THE METEORITE

Messier 33

(NGC 598)

The Triangulum or Pinwheel Galaxy in Triangulum

Credit: IAC/RGO/Malin

Newsletter of the Mahoning Valley Astronomical Society, Inc.

IN THIS ISSUE:

OCTOBER 2013

Meteorite Editor: Phil Plante
1982 Mathews Rd. #2
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THE METEORITE

Newsletter of the Mahoning Valley Astronomical Society, Inc.

OCTOBER 2013

MVAS CALENDAR

OCT 12	Observe the Moon Night at the MVCO. 7PM
OCT 19	Business meeting at the MVCO. 8:00 PM.
OCT 26	Halloween Party at the MVCO. 7:00 PM
NOV 2	New Moon observing at MVCO. Sunset 6:18 PM.
NOV 23	Business meeting at YSU. After 8:00 PM show.

NATIONAL & REGIONAL EVENTS

OCT 25-27 **Custer Institute Astronomy Jamboree.** Held in Southold, NY. at the Custer Institute. Education f or entire family on astronomy. Lectures, Exhibits, Workshops, Evening Star Parties. Fees, see contact at: http://www.custerobservatory.org

NOV 9 **AAA Urban Starfest in Central Park. NY, NY.** The Amateur Astronomers Association of New York (AAA), in conjunction with the NYC Urban Park Rangers, will take Manhattan on a tour of our solar system and universe during its annual Urban Starfest in Central Park's Sheep Meadow. Admission is free. http://www.aaa.org/starfest

DEC 1-3 **Expansive Skies: An Astronomy Weekend.** Held in Abiquiu, NM at the Ghost Ranch Education and Retreat Center. This is an all-ages course that will reflect upon the Northern New Mexico night sky. Native spirituality and reflection throughout, will provide a unique spiritual touch to astronomical musings. $125 + lodging and meals. http://ghostranch.org

MVAS, P.O. BOX 564 NEWTON FALLS, OH 44444-9998
MVAS Homepage- http://mvobservatory.com

NEWS NOTES

Cloudy skies everywhere! Astronomers using data from NASA's Kepler and Spitzer space telescopes have created the first cloud map of a planet beyond our solar system. It is the hot Jupiter-like world known as Kepler-7b. The planet is marked by high clouds in the west and clear skies in the east. Previous studies from Spitzer have resulted in temperature maps of planets orbiting other stars, but this is the first look at cloud structures on a distant world. "By observing this planet with Spitzer and Kepler for more than three years, we were able to produce a very low-resolution 'map' of this giant, gaseous planet," said Brice-Olivier Demory of Massachusetts Institute of Technology in Cambridge.

Spitzer can detect infrared light and was able to measure Kepler-7b's temperature, at between 1,500 and 1,800 degrees Fahrenheit. This is relatively cool for a planet that orbits so close to its star; within 0.6 A.U.. And this too cool to be the source of light Kepler observed. Astronomers determined that the light from the planet's star is bouncing off cloud tops located on the west side of the planet. "Kepler-7b reflects much more light than most giant planets we've found, which we attribute to clouds in the upper atmosphere," said Thomas Barclay, Kepler scientist at NASA's Ames Research Center in Moffett Field, Calif. "Unlike those on Earth, the cloud patterns on this planet do not seem to change much over time -- it has a remarkably stable climate."

Kepler has discovered more than 150 exoplanets, and Kepler-7b was one of the first. The telescope's reaction wheels have since failed and prevents Kepler from hunting planets any more. However, astronomers continue to study almost four years' worth of data. The "cloudy" findings are an early step toward using similar techniques to study the atmospheres of exoplanets more like Earth "With Spitzer and Kepler together, we have a multi-wavelength tool for getting a good look at planets that are billions of miles away," said Paul Hertz, director of NASA's Astrophysics Division in Washington. "We're at a point now in exoplanet science where we are moving beyond just detecting exoplanets, and into the exciting science of understanding them." - *Sept. 30, 2013 /PRNewswire-USNewswire*

Onward Dawn. On September 27, 2013, it was the sixth anniversary of the launching of the Dawn spacecraft. It left Earth to embark on a daring deep-space expedition to visit asteroid (4) Vesta and dwarf planet (1) Ceres. Dawn is humankind's only permanent resident of the main asteroid belt between Mars and Jupiter, and is making good progress toward the mysterious dwarf planet Ceres. Dawn spent 14 months (including its fourth anniversary) orbiting Vesta on its way around the sun. Ceres is next in 2015. But Vesta and Ceres do not orbit the sun in the same plane that Earth does, and Dawn must match its orbit to that of its targets. Earth's orbit is closer to the ecliptic, and the hard part of the of Dawn's journey is changing the inclination of its orbit, which takes a lot of energy. Matching orbits with Vesta and Ceres required the extraordinary capability of the ion propulsion system that Dawn is using... Powering its way through the solar system on a blue-green beam of xenon ions, the ambitious spacecraft is introducing humankind to ancient worlds, giant remnants from the dawn of the solar system.

- *Pasadena CA (JPL) Sep 30, 2013*

MINUTES OF THE SEPTEMBER MEETING

SEPTEMBER 27, 2013 at the MVCO

The September meeting came to order at 8:02 PM with president Lou DiNardo presiding. It was a full house in the 16" building with 24 members answering roll call. An added last minute twist had "favorite sci-fi movie" added to naming a globular cluster for the password. Guests included Randy and Sue Roth from Michigan, Rhonda Heatin and Virginia Bartos. A Call for the Reading of the Minutes was made by the President. Paul Baker moved to suspend the reading. Karin DiNardo seconded the motion. With no further discussion, the Minutes were accepted as published, by a unanimous voice vote.

