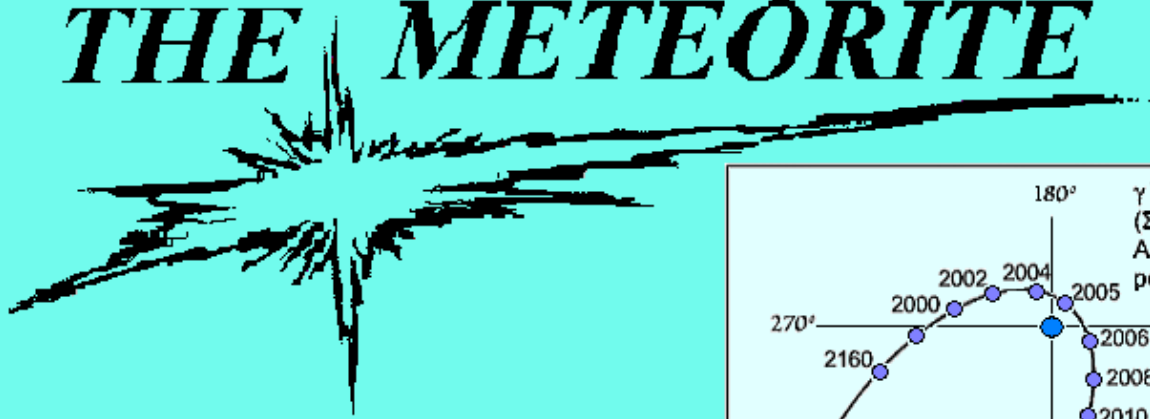
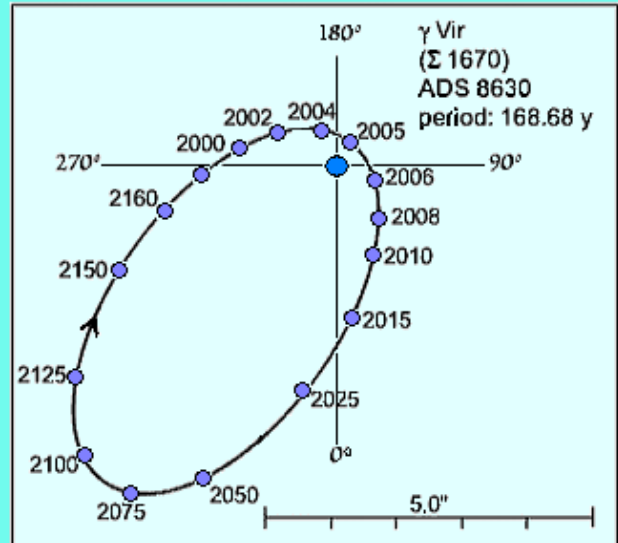


THE METEORITE



PORRIMA
 γ VIR
BINARY STAR IN VIRGO



Newsletter of the Mahoning Valley Astronomical Society, Inc.

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MAY 2010

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Meteorite Editor: Phil Plante
1982 Mathews Rd. #2
Youngstown OH 44514

THE METEORITE

APRIL 2010

Newsletter of the Mahoning Valley Astronomical Society, Inc.

MVAS CALENDAR

- APR 10** Galaxy Quest- cook-out MVCO 7:00 PM
APR 17 Annual Chili Cook-off at MVCO. 7:00 PM.
APR 24 MVAS business meeting at MVCO. 8:00 PM
MAY 15 **OTAA Scenic Vista Stargaze.** 12:00 PM (rockets).
Sunset at 8:36 PM, Stargaze begins.

NATIONAL & REGIONAL EVENTS

- APR 17 - 18** NEAF 2010 - NEAF Solar Star Party, Suffern, NY
<http://www.rocklandastronomy.com/neaf.htm>
JUN 5 **StarConn 2010** Wesleyan University, CT
<http://www.asgh.org/starconn/index.htm>
JUN 10 - 13 **Cherry Springs Star Party**, Cherry Springs PA,
<http://www.astrobq.org/CSSP/Information.html>
JUN 24 - 26 **ALCON 2010** Tuscon, AZ Astronomical League.
<http://www.astroleague.org/>

OTAA MEETINGS 2010

- JUN 12** Chagrin OTAA at Indian Hill Observatory. 8:00. PM
JUL 10 Cuyahoga OTAA at Letha House. 6:00 PM

YSU WARD BEECHER PLANETARIUM

- APR Fri./Sat.** 8PM. Strange Planets. Search for exoplanets.
(16/17, 23/24) Audience participation using KEPLER data.
MAY 8 Two Small Pieces of Glass. 8:00 PM

MVAS BOARD OF TRUSTEES

President	Sam DiRocco
Vice President	Harry Harker
Treasurer	Steve Bartos
Secretary	Phil Plante
Trustee (Appointed)	Bill Pearce
Trustee (Appointed)	Roy McCullough
Trustee (Membership)	DanSchneider

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Librarian	Rosemary Chomos

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Meteorite Editor	Phil Plante
Assistant Editor	Steve Bartos
MVAS Webmaster	Harry Harker

MVAS REPRESENTATIVES

OTAA Representative	Harry Harker
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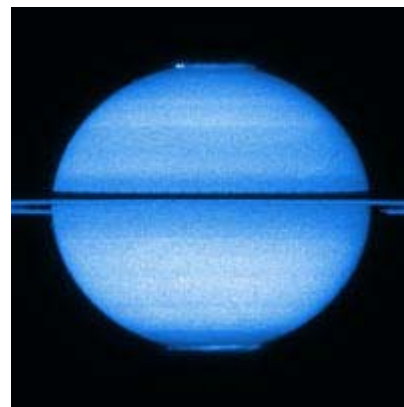
MVAS, P.O. BOX 564 NEWTON FALLS, OH 44444-9998
MVAS Homepage- <http://mvobservatory.com>

NEWS NOTES

Mixin' it up. Astronomers have found a group of four small, ancient galaxies that have waited 10 billion years to merge. Larger galaxies are built up by colliding galaxies. Such encounters between dwarf galaxies normally take place billions of light-years away and therefore billions of years ago- early after the Big Bang. But these galaxies of Hickson Compact Group 31 are relatively nearby to us; only 166 million light-years away. New images of these galaxies taken by NASA's Hubble Space Telescope offer us a peek into the early cosmos when large galaxies were created from smaller "building block" dwarf galaxies. The Hubble observations have added important clues about this nearby interacting foursome.

