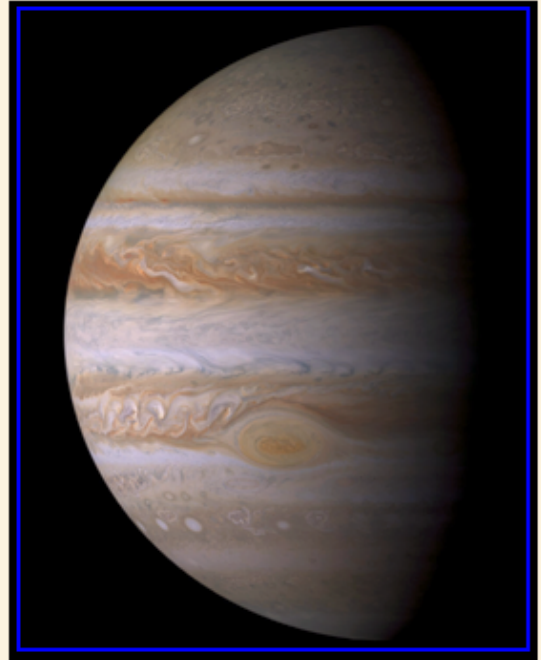


THE METEORITE



Jupiter !!!

Cassini Spacecraft Image, taken
during gravity assist fly-by



Newsletter of the Mahoning Valley Astronomical Society, Inc.

IN THIS ISSUE:

NOVEMBER 2012

- ★ **Event Calendar, News Notes**
- ★ **Minutes of the October Meeting**
- ★ **MVAS Reminders: MVAS Elections**
- ★ **MVAS Activities: Fund Raiser, Halloween**
- ★ **Observer's Notes: December's Near sky**
- ★ **MVAS Homework: Jupiter**
Homework Charts: BU Gem, asteroid (4) Vesta
- ★ **Constellation of the Month: Gemini**
- ★ **December 2012 Sky Almanac**
- ★ **Gallery: Halloween 2012**

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



NOVEMBER 2012

NEWS NOTES

Newsletter of the Mahoning Valley Astronomical Society, Inc.

MVAS CALENDAR

- NOV 17** Leonid Meteor Shower- 3AM. At the MVCO?
- NOV 17** Business meeting at YSU. 8:00 PM
- NOV 24** Thanksgiving Full Moon Session? MVCO. 7PM
- DEC 8** Annual Meeting and Christmas dinner. 6:00 PM. At Boardman Park in the Larricia Center
- DEC 8** Officer Elections during the Annual Meeting.

Cleveland Museum of Natural History
Frontiers of Astronomy Lectures

- NOV 15 8:00 PM** *The Golden Age of Exoplanet Discovery.* Joshua Pepper, Ph.D., Vanderbilt University. He will describe new results from exoplanet surveys including the Kepler space mission, and the ways in which our understandings of planet formation and evolution have been revolutionized.
- DEC 13 8:00 PM** *Exploring Mars.* Geoffrey Landis, Ph.D., NASA Glenn Research Center He will discuss NASA's Mars exploration program.
- MAR 7 8:00 PM** *Astronomy: It's The Nightlife.* Rachel Kuzio de Naray, Ph.D., Case Western Reserve University. Telescope control rooms are come to life with astronomers ready to stay up all night to unlock the secrets of the Universe.

MVAS BOARD OF TRUSTEES

President	Sam DiRocco
Vice President	Harry Harker
Treasurer	Steve Bartos
Secretary	Phil Plante
Appointed Trustee (2012 & 2013)	Rosemary Chomos
Appointed Trustee (2011 & 2012)	Bob Danko
Elected Trustee (2012)	Dan Schneider

OBSERVATORY STAFF

Observatory Director	Larry Plante
Assistant Observatory Director	Dave Ruck
Librarian	Rosemary Chomos

PUBLICATIONS STAFF

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

MVAS REPRESENTATIVES

OTAA Representative	Harry Harker
---------------------	--------------

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

A Milky Way Snack. Researchers have discovered a stream of stars that is believed to be the remnant of an ancient star cluster that is slowly being devoured by Earth's home galaxy. "The Milky Way is constantly gobbling up small galaxies and star clusters," said Ana Bonaca, a Yale graduate student and lead author of a study to be published in the *Astrophysical Journal Letters*. This newly found stellar stream is likely the remnant of a star cluster rather than of a larger galaxy, because the stream is very narrow. "Our discovery is more of a light snack than a big meal for the Milky Way," says Marla Geha, associate professor of astronomy at Yale and a co-author of the study. "Studying this digestion process in detail is important because it gives us new insight into how all galaxies form and evolve." Named the Triangulum stream, the newly discovered stellar stream could help astronomers reconstruct the Milky Way's mass distribution, thus revealing its dynamic structure. Galaxies are believed to form through the merger of smaller galaxies first and then still smaller star clusters. Stellar streams form as the clusters are ripped apart by the gravitational force of galaxies. This process may be the primary way galaxies such as the Milky Way grow in mass, the researchers say.

