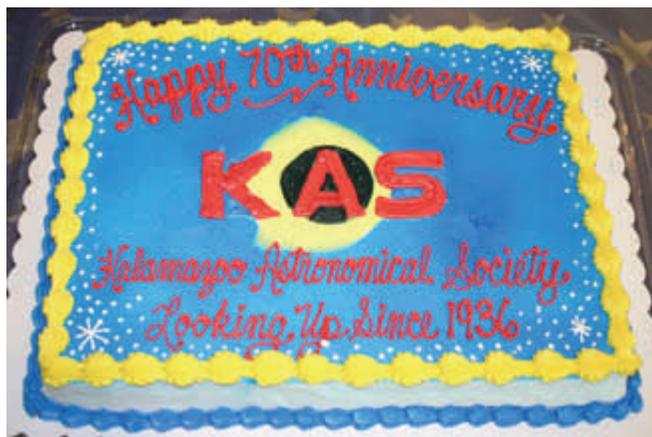
By Richard S. Bell



After a one year hiatus, Astronomy Day returned on April 22, 2006. The KAS held its event in conjunction with the Kalamazoo Nature Center's Earth Day celebration, which replaced Free Admission Day held in June. An estimated 600 people passed through the Nature Center's gate and many of those folks managed to find us in the Glen Vista Gallery. Some people felt we were tucked away in Glen Vista, but there were no activities held around Owl Observatory so this was our best alternative. However, I actually prefer holding our main activities inside, since it's logistically easier. Plus, the Glen Vista Gallery made for a nice setting.

The weather was a bit of a problem at times, which made solar observing difficult. Mostly cloudy skies actually produced some small showers in the morning, but the majority of the afternoon brought mostly clear skies. This didn't make much difference to our white light observers, since solar minimum was in full force. Not a sunspot was to be seen through the 8" Celestron Schmidt-Cassegrain set up by **Jim Kurtz** or in the 4" Meade Apochromatic refractor belonging to **Tim Kurtz**. **Robert Norton** with his 4.5" Meade reflector and **Bill Nigg** with his 5" Astro-Physics refractor didn't have much more luck in the Nature Center's parking lot either!

However, where the Sun came up short in white light it more than made up for in Hydrogen Alpha. **Roger Williams** and I were able to show people a *VERY* large group of tree-like prominences that gradually changed throughout the day. Roger setup his Coronado MaxScope 60 and I had the SolarMax 40 filter on my Tele Vue Pronto. Thanks also to Jim and Tim for operating the Pronto when I was busy with other stuff. At least they were able to show people something on the Sun!



The greeting table was staffed by AD2K6 co-coordinator **Jean DeMott** and **Norm Terry**. They handed out KAS brochures and fliers on our activities throughout the spring and summer. We also had many great educational materials and stickers to pass out courtesy of NASA. Thanks to **Miguel Rodriguez** for obtaining some of the materials.

Our main theme for Astronomy Day 2006 was Pluto, comets, and the Kuiper Belt so our hands-on crew helped kids make "Fan Comets" and Paper Pluto Globes. The "Fan Comet" consisted of glittery shred attached to a one-inch Styrofoam ball with a small paper clip. The purpose was to teach the kids that a comet's tail always points away from the Sun due to the solar wind. **Dave and Susan Matheson** helped kids with the "Fan Comet" in the morning, while **Dick and Jackie Gillespie** took over in the afternoon. **Bob Havira** and **Dennis Stuart** helped kids make Paper Pluto Globes in the morning and **Daniell Poulsen** assisted youngsters in the afternoon. **Molly Williams** and **Frank Severance** get this year's marathon award since they worked the hands-on tables the entire day!

The last of our regular features were the displays. First (and certainly not least) was the KAS Member Astrophotography display. This year's photographs were provided by myself, Bill Nigg, and Roger Williams. One of our two other displays was called "Clyde Tombaugh and the Discovery of Pluto". Some of the images used in the display were provided electronically by Lowell Observatory. The last display was on the New Horizons mission, which just began its 9 year journey to Pluto in January. Dennis Stuart and Roger Williams both built miniature paper models of the New Horizons spacecraft, which was no easy task! Thanks also to Frank Severance for providing some of the images used in the display.



Mother helps daughter assemble a Paper Pluto Globe at one of our three hands-on tables.

One of our special attractions was Comet Making Demonstrations given by Dave Woolf. The largest crowd was for the 12:00 pm demo and they reacted with “ohs and ahs” when he poured water onto the dry ice and the white cloud oozed out of the bowl.

