THE METEORITE

M-30

(ESO Digital Sky Survey 2)

Newsletter of the Mahoning Valley Astronomical Society, Inc.

IN THIS ISSUE:

JULY 2011

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THE METEORITE

Newsletter of the Mahoning Valley Astronomical Society, Inc.

JULY 2011

MVAS CALENDAR

JUL 9-10	YSU Festival of Arts. MVAS solar scopes needed at the planetarium. Public event: noon till 5PM.
JUL 16	*Family Night In The Park*- Boardman Park. MVAS Movie shown- "Monsters vs. Aliens". 6:00 PM to 10:00 PM. We set up at the tennis courts.
JUL 23	Business meeting at MVCO. 8:00 PM
JUL 30	Cuyahoga Astronomical Association OTAA meeting. Held a Letha House Park, Spencer, OH
AUG 20	OTAA work day to prepare the MVCO. Starts at noon, regular meeting afterward at 8:00 PM.

NATIONAL & REGIONAL EVENTS

JUL 19-23 **ALPO ANNUAL MEETING,** Las Cruces, NM. http://www.morning-twilight.com/alpo/

AUG 26 - 27 **The Conjunction 2011,** Northfield, MA. http://www.philharrington.net/astroconjunction/

AUG 26 - 28 **Black Forest Star Party,** Cherry Springs State Park, PA http://www.bfsp.org/starparty/index.cfm

AUG 26 - 30 **Almost Heaven Star Party,** Spruce Knob, WV http://www.ahsp.org

MVAS, P.O. BOX 564 NEWTON FALLS, OH 44444-9998

MVAS Homepage- http://mvobservatory.com

NEWS NOTES

What's New, Moon? NASA's Lunar Reconnaissance Orbiter (LRO) is changing our view of the moon by bringing it into sharper focus and showing us the whole globe in unprecedented detail. It has delivered more than 192 terabytes of data, images and maps which is the equivalent of nearly 41,000 typical DVDs. The most precise and complete topographic maps to date of the moon's complex, heavily cratered landscape have been created from the more than 4 billion measurements taken so far. LRO's Lunar Orbiter Laser Altimeter (LOLA) have allowed researchers to use the data to create highly accurate topographic maps, that sample more places on the lunar surface than any previous mapping effort. This is the first comprehensive set of maps of the roughness of the moon's surface. The roughness of craters and other features on the moon's surface can reveal their age.

LOLA's precise measurements have been used to map solar illumination; this work provides new insight into the shadowed regions and reveals areas that receive nearly continuous sun. Because sunlight itself is a resource on the moon, knowing that there are areas that get sun for approximately 243 days a year and never have a period of total darkness for more than 24 hours is extremely valuable. Complementing those efforts are both the Lunar Exploration Neutron Detector (LEND) and the Miniature Radio Frequency (Mini-RF) advanced radar. They are searching for deposits of water ice. LEND also seeks hydrogen, a resource of interest because of its potential use as fuel. And at the same time, the Cosmic Ray Telescope for the Effects of Radiation (CRaTER) studies the lunar radiation environment, which is important for keeping our astronauts healthy and safe as they explore.

The Lunar Reconnaissance Orbiter Camera (LROC), has imaged nearly 5.7 million square kilometers of the moon's surface during the exploration phase of the mission. LROC has the ability to image surface details with a pixel resolution of 1.5 feet. Small enough to distinguish details never before possible. "With this resolution, LRO could easily spot a picnic table on the moon," says LRO's Project Scientist, Richard Vondrak of NASA Goddard. And there's plenty more to come from LRO. "Not only did we accomplish all of this during the exploration phase of the mission," says Vondrak, "but two more years of wonderful science are already under way." *- from Space News.*

Original text by Elizabeth Zubritzky, Greenbelt MD (SPX) Jun 22, 2011

Film at 11. Before orbiting Vesta on July 16, NASA's Dawn spacecraft will gently slow down to about 75 mph (120 kilometers per hour). NASA is expecting to release more images on a weekly basis, with more frequent images available once the spacecraft begins collecting science at Vesta. "Vesta is coming more and more into focus," said Andreas Nathues, framing camera lead investigator, based at the Max Planck Institute for Solar System Research, Katlenburg-Lindau, Germany. "Dawn's framing camera is working exactly as anticipated." On June 13, scientists working with *Dawn* released a video of Vesta during approach. The video loops 20 images obtained on June 1. Images show a dark feature near Vesta's equator moving left to right as Vesta rotates. They also show Vesta's jagged, irregular shape. http://dawn.jpl.nasa.gov/

MINUTES OF THE JUNE MEETING

JUNE 18, 2011 at the MVCO

The meeting was conducted outdoors. The comforts of pleasant weather and open space was a better option than a hot and crowded meeting room. President Sam DiRocco presided; calling the meeting to order at 8:05 PM. Roll call was answered by 23 members (3 had arrived after Roll Call). Guests included Karen DiNardo, Steven Bartos, Dominic Mattuissi and Bob Blevin. This was Bob's third meeting and was interested in membership. A call was made or the reading of the minutes. A motion to suspend the reading was made by Greg Higgins which was seconded by Bob Danko. With no subsequent corrections or discussion, the motion was adopted. The minutes were then accepted as published by a unanimous voice vote.