A Black Widow's Fate. Pulsars are compact supernova remnants (neutron stars). Some of them spin around their own axis hundreds of times per second, emitting light house like beams of radiation into space. Until now, they could only be detected from their pulsed radio wave emissions. Back in 1994, astronomer discovered a source of strong gamma-rays in the constellation of Centaurus. They suspected that a pulsar was the origin of this energetic radiation. A team of scientists from the Max Planck Institute for Gravitational Physics (Albert Einstein Institute, AEI) has solved the mystery and identified the source: as the millisecond gamma-ray pulsar PSR J1311-3430. To clearly identify a gamma-ray pulsar, astronomers must know its position, spin frequency, and how the spin changes over time. All with very high precision.

If the pulsar is in a binary system, the analysis problem is even more complicated: at least three more orbital parameters have to be determined. PSR J1311-3430 spins 390 times per second, emitting gamma-ray photon beams into space. Astronomers had already detected the smaller companion for PSR J1311-3430. It is being heated by the radiation from the pulsar and literally being evaporated. Astronomers call this type of pulsar a 'black widow', in analogy with a species of spider which kills the smaller male after mating. It is possible that in the distant future, PSR J1311-4330 will completely vaporize its companion and from then on travel through space alone

The cloud of vaporized material from the companion appears to absorb most of the radio wave emissions from the pulsar making it invisible to radio telescopes. This pulsar may just be the tip of the iceberg as far as gamma-ray pulsars go.

Star Count. Using a huge nine-gigapixel image from the VISTA infrared survey telescope at ESO's Paranal Observatory, an international team of astronomers has created a catalogue of more than 84 million stars in just the central parts of the Milky Way. This gigantic dataset contains more than ten times more stars than previous studies and is a major step forward for the understanding of our home galaxy.

MINUTES OF THE OCTOBER MEETING
OCTOBER 20, 2012 at the MVCO

A cloudy, cool October evening forced the meeting into the 16" building. Besides it was too dark outside for note taking. The meeting came to order at 8:00 PM with president Sam DiRocco presiding. All six Officers were present. Roll call was answered by 24 members. Three guests included Steven and Virginia Bartos, Lisa Boyer. A Call for the Reading of the Minutes was given. Bill Pearce and Greg Higgins moved and seconded a motion to suspend the reading. With no further discussion, the Minutes were accepted as published by a unanimous vote.

TREASURER'S REPORT: The Report was read by Steve Bartos. With no questions or further discussion, a motion to accept the Report was made by Dennis Marko. With a second to the motion given by Paul Baker, the Report was adopted by a unanimous voice vote.

General Fund	9/1 thru 9/30 2012
OPENING BALANCE:	\$ 8,442.60
CLOSING BALANCE:	\$ 8,382.91
AVAILABLE FUNDS (NON-RESERVED):	\$ 4,218.79
ACCOUNT NET GAIN/LOSS FOR THIS PERIOD:	\$ -59.69
INCOME:	
INTEREST	\$ 0.31
TOTAL INCOME	\$ 0.31
EXPENSES:	
CK# 2781 ASTRONOMY RENEWAL	\$ 60.00
TOTAL EXPENSES	\$ 60.00

Reserved Funds

KEY DEPOSITS (MVCO)	\$ 250.00
CASH FROM ORIGINAL OAD FUND (FOR LAND)	3,914.12
TOTAL RESERVED FUNDS	\$ 4,164.12

CORRESPONDENCE: Bob Dank left a message that there was no mail received at the Post Office Box.

COMMITTEE/OFFICER REPORTS: *IMAGING COMMITTEE:* *VISUAL COMMITTEE:* *LIBRARIAN:* No Reports given.

OBSERVATORY DIRECTOR'S REPORT: Larry Plante noted that he has placed DeCon in the corners of the 16" build. This should eradicate the resident mice. All else was in good shape. Homework was asked for. Rich Mattuissi submitted a recipe for taco potato salad. Not to be counted towards the "Observer of the Year" award..

OLD BUSINESS: The President reminded the membership that we have officer elections at the Christmas meeting. Rosemary will be making phone calls to individual members in search of candidates. Please consider running. The price for the Christmas dinner is confirmed at \$10 per person. It was noted that it was hard to get a meal for that price. Please make reservations and prepay (preferred) with the Treasurer or Secretary. Larry asked and the response was positive- he will again supply shrimp cocktail for the Christmas dinner. The Dinner and business meeting is on December 8th and will be in Boardman Park. Same building as the last few years. A park map will be in the December issue.