Perhaps our most original activity took place at 1:00 pm. **Mike Sinclair** and I held a “Pluto Planet Debate” and **Kirk Korista** acted as the moderator. Kirk started out with a brief history on the discovery of Pluto and then did the introductions. I started off with a 7 minute presentation on why I think Pluto should be demoted to a minor planet and Mike defended Pluto’s place as the ninth planet from the Sun. Kirk then asked us each a few questions and then we took many good questions from the crowd. Everyone seemed to enjoy the debate, so perhaps we’ll have to do a more in-depth version at a future general meeting.

The last activity of the afternoon was the KAS 70th Anniversary Party for the public at 3:30 pm. We served cake, ice cream, and punch to quite a few people and had no leftovers when it was over! Special thanks actually go to my



Look at the flames! This young solar observer checks out prominences in Roger Williams’ Coronado MaxScope 60.



Watch that comet fly! This young astronomer watches the tail of his new “Fan Comet” flutter in the breeze.

mother, Connie, for picking up the cake and bringing it to the Nature Center.

The conclusion of Astronomy Day 2006 was the public observing session, which began at 8:00 pm. Robert Norton brought out his Meade 10” Lightbridge Dobsonian and **Jack Roach** setup his hand-crafted 6” Newtonian reflector and equatorial mount. Dave and Susan Matheson also brought out their Meade ETX-90 and Jim and Tim Kurtz returned with their telescopes they had setup earlier for solar observing. Dave Woolf and I both showed people Saturn, Jupiter, and deep sky objects through the Meade 12” LX200 in Owl Observatory. Attendance was pretty light for the session (~20 people), since we again had to fight clouds for the first part of the session. Eventually though, the skies completely cleared and Astronomy Day came to an official end under a starry sky.

More images from AD2K6 can be found on the Astronomy Day page on KAS Online:

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



Dave Woolf talks about the nature of comets before making a miniature version of one for a capacity crowd.



How Stable is My Telescope? Rock Solid, Like an M-1 Tank!

By Jack Roach

Ever notice how some ads for low-priced telescopes have exaggerated claims? See the craters on the Moon with 500 power! See the Rings of Saturn and the bands on Jupiter with ease! What these ads fail to tell you is that to do so requires your ability to place the object of interest at least one full degree outside the field of view, well ahead of the Earth's rotation. This is to allow enough time for the wobbly mounting to stop oscillating back and forth from the removal of your hands from positioning it. No small feat for a 12 year old with an alt-azimuth telescope mounting!

They also fail to tell you that if the evening has high sustainable winds in excess of 0.2 miles per hour that you might want to hold off viewing until conditions improve. Now don't think for a minute I am going to bash these inexpensive telescopes, for I am not. If I had never been given one in my youth, I might never have been bitten by the Astronomy bug. I just wish advertisers could be held a little more accountable for the outlandish ads they (sometimes) create.

The people that write ads for telescope companies aren't the only ones guilty of embellishment. Everyone on occasion uses overly subjective words to paint a vivid image. Even amateur telescope builders have been guilty of exaggerating the stability of their mountings. Some years ago I posed the question to several fellow telescope builders of how



The author with his homemade 6" Newtonian Reflector on an ultra sturdy German Equatorial Mount. Taken at the Astronomy Day 2006 observing session on April 22nd.

stable their mountings were. The following are some of their replies. "My mounting is stable, like a granite mountain". "Mine's stable enough that it'll hold steady even in wind gusts up to 30 MPH!" "How stable is my telescope? Rock solid like an M-1 tank!"

Whether home built or purchased commercially – when a person talks about how "stable" their mounting is it brings to mind the image of an M-1 tank perched on a mountain of solid granite. Unshakable, unmovable, certainly not this telescope!

If only there was a simple test that could be used to check a telescope's stability. One that would separate subjective impressions from objective fact. A test that could be used on *any* type of telescope mounting. One that would allow a person to check how their German Equatorial compared with other German Equatorials. Or to see if most German Equatorials are more or less sturdy than most fork mountings or Dobsonians.

A Test Exists

A couple of decades ago while attending a Stellafane convention in Vermont; I overheard a conversation about the "proper" method of testing the stability of a telescope's mounting. The test consisted of measuring the amount of time it took for the oscillations to stop from the cutting loose of a 1 lb weight tied to the focuser knob. The release of the weight produces an oscillation similar to the force needed to turn most focusers and or slew a telescope. It also simulates the force of a gentle breeze. It met all my criteria for a great test; simple, reproducible, and highly accurate.