TREASURER'S REPORT: The Report was read by Steve Bartos. Steve noted that income from clothing sales will appear in the next report. A late deposit and early meeting date prevented this from appearing in this May report. Bob Danko moved to accept the report as read. Greg Higgins seconded the motion. The Report was accepted by a unanimous voice vote.

General Fund	**5/1 thru 5/31 2011**
OPENING BALANCE:	$ 10,794.12
CLOSING BALANCE:	$ 10,545.00
ACCOUNT NET GAIN/LOSS FOR THIS PERIOD:	$ -249.12
INCOME:	
INTEREST	$ 0.88
TOTAL INCOME	$ 0.88
EXPENSES:	
CK# 2755 INSURANCE (HOLLOWAY)	$ 250.00
TOTAL EXPENSES	$ 250.00

Reserved Funds (KEYS AND OAD FUNDING)

KEY DEPOSITS	$ 250.00
YTD: 50" PROCEEDS RESERVED FOR OAD (LAND)	$ 3,500.00
CASH FROM ORIGINAL OAD FUND (FOR LAND)	$ 3,914.12
FUNDS AVAILABLE FOR MVAS OPERATIONS	**$ 2,880.88**

CORRESPONDENCE: At the MVAS PO Box, regular junk mail was tossed. One NASA mailing arrived (from last month?). No other membership correspondence was brought up.

COMMITTEE/OFFICER REPORTS: *IMAGING COMMITTEE:* No Messier Project images to report on. *VISUAL COMMITTEE/ HOMEWORK:* Some Homework and Visual reports were done but left at home. See Visual Reports for more.

OBSERVATORY DIRECTOR'S REPORT: Larry Plante has only been to the MVCO a few times the past month. Everything seems to have dried out by now. Mike Sprague has construction material and equipment on the premises as he has begun work on his pool house. Surprise- there is now a concrete type material along the inside bend of the drive which Mike has apparently put in place. It fills-in the ditch that was discussed at a previous meeting. Larry got a quote of $20 per ton for gravel. It is from a nearby vendor that once helped Bernie Cortese with supplies when they built the 16" building (1962). Due scheduling conflicts, this won't happen until sometime after July 5th. Larry will get with Steve and order 15 tons to start- more if needed. This will be tailgated along the drive. The day of delivery will also be the day we get the out house pumped. We will need people to level the gravel.

OLD BUSINESS: Since gravel had been discussed, the issue of gutters came up. No prices yet from Mike Boyer so we may need to investigate these. Larry asked about sealing or patching the back porch to stop the erosion. Greg recommended sealing as the most likely route of success. Larry will work on this. Harry Harker introduced our guest Bob Blevin from Vienna, OH. Bob belongs to the Oil City club but since the MVAS is closer, a membership with us seemed a logical choice. Harry nominated Bob for membership, Sam DiRocco seconded this. By unanimous voice vote Bob was granted membership status. Welcome Bob. We hope to enjoy observing with you and breaking bread, for many years to come.

Phil ran through the upcoming events: The Scenic Vista Public night next weekend, the July 9 & 10 YSU Festival of Arts (public solar observing), the July 16 Family Night at Boardman Park (showing the movie Alien vs. Predator with MVAS scopes set up). This is a full moon night but Saturn and brighter deep sky stuff should be visible. The park usually closes at 11:00 PM.

As for the status of the 50", Bill Pearce sent word, via Harry that Gordon has had a relapse with cancer but still wants the mirror. He has 20-30 chemo sessions scheduled. His latest plan is to pick up the mirror and make final payment during the OTAA meeting. There was discussion of when this could happen with out disrupting the event and set-up chores. Some thought the Friday night before, early morning the day of the event, or the Sunday morning after the event. All depends on MVAS help being there. Gordon also would like to attend the OTAA meeting. Bill also sent a motion that we waive (gift) the balance $1,500 payment on the 50". After some discussion, there was no second to the motion. As such no vote could be taken. The general consensus was that waiving the payment was not a viable option.

NEW BUSINESS: Harry has been contacted by a media firm that wants to do a feature video about the MVAS operations and history. Rich Mattuissi thought they also interviewed Brother Guy when he was at YSU. Harry will follow-up on the details- they should only take about an hour or so to shoot video. Harry is also looking to clean-up all internet sites that have the wrong (old) MVAS contact information. He asks members to report to him any websites that have outdated (i.e. Jerry Jackson) contact persons or other information.

It was deemed a good time to start formulating the OTAA job assignments. Telescopes to be used will be: the 8", 12" and possibly the 16" (depends on how things go). The 25" will be move to the drive if sky conditions warrant such a move. Phil will run the 25" if needed. The other scopes still need attendees. Rosemary will be traffic control (a new yellow chain to use!). Coffee maker was in question: either Phil or Rosemary can make the rocket fuel. We volunteered Fred Boyer for electrical line deployment. Work crews for table and chair prep are needed. Bob Danko has agreed to serve as emcee. No word from NASA regarding a speaker. Dr. Pat Durrell (YSU) indicated that he'd be interested in speaking, earlier this year. Pat may be our last hope; he wanted to talk about the 2012 end of world hoax. The Trustees had earlier decided to order 60 chairs, 4 tables and one big canopy as in previous years. There are still two meetings and a work session before the OTAA event to finalize assignments.