Phil had printed copies of the updated roster- still needing a few minor corrections. He will have these available the next few meetings, while supplies last. PDF copies were emailed to the membership earlier in the month. Phil also reminded members

of the Halloween Party at the MVCO the next weekend. Starts at 7:00 PM. It will be interesting to see the costumes. Bring what ever chow you want to eat and/or share with the ghouls.

NEW BUSINESS: Phil has made a preliminary MVAS schedule for 2013. Highlights: The March meeting will be moved up one week due to the Easter Holiday weekend at the very end of the month (Easter Sunday on March 31st). A Bino-Blast is slated for March 9, the Chili-fest/ Galaxy Quest is April 13. Scenic Vista dates are May 11 (OTAA event), June 16, September 14- is the 2nd AstroHam. The MVAS OTAA convention will be August 11 with a 4 day old Moon. This gives us a weekend to prepare between the July meeting and the convention.

No viable replacement has been found for the 2013 RASC *Handbook*. The book pricing was still reasonable, but the shipping charges per book was getting prohibitively expensive. Thus it was decided not to order these handbooks, this year. If you want or need one, you will need to order on your own. Harry noted the RASC *Handbook* usually has great observing details for the coming year as well as standard observing information and object lists that are useful for any year.

Larry reported on a reconnaissance trip he and Tony Mehle had made to various sites in western Pennsylvania. There are three sites that have been used as road trip-dark sky sites, by the MVAS in past years. Flying-W Ranch, Kinsua Dam, and Hearts Content Campground. He had all three campsites and amenities listed on the chalk board for members to examine. Briefly, Flying-W has nice cabins with modern facilities (shower, flush toilet, kitchen). Price was \$25 per person, minimum \$100-per night. There is a nice open flat field for observing across from these cabins. There is also a lodge for rent on the premise. Hearts Content supposedly has cabins but none were seen. Hearts Content has slightly better skies than Flying-W Ranch. Larry hopes to set things up for a road trip centered on the April 10 New Moon (Wednesday), staying a few days, returning on the weekend (for the Chili-fest?). This will be discussed at the next few meetings. Keep this trip in mind. MVAS hasn't made an excursion like this since 1999. Sam reminded us that the next meeting will be at the YSU Planetarium on Lincoln Ave. with free parking in the street (parking meters are off in the evening).

GOOD OF THE SOCIETY: Dave Ruck asked if we needed another coffee pot as his mom has a 22 cup urn we could have. It was undecided if we could use it. Dave was asked to bring it to the next gathering so it can be evaluated. Thanks for the generous offer Dave. Jodi spoke about a public outreach program at the Beach Creek Nature Center near Alliance, OH. She and Roy attended one on Friday evening. The center is looking for astronomy volunteers to help with these programs and extended an invitation to MVAS members to lend a hand.

Bill Pearce started a conversation about a clock drive for the 12" Meade Newtonian. Don Durbin said we have one, but not a good one. We also have a set Magellan setting circles that were for the 16" but might also work on the 12" (Don's donation some years back). All this was deemed to be a springtime project in upgrading the 12" and possibly the 16".

Dennis Marko has a friend that wanted to know if any of us have seen the fable planet-x of Earth's 2012 Doom- namely Nubiru. Dennis has tried to correct him on the subject, to no avail. Dennis will likely report back that it has not been seen.

VISUAL REPORTS: Phil managed 8 variable estimates in October. Chris Stephan sent a report from Florida that he made 61 estimates of 3 eclipsers the night of the meeting. He got AB And, VX Lac, and SW Lac in action while SS Cyg was at

minimum. Jodi McCullough reports that they have not been able to see Comet 168P/Hergenrother visually. It has been an imaging target for several of our MVAS imaging team. There was a brief mention of the two expected great comets coming in 2013. One in March and a spectacular one in November.

ADJOURNMENT: Adjournment came at 8:34PM. We thank our hosts Sam DiRocco and Harry Harker for the pulled pork sandwiches and chips. The next meeting will be at the Ward Beecher Planetarium on November 17, 2012. Meeting begins after the 8:00 PM planetarium show "Sky Watchers of Ancient Mexico". Scheduled host is Dan Schneider.

PASSWORD: Name a Lunar Crater. *-minutes by Phil Plante*

After social hour, Jodi McCullough gave a PowerPoint presentation entitled "Spooky Astronomy". This is the program that Jodi and Roy gave at the Beach Creek event that Friday evening. She began with Orson Wells' 1939 radio broadcast of "War of the worlds" and then ventured into alien life possibilities on Mars and beyond. Very interesting. Thanks Jodi!