It has allowed astronomers to determine that the system has been around for a while, but the encounter has only been in progress for a few hundred million years. Astronomers know the system has been around for a while, because the oldest stars in a few of its ancient globular clusters are about 10 billion years old. Astronomers also found an abundance of bright patches of infant star clusters and regions brimming with star birth. Hubble also revealed that the brightest clusters have at least 100,000 stars, and are less than 10 million years old. The entire galaxy system is rich in hydrogen gas, the stuff of which stars are made. Astronomers used Hubble's Advanced Camera for Surveys to resolve the youngest and brightest of those clusters, which allowed them to calculate the clusters' ages, trace the star-formation history, and determine that the galaxies are undergoing the final stages of galaxy assembly.

It's Pole-light! In January and March 2009, astronomers used NASA's Hubble Space Telescope to image Saturn during the semi-rare edge-on rings (ring plane crossing). In February 2010 the images were released in movie form. It shows a nearly symmetrical aurora light show at both poles of the planet. The opportunity to image both of its poles at the same time occurs only twice during Saturn's 29 year revolution around the Sun. The 2009 Hubble Advanced Camera for Surveys data was used for this movie. It has allowed astronomers to simultaneously monitor the behavior of Saturn's poles over a sustained period of time. and thus to analyze the planet's northern and southern lights simultaneously. Click on the link below (PDF users) to see the 20 second movie. Remember Saturn's equatorial zone rotates in 10 hrs 14 minutes. The video spans a few days' rotation. It could be a "polite" gesture to share this with a friend. (Sorry, bad pun)



<http://hubblesite.org/newscenter/archive/releases/2010/09/video/a/>

Sharon Shanks gave the presentation at the Ward Beecher Planetarium this night. Starting with a demo of the All-Sky Dome and a brief Q&A session with public attendees, she next went to the fan favorite show- "Black Holes: The other Side of Infinity". She finished with a sky tour using the GOTO projector. Nicely done, Sharon! The meeting was held after the show.

MINUTES OF THE MARCH MEETING

MARCH 27, 2010 at YSU

President Sam DiRocco called the meeting to order at 9:22 PM. Roll Call was taken which showed 27 members present. We were happy to have the Bartos family as our guests. The President called for the Reading of the Minutes. Bob Danko moved to suspend the reading, Rosemary seconded it. With no corrections brought fort, the minutes were accepted as published, by a unanimous voice vote.

TREASURER'S REPORT: The Report was read by Steve Bartos. Roy McCullough moved to accept the report; the motion was seconded by Bob Danko and others. The Report was accepted by a unanimous voice vote. Once the list of paid membership is tallied at the end of April, a new roster will be assembled and available.

General Fund 3/1 thru 3/31 2010

OPENING BALANCE:	\$ 8,158.79
CLOSING BALANCE:	\$ 8,124.77
AVAILABLE FUNDS:	\$ 7,874.77
<u>INCOME:</u>	
DUES	\$ 150.00
ASTRONOMY MAGAZINE RENEWAL	34.00
DONATIONS: (T. MEHLE- \$10, B. HOFFMAN- \$10)	20.00
INTEREST	0.93
TOTAL INCOME	\$ 204.93
<u>EXPENSES:</u>	
CK# 2713 SKY & TELESCOPE RENEWAL	\$ 32.95
2714 CHRISTMAS PARTY RESERVATION	100.00
2715 ASTRONOMY RENEWAL	34.00
2716 DONATION TO SCENIC VISTA PARK	50.00
Exch. PO BOX FEE (covers partial dues, B. DANKO)	22.00
TOTAL EXPENSES	\$ 238.95

Reserved Funds

KEY DEPOSITS	\$ 250.00
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CORRESPONDENCE: Harry received information about a camp event in Maine. They are trying to attract astronomy types to their dark skies. Slated for Aug. 8th through the 14th, going rates were \$200 per day, per person. S&T editor J. Kelly Beatty was a scheduled speaker. This set off a discussion about Cherry Springs and Spruce Knob, both much closer venues. Jodi and Roy told of a rained out event at Spruce Knob last year. They lost \$75 in reservation fees (non-refundable). Harry also received a newsletter from JPL but would have been more useful in an electronic version (email).

COMMITTEE/OFFICER REPORTS: *OAD FUND:* Tony Mehle reported that at the direction of the Trustee's, he wrote a check to redeem all proceeds from the Wells Fargo Money Market Fund. This amount equaled \$3,914.12. The fund now has a zero balance. The Wells Fargo redemption will be deposited in our regular account until a new investment for the OAD Fund is decided on. Steve will get all the paperwork (Tony's report) on this redemption. Sam extended all our thanks to Tony for his duties while managing the OAD Fund, all these years.

OBSERVATORY DIRECTOR'S REPORT: Larry Plante (new O.D.) reported that winches have been installed on the 12" roll-off roof by Roy McCullough and Bill Pearce. Roy donated the equipment. There are two cranks used to open and close the roof now. Both mounted on walls, one opens the roof, the other closes it. Because the closing crank handle spins while opening the roof, this handle is enclosed in a box with a latched cover for safety reasons. Just flip open the cover to use the closing crank. All locks on the roof function the same way. This roof moving system has proven to be much better than using brute force, as we have been doing. On Saturday April 3rd there will be a work session at the MVCO to install gutters and mount the 42" monitor. The weather forecast looked great. Start time was slated for 10:00 AM. Larry also noted that both sides of the privy have illuminated light switches now. (lights turn on/off at the out house now- no need to use the switch in the 8" bld.). Rosemary asked about the water level in the holding tank after the snow melted. Answer: It appears ok for now. It will likely need pumped out before the OTAA meeting. The grounds are good for parking cars- as of this meeting. We have three events there in April.