GOOD OF THE SOCIETY: Rosemary bought new curtains for the 16" stage but had a problem with the curtain rod. It seems that the center hanger that holds the rod was offset causing one side of the curtain to be bunched while the other didn't have quite enough. She needs to buy one more panel for proper

coverage on the "wide" side. Sam, Harry and a few others are starting a special interest group (SIG) within the MVAS. It is basically a HAM radio thing with radio astronomy as a goal. A few already have HAM licenses. If you are interested in participation contact Sam or Harry. Greg Higgins has donated a disc-cone antenna. Dick Klesch has a helix antenna to donate. Joe Capello has an old tube receiver that could be used. There seemed to be a fair amount of interest in this activity.

VISUAL REPORTS: Bob Danko has been out a few times with good success. Jodi and Roy captured the supernova in M-51. Roy had a few solar shots. Phil managed 4 variables in June.

ADJOURNMENT: Adjournment came at 8:52 PM. We thank our hosts Keith Janeco and Larry Plante for the pizza and chips. Thanks Rosemary for supplying the cakes and donuts. A few watch shortwave radio via the internet. Others stayed to see the summer triangle through the clouds. The next meeting will be at the MVCO on July 23, 2011. Meeting begins at 8:00 PM. Scheduled hosts are Greg Higgins and Rosemary Chomos. PASSWORD: name a summer NGC - M object. Numbers are ok, common names are better. *minutes by Phil Plante*

MVAS REMINDERS

MVAS has the YSU Festival of Arts on July 9th and 10th. It's about public solar viewing outside of the planetarium. We've usually had a few of us help out in the past. YSU has a few scopes that are set-up for solar work- including an h-alpha. Feel free to bring your solar scope. Planetarium shows run all day so you can spell inside with air conditioning. Food vendors aplenty- hoagies make for a tasty lunch and look for Rita's Italian Ice; it's always a good treat. Take time to walk around and check-out the displays and other merchants.

For Saturday July 16, we have been asked to bring telescopes to Boardman Park to participate in their *Family Night In The Park* program. They will show the movie "Monsters vs. Aliens." We are designated to provide public observing from the tennis courts, this time. There is supposed to be a tent. A band called G-Force is supposed to be playing as well. The event runs from 6:00 PM till 10:00 PM. Sunset is 8:55 PM. Moonrise is 9:37 PM (full moon). Looks like this will be another solar event. We might squeeze in a view of Saturn for half an hour before things close down. A disaster in the making? Should be interesting. Concession stands will be on hand so all is not lost if you enjoy food. If it's cloudy we can just watch the movie.

It is time to really consider rounding up a few items to use as door prizes for our OTAA meeting. Consider items that are astronomy based, but normal things are easier to get at local markets. Astronomy stuff might require mail order.
Suggestions for items include: flashlights/ head lamps, coffee/sports mugs. Electronic items like small jump drives, blank discs (DVD/CD), calculators, digital clocks, outdoor thermometers. Maybe even a budget minded mp3 player or game device. Perhaps thermos jugs or lunchboxes, hand warmers. Astronomy related items could include lens cleaning kits, 1-¼" filters- moon or polarizing, astronomy books, atlases/star charts, science-space DVD's, astronomy posters, solar eclipse viewing glasses, eyepiece dust caps, binoculars, jewelers screw driver sets, small tool boxes or actual eyepiece cases. Obviously, there is no monetary limit on what you can spend on your donation-collection, but it is perfectly fine if you want to keep it around $15. It's important and helpful if you can contribute something no matter how insignificant it may seem. Thanks in advance.

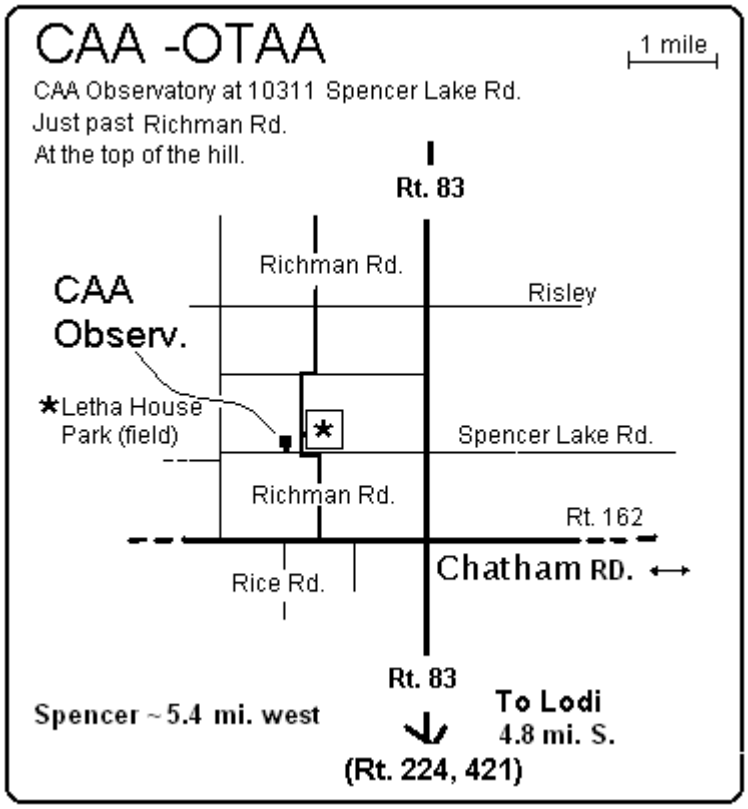
Cuyahoga Astronomical Association-OTAA

Saturday, July 30, 2011

The Cuyahoga Astronomical Association will present their OTAA convention at the CAA Observatory at Letha House, near Chatham, OH. No details or times are available yet, as this issue goes to press. Please check their website for the latest information on this OTAA event. Visit CAA at:

http://www.cuyastro.org/

Google Map to CAA Observatory



MVAS ACTIVITIES

Chagrin OTAA: Seven MVAS members attended the Chagrin Valley Astronomical Society convention on June 4th. In all, about 30-35 people where on hand. Cloudy skies remained the norm for Ohio astronomy events. But the camaraderie and food saved the day. The hot dogs hit the spot and some cheesecake treats showed up! CVAS's Bob Modic gave a run-down of June's celestial events, including a report on the new supernova in M-51. Afterwards, a car caravan went to Telescope Park about 3 miles up from Indian Hill Observatory on Clay Street. It was a beautiful setting, still under construction. There was Norm Oberle's 25" Newtonian in its own roll-off roof observatory. Across the way was a nice meeting room with a planetarium. We next went "next door" to the Naasau Astronomy Station. There was a great 32" Cassegrain under that dome. It is not working due to a lightning strike a few years ago. Repair is expected down the road, once funding ($800,000) is raised.

Refurbishing the building is included in this project. Once all these projects are completed this will be the premier astronomy place for both public observing and for amateur astronomers. Who knows? There were a few ideas mentioned; like "mega-OTAA convention".....The future holds promise. See this month's *Gallery* section for some photos (PDF edition only).

Observer's Notes.....

A Blink Before Dawn

Vesta was discovered on March 29, 1807, by Heinrich Olbers. It was the fourth minor planet to be discovered. It is the second most massive and the third largest asteroid. It revolves around the Sun in 3.6 terrestrial years and has an average diameter of about 320 miles. Its surface composition is basaltic in nature. Vesta was named after the ancient Roman goddess of the hearth. When at opposition, it becomes brighter than any other asteroid can get. Vesta is the only asteroid ever visible with the naked eye. The NASA spacecraft Dawn, is about to encounter Vesta. By June 8th, 2011 it was closer to Vesta than the Earth-Moon distance. Traveling about 490 mph, it was on a slow approach. The expected orbital capture is on July 16, 2011 (about the time you read this). The Dawn spacecraft used ion propulsion for velocity gains once it left its Delta rocket launch vehicle. It will again use ion propulsion for braking so it can spiral down to lower orbital altitudes at Vesta. When it leaves Vesta in July 2012, ion power will send it cruising to Ceres, due to arrive in February 2015. At Ceres the procedure repeats with a spiral to lower orbit. Dawn hopes to achieve what has never been attempted before; orbiting one main belt asteroid, (Vesta) then head to orbit another asteroid (Ceres), to gather yet more data. Dawn's goal is to characterize the conditions of the early solar system by investigating in detail, two of the largest protoplanets that remain intact since their formations.

Vesta was the first asteroid I ever saw. Amazingly it was also the first astroidal occultation I saw. It was January 3rd, 1991. I had searched the field for a few days before and became familiar with the star patterns. I could now easily locate Vesta and the 6th mag. target star SAO 92388. The time of the occultation was on a work night around 7:15 PM. Back then, I was working afternoon shift about 3 miles away from my brother Larry's house. Fortunately, this time frame occurred during my usual lunch break. I arranged to leave work so I could go to Larry's during break. There, I had previously set-up my 3" refractor and had left a tape recorder and short wave radio (for time signals); both with fresh batteries. Larry kindly hauled out the scope into his backyard just before I arrived. Once I got there, I grabed the electronic gear from the house and had everything outside at the telescope. I centered in on the target star and Vesta. They looked like an egg-shaped, tight double star. The star and Vesta were nearly at the same magnitude. Before I knew it, they merged into one point of light.

The occultation was fast approaching. About 20 seconds passed and then the star blinked out... Or rather "down" like a 3-way lamp switching from brightest to dimmest setting. It was very obvious. As fast as my reaction time allowed, I yelled "Out" into the tape recorder. U.T.C. time signals were also being recorded. About 39 seconds later the star reappeared, I yelled "On" into the recorder. Vesta had just passed in front of that star, occulting it. The reappearance seemed to have a step-wise nature. The light gain back to normal was not a smooth, sudden occurrence. But rather, it was completed in two steps (like going through the 3-way switch in less than a second). I promptly returned to work. Needless to say I was very happy for the rest of the work shift. Heck, the crazy plan actually worked; and I just measured an asteroid! It was also just "too cool" to see a star blink-off and on during the process.

My "step" observation was confirmed by a fellow ALPO member who had been observing in Wisconsin. But this confirmation came about 4 years later, when we just happened to swing our conversation to this event. Apparently we both reported it to IOTA, but nothing came of it. It now seems it was a diffraction effect of the two merged objects (airy disks, rings, etc). It was caused by nothing exotic like a satellite of Vesta or an unknown double star. Later reports showed that high speed photometric traces of the event showed no step-wise events. It should also be noted that a team of MVAS observers tried to use the MVO 16" but they had no success in finding the target star. Clouds were a problem too, I think.