MVAS REMINDERS

LEONIDS. The early morning hours of Saturday November 17 is predicted to be the main peak of the Leonid meteor shower. Go out around 2:30 AM and start looking towards the north east and upward. Look for the cycle or backwards question mark that depicts Leo's head or mane. Scan away from here for your best chance. Dark skies are best as usual. Nothing official has been set but stay tuned to e-mails for what the group is up to.

Moon Madness? Saturday, November 24th is during Thanksgiving weekend- with a Full Moon rising. It is not likely deep sky folks would have an interest. But Jupiter will be up and it could be a good night for double and bright variable star work. Planetary imaging too? Around 8:12 PM, Jovian satellite Io is set to reappear from behind Jupiter. If it is clear and if the weather is decent, we could have a last get-together at the MVCO. You'll have to bring your own snack and drink supplies. Stay tuned to the e-mail group. Why waste a clear sky just because a full moon is up?

ELECTION YEAR! We will make officer nominations at the November meeting. Voting takes place at the December meeting. We will be voting for President, Vice President, Treasurer and Secretary. Term is for two years. Please consider running for one of these positions. Send your intentions to one of the current officers to become a candidate or make a public announcement. Meanwhile, Rosemary will canvass the new roster seeking candidates. We will also need two candidates to serve as Trustees. Please consider these positions as well. It's fun time again!

MVAS ACTIVITIES

On Thursday, October 4, 2012, MVAS members Warren Young, Pat Durrell, Tony Mehle, Larry Plante and Phil Plante attended a joint fundraiser for the Ward Beecher Planetarium and CosmoQuest. Appetizers and a cash bar were provided during a reception at the Maag Library. Moving to the Planetarium, Dr. Pamela Gay, The Star Stryder, gave the keynote address about CosmoQuest's development. She spoke on its role in real-time astronomy and how citizen scientist projects enables regular people to analyze astronomical data and map other worlds. CosmoQuest has a website where you can find the mapping projects, virtual star parties, planetarium resources and adult

classes. The mapping projects are something any MVAS member could participate in. The CosmoQuest website is at:

<http://cosmoquest.org/>

Current projects include close examination of new images of Vesta as sent from the Dawn Spacecraft. Citizens are asked to help map craters and their positions on Vesta. Some of the images have not yet been seen by a human eye. You might be the first human to see some images of Vesta. Next was a showing of YSU's own program *Cosmic Castaways*. This program is based partially on research by YSU's astrophysicists Dr. John Feldmeier and Dr. Patrick Durrell. It was a delight to meet with Dr. Gay, discussing variable star work with the MVAS members. It was an enjoyable event by all accounts. Thanks goes out to Tony Mehle for arranging some of the reservations.

Halloween Party! It was a cool and cloudy night so MVAS ghouls stayed in the comfy 16" building. About a dozen people showed up, a few in costume. Some costumes were Hansel and Gretel, a Witch, Darth Vader, Red Green and a pirate. Food was in abundance as usual. We had meat ball sandwiches, wedding soup, pizza, tandoori chicken, beans and franks and alien brains (had to be there). Several cakes were served up as well. The movie "Somewhere In Time" was playing as folks arrived. Next up was a showing of the classic "Young Frankenstein". Judging by the many chuckles, it was enjoyed. Many hadn't seen it in years. Larry showed photos of the Allegheny campgrounds he and Tony had visited the previous week. Places that are being considered as destinations for a road trip, early next April. By then, a few more snacks and chatting until midnight rounded out the evening. A fun time. We'll give it another try next year.

Observer's Notes....

December's Near Sky

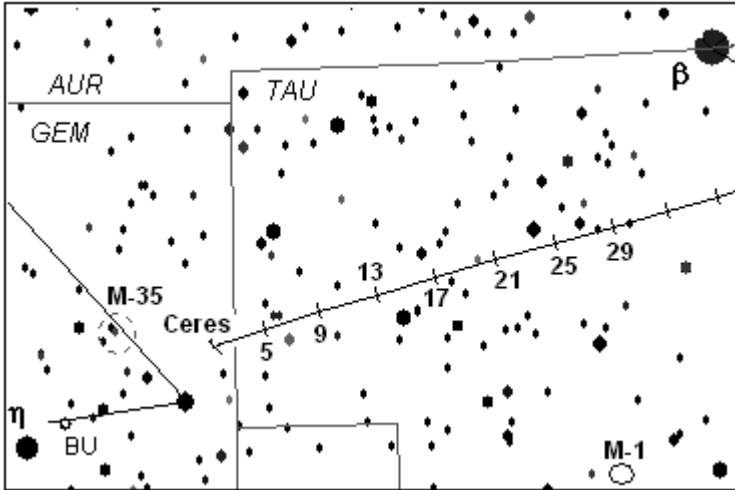
This coming December 2012 will provide a variety of solar system highlights. Sometime called the "near sky", these may be worth a look. Most will be fine projects for those binoculars you have laying around. A few are naked eye sights. Two will benefit from using a telescope. So mark your calendars, grab those binos, bundle-up and hope the clouds will be away on Christmas vacation. Good luck!