OLD BUSINESS: Jodi had info on the Astronomy Technology Today magazine discounts through MVAS. You may subscribe individually online. Use the promo-code "MVAS" to get the discounted rate (\$14?). Jodi was also looking to form a list of members interested in going to see the IMAX movie about the last Hubble repair mission. After a brief discussion, Saturday May 1 was decided on. Probably a 2PM show. Participants would rendezvous at the MVCO where they would car pool or caravan as desired. Tony advised that getting tickets ahead of time may not be necessary since it was not crowded when he went a week earlier. Advanced purchase may offer a slight discount though. Jodi will have more details at the April meeting or else posted to the email group earlier, if need be.

Rich Mattuissi expressed his thanks to Sharon and the YSU folks for arranging the get-together with Brother Guy at Inner Circle Pizza, after his March 4th lecture. Brother Guy enjoyed his time here, and meeting with the YSU and MVAS folks. He was impressed with the planetarium. It was a pleasant evening. Roy McCullough has a DVD of the talk. Allen Heasley will be sending a few more articles from *Collier's* magazine dating 1948 to 1952. Bill Pearce will get these and scan them into a PDF format on a CD. This will find a home at the MVCO's Terry Biltz Library. Authors include the likes of Werner Von Braun. Bill did a great job with *Collier's* Mt. Palomar 200" article.

Don Durbin reported on the latest Burgess disaster. He thinks that Burgess feels he can lead us around because he gives such great discounts. It appears that the tents are being held up and if you want your deposit back, contact Don and he will get it to you. Other items such as the laser collimator and the 9 x 63mm binoculars were sent back. Collimators now have lazer brightness settings and will cost more but Burgess is not accepting orders right now. There was a problem with coatings on the binoculars. Don will hang in there if you still want these items. Don announced yet another Burgess item that performed well on the McCullough's 25". A contrast filter (CX4) of 2" diameter worked as good as a Lumicon UHC Filter and Burgess was selling them for \$39 each. A few members have already ordered one; when the CX4 was first tried. Stay tuned.

There is a Galaxy Quest scheduled for April 10th at the MVCO. Clouds or stars, we plan to all meet there. If it's cloudy we will bbq and break -in the new 42" screen. The Brother Guy talk DVD will be shown (for starters). Of course if it's clear we will observe with club scopes and yours if you bring them. Food

and TV will be there too, so don't worry! Sharon Shanks had the Grandmontagne-Beede moon map framed. Actually, it is a copy. The original will be stored in its tube for safe keeping. This framed copy will hang somewhere in the 16" building. It is a nice sketched map of the Moon. Done by these early MVAS members, Phil noted that both Beede and Grandmontgne submitted lunar observations to Walter Haas before he started ALPO in 1949. It may well be that this map is a one of a kind item; that is, not many were produced or are still in existence. Thank you Sharon for getting this done.

NEW BUSINESS: Rosemary reported on her visit to charter member Agnes Bufwack. She also served many years as secretary. In her early 90's now, she moved back to town to live with family. Allen and Bette Heasley have maintained contact through the years (Christmas cards, etc.) At Allen's suggestion the membership signed a greeting card at the January meeting. This was sent along with a copy of the *Meteorite*. Rosemary reports that Agnes is very much alert and told her of the early days of MVAS. She even remembers the age old argument about what to do with the 50" blank! Agnes would be interested in a visit to the MVCO sometime when weather is better. We are honored to have one of the founding members back in town. With this in mind, Rosemary moved that we make Agnes an Honorary Member. Rich Mattuissi seconded the motion. A voice vote had all in favor. Agnes will get the *Meteorite* (paper). Welcome home Agnes.

Rich asked for a new roster. One will be made once the 2010 dues deadline has passed. Look for a copy by the May meeting. There was discussion on putting a PDF copy on the member's only section of the MVAS website. Sam asked if there were any objections to this. There is a 2009 PDF copy available (a bit outdated). We could try this for now. There were no objections but in the past, a few were not comfortable having persona data published. Sam and Harry assured us that it would be secure on the website. Think about this; we will go PDF with- no objection. A decision will be made next meeting.

Sam reported on some of the things discussed by the Board of Trustees. Training on MVCO equipment and a testing schedule will use "new" guidelines that will be followed from here-on. A member still needs to be certified on the proper and safe use of MVCO equipment to obtain an MVCO key. This program is a work in progress and when finalized, will be implemented. We have a 10" Dobsonian and an 8" SCT that are under-utilized. Based on what some other clubs do, it is likely we will offer these as loaner scopes for those members that don't have a telescope of their own. Proper loan forms and terms covering the loan are being worked out. There will most likely be a \$50 refundable deposit. Basic training on the scope will be given before a member takes it home. There will be time limits on the loan. Two members were already interested in the new program. Stay tuned as this program develops.

Bob Danko asked for members to look for red light to use at the observatory. They no longer make the type we used to use. Sharon gave him a box from the planetarium, since they don't use them anymore. Thanks again Sharon! Last but not least, both the President and Vice President will be away for the scheduled April and June meetings. Therefore we will have a pro-tem president conduct the April meeting. The June meeting has been moved up one week so that the two officers can attend. There were no objections to the change of date. The

GOOD OF THE SOCIETY: Doc Keeley has donated a Webb Society Double Star handbook for our library. Bob Danko

donated two DVDs (WW1 and WW2) for use as OTAA door prizes. Phil will have a pair of Celestron 10 x 50mm binoculars for the chili cook-off prize. Thanks to one and all for these gifts.

VISUAL REPORTS: Skipped- it was time to eat (getting late).

ADJOURNMENT: Adjourned at 10:20 PM. We thank our hosts Joe and Shirley Cappello for the great sandwiches (Rueben's rule!) and chocolate squares. Very good!! The next meeting will be at the MVCO on April 24, 2010. Meeting begins at 8:00 PM. Scheduled hosts are Mike and Lisa Boyer. **PASSWORD:** name a robotic, planetary exploration spacecraft. Mainly impactors, landers, orbiters or fly-by's. *-minutes by P. Plante*

MVAS REMINDERS

Don't forget we have a Chili Cook-off on April 17. All are welcome to participate either as a taste tester or bring a vat of your best chili. "Fire-in-the-hole" is the theme this year but we also welcome a more moderate brew (for relief!). The winner gets a pair of Celestron 10 x 50 binoculars. Nice for keeping in the car for spur of the moment stargazing.

The OTAA Scenic Vista Stargaze is on May 15. With luck, maybe an all-nighter. It's time to plan what to bring for observing, snacks, warm attire, and nap-time.