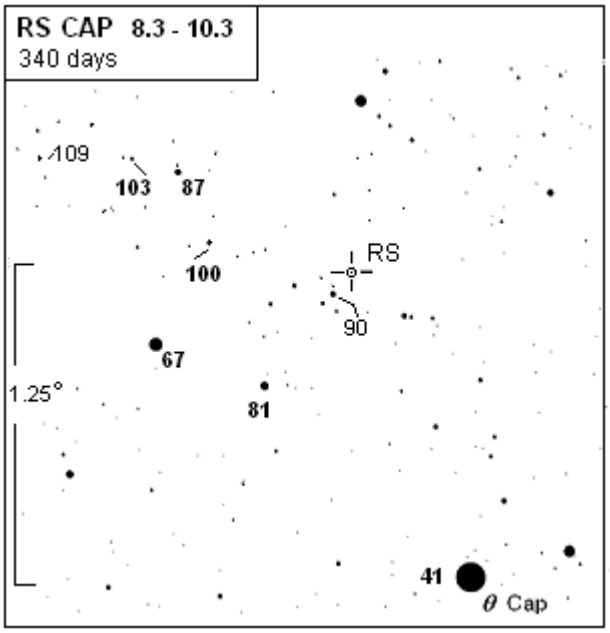
Vesta has been on my observing list only a few times since. Most notably in the summer of 2007 when it passed under Ophiuchus as a naked eye object. Never saw it naked eye though. I imaged it from the MVCO with a tripod mounted dslr and a zoom camera lens. Vesta reaches naked eye visibility about every 3 years. 2011 is one of those years when it will be brighter than 5.6 magnitude from July 13 to August 24. It reached 5.4 magnitude in 2007 and will be at 5.7 mag. from March 27 to May 6 in 2014. You'll need very dark skies to spot it naked eye. It's a challenge for all to conquer. Your binoculars will be worthy aids in your quest to find Vesta, naked eye or not. It will be about 5° NW of July's Homework object, M-30 in Capricornus. This mid-July is also the time when the Dawn spacecraft enters orbit around Vesta. Use a good star chart and a pair of binoculars. Go out before dawn's twilight gets too bright and find Vesta. History is happening at that point of light. Don't pass on the chance this year to spot Vesta with the naked eye. Give it a shot. It'll be an observation worthy of the "trophy case" by most accounts. Hey...Uranus isn't too far away-over in Pisces, SE of the *Circlet.* It's about the same magnitude as Vesta. Are you thinking what I'm thinking? *Phil Plante*

MVAS Homework:

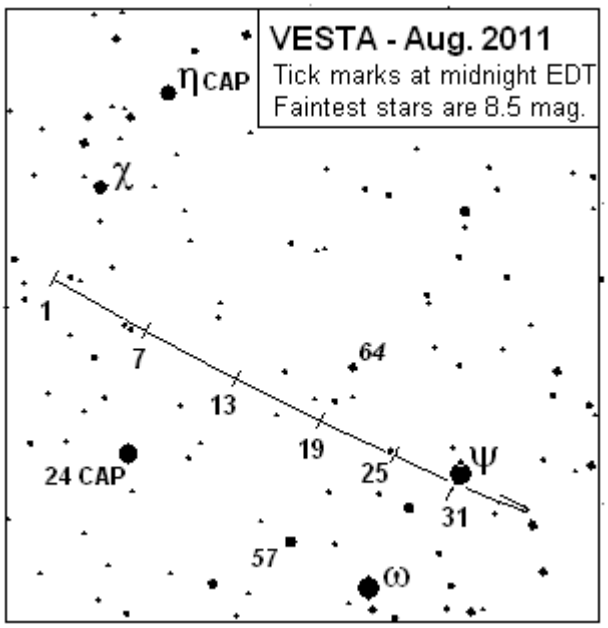
The globular cluster Messier 30 is about 26,000 light years away and about 90 light years across. It appears to us with an angular diameter of about 12.0 arc minutes. It is fairly dense; with a concentration class of V. M-30 is a fine object in even telescopes as small as 4 inches. Its brightest red giant stars are about of apparent visual magnitude 12.1, its horizontal branch giants shine at magnitude 15.1. Only about 12 variable stars have been found in this globular cluster. The core of M30 exhibits an extremely dense stellar population, and has undergone a core collapse. Consequently, M30's core is very small in extension, only about 7.2 arc seconds. This corresponds to a linear diameter of 0.9 light years. Its half-mass radius is 8.7 light years. This means half of this cluster's mass is concentrated in a spherical volume with a radius equal to the distance of Sirius from us. M30 is least loved by Messier Marathoners. It is usually the last object, and often missed, thus making for an almost-complete Messier Marathon.

MVAS OBSERVER CHARTS

Variable star of the month: **RS Capricorni** (*abbrev:* RS Cap). RS Cap is a long period variable. The International Variable Star Index has it as a semi-regular, M4 spectral type. There haven't been enough observations of this star for the AAVSO to plot a light curve. Here is a chance to make a valuable observation. Start following a star that needs observed. You'll need a telescope since it may be at minimum light (10.3 mag.). Star hop NE from theta Cap. Record your observations!



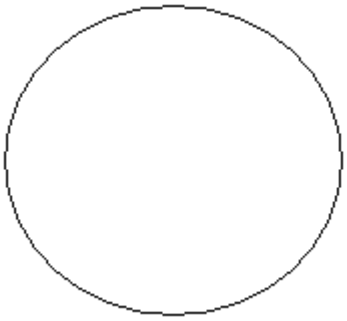
Asteroid of the month: (**4) Vesta.** This asteroid will be in space news for months to come. The Dawn spacecraft will hopefully be in orbit by mid-July 2011 and sending back close range images. Now is a good time to spot it with binoculars or even your naked eye. If you've never seen an asteroid- this is as good as it gets. Watch it change position against the starry background as the month progresses. You might take a liking to asteroids.