TREASURER'S REPORT: The Report was read by Steve Bartos. There were no questions or discussion. Larry Plante moved to accept the Report. Chris Stephan seconded the motion. The motion carried by unanimous voice vote.

General Fund	**8/1 thru 8/31 2013**	
OPENING BALANCE:	$	8,019.07
CLOSING BALANCE:	$	8,156.57
AVAILABLE FUNDS (NON-RESERVED):	**$**	**3,942.45**
ACCOUNT NET GAIN/LOSS FOR THIS PERIOD:	$	+137.50
INCOME:		
OTAA RAFFLE	$	490.00
OTAA REGISTRATION		325.00
2013 DUES		40.00
ASTRONOMY CALENDAR (2)		20.00
MVAS MERCHANDISE		16.00
INTEREST		0.15
TOTAL INCOME	$	891.15
EXPENSES:		
CK# 2800 2013-2014 MVCO RENT	$	500.00
2801TABLES/CHAIR/TENT RENTALS FOR OTAA		222.00
XXX NEW CHECKS		31.65
TOTAL EXPENSES	$	753.65
Reserved Funds		
OBERVATORY ACQUISITION & DEVELOPMENT FUND	$	3,914.12
MVCO KEY DEPOSITS		270.00
SUNSHINE FUND		30.00
TOTAL RESERVED FUNDS	**$**	**4,214.12**

2013 Membership dues paid by: D. Schneider

CORRESPONDENCE: The usual packet of outreach materials arrived from NASA/JPL. Another letter from The Honor Project Trust was received (possible grant money for 501 3(c) organizations). Dan Schneider took it for further investigation.

COMMITTEE/OFFICER REPORTS: *IMAGING COMMITTEE:* Jodi McCullough had a few new photos of the month to display: Don Cherry's iPad Moon, Mike Heim's M-57, Lou DiNardo's M-17 and the McCullough's shot of comet ISON. *VISUAL COMMITTEE:* None turned in. *LIBRARIAN:* Nothing to report.

OBSERVATORY DIRECTOR'S REPORT: Larry Plante reported that a busy schedule has kept him away the last few weeks. But everything appeared to be in good condition at the MVCO. A rough sketch of a proposed new roof was left by the Five Star Construction company of Middlefield, OH. It would be of a domed style roof; length of the center raised about one foot with low slopes on all four sides. It would be constructed with rubberized Flintlastic material. Estimated cost was $3,300. Discussion followed. There were comparisons made between the domed approach and the previously proposed "A-frame" construction. All were concerned and agreed that any roofing that sloped down into the dome area was not a good thing. The concern being the extra rain being directed towards the seams around the dome; a high risk area for leaks. But all seamed to agree that we need to get away from a flat roof.

Phil pointed out that with this rubberized domed roof, we would be installing another rubberized material over the one installed in 2006. That one went over the original membrane installed in 1986. Resorting the same or similar material for a solution seemed a bit dubious to him. As such, this proposal would then give us three rubberized roofs. He noted that leaks can form anywhere with these membranes. Steel or PVC panels would more likely leak along seams. Panels would be easier to replace or re-seal. Rosemary pointed out that eventually all roofs end up leaking. Dan Schneider suggested that there is no rush to do a new roof since the patch on the roof seems to be holding-up and there are no leaks. We should take some time and investigate the situation. Phil then moved to table the decision until the Trustees could sit down and talk it over. Paul Baker seconded the motion. All were in favor by voice vote.

Continuing discussion on the roof: Chris Stephan suggested the we get rid of the dome and replace it with a sliding roof like the 8" and 12" building. He felt this would increase the use of the 16" scope. The dome limits easy access to the sky. There were concerns about construction and design efforts and the cost of it all. There could be issues with current building integrity as well. Phil noted that this idea has surfaced several times over the last 25 years. Dan was in favor of the A-frame style as used on the 8" and 12" buildings, keeping the dome. Phil also suggested that if we go with an A-frame style, we might extend this roof out over the space between the buildings. This would take care of a planned pavilion that was being discussed in private around 2009. The purpose of this would be to have a pavilion shelter all year long- for many uses. It would also eliminate the yearly expense of renting an OTAA tent.

OLD BUSINESS: Phil reminded the membership that October would have an event every weekend at the MVCO. Oct. 5th was a star party, Oct. 12th was Observe the Moon night, Oct. 19th is the business meeting, and Oct. 26th is the Halloween Party. Rich Mattuissi sent a thank you from Troop 184 for the great night at Scenic Vista in September. Steve has 13 Astronomy Calendars left for 2014. These are $10 each. See Steve if you want one. Speaking of the celebration, Jodi has been working on a 2014 calendar that will feature the 2014 MVAS schedule, MVAS historical and MVAS images (event and astro). The calendars will be the size of two 8.5" x 11" sheets of paper attached side by side horizontally (like any calendar). Jodi needs your photos and in high quality. Please bring them to the next meeting (TIFF files are preferred). There seemed to be an interest in the calendar. Estimated cost will be around $10 each.

NEW BUSINESS: Phil asked if the published dates for the 2014 OTAA were acceptable. There were no objections to May 3rd for the OTAA Scenic Vista Stargaze and August 23rd for our regular OTAA meeting at the MVCO. The tentative date for our 75th Celebration is Oct. 18th. This would have been our regular business meeting night. Thus the meeting will be moved back a week to Oct. 25th. But this is our usual Halloween Party night so It was suggested we dress-up spooky style for this business meeting next year.