This is a much better test than the illogical method of *raping* one's knuckles on the side of the tube. All this does is to start the secondary mirror (of a Newtonian) into a high-speed vibration. I never could quite understand that method, unless of course one was a comet hunter – concerned about micro-meteorites striking the side of the tube during an observing session.

The results of this test will produce a number in seconds and tenths of a second (let's not use more than tenths of a second or this thing could get out of hand). The final number could even be called a mountings "Rock" number (as in rock solid).

As I said earlier, this test can be applied to any mounting



To obtain an accurate sample of the stability of your telescope's mount it's best to carry out the test in two positions. Shown here is "Position A" on the author's homemade German equatorial mount.

type, whether home built or purchased commercially. It will give you a good idea of how your particular telescope mounting compares to ones of similar design, make, and/or model. It will also tell you how it compares across mounting types (German Equatorials vs. Fork style vs. Dobsonian, etc...).

The following is a list of materials you will need and the procedure for performing the test.

- Stop watch
- 1 lb. Weight
- Thread
- Scissors
- Eyepiece (that gives approximately 150 X)

The Test Procedure...

After setting up the telescope on firm soil – or even better, on concrete, check to make sure that all the knobs to the tripod (if so equipped) or mounting base, are secure and tight. In all fairness you should only tighten your Right Ascension and Declination knobs to the amount that is of normal tightness for smooth slewing. You want to replicate the amount of vibration you might expect under regular use. This will help to ensure that the test is fair and accurate.

Some telescope mountings are more stable when pointing in one direction than another. To be certain that the test you are performing is fair you should perform the test at least twice; each time with the telescope pointing in a different direction. We will call these positions "A" and "B". Position "A" is with the forks (or in the case of an equatorial, the declination arm) in a horizontal position. Position "B" should have the forks or the declination arm in the

vertical or up and down position.

Dobsonian and other similar Alt-Azimuth designed mountings need only be tested with the tube assembly tipped at a 45° angle. Angles much lower than this are generally not conducive to good viewing.

With the mounting in position "A", attach a piece of thread to a 1 lb. weight and tie the other end to the focuser knob. The length of the thread is unimportant. What is important is to leave enough thread length so that it can be cut easily without bumping into the mounting.

You can test in daylight or darkness. I prefer to test at night since it is easier for me to detect the apparent movement of a star in an eyepiece, however, daytime testing can be just as effective and accurate.

If you are testing after dark, and you own or have access to one you may want to try using a guiding eyepiece. The important thing is to try to achieve an eyepiece/Barlow arrangement that will give you approximately 150 power.

A guiding eyepiece has illuminated lines that you can more easily judge the oscillations with. You can also use higher or lower power but for consistency of comparison try to stay close to 150 power.

Since you may not own or have access to a guiding eyepiece. You can still perform the test with a regular, non-illuminated one. When using a non-illuminated eyepiece it is helpful to place a bright star at or near the edge of the field of view. This will help in determining when the mounting has ceased moving.

When testing in daylight, try to find a bright reflection (possibly from a glass power line insulator).



After measuring the amount of oscillations in your telescope's mount in "Position A" repeat the process in "Position B" as shown above. However, this step is not necessary if you have an alt-azimuth style mount such as a Dobsonian.



When performing the tests have a friend cut the string and even catch the weight for you. This will allow you to concentrate on getting an accurate oscillation timing. The weight could also bump into your mount and affect the results.

With the scope in the "A" position, a bright star or bright reflection in the eyepiece, and the stop watch in hand, have a helper cut the thread on the count of three (start the watch at the same instant). A word of caution – be sure to instruct the helper to catch the weight in the air – if they let it hit the ground it will start a secondary vibration that will travel upward thru the mounting. Once the oscillations completely cease then stop the watch and record the time. Now repeat the test in position "B".

You might want to test each position a few times and then average out the recorded times. It might also be interesting to switch places with your helper to see if your test times agree.

Start an Astronomical League Observing Program Tonight!

After finally finding some time under the stars, have you ever thought, "What should I observe? There's so much up there!"