Dec 3. **Jupiter** is at opposition. It rises at 4:57 PM and transits the Meridian later at 12:14 AM EST. By month's end it transits at 10:09 PM. This means it is well placed in the evening sky for telescopic observation. Check the North Equatorial Belt and the North Temperate Belt as they have darkened for this apparition. The Great Red Spot has in turn faded. Use scope.

Dec 4. **Mercury** will be at greatest western (morning) elongation of 21° for 2012. This is the best morning showing of the year. For early risers; At 7:00AM Mercury will be 12° high in the South East (124° azimuth). Venus is 17° high and to the right of Mercury. Saturn is 24° high, also to the right of Venus. Use binoculars to scan the horizon for a few days before and after.

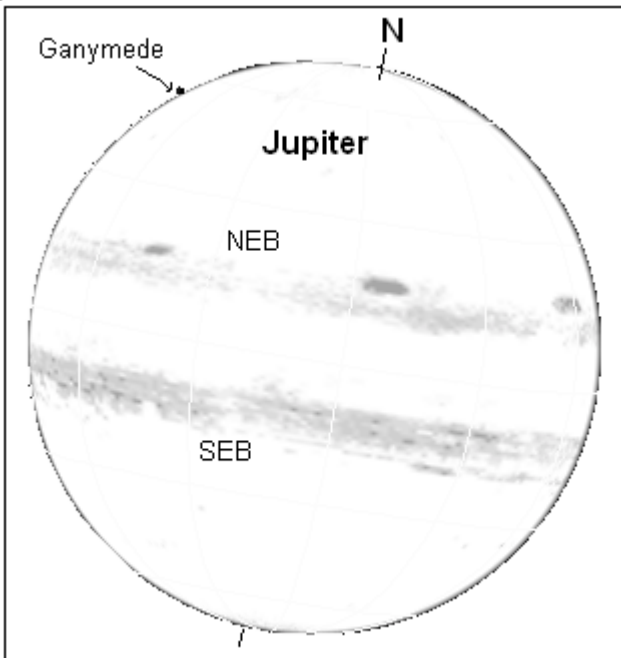
Dec 9. **Vesta** is at opposition. It is our asteroid of the month so use the Homework chart. At magnitude 6.5, it's a bino object.

Dec 13. The **Geminid meteor shower** peaks around 7-8 PM. It is New Moon so take advantage. A lawn chair, blanket and warm drinks are recommended. Look to the east and upward.



Dec 18. *Ceres* is at opposition. Ranging from magnitude 8.3 to 8.6 by New Year's Eve, it just falls in the binocular range. A small scope would be better. Use the chart given below to locate it. Stop by the M-objects in the area (M-1 & M-35) while you're in the area. BU Gem is also our variable star in November.

Dec 23. A *Ganymede* occultation reappearance with an eclipse starting a few minutes later. A telescope at medium power centered on the limb at the 11 o'clock position should provide a good view. Remember this 11 o'clock position is measured counterclockwise from Jupiter's north pole. However the glare from Jupiter's bright limb might make this a difficult visual observation. This might be a great video effort using a web cam or other video camera in conjunction with a telescope.



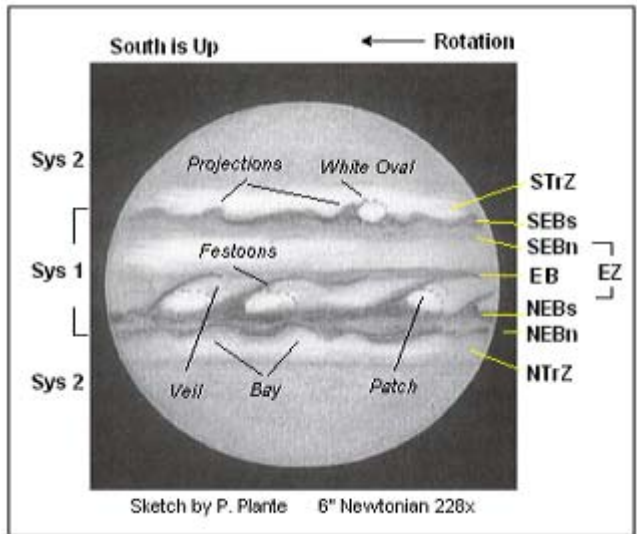
The times on Dec 23 EST are:
 7:26 PM- Occultation Reappearance on the limb. See diagram.
 7:32 PM- Eclipse begins. Takes several minutes to fade out.
 9:43 PM- Eclipse ends. Takes several minutes to exit eclipse.