Schedule Change: The June meeting has been moved up to June 19.... Mark your calendar.

Members in good standing as of March 2010 (by month paid):

(Oct) J. Cappello, S. Cappello
(Nov) Keeley, Pandian, P.Plante,
(Dec) Bartos, Dimoff, DiNardo, Dirocco, Janeco, Mattuissi,
J. McCullough, R. McCullough, Miyashita,
(Jan) E. Klesch, R. Klesch, (Eaken - *check was cashed in April*)
(Feb) B. Danko, B. Hoffman, Mehle, L. Plante, Thomas III.
(Mar) M. Hoffman, Daugherty, Pearce, Baker

If you don't see your name listed, it's very likely you owe dues for 2010. Please contact the Treasurer or Secretary to make a payment or at least give a timeline on when you can pay- or if you plan to leave us. **New members** need to do the same. If we receive no payments or other contact, members in arrears will be dropped from the roster starting in May. You will also stop getting the *Meteorite*. Sorry- gotta do it (rules). Thanks.

MVAS ACTIVITIES

With winter weather quickly becoming a bad memory, some MVAS observers have been out observing when conditions allow. Most notably Roy and Jodi McCullough and Bill Pearce have been doing some nice solar imaging in H-alpha. Many of you have seen their images posted to the MVAS email group. Lou DiNardo has been making progress getting back up to speed in this regard too. Of particular note is that Chris Stephan (in Florida) has recently surpassed his 36,000th variable star estimate for the AAVSO. In fact, he claims that this past March was his best month yet with 461 estimates. For contrast, Phil Plante just passed 2,600 estimates for his AAVSO career (since 1996). He has made 146 of these with Titan, our 25" scope. All of this is in eager anticipation of the upcoming observing season. Take advantage of the clear nights to come. So... get your gear cleaned-up and collimated. We hope to see you at the MVCO or Scenic Vista. We'll keep a light off for you.

Observer's Notes.....

Hop To It

Most observers know how to star hop to high-light objects such as those in the Messier list, or to their favorite double stars. This usually involves star hopping to the prime target, a quick look, then on to the next prime object. But why not stop for a while, and star hop from the target to other objects in the neighborhood. This forces you to slow down and "smell the flowers" as the saying goes. An appropriate mantra for the spring observing season. Presented here is one such sky-tour for springtime observers. We will use the globular cluster M-53 in Coma Berenices as the prime target. To hop to M-53, use Arcturus as your reference star. Move one hour east of Arcturus and then about 1.5° south. α Com is a 4.4 magnitude star, the brightest in the vicinity, and a fairly easy find in a finder scope. A polar aligned EQ mount will make the sweep easy. Look for a 6th mag. star about 45' due south to help identify α Com.

Once you get it in the main scope, crank up the power. Warning- you will need at least an 8" or larger scope. At 0.65" separation, this is at the limit for an 8". My last check (April 1, 2010) was with a C8 at 433x under steady seeing with cooled optics. I saw the classic "egg shaped" diffraction disk. Just barely split. Most likely, seeing conditions will limit your success; even with larger apertures. But give it a try to test your optics at least. Switch to your lowest power eyepiece. M-53 will be about 0.80° NE of α Com and both might be in the same field of view. Moonlight, light pollution and hazy skies will diminish M-53's visibility or even block the view. About 1° SE of M-53 is globular NGC 5053. It's much fainter than M-53, if you can see this one, there is hope for seeing the galaxies in the list. If you can't see NGC5053, don't expect much in the way of galaxies. You still might try for M64, M86 and M87. If galaxy hunting is ruled out, star hop west to the double stars. These can be seen even with the Moon up. You won't regret a stop at 24 Com. It rivals more famous doubles like Almach or Alberio. Golden yellow and deep blue colors are striking. This may become a favorite.

The galaxies in the list dive into the northern part of Virgo's *Realm of Galaxies*. Dark skies are recommended for finding these. Bigger scopes help too. Under "notes" you'll find a brief description as found in *Deep Sky Field Guide to Uranometria*

when available. In some cases the common name is given. Please use a detailed atlas for the hunt. If none are available, feel free to photo-copy the chart below to use at the telescope.

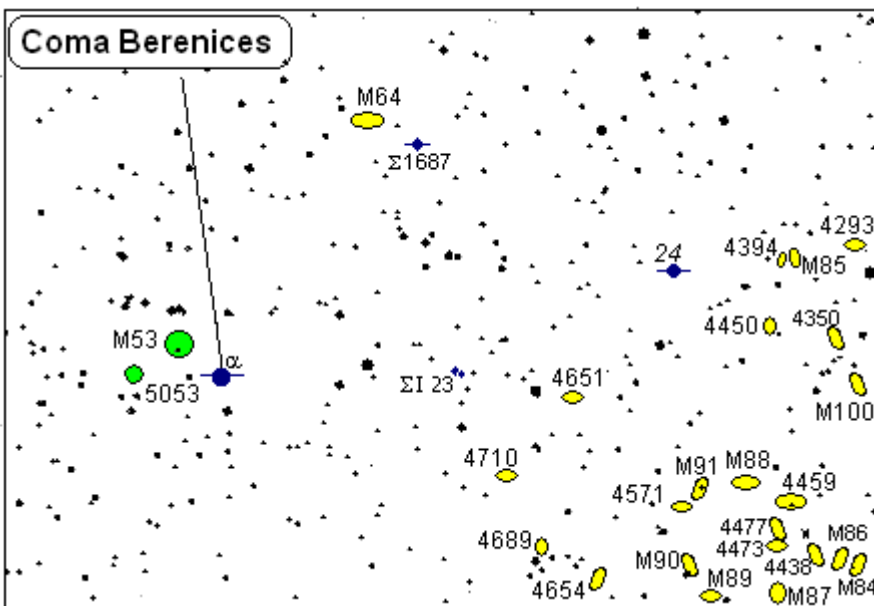
Touring the night sky takes on a personal touch when one uses their own skills in finding their way. Go-To's are great and can save a great deal of time and frustration. But usually big Dobs are not Go-To, as well as all the user friendly scopes at the MVCO. So...like the title said, hop to it!