MVAS OBSERVATIONS - DUE SEPTEMBER 2011

OBSERVER_____

Featured object: M-30. Please try a sketch. Lightly trace out the approximate size and shape, and then shade-in with the side of a pencil. Use pencil dots for any cluster stars you detect. Remember, you're making a "negative" image. Smudge the graphite as needed to approximate the background and cluster glows. Mark the outside of the circle- which side was north, preceding or following in field drift. Good luck. Have fun!



M-30 Observation:

Date:_____ Time(EDT)_____ Scope_____

RS Cap magnitude estimates:

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

(4) Vesta Observations:

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

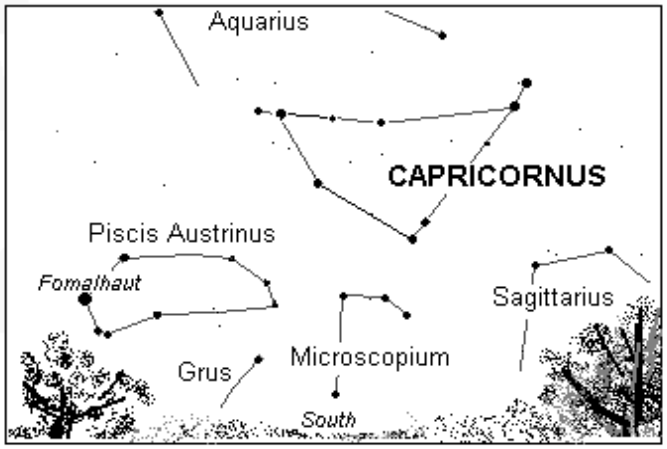
Other Objects in Capricornus to observe

D. Sky	Date	Scope	**Dbl.**	Date	Scope	SEP	MAG	SPLIT?
M- 30	_____	_____	α Cap	_____	____	377"	3.6 - 4.2	Y / N
N- 6903	_____	_____	β Cap	_____	____	205"	3.4 - 6.2	Y / N
N- 6007-8	_____		σ Cap	_____	____	56"	5.3 - 9.0	Y / N

Lunar Occultations (see Sky Almanac):

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

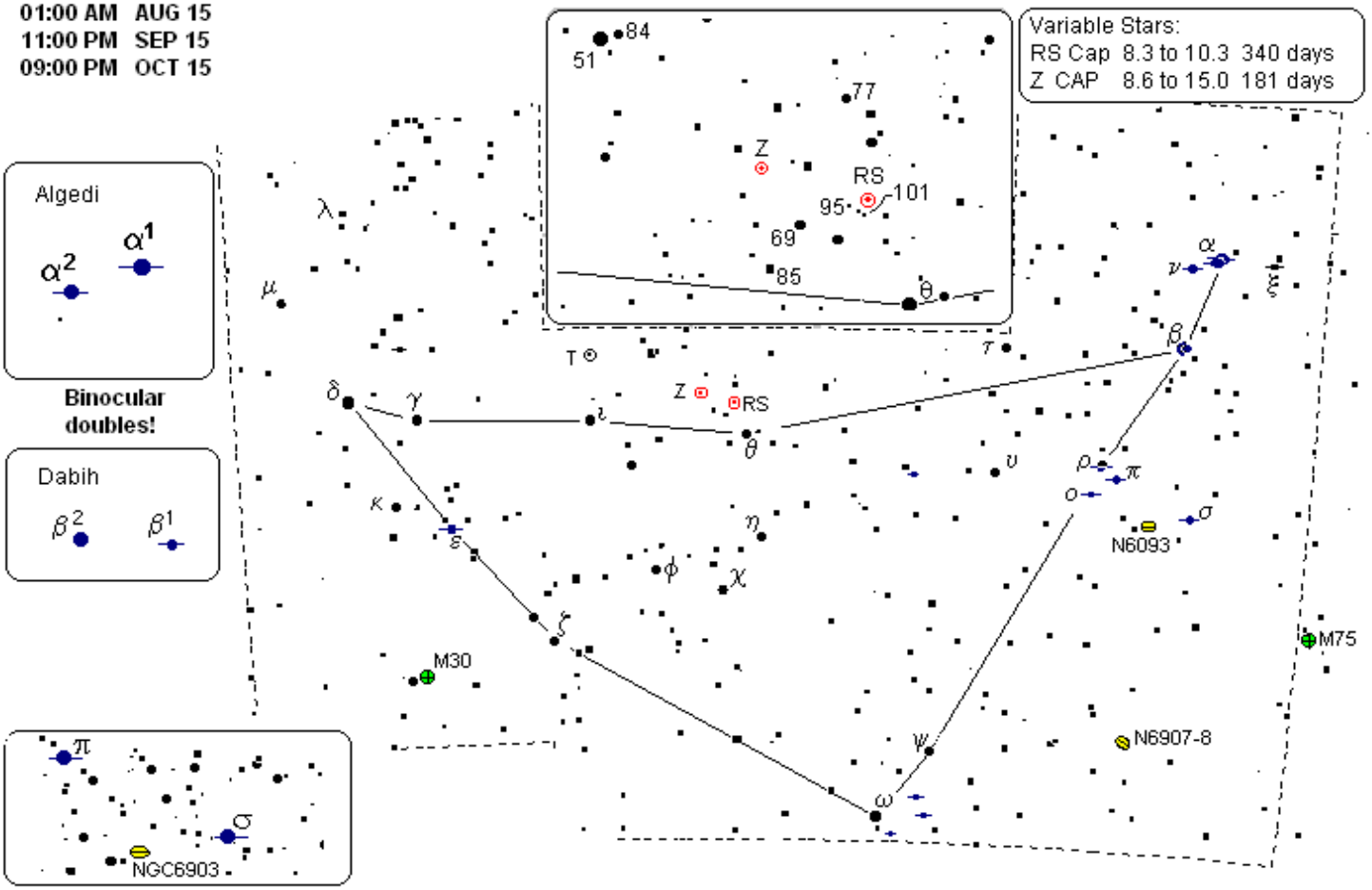
Constellation of the Month — Capricornus