Jodi is looking for volunteers to help show Comet ISON from the high school in Lisbon. Date and time are September 16 from 5:30 AM till 7:30 AM. The location has a great view to the east.

She is asking for volunteers that can bring tripod mounted binoculars or small telescopes. Nothing is set yet, but let her know if you can help if this flies- weather permitting of course.

GOOD OF THE SOCIETY: Rosemary noted the loss of long time member Agnes Buffwack this past August. Jodi has purchased and inquired about bulk orders for a series of laminated chart books. The series includes spiral bound charts for doubles, bright objects, Messier objects, etc. A complete set would go for $82 which includes a 10% discount and shipping. The Double Star guide is in the MVCO Observing Center. See Jodi for more details and/or to place an order for any book or the set. Steve Bartos still has a good supply of MVAS apparel for sale. See Steve at the next meeting. Paul Baker reported on a friends new 18" Obsession UC telescope. It breaks down to fit in a car and works exactly as the manufacturer states. The owner can't wait to use it at Cherry Springs. It will eventually use an Argo Navis Go To system. Jodi added that this system works rally well on their 25". Paul also noted that the West Virginia Astronomy Group was headed to Spruce Knob, but that all the spots allowed were filled. He said one time they were able to get on the mountain under these circumstances.

VISUAL REPORTS: Dan Schneider was at the MVCO on the 8" on several nights this week. Excellent skies with horizon to horizon Milky Way. Lou DiNardo also saw this rare sight from Boardman, OH. Despite the Mall and shops, and fast food joint light pollution. Rich Mattuissi had the Boy Scouts camping out again and using binoculars on M-31 and M-13. Larry is up at 4 AM most mornings and sees all the winter constellations in full glory. Jupiter shines in Gemini. Roy McCullough imaged Jupiter but has yet to process these. Phil managed 6 variable stars.

ADJOURNMENT: Lou moved to adjourn the meeting. Chris seconded the motion. All agreed to the motion, Adjournment came at 9:03 PM. We truly thank our hosts: Dan Schneider for the terrific selection of cold cuts and a nice pasta salad. Jan and Paul Baker supplied an assortment of fruit pies. Phil Plante brought a variety of soda-pop for beverages but coffee was brewed by Rosemary. A hit on this chilly night. The next meeting will be at the MVCO on October 19, 2013. Meeting begins at 8:00 PM. Scheduled hosts: (Meal) Sam DiRocco and Harry Harker, (Dessert) Paul and Jan Baker, (Drinks) Lou and Karin DiNardo. PASSWORD: name a professional telescope or observatory: Earthbound or in space. - *minutes by Phil Plante*

PRESENTATION: After the meeting and eats, Chris Stephan gave a presentation on the Criterion manufacturing company during a span from 1956 until 1982, that's when Bushnell bought them out. He reviewed the price swings and eventual increases during this time frame. He also described the various models of reflectors that Criterion sold such as RV and Custom models. He has just acquired an 8" Custom model, which he had on display. He showed the many innovative design ideas that were introduced by Criterion. Later he took it outside for a first look. The scope was in beautiful condition and he bought it for less than what it went for as new. No plastic on this one!

MVAS REMINDERS

THE OCTOBER MEETING is a week early, on Saturday October 19th. This is not the usual last Saturday of the month meeting. This move has been standard practice since the 1980's. We have the last three meetings of the year a week early due to Halloween, Thanksgiving and Christmas. There may be a few newer members that need to be aware of this and the reason. You old timers should know this by heart. October is a busy month at the MVCO. We have the New Moon star party on October 5.

The Observe the Moon Night is on October 12th. Sunset is at 5:47 PM. You can arrive as early as you like to set-up, but we'll officially start at 7:00 PM. As the name implies, we will study the 1st quarter Moon this night. Team up with others and a lunar chart to learn some craters and other lunar features. Of special note this night is that there will be a nice lunar occultation of 3rd magnitude β **Cap at 9:24 PM** this night. This is a good video project. Tonight is also a good time to try your hand at lunar imaging if you haven't tried it yet. Practice focusing and exposure. Get ready for the two lunar eclipses next year. So...Bring your scopes or share the views/imaging using the MVCO scopes. Most observers seem to shun the Moon. But the Moon is a fascinating object you can observe even in heavy light pollution, or through thin clouds. This is a chance to get used to lunar exploration. Other objects are viable targets too, but lunar observing is the main thing until it sets at 12:38 AM on a cool Sunday morning. Hot chocolate anyone?

The Halloween Party is scheduled for **Saturday, October 26th**. Starts at 7:00 PM, rain or shine. Costumes are welcome but not necessary. One thing to do is devise a costume that helps keep you warm! This is a typical MVAS eat'em up event. Bring some chow to share. Drinks too. Final prep will occur at the business meeting the weekend before. Scared yet? Remember, at the MVCO, no one can hear you scream.....

MVAS ACTIVITIES

Astro-Ham at Scenic Vista. Sep. 14th, 2013. Finally we had an observing event with clear skies. Several members from the Western Reserves Amateur Radio Club set up around noon. A few were from the MVAS. Most MVAS members arrived later in the afternoon. There was food of course. Virginia had a crock pot of tasty BBQ beef for sandwiches. Rich had Boy Scout Troop 184 set up tents at the south west end of the field. There seemed to be about 10-12 scouts eager to peer into a telescope. Merit Badges in the making. By the time sunset had passed we had 18 telescopes on the field. Many small refractors dominated the line-up. A few Dobs and a few SCT's rounded out the collection. The largest scope was a 12" Meade SCT that was brought by a visitor. A few other folks from the public had telescopes; one was even imaging. Rich had his Binocs going. There were perhaps eight people from the general public.