OBJECT	Magn.	Type	Sep. / size / notes
α Com	4.9, 5.5	dbl. star	0.6" (closing fast)
24 Com	5.1, 6.3	dbl. star	20.0" (org. & blue)
Σ I 23	6.5, 7.0	dbl. star	196.0" (org. & white)
Σ 1687	5.1, 7.1, 9.8	dbl. star	1.2" (AB- yellow) 28"(C- blue)
M53	7.5	globular	14.4' resolv. w 6" ?
M64	8.9	galaxy	3.0' x 2.0' <i>Blackeye</i>
M84	10.0	galaxy	5.0' x 4.0' near M86
M85	9.1	galaxy	7.5' x 5.7' bright ellipt.
M86	8.9	galaxy	12.0' x 9.0'
M87	8.6	galaxy	7.1' x 7.1' <i>Virgo A</i>
M88	9.6	galaxy	6.1' x 2.8'
M89	9.8	galaxy	3.4' x 3.4'
M90	9.5	galaxy	10.0' x 4.0' barred spiral
M91	10.2	galaxy	5.0' x 4.0'
M100	9.3	galaxy	6.2' x 5.3' face-on
NGC 4293	10.3	galaxy	1.0' x 0.5' brt. nucleus
NGC 4350	11.0	galaxy	2.3' x 0.8'
NGC 4394	10.9	galaxy	3.6' x 3.0' brite bar
NGC 4438	10.2	galaxy	6.2' x 1.7' " <i>The Eyes</i> "
NGC 4450	10.1	galaxy	5.5' x 3.7'
NGC 4459	10.4	galaxy	3.5' x 2.7' brt. nucleus
NGC 4473	10.2	galaxy	3.5' x 2.3'
NGC 4477	10.4	galaxy	3.8' x 3.9'
NGC 4571	11.3	galaxy	4.5' x 3.7' dim nucleus
NGC 4651	10.8	galaxy	3.9' x 2.0' diffuse nucl.
NGC 4654	10.5	galaxy	5.3' x 2.9'
NGC 4689	10.9	galaxy	4.0' x 3.0' brt. nucleus
NGC 4710	11.0	galaxy	4.3' x 1.3' dark lane
NGC 5053	9.9	globular	8.9' faint & concentrated

MVAS Homework:

Our old friend Saturn returns to the evening skies. The rings are still at a low angle. They will close-up from 2.8° in April to 1.7° in late June. They begin to open again from then-on. They will be opened to 3.3° by August when Saturn is lost in the glare of sunset. After conjunction, Saturn returns in November at dawn, low in the east. The rings will have opened to 8.1° by then. Saturn has a new look in that we now see the north face of the rings as well as a complete view of the northern hemisphere. With the rings still skinny and less glaring, we can look for the fainter moons. (See S&T May 2010, pg. 61).

To get the homework done, have a copy of the homework page at the telescope and just draw the banding you see on the globe. Use an eraser to make the bright zones stand out. Smudge the graphite with your finger to blend and shade as needed. Try to get the main belts and zones. This is good practice and training for future observations and sketching. There is a method to the madness!



MVAS OBSERVER CHARTS

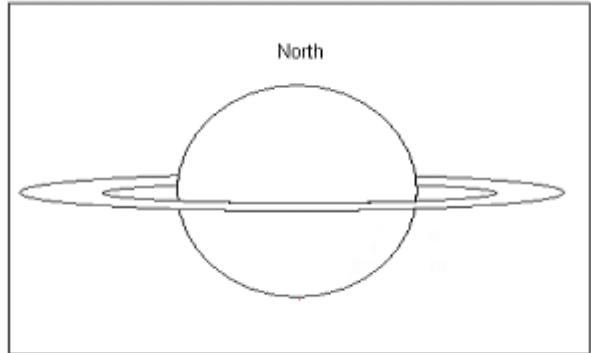
MVAS OBSERVATIONS - DUE MAY 2010

Variable star of the month: **SS Virginis** (*abbrev:* SS Vir). This variable is easily found NE of eta Vir. It is at the east end of a short chain of stars. Most of the time it is easy to spot due to its distinctive pinkish-red color. It can be followed with binoculars, 50mm or larger. As always, a darker sky background will make finding and estimating it much easier. This is a good one to get started on with variable star work. Be patient. It will change.

OBSERVER _____

Featured object: **Saturn**. Please try a sketch of Saturn. Use the template below to fill in detail with a pencil. The ring tilt is for mid-April 2010 but will be close to this for the next few months.

Saturn Observation:



Date: _____ Time(EDT) _____ Scope _____

SS Vir magnitude estimates:

Date:	Time:	estimate:	Instrument:
_____	_____	_____	_____
_____	_____	_____	_____

(1) Ceres Observations:

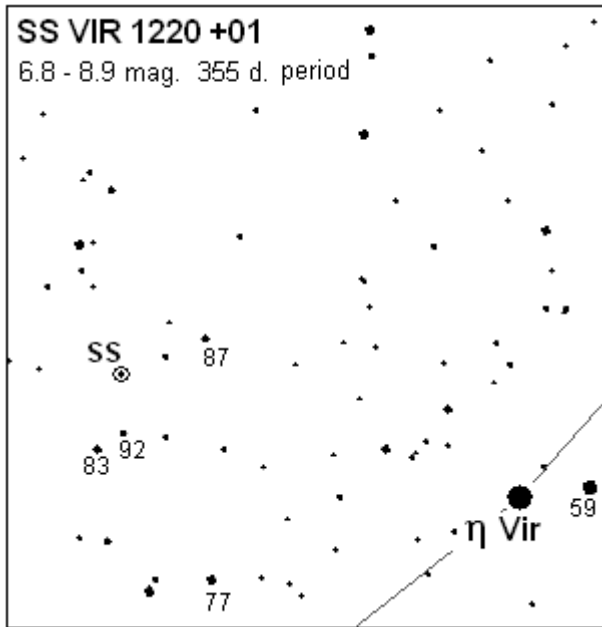
Date:	Time:	Instrument:	magnification:
_____	_____	_____	_____
_____	_____	_____	_____