Dec 25. Moon and Jupiter pair. Go out at see the two separated by 1° during the early evening. Naked eye works, Binoculars might enhance the view- look for Jupiter's moons. The moon is approaching full phase- at 95% illumination. It will be bright. This should be a nice Holiday sight for the whole family.

MVAS Homework: Jupiter

Jupiter is approaching center stage in November, becoming well placed in the late evening eastern sky. It rises at sunset when at opposition on December 2nd. First time viewers will be delighted with the details that telescopic study reveals. Veteran observers will welcome the familiar dance of rotating features and orbiting moons. The same nomenclature is used for features on Jupiter and Saturn; so study-up. The ringed planet returns to decent viewing in the morning sky, late November.

There are two systems of rotation on both planets. Called System 1 and System 2. On both, the area around the middle (equator) and including the two nearby belts (north and south) are System 1 rotation. Rest of the planet rotates in System 2. This includes the remaining south and north hemispheres and polar regions. Use this sketch to study the nomenclature.



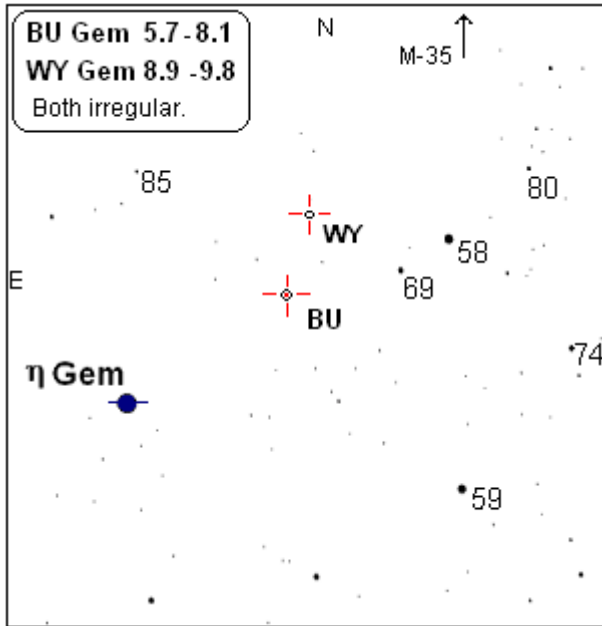
For Jupiter, System 1 rotates once in 9 hr, 50m and 30s. System 2 rotates in 9 hr, 55m and 40s. You can notice the features change position within a half an hour or so. If you sketch or do tri-color imaging you need to be quick in order to keep the features aligned; in multiple images or to keep your reference point on the sketch at the same spot on the paper.

On either side of the EZ, you'll find the north or south Equatorial Belts (NEB or SEB). Recently the NEB has darkened considerably while the Great Red Spot has faded. Keep an eye on these for further changes. Also inspect the edges of these belts closely, especially the edges facing the equator. Look for tiny dark "hooks" or projections that jut into the EZ. Sometimes these projections end in a fine line that flows into the EZ; the line is called a festoon. Sometimes you can see the festoon loop right back into the belt. This is called a loop festoon (naturally). Check to see if the area within the loop is brighter than the surrounding zone. Sometimes an outward festoon will connect to an adjacent south or north Tropical Belt (TrB) in System 2. "Inward" festoons may connect to a very faint Equatorial Zone Belt (EZB). The area between two adjacent festoon connections may appear darker or dusky. This is called a veil. Have fun!