The Astronomical League offers nearly 30 observing programs to help in just that situation. Some are designed for the novice such as Constellation Hunters, Universe Sampler, and Lunar Clubs. Other programs, including the Messier, Urban, and Planetary Observer Clubs, are better suited for intermediate observers. More experience deep sky hunters can hone their skills with the tougher selections of the Herschel, Arp Peculiar Galaxies, and Galaxy Groups and Clusters Clubs. Truly, there is a program for everyone!

Upon completion of each club, the observer is presented a certificate suitable for framing and a nifty lapel pin. These lists are a low stress way to enjoy the many wonders of the night sky.

Check out which program is right for you! Visit

<http://www.astroleague.org/observing.html>

The Challenge...

I encourage you to test your mounting's stability, whether home built or purchased commercially, and submit your test results to me for a future article. I will compile the test results reported and will share them with everyone at a later date. The more data I can collect the more accurate the results. If possible, please send me a photo of the mounting tested (all photos will be returned) or at least supply a very detailed description of it. The attached form below can be used to record times from both the "A" and "B" positions as well as provide a description of the type being tested. May the best mounting win!



Name: _____

Performance Test Date: _____

Mounting (circle one): Commercial Homemade

Model Number (if commercial): _____

Mounting Type (circle one): German Equatorial

Fork Dobsonian Alt Azimuth Other

Description of Mounting: _____

Time (in seconds and tenths): _____

Time (in seconds and tenths): _____

Position "A" Forks or Dec. Arm Horizontal

Position "B" Forks or Dec. Arm Vertical

The “Pretty Good” Comets of 2006

By Roger Williams

Few astronomical events are more impressive to the public than the appearance of a great comet. Even with current knowledge of the solar system, it is not possible to predict when the next really bright comet will appear, but the historically low frequency of such appearances means that patience is required. However, [exceptions can happen](#). In January of 1910, a comet appeared bright enough to be visible in daylight and showing a 10° tail. Then on May 20 of the same year, Comet Halley passed 0.15 AU from Earth and exhibited a 120° tail.

More recently, Comet Ikeya-Seki in 1965 was the brightest of the 20th century, and [Bennet](#) in 1970 reached magnitude 0 with a tail of 5 - 10 degrees. Comet Kouhetek in 1973 was regarded as spectacular by the inhabitants of the Skylab satellite but was hardly seen by anyone else. Ironically, its poor performance after a load of advance publicity is listed as a probable reason that Comet West in 1976 was nearly ignored by the general public, even though it reached magnitude -2, had a tail up to 25°, and split into 4 pieces after passing perihelion. The comets most likely to be remembered by our younger members are Hyakutake in 1996 (with a tail of 70-100°) and Hale-Bopp in 1997, which remained visible without optical aid for 569 days (an all time cometary record).

While waiting for the next great comet to appear, we have to lower our expectations a bit. The year 2006 so far yields 2 “pretty good” comets. Comet Pojmanski was discovered on January 1, and it reached magnitude 5 on about March 1. I viewed it as an easy binocular object in the dawn sky of March, just below the constellation Delphinus. Unfortunately, its orbital motion continued to take it north and behind some of my taller trees, so that I could not photograph it with the CCD equipment until it had dimmed considerably. However, on the morning of April 18, it still showed a clear tail in CCD images.

A second current comet is turning into a family of comets named Schwassmann-Wachmann 3. It was discovered in 1930 and shown to have an elliptical orbit with a period of about 5 years. However, it was not recovered for another 50 years. In 1995, its brightness suddenly increased 100-fold, and it was clear that an [outburst was in progress](#).

It has since been found that this outburst accompanied the breaking up of the comet into 3 components, and this breakup is continuing up to the present time (40 components at last count). In May, these mini-comets will pass closer to Earth than any comet in the last 20 years (about 6

million miles), but because of their small size, they are expected to reach only to magnitude 3-4. However, the breakup can greatly alter the brightness from what was predicted. Component B has already been reported to brighten by 15-fold in a week, and fragment G is also breaking up. If current trends continue, at least some of these components should be easy binocular targets during May. A special date to note is May 7(8), when the largest fragment (component C) is predicted to pass directly in front of the Ring Nebula (M57).

Up to now, I have not been able to detect C with 15x45 binoculars in Kalamazoo skies, but it is readily seen with the 10-inch reflector and CCD camera. The accompanying image was made on April 3(4). The path of component C in the finder chart is for 11:30 pm EDT on the dates shown. So keep an eye on this path, and you may see one of the “pretty good” comets of 2006.