One thing that hampered deep sky viewing was a fat quarter Moon. It didn't set until 1:30 AM. Many where observing the Moon early-on, and there seemed to some enthusiasm. There was a buzz over one small bright crater that caught attention. It turned out to be Dionysius which is one of the brightest craters at full Moon. Don Cherry took an incredibly sharp picture of the Moon by aiming his iPad into a scope. You can see this in the Gallery section. The Scouts turned in by 10:00 PM. MVAS stayed on the field, slowly shrinking in number until 3:00 AM. There was no dewing at all! Once the Moon set the skies were awsome. This scribe took a 2hr. hour nap in the car (freezing), before leaving at 5:30 AM. It was a good night for all.

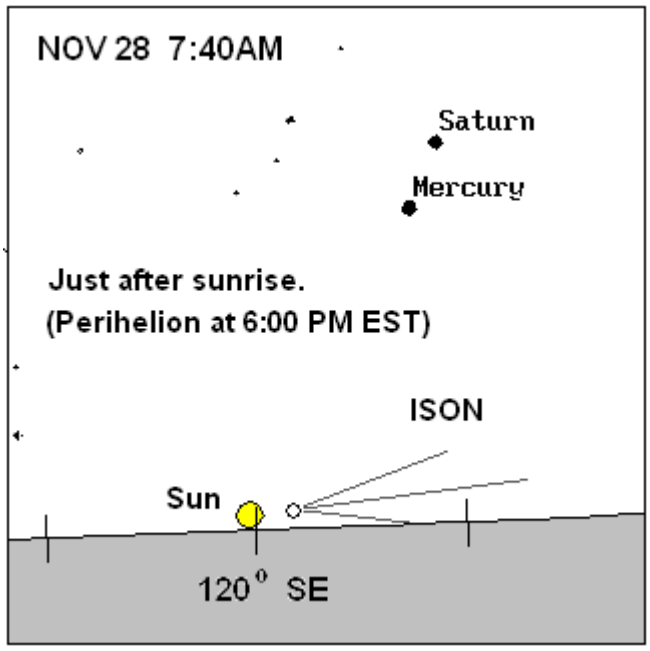
Cabinets! We thank Chris Stephan for obtaining two file cabinets for the MVCO. These replace the venerable rusty file cabinet that has stood guard in the 16" building for over 30 years. They are by the front door as usual. Jodi is using these to hang magnetic "photos of the month". Check it out!