Capricornus is a faint constellation, reaching the meridian around 9 pm during mid-October. It's distinctive shape is easily traced in a dark sky. There are scant few binocular objects to scan. Try M30 with larger glasses. The double stars alpha and beta are fine sights in binoculars. Alpha may even be an excellant challange for naked eye resolution. Alpha happens to be an optical doulble, alpha 1 being 500 light years away while alpha 2 is only 100 light years away. They present a double golden pair to enjoy. Beta has a nice contrast in colors. There are plenty of other double stars for the telescope. Some will be a challenge for even large aperature scopes. With the cool crisp evenings upon us, it's a pleasant time to settle in for some double star observing. THere are scant few galaxies for the telescope. If you have a larger scope under a dark sky you might try to spot the two offerings shown on the chart below. It is amazing that such a larger area of sky is devoid of galaxies. A modest telescope or large binoculars will allow one to follow the brightness changes of the variable stars RS Cap and Z Cap. The small variable chart below should guide your investigations. Comparison star magnitudes are given. Give them a try as well.

Capricornus transits the meridian at:

03:00 AM JUL 15
01:00 AM AUG 15
11:00 PM SEP 15
09:00 PM OCT 15



DEEP SKY

	Type	mag.	size
M30	GC	6.9	10'
N6903	GAL	12.9	2' x 2.3'
N6007-8	GAL	11.9	3' x 2'

DOUBLE STARS:

α^{1-2}	3.6, 4.2	377"	both yellow
α^1	3.7, 10.6	7.0"	
α^2	4.2, 9.6	46.0"	
β^{1-2}	3.4, 6.2	205"	yell & blue
β^1	6.2, 10.2	0.8"	
σ	5.3, 9.0	56"	orange & blue
ρ	4.9, 6.9	258"	yell. & purple
o	5.9, 6.7	21"	wht. & bluish
τ	5.8, 6.3	0.4"	
π	5.3, 8.9	3.2"	both white
ε	4.7, 9.5	68.1"	

Check list

M30 ___
N6903 ___
N6007-8 ___
α ___
α^1 ___
α^2 ___
β ___
β^1 ___
σ ___
ρ ___
o ___
τ ___
π ___
ε ___

Instruments used:

_____ on _____
_____ on _____
_____ on _____
_____ on _____

RS CAP was _____ mag. on ___/___/___
Z CAP was _____ mag. on ___/___/___

2011 AUGUST SKY ALMANAC

Solar and Lunar (EDT).

Date	Sunset	Moonrise	Moonset
1	8 : 41	x : xx	9 : 32p
5	8 : 36	x : xx	11 : 43p
9	8 : 31	x : xx	2 : 10a
13	8 : 26	x : xx	6 : 24a
17	8 : 20	9 : 46p	x : xx
21	8 : 14	11 : 57p	x : xx
25	8 : 08	2 : 40a	x : xx
29	8 : 02	x : xx	8 : 01p

PLANET WATCH

	Saturn	Uranus	Jupiter
	Sets	*Rises*	*Rises*
1	11:25 PM	10:53 PM	12:23 AM
5	11:10 PM	10:37 PM	12:09 AM
9	10:55 PM	10:21 PM	11:50 PM
13	10:40 PM	10:05 PM	11:35 PM
17	10:25 PM	9:49 PM	11:20 PM
21	10:10 PM	9:33 PM	11:04 PM
25	9:56 PM	9:17 PM	10:49 PM
29	9:41 PM	9:01 PM	10:33 PM

August 2011

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	31			

Asteroid for August 2011 (4) Vesta

Date	TRANSITS	RA hr. min	Dec. deg.	Alt.	Azm	Magnitude
		topocentric				
1	1 : 58 AM	21 : 12.3	-22.5	21°	151°	5.7
7	1 : 29 AM	21 : 06.6	-23.2	22	158	5.7
13	1 : 00 AM	21 : 01.0	-23.9	23	165	5.8
19	12 : 31 AM	20 : 55.7	-24.5	24	172	5.9
25	12 : 03 AM	20 : 51.04	-25.0	24	179	6.1
31	11 : 31 PM	20 : 47.1	-25.4	23	186	6.2
		(at midnight)		*(at midnight)*		