Check out the “Weekly Information about Bright Comet” web site for the most up-to-date news on Schwassmann-Wachmann 3 and other “dirty snowballs”:

<http://www.aerith.net/comet/weekly/current.html>

More information on Schwassmann-Wachmann 3 (along with a finder chart) can also be found on page 60 of the May issue of *Sky & Telescope*.



Roger Williams obtained this image of Schwassmann-Wachmann 3C on the night of April 3(4) with his 10" f/6 Newtonian Reflector and SBIG ST-8E CCD camera.

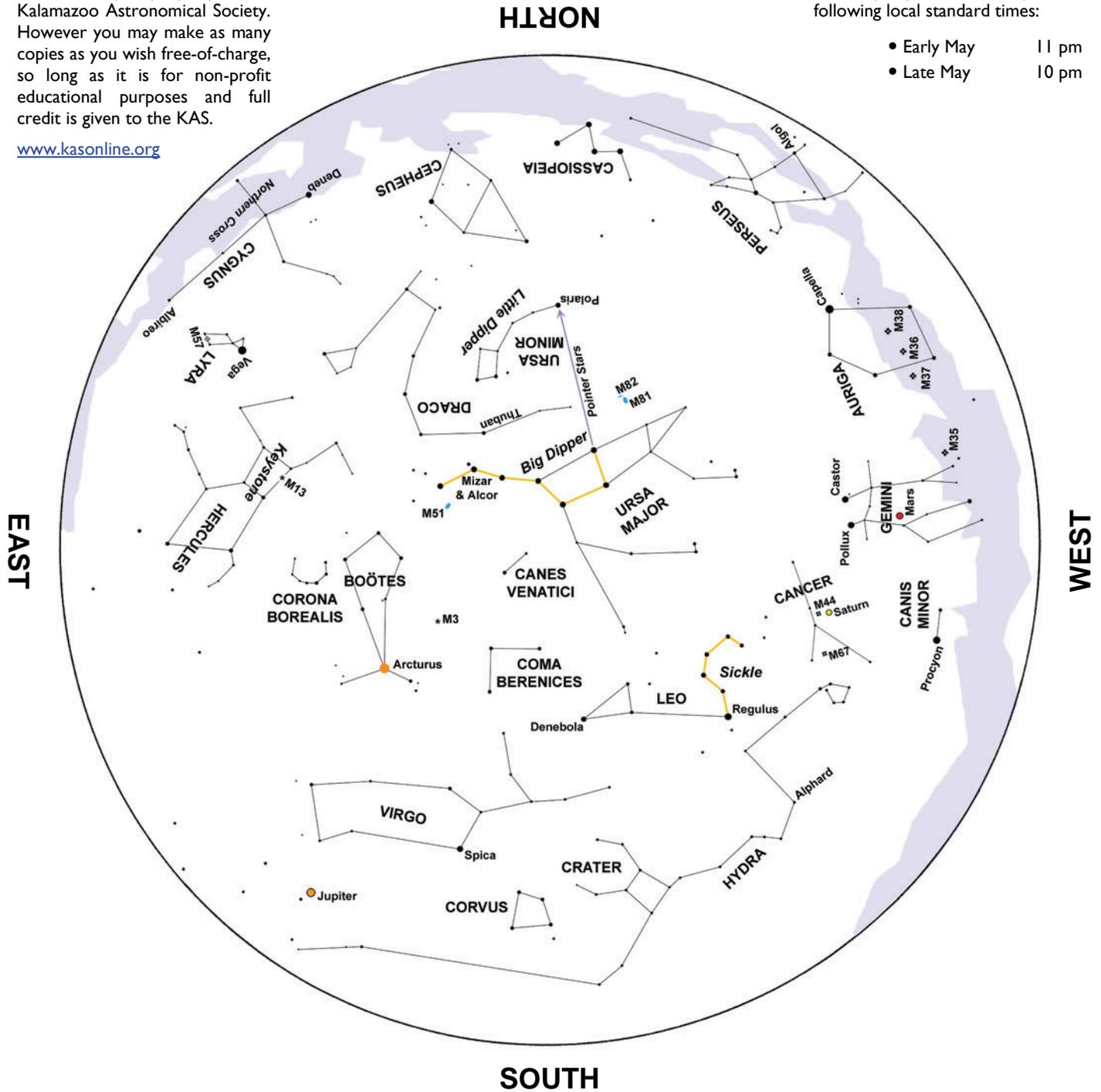
May Night Sky.....