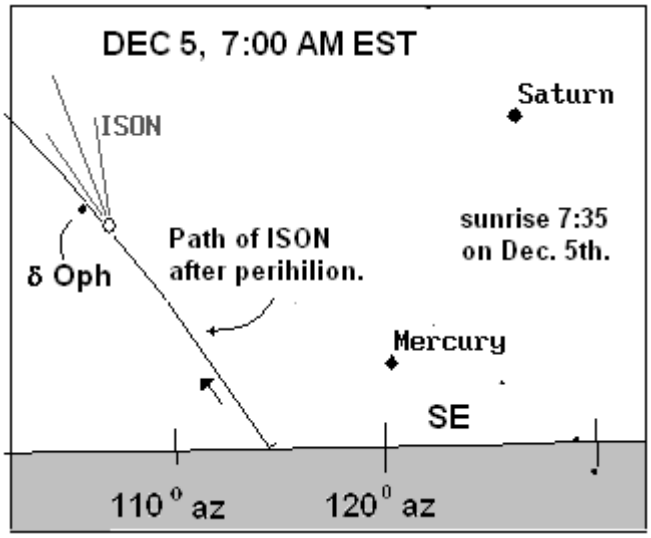
OBSERVER'S NOTES

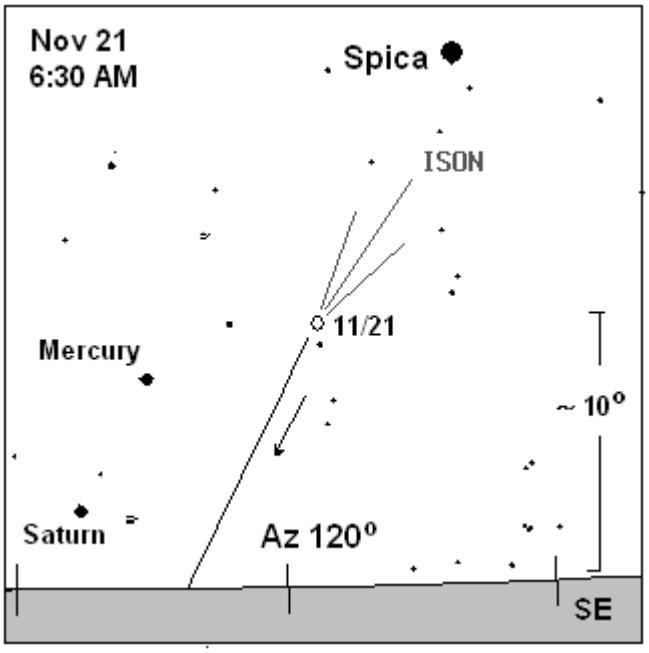
PRIME TIME ISON

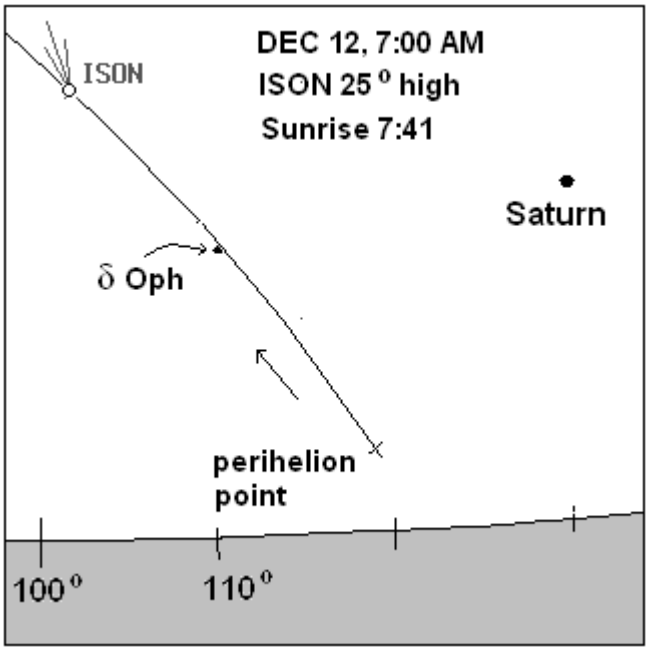
The last week or so of November 2013 starts the prime viewing period of Comet ISON C/2012 S1. Early perditions had this comet as being spectacular. Recent predictions have it being less so. But comets are unpredictable. ISON could be the comet we all hope for, or it could fade to less compelling views. Much like the hype around PanSTARRS earlier this year. With this in mind, below are a few charts that show you where you can search for ISON. Binoculars would be a good tool for this if it turns out to be fainter that expected. These charts are centered around the date of perihelion, when ISON makes its closest approach to the Sun. This happens around 6:00 PM EST on Thanksgiving Day. Please do not look visually for ISON at perihelion. It will be **too close to the Sun to be safe**. Looking at the electronic viewfinder on a dslr, camcorder or even a cell phone, is recommended. This way your eyeball will have no direct contact with sunlight as you scan for the comet. You can also image at the same time. Using caution, it can be done. The Sun will be just about to rise and the brightness of the sky should not pose a threat to the CCD chip in your camera or any plastic parts around it. I have shot video of the Sun with an unfiltered camcorder, for many seconds before and after the Diamond Ring effect with no harm to the camcorder.

The views will be early morning, just before sunrise. The charts continue into December as ISON slowly leaves the vicinity of the eastern horizon. By Christmas, ISON becomes circumpolar for mid northern latitudes like the MVCO (N 41°). Circumpolar means it will be above the horizon at all times. It should be both visible after sunset or before sunrise. Perhaps even higher up during the night. Depending on the lunar phase. It's a full Moon on December 18th. This gives one an opportunity to view it at convenient times or whenever the skies clear. As a passing note, the distant tree line at the MVCO, at the azimuth ISON will be at just before and after perihelion is around 4° to 6° high. (120° to 135° azimuth). This is eastern section of horizon at the MVCO is the lowest obstruction we have there. All we need are clear skies.



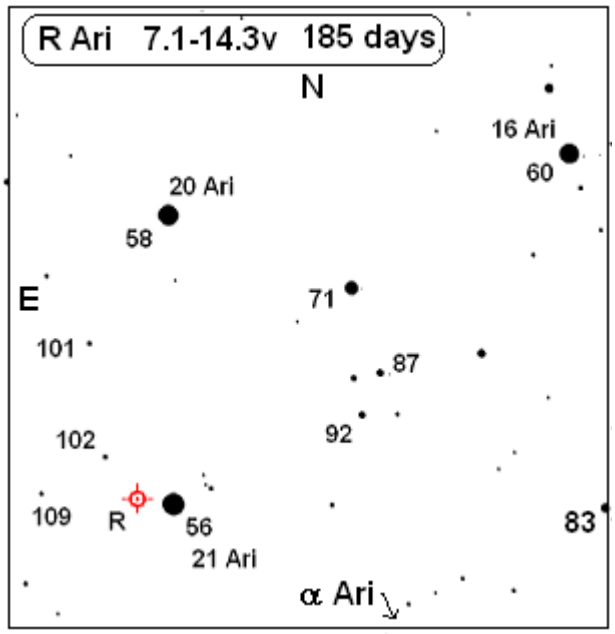




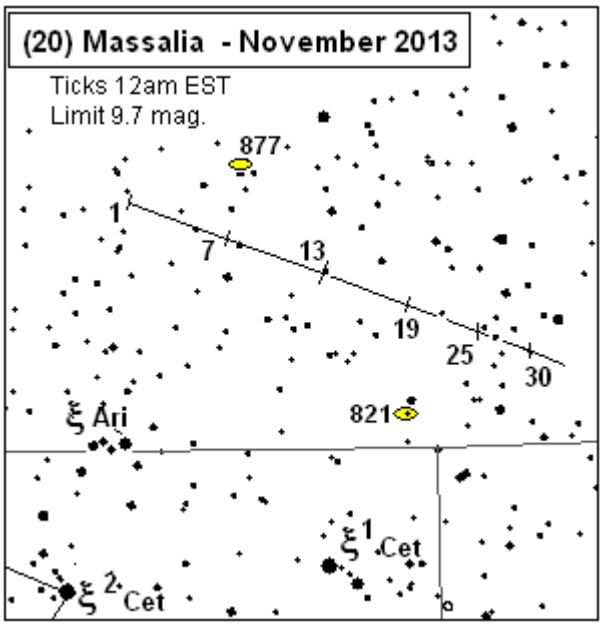


MVAS OBSERVER CHARTS

Variable star of the month: **R Arietis** (*abbrev:* R Ari). This variable is on the rise during October. It is predicted to reach maximum light around Nov. 24th. At around 7th magnitude it should be easy in 3" scopes. Be careful of 5.8 magnitude 21 Ari right next to R Ari: a nice "double star". Find α Ari then star hop northward and a little east to find the line of stars that include 16 Ari, 14 Ari etc. These are labeled in *Pocket Sky Atlas* and most others. From here you can find 21 Ari with R next to it. Give it a shot. How often do you observe things in Aries?