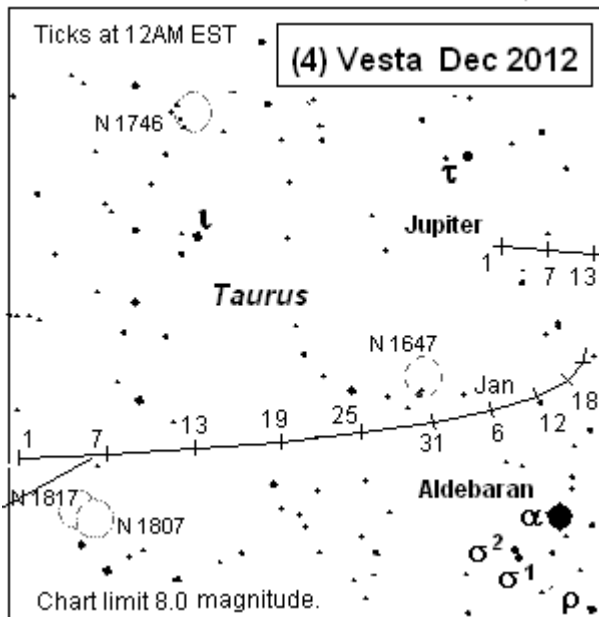
MVAS OBSERVER CHARTS

MVAS OBSERVATIONS - DUE DECEMBER 2012

Variable star of the month: **BU Geminorum** (*abbrev:* BU Gem). This month we return to two easy to find variable stars near M-35. BU Gem is the featured star but WY Gem is right there as well. You can observe both as they are in the same binocular field. Remember to record the date and time of the observations. Try once per week. This should reveal the changes over a month or more. A good wintertime project.

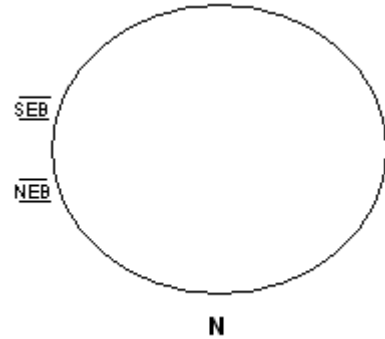


Asteroid of the month: **(4) Vesta**. We continue with our observations of Vesta. This is the second installment, one more to go. Vesta remains bright enough for binocular viewing. In fact it brightens from magnitude 7.1 to 6.9. It's not much of a change and is at the limit of detecting magnitude difference by eyeball. Vesta moves westward through Taurus, headed towards our Homework object - Jupiter. Can't miss it! This is like one-stop shopping so take advantage.



OBSERVER _____

Featured object: Jupiter. Please try a sketch. Use the SEB and NEB indicators (at left of disk) to help place faint lines indicating the boundaries of these two belts. These are your reference points. Use your pencil to draw and shade-in the features of the planet. Remember the oblate spheroid below is a template for the squashed disk of Jupiter. It is NOT an eyepiece field of view. Imagers can submit their best shots for Homework.



Jupiter Observation:

Date: _____ Time(EDT) _____ Scope _____

BU Gem magnitude estimates:

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

(4) Vesta Observations:

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

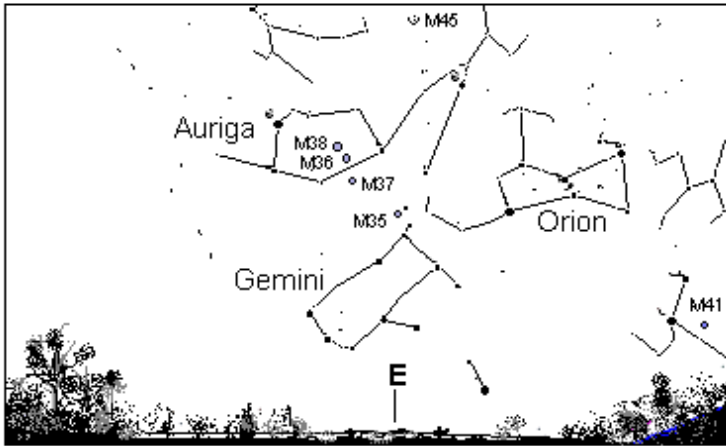
Other Objects in Gemini to observe

D. Sky	Date	Scope	Dbl.	Date	Scope	SEP	MAG	SPLIT?
M- 35	_____	_____	α Gem	_____	_____	4.2"	1.9 - 3.0	Y / N
N- 2392	_____	_____	δ Gem	_____	_____	5.8"	3.6 - 8.2	Y / N
N- 2420	_____	_____	ε Gem	_____	_____	110"	3.1 - 9.6	Y / N

Lunar Occultations (see Sky Almanac):