Variable Star of the Month: **RS Cap** 8.3 - 10.3 mag 340 day period

Celestial Highlights

Date	UT hr	
5	10	Vesta at opposition
6	11	**FIRST QUARTER MOON**
13	06	Persied meteor shower
13	18	**FULL MOON**
20	00	T Cass at max. 7.9 mag.
21	21	**LAST QUARTER MOON**
22	23	**Neptune at opposition**
29	03	**NEW MOON**

LUNAR OCCULTATIONS FOR: AUGUST 2011

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.
5	21	05	34	6	01	05	34	D	45+	22°	217°	ZC 2039	5.5	081°	NA
5	22	13	52	6	02	13	52	D	46+	13	230	ZC 2045	6.4	140°	0.70"
5	23	08	42	6	03	08	42	D	46+	5	240	CS VIR	5.84v	154°	NA
8	23	56	30	9	03	56	30	D	78+	17	214	ZC 2491	6.6	095°	NA
9	0	24	57	9	04	24	57	M	78+	13	220	39 OPH	5.2	171°	10.2"
10	22	04	01	11	02	04	01	D	92+	26	161	pi SGR	2.9	032°	0.30"
10	23	06	35	11	03	06	35	R	93+	28	177	pi SGR	2.9	300°	0.30"
21	2	30	58	21	06	30	58	R	56-	34	92	delta ARI	4.4	224°	NA
22	3	42	30	22	07	42	30	R	46-	39	94	39 TAU	5.9	298°	174.0"
22	4	29	44	22	08	29	44	R	45-	48	103	SAO 76456	7.9	266°	NA
23	2	15	30	23	06	15	30	R	36-	15	73	ZC 739	7.2	280°	NA

at MVCO

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.....

A Jewel For All

The Geauga Park District has combined 11 properties totaling 1,100 acres to make-up the facility called Observatory Park. The district has raised money to build the plaza that includes the Norm Oberle Observatory and a separate meeting room building. The sliding roof observatory now houses Norm's 25-inch Newtonian. The GEM mount is still under construction and the telescope will be operated by computer and provide a video feed. As many as 150 visitors at a time will be able to see the images on a giant TV screen the building next door. This building is a large meeting room with a medium size planetarium dome in the ceiling. A portable star projector has been ordered, as of this writing.

In the Park, astronomers will be able to set up their telescopes on pads on the edge of the plaza. These pads are wired to run laptops and telescopes. Anyone wanting to experience ancient astronomy will be able to use the Park's version of Stonehenge. Four 16-foot monoliths will serve as guides to help locate astronomical events, such as solstices and equinox, the northernmost moonset and southernmost moonrise. The plaza itself has walkways aligned to the cardinal points (N, S, etc.). There is a walk-through lunar phase calendar. A set of mounds will block light from car headlights. A planetary trail is beeing installed, which will exhibit each planet in our solar system, spaced at a scaled from one another to provide a sense of the solar system's size. In addition, cornerstones matching the corners of the Great Pyramid of Giza will be placed in the adjacent 35 acre field. The Park District estimates it will cost about $1.3 million to build it all.

The Park also includes Case Western Reserve University's mothballed Nassau Station Observatory. Roy Kaelin, manager of astronomy education at the Cleveland Museum of Natural History, has applied for a NASA grant to restore the observatory and make it available for public use in person and online. His earlier estimates placed a cost $500,000 to renovate the observatory, but this was reported as being near $800,000 during the OTAA trip. The park district paid Case Western University $915,000 for the telescope and $2.8 million for the additional property to create the 1,100-acre park. The challenge now is to computerize the 1950s telescope, which has a 36-inch Cassegrain mirror. The plan is to allow amateur astronomers, students or anyone interested in a night view to use the scope by remote viewing over the internet.

Because of the efforts made by local astronomers (CVAS, etc), half of Geauga County's townships have adopted light regulations that require new outdoor lights to meet Dark Sky standards. Some townships even require existing lights to be retrofitted with caps that eliminate upward and sideway lighting and glare. At the Geauga County Park, stars as dim as magnitude 6.0 to 6.5, are often seen. Observatory Park joins the Natural Bridges National Monument in Utah and Cherry Springs State Park, as the only Dark Sky Parks in the United States. Those parks are "gold tier" parks, meaning tens of thousands of stars can be seen on clear nights. Observatory Park has received a "silver tier" designation from the International Dark Sky Association (IDA). The silver designation means that thousands of stars can be seen in the night sky. Tom Curtin, executive director of the park district, gave the tour during the CVAS-OTAA field trip.

Approaching the Plaza. Oberle Obseratory at left. Meeting room right.

The group gathers at the Plaza.

Park Director Tom Curtin gives a tour to the group. He gave details on current and future construction at the site.

A walk-through lunar phase calendar.

Above: Checking out the "personal" Sun-dial. *Below:* Oustide the Meetring Room/ Planetarium.

Our next stop from Observatory Park was to the 36" telescope, a short distance up the road from the Park. There is a plaque at the doorway to the Nassau Astronomical Station (at right). It describes the history and use of the facility. It was intended for remote control use but was knocked out of commission by a lightning strike in 2008. All the fancy electronics were "fried". Plans are underway to refurbish the observatory. Hopes are to make this available to the amateur community and general public interested in astronomy.

Norm Oberle's 25" Newtonian being refurbished.

Inside the Meeting Room- planetarium.

Left: Entering the 36" observatory. Above: The 36" Cassegrain.