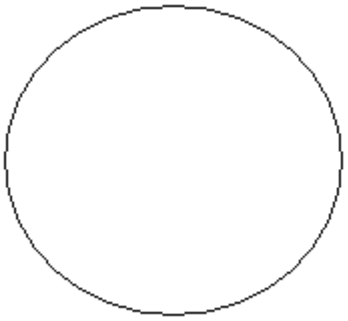
Asteroid of the month: (**20) Massalia.** This asteroid makes a short track in southern Aries this November. It starts off at 8.7 magnitude and dims down to 9.5 mag. at month's end. Best shot is to use a 4" or larger scope. Galaxy NGC 821 is at 11.7 magnitude while NGC 877 is at 12.5 magnitude.



MVAS OBSERVATIONS - DUE NOVEMBER 2013

OBSERVER_____

Featured object: M-33 Pinwheel. Although Aries is our constellation this month, let's hop over to Triangulum for a great galaxy- M-33. Aso known as the Pinwheel. Low magnification is needed for this one. It has been seen in 7 x 35 binoculars from the MVCO. It looks bigger in scopes but it becomes dimmer. The galaxy's light gets spread out. Try a sketch with whatever instrument works for you. Imagers....any takers?



M-33 Observation:

Date:_____ Time(EDT)_____ Scope_____

R Ari magnitude estimates:

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

(20) Massalia Observations:

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

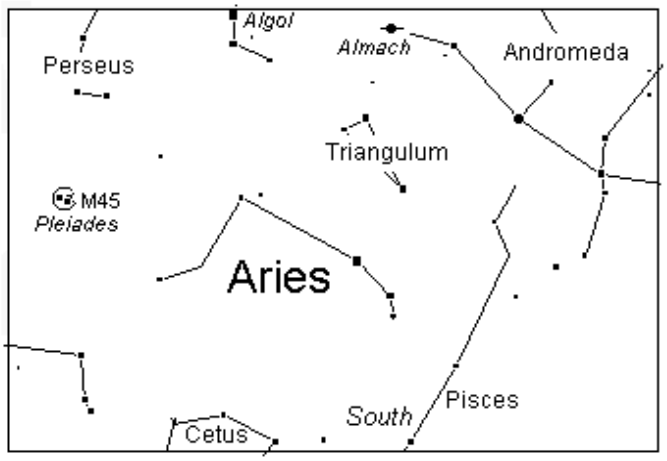
Other Objects in Aries to observe

D. Sky	Date	Scope	**Dbl.**	Date	Scope	SEP	MAG	SPLIT?
N- 691	_____	_____	γ Ari	_____	____	7.5"	4.5 - 4.6	Y / N
N- 722	_____	_____	λ Ari	_____	____	36.7"	4.8 - 6.7	Y / N
N- 821	_____	_____	Σ 174	_____	____	2.9"	6.2 - 7.4	Y / N

Lunar Occultations (see Sky Almanac):

Star	(UT) Date	Time	Scope	magx.	Event(circle)
_____	_____	_____	_____	____x	R D
_____	_____	_____	_____	____x	R D
_____	_____	_____	_____	____x	R D