Other Objects in Virgo to observe

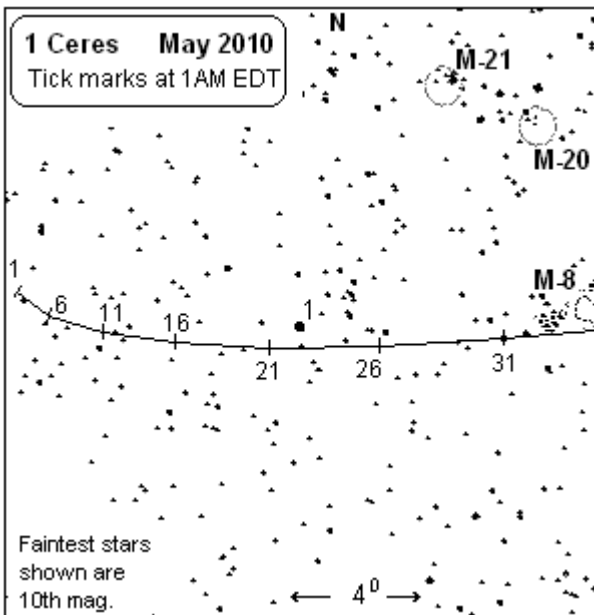
Object	Date	Scope	Object	Date	Scope	Split?
M-49	_____	_____	γ Vir	_____	SEP. 1.4"	Y / N
M-87	_____	_____	θ Vir	_____	6.9"	Y / N
M-104	_____	_____	S 639	_____	56"	Y / N

Lunar Occultations (see Sky Almanac):

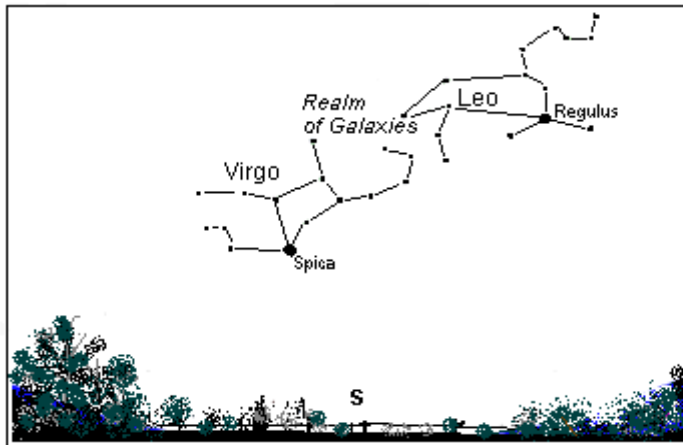
Date (UT):	Time(UT):	Scope/magx	Phenom (circle)
_____	_____	_____	_____x R D
_____	_____	_____	_____x R D
_____	_____	_____	_____x R D



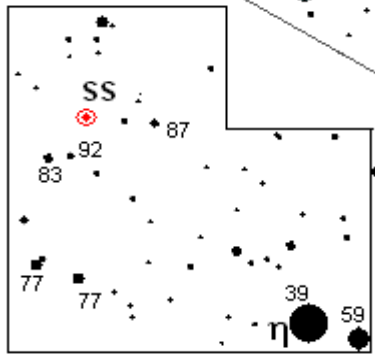
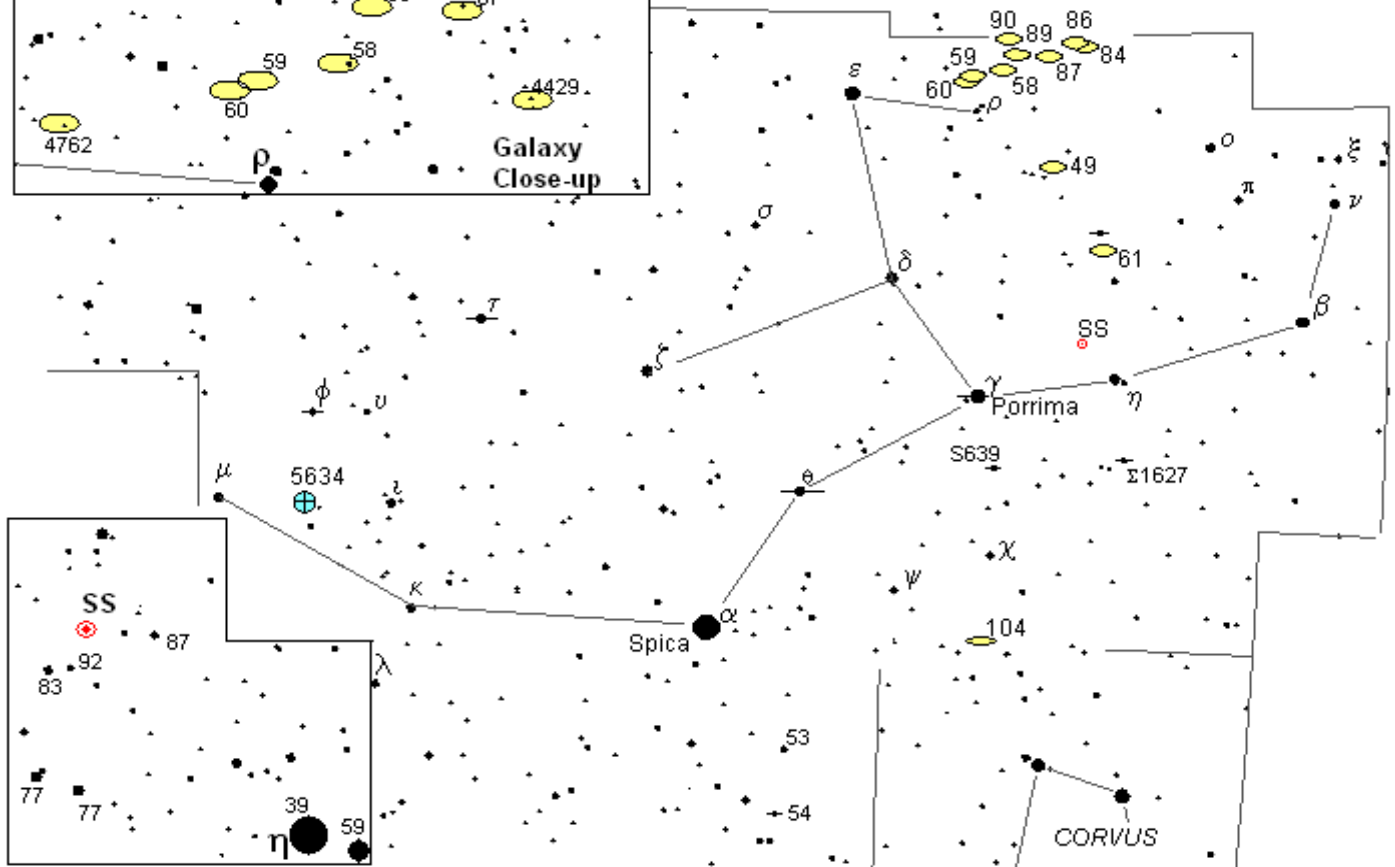
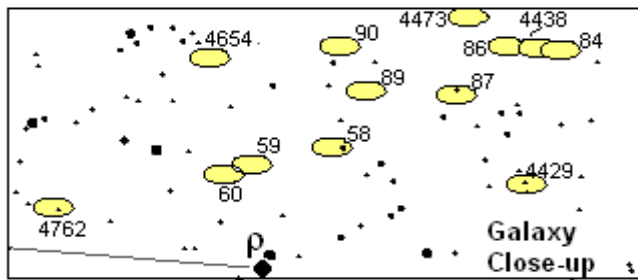
Asteroid of the month: **(1) Ceres**. It's approaching the Lagoon Nebula in Sagittarius. This is a summer object so that means you'll have to observing around 2:00 AM for decent view. By June, Ceres will have passed M-8 so this is your only shot for a photo sequence of the approach and pass. Ceres will go from 8.1 mag. to 7.5 mag. in early June. Should be an easy find in 10 x 50 binoculars. Watch out for the crowded star fields!