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:

- Early May 11 pm
- Late May 10 pm



Comet Schwassmann-Wachmann 3 will only be 0.79 AU from Earth on May 12th. This is the closest a comet has come to Earth since Comet IRAS-Araki-Alcock in 1983, and is the 12th closest approach of any known comet in history.

Unfortunately, the nearly Full Moon will make viewing the comet difficult.

The comet should be easily visible to the unaided eye once the Moon is out of the way. However, the exact appearance of the comet is uncertain since it's break-

up, which started in 1995, appears to be accelerating. One of the fragments is expected to pass within a couple of arcminutes of the Ring Nebula (M57) on May 7th at about 11 pm EDT. Check web sites like Spaceweather.com for the latest information.

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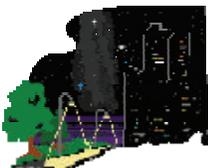
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Young Astronomers *MEETING PREVIEW*

Another season of the Young Astronomers is about to come to an end, so let's have a **BIG BLOWOUT PARTY!** We'll tinker with some robots, play space and astronomy games, eat some space food, and much more! For more information, contact the Young Astronomer Coordinator **Carol Van Dien** (342-4983).

Tuesday, May 16 @ 6:30 pm

Trinity Reformed Church - 326 W. Cork St.



Introduction to Amateur Astronomy

Kalamazoo Nature Center • 2:00 - 3:30 pm



Grand Tour of the Universe ... April 30

Astromedia May 7

Binoculars Basics May 21

Telescope Tutorial May 28

Astrophotography June 4

Free for KAS Members! Visit KAS Online for Details: www.kasonline.org

☆ ☆ ☆ **OBSERVE!** ☆ ☆ ☆

MAY OBSERVING SCHEDULE

Kalamazoo Nature Center
7000 N. Westnedge Ave.

Saturday, May 6 @ 8:30 pm

Gibbous Moon, Jupiter, & Saturn

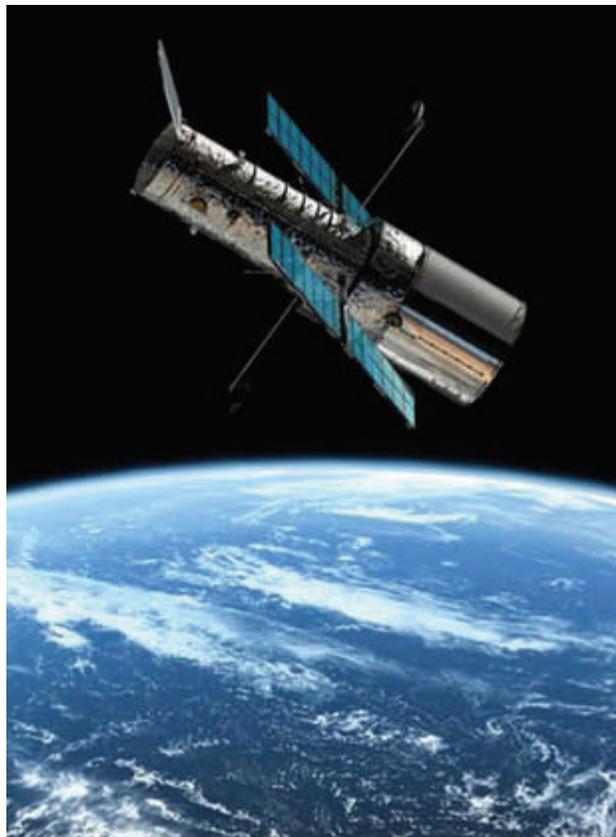
Saturday, May 20 @ 8:30 pm

Galaxies of the Virgo Cluster



with the **Kalamazoo Astronomical Society**

General Meeting Preview



A Personal View of 15 Years of Astronomy with the **Hubble Space Telescope**

PRESENTED BY DR. STEPHEN ZEPF

Professor of Physics & Astronomy, MSU

The Hubble Space Telescope (HST) was launched in 1990 by the space shuttle. From its position 380 miles above the Earth's surface, the HST has expanded our understanding of star birth, star death, and galaxy evolution, and has helped move black holes from theory to fact. In its first 15 years, the telescope recorded over 700,000 images. Professor Zepf will use his experience as an astronomer during this time as an example of how scientists use the HST to learn about the universe. Professor Zepf will also talk about the large impact it has had on his career and the research he has done and on the field of astronomy as a whole.

Friday, May 5 @ 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

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