Constellation of the Month — Aries

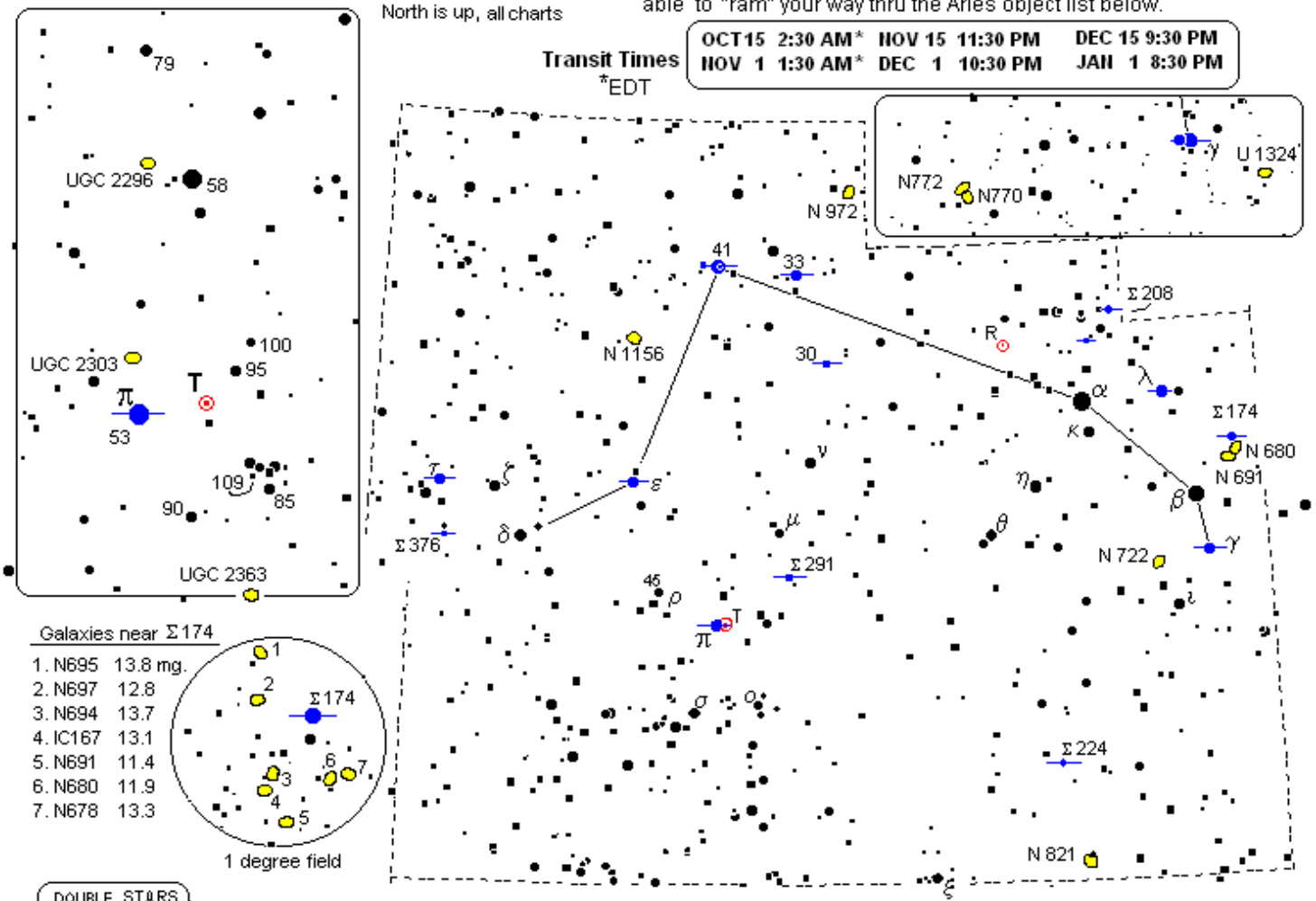


North is up, all charts

You can find Aries just approaching the meridian around the transit times given below. Like Triangulum, it is surrounded by more prominent constellations. The Pleiades are about 15° to its east. Aries can be seen in urban settings under a transparent sky. Scanning with binoculars will bring out the background stars in Aries. Can you see any "clustering" or patterns. A telescope is needed to observe the many doubles in Aries. Many components are of similar magnitude. They also have close separations. These are good tests for optics. Get the big scopes out for the galaxies of Aries. Only the brightest ones are shown below. If one has a scope capable of detecting 14th magnitude galaxies, then there are at least 90 galaxies hidding here. You will need a detailed star atlas to locate these. This number nearly doubles if you can go as deep as 16th mag. T Ari is a variable star to follow. It sits near one of our program doubles- π Ari. If you find Σ174, try for the neighboring galaxy "min-cluster". With patience, you will be able to "ram" your way thru the Aries object list below.

Transit Times *EDT

OCT 15	2:30 AM*	NOV 15	11:30 PM
NOV 1	1:30 AM*	DEC 1	10:30 PM
DEC 15	9:30 PM		
JAN 1	8:30 PM		



Galaxies near Σ174

1. N695 13.8 mg.
2. N697 12.8
3. N694 13.7
4. IC167 13.1
5. N691 11.4
6. N680 11.9
7. N678 13.3

1 degree field

DOUBLE STARS

γ Ari	4.8 - 4.8	7.5"	yell. & white	Σ 291	7.8 - 7.8	3.3"	- - -
ε Ari	5.2 - 5.5	1.5"	- - -	Σ 376	8.5 - 8.5	7.1"	- - -
π Ari	5.3 - 8.8	3.2"	- - -	T Ari	7.5 to 11.3 mag.		316 days
τ Ari	5.5 - 7.2	0.7"	- - -				
30 Ari	6.5 - 7.1	38"	yell. & lilac				
33 Ari	5.3 - 9.6	7.8"	yell. & orng.				
41 Ari	3.7 - 10.6	31"	- - -				
Σ174	6.2 - 7.4	2.9"	gold & blue				
Σ208	5.8 - 8.0	1.1"	yell. & green				
Σ224	8.4 - 8.9	6.2"	yell. & white				

DEEP SKY

NGC 680	Gal	11.9 mag	1.7' x 1.5'
NGC 691	Gal	11.4	2.9' x 1.9'
NGC 722	Gal	11.1	6.1' x 3.9'
NGC 821	Gal	11.7	2.1' x 1.3'
NGC 972	Gal	12.3	6.1' x 3.6'
NGC 1156	Gal	12.3	2.8' x 2.0'

Check list

γ Ari ____
ε Ari ____
π Ari ____
τ Ari ____
30 Ari ____
33 Ari ____
41 Ari ____
Σ174 ____
Σ208 ____
Σ224 ____
Σ291 ____
Σ376 ____
NGC 680 ____
NGC 691 ____
NGC 722 ____
NGC 821 ____
NGC 972 ____
NGC 1156 ____

Instruments used:

____ on ____
____ on ____
____ on ____
____ on ____

T Ari was ____ mag. on ___/___/____

2013 NOVEMBER SKY ALMANAC

Solar and Lunar (EST).