Constellation of the Month — Virgo



In mid April, Virgo is high in the SE by 10 PM. Around midnight it transits the meridian and is due south. The bright star Spica is easy to find. From there you can hop northward to the Realm of Galaxies. Go to epsilon, and then move west to rho. From there go west, using the close-up chart to hunt down the Messier Galaxies. These galaxies are all brighter than 10th magnitude and should be seen in a modest scope under a dark sky. There are several double stars to try. These would be good targets when the sky is not so good. Follow gamma (Porrima) over the next decade as the components slowly open up. You'll be watching a double star's orbital motion in action. There are many more NGC galaxies in Virgo that a bigger scope could tackle. Use a better atlas than the one charted below for these fine NGC's. The brightest quasar is also just north of the variable star SS Vir. The AAVSO has charts for quasar 3C 273 which can be downloaded from the AAVSO website.



DEEP SKY	STARS	Check list	Instruments used:
M49 8.4 mag. 8.1' x 7.1'	DOUBLES:	<input type="checkbox"/> M49	<input type="checkbox"/> on <input type="checkbox"/>
M58 9.7 mag. 5.5' x 4.6'	τ Vir 4.3, 9.5 81" both white	<input type="checkbox"/> M58	<input type="checkbox"/> ϕ Vir <input type="checkbox"/>
M59 9.6 mag. 4.6' x 3.6'	ϕ Vir 4.9, 10.0 5.3" yellow, blue	<input type="checkbox"/> M59	<input type="checkbox"/> γ Vir <input type="checkbox"/>
M60 8.8 mag. 7.1' x 6.1'	γ Vir 3.5, 3.5 0.4" silver, yellow	<input type="checkbox"/> M60	<input type="checkbox"/> θ Vir <input type="checkbox"/>
M84 9.1 mag. 5.1' x 4.1'	θ Vir 4.4, 9.4 6.9" white, violet	<input type="checkbox"/> M84	<input type="checkbox"/> 54 Vir <input type="checkbox"/>
M86 8.9 mag. 12' x 9.0'	54 Vir 6.8, 7.2 5.3" yellow, blue	<input type="checkbox"/> M86	<input type="checkbox"/> Σ 1627 <input type="checkbox"/>
M87 8.6 mag. 7.1' x 7.1'	Σ 1627 6.6, 6.9 19.8" white, blue	<input type="checkbox"/> M87	<input type="checkbox"/> S 639 <input type="checkbox"/>
M89 9.8 mag. 3.4' x 3.4'	S 639 6.8, 10 56" yellow, blue	<input type="checkbox"/> M89	<input type="checkbox"/> SS Vir <input type="checkbox"/>
M90 9.5 mag. 10.1' x 4.0'	Variable Star	<input type="checkbox"/> M90	<input type="checkbox"/> mag. on <input type="checkbox"/>
M104 8.0 mag. 7.1' x 4.4'	SS Vir 6.6 to 8.7mag. 358 days	<input type="checkbox"/> M104	<input type="checkbox"/> mag. on <input type="checkbox"/>
N5634 9.4 mag. 3.7' dia.		<input type="checkbox"/> N5634	<input type="checkbox"/>

Solar and Lunar (EDT).

Date	Sunset	Moonrise	Moonset
1	8 : 21	— : —	8 : 18A
5	8 : 25	2 : 02A	x : xx
9	8 : 30	3 : 37A	x : xx
13	8 : 34	5 : 27A	x : xx
17	8 : 38	9 : 05A	12 : 27A
21	8 : 41	x : xx	2 : 07A
25	8 : 45	x : xx	4 : 00A
29	8 : 48	10 : 45P	x : xx

PLANET WATCH

VENUS	SATURN	MARS
Sets	Transits	Sets
10:39P	10:43P	3:04A
10:48P	10:26P	2:52A
10:56P	10:10P	2:41A
11:04P	9:54P	2:30A
11:11P	9:38P	2:19A
11:17P	9:22P	2:07A
11:22P	9:06P	1:56A
11:26P	8:50P	1:45A

May 2010

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Asteroid for May 2010 (1) Ceres

Date	Rises	RA hr. min deg.	Dec. deg.	Alt.	Azm	Magnitude
1	12 : 30 AM	18 : 20.0	-22.7	4°	125°	8.1
7	12 : 07 AM	18 : 19.2	-22.9	8	130	8.0
13	11 : 39 PM	18 : 17.4	-23.3	11	135	7.9
19	11 : 14 PM	18 : 14.7	-23.6	14	140	7.8
25	10 : 49 PM	18 : 11.0	-24.0	17	156	7.6
31	10 : 22 PM	18 : 06.5	-24.4	19	152	7.5