Date	Sunset	Moonrise		Moonset	
1	6 : 20	05 : 45a		— : —	
5	5 : 15	— : —	EST	07 : 14p	EST
9	5 : 11	— : —		11 : 39p	
13	5 : 07	— : —		02 : 59p	
17	5 : 03	05 : 19p		— : —	
21	5 : 00	08 : 36p		— : —	
24	4 : 58	11 : 25p		— : —	
29	4 : 56	03 : 30a		— : —	

PLANET WATCH

	Venus	Jupiter	Mars
	Sets	*Rises*	*Rises*
1	8:41p	10:40p	1:53a
5	7:42p	9:25p	1:49a
9	7:44p	9:09p	1:45a
13	7:45p	8:53p	1:41a
17	7:47p	8:37p	1:36a
21	7:48p	8:20p	1:32a
24	7:48p	8:03p	1:27a
29	7:48p	7:46p	1:22a

November 2013

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 Thanksgiving	29	30

Asteroid for November 2013 (20) Massalia

Date	Transits	RA hr. min	Dec. deg.	Alt.	Azm	Magnitude
		topocentric				
1	12 : 06 am	02 : 24.6	+14.1	63°	177°	8.7
7	11 : 37 pm	02 : 18.7	+13.5	62	192	9.0
13	11 : 08 pm	02 : 13.2	+13.0	60	206	9.1
19	10 : 39 pm	02 : 08.2	+12.5	56	217	9.3
25	10 : 11 pm	02 : 04.1	+12.1	52	227	9.4
30	9 : 49 pm	02 : 01.4	+11.8	49	234	9.5
		(at midnight)		(at midnight)		

Variable Star of the Month: **R Ari** 7.4- 13.7 187 days

Celestial Highlights

Date	UT hr	
1	08	Venus 47° E. elongation
3	13	**NEW MOON**
10	06	**FIRST QUARTER MOON**
10	00	Mars exceeds 5" diameter
13	03	Double shadow on Jupiter
17	15	**FULL MOON**
17	17	Leonids. moon +99%
18	03	Mercury 19° W elongation
23	00	W And at max. 7.4 mag.
25	19	**LAST QUARTER MOON**
29	17	Daytime occult of Spica

LUNAR OCCULTATIONS FOR NOVEMBER 2013

Civil (24hr) date	hr	min	sec	UT date	hr	min	sec	Ph	Moon % illum.	Moon alt	Moon azimuth	Star name	Star Mag.	event PA	dbl./ sep.
13	1	07	30	13	06	07	30	D	80+	19°	255°	ZC 3507	6.5	032°	0.050"
17	23	49	40	18	03	49	40	R	100-	58	127	ZC 593	5.9	317°	164.0"
18	22	59	33	19	02	59	33	R	98-	41	101	97 TAU	5.1	249°	177.0"
19	22	58	33	20	02	58	33	R	94-	32	92	ZC 863	6.7	266°	NA
23	4	54	01	23	09	54	01	R	72-	62	189	ZC 1256	7.3	280°	NA
24	3	38	09	24	08	38	09	R	63-	52	137	KAPPA CNC	5.2	280°	0.30"
26	6	25	42	26	11	25	42	R	43-	51	171	ZC 1566	6.3	240°	0.03"
27	3	07	42	27	08	07	42	R	34-	18	108	SAO 138220	7.1	297°	NA
27	3	34	12	27	08	34	12	R	34-	22	113	SAO 138233	7.0	343°	NA
29	3	56	46	29	08	56	46	R	16-	4	107	ZC 1887	6.3	284°	NA
29	12	36	09	29	17	36	09	D*	14-	20	234	SPICA	1.0	104°	0.05"

*Moon occults Spica in daytime sky. Sun is 27° high.

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 west 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…..

Astro-Ham 2013 at Scenic Vista Park.

Members of the Western Reserve Amateur Radio Club came out to the park early to set-up their ham radio gear. This was intended to provide a demonstration of ham radio operations to the general public. As this editor arrived late there was no mention of how many from the public attended. A handful of the radio team seemed to enjoy the outing regardless of the public. A few are also members of the MVAS. This theme seemed to carry over during the night sky session. Not many from the public showed up. There were 18 telescopes set up and the astronomers had a great time even without public observers. About 15 MVAS members showed up. Several scopes were brought by non-members. The largest being a 12" Meade SCT- biggest on the field. It was a spectacular night.

Radio gear all ready to go, while scopes begin to arrive on the observing field. To start with, two 10" Meade SCT's.

Dave Ruck (L) and Alan Avnet (R) take a break during the Ham session. Alan has a scope for sale. He might still have it...?

Rosemary was ready to get the coffee pot working. It would be a chilly night and the hot brew was just right for fighting off the cold night air. This rocket fuel would also help keep things “awake” too! There were plenty of snacks to fend-off hunger.

Once the prospect of making coffee became known, Rosemary had immediate help from two other gals.

The observing field takes shape. The line went from the road all the way to the Scout's tents by the trees at the SW end of the field. You can see below that they were set up well before sunset. They all enjoyed the views through the telescopes. The obvious thing in the sky was the Moon. Many were fascinated by several bright craters. Don Cherry grabbed an incredible image of that Moon by aiming an iPad into an eyepiece (see at right).

Don Cherry's famous "iPad Moon" image. It made Jodi's list of Images of the Month. Astro-imaging is now available to all with an iPad or cell phone with a camera. Amazing stuff. (and I still think, hey...where's my Ektachrome 200?).

The Scouts go bivouac at Scenic Vista.

Scoutmaster Rich got his HQ tent set up. He seemed to have a few extra bungee chords left over from the set-up. Not sure where they all went . Amazingly the tent stayed up all night. Just kidding. Rich had a good time using 70mm and 80mm binoculars. He has learned the secret to easy astronomy.

Tony had his "new" system ready for the night. He was eager to catch the legal limit of celestial targets. To everyone's delight there was absolutely no dew this night. Scopes and optics were bone dry all night. ....Thanks to all that participated, it was a good time and finally a clear night for the MVAS! -Plante

all photos by P. Plante unless stated otherwise.