(at 1:00 am EDT)

Date hr. Celestial Highlights

Date	hr.	Event
1	0.0	Mars: Syrtis Major @ CM
2	0.0	Mars: Syrtis Major @ CM
3	0.0	Pallas at opposition
6	4.2	LAST QUARTER MOON
6	6.0	eta Aquarids
14	1.1	NEW MOON
16	2.0	Venus 5° above 4% Moon
20	11.7	FIRST QUARTER MOON
21	2.2	Venus 1.0° N. of M35
28	0.1	FULL MOON
28	1.0	Algol at minimum light

Variable Star of the Month: SS VIR 6.8 - 8.9mag 355 day period

LUNAR OCCULTATIONS FOR: MAY 2010

Civil (24hr) EDT			UT			Ph	% illum.	Moon alt	Moon azimuth	Star name	Star Mag.	event PA	dbl./ sep.
5	3 : 10 : 40	5	07 : 10 : 40	R	58-	11°	125°	rho CAP	4.9	287°	1.60"		
16	21 : 38 : 42	17	01 : 38 : 42	D	10+	20	285	ZC 956	6.2	041°	NA		
16	22 : 21 : 11	17	02 : 21 : 11	D	11+	12	291	ZC 960	6.6	051°	NA		
16	22 : 25 : 04	17	02 : 25 : 04	D	11+	12	291	ZC 962	6.9	080°	NA		
16	22 : 29 : 45	17	02 : 29 : 45	D	11+	11	292	ZC 964	7.0	121°	59.0"		
17	23 : 47 : 32	18	03 : 47 : 32	D	19+	5	292	56 Gem	5.1	169°	NA?		
20	0 : 54 : 52	20	04 : 54 : 52	D	41+	7	279	ZC 1381	6.4	145°	NA?		
21	0 : 03 : 01	21	04 : 03 : 01	D	52+	22	258	ZC 1489	6.6	140°	0.100"		
22	1 : 16 : 56	22	05 : 16 : 56	D	64+	13	258	62 Leo	6.0	118°	NA		
22	22 : 42 : 43	23	02 : 42 : 43	D	73+	39	209	ZC 1713	5.6	111°	NA?		
31	3 : 16 : 00	31	07 : 16 : 00	R	89-	25	166	ZC 2822	5.6	253°	NA		

NA? = companion is too faint or close to detect.

D= disappearance. Good occultation event.

d= disappearance, the star's magnitude approaches the observing limits of 200mm objective

R= reappearance. Good occultation event

r= reappearance, the star's magnitude approaches the observing limits of 200mm objective

All disappearances (D) occur on the eastern limb (left side in the sky). Reappearances (R) always occur on the western limb.

Position Angle (PA): tells where along the western limb to watch for a reappearance.

PA is referenced to celestial north: North=0° East=90° South=180° West=270°

Occultations computed using Occult v3.6 (I.O.T.A.)

Variable star data from AAVSO. All other data computed with MICA 1800-2050 (Willman-Bell)

GALLERY.....

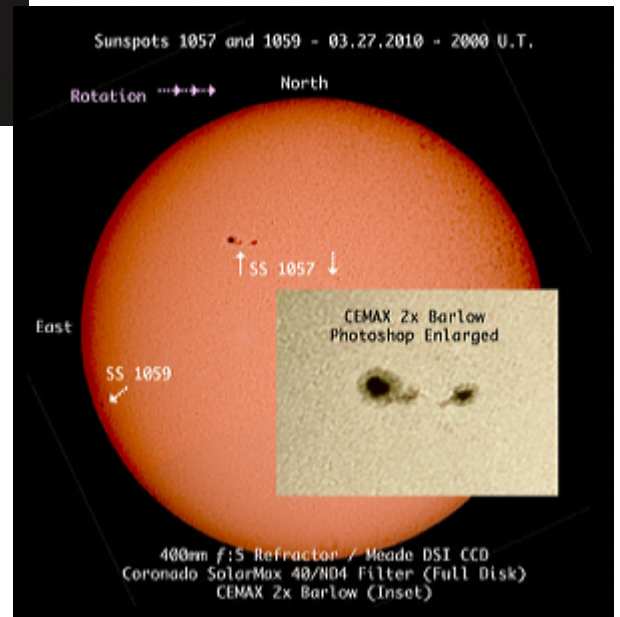
MVAS Sky Patrol....

Roy has been doing a good deal of H-alpha imaging this spring. Below is a full disk image taken on April 1st 2010.



Roy also got this close-up on March 21, 2010

Below: Bill Pearce got the whole disk on March 27, 2010.



Lou has been trying to get the astrophotography thing going again. Here is an offering from March 28, 2010.



Above: Jodi assembled a comparison sequence showing Saturn's ring tilt as it has changes since 2008. Photo's by the McCulloughs.



The McCullough's used a C-14 to image Saturn on March 20, 2010. This was just before opposition. To all contributors above: Good job and a thank you for sharing these great images. Keep'em coming. Your fan base wants more! We seem to be missing shots from our other shutterbugs (Boyer, DiRocco, Durbin, Higgins and Plante).

Porrima Update:

Gamma Virginis (aka Porrima) is a binary star, consisting of two stars of approximately equal apparent magnitudes of 3.48 and 3.50. The star system has a combined apparent magnitude of 2.9. The system is 39 light years away from the Sun. You can find it NW of Spica (use the constellation chart). It has an orbital period of 168.93 years. It was an easy object for amateur astronomers until the beginning of the 1990s, when the components began to close. They were at periapsis (closest) in 1836 and then in 2005. Now opening again, Porrima requires a larger telescope to split. The distance will again be wide enough in 2020 to view with a small telescope. Having been a "fan favorite" back in the day, you can now watch it open up again during the next decade. It was cleanly split at 433x using an 8" SCT on April 1, 2010. Two nice Airy disks a hair's split apart. It is listed as having a 1.39" separation this year. This should be fair game for 6" and larger scopes. Give it a try. It's nice, long term observation project. Watch a binary star in action!



Tony got a quick shot of Venus (upper left) and Mercury (lower right), from Canfield, OH in early April.