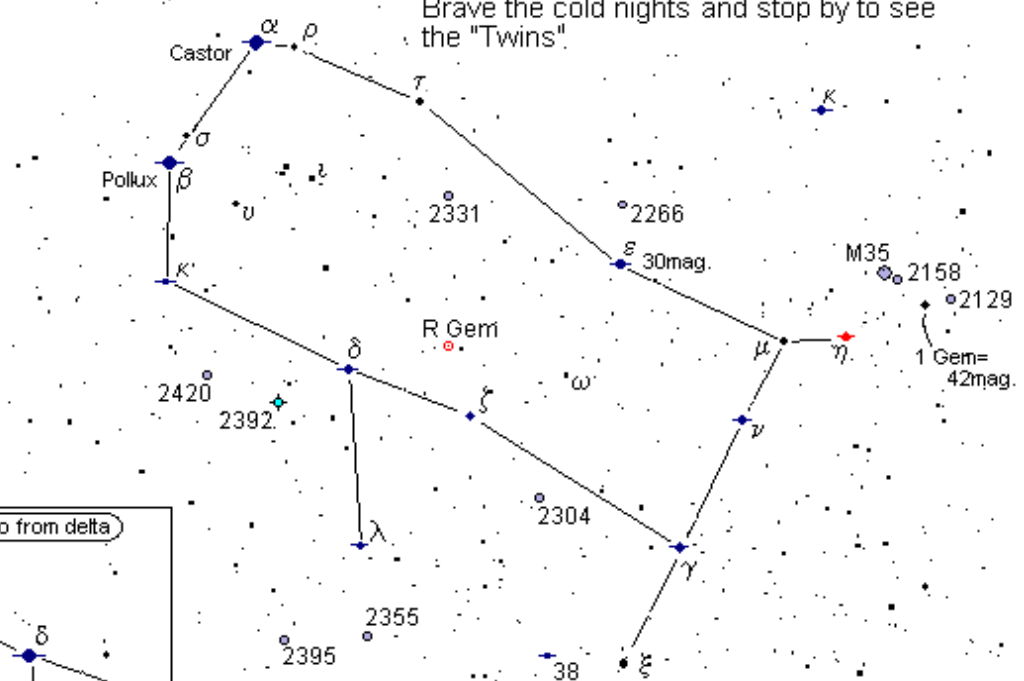
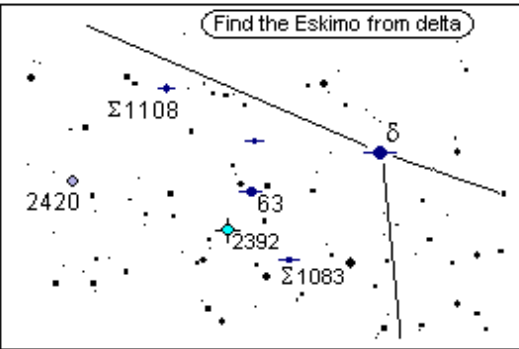
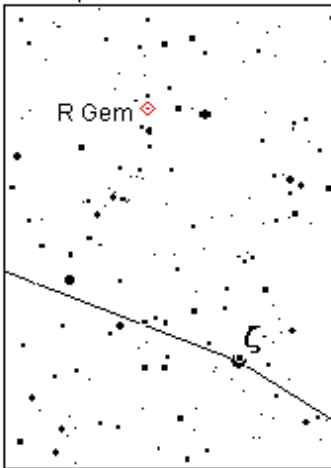
Star	(UT) Date	Time	Scope	magx.	Event(circle)
_____	_____	_____	_____	_____x	R D
_____	_____	_____	_____	_____x	R D
_____	_____	_____	_____	_____x	R D

Constellation of the Month — Gemini

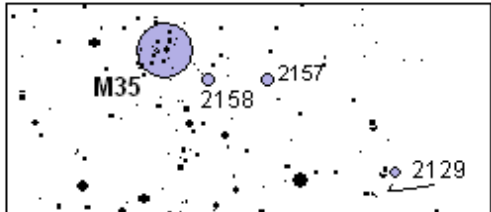


In mid November you'll find Gemini rising in the east, about 20° high at 10PM. Open cluster M35 might be glimpsed naked eye in a really dark location. Binoculars sweep it up nicely and a telescope brings in details as well as NGC2158. Jumping from double star δ Gem you'll get to the Eskimo Nebula and a few other interesting doubles. Zeta(ζ) Gem is a nice binocular double though it is an optical one. Nice colors. From zeta hop to the variable R Gem. Use ϵ and 1 Gem as comp stars for η (binoculars). Magnitudes are labeled. There are many open clusters and doubles to check. Some will be a challenge! Brave the cold nights and stop by to see the "Twins".

Star hop to R Gem from zeta



to keep track, cross-out or check the objects you observe. Photo-copy the chart to use at the eyepiece.



Deep Sky Objects

Obj.	mag.	size	notes
M35	5.1	28'	200 stars
NGC 2158	8.6	5'	rich, faint stars
NGC 2129	6.7	6'	40 stars
NGC 2157	8.4	8'	20 stars
NGC 2266	9.5	6'	50 stars
NGC 2331	8.5	18'	30 stars
NGC 2355	9.7	9'	40 stars
NGC 2392	9.2	15"	PN, Eskimo Neb.
NGC 2395	8.0	12'	30 stars
NGC 2420	8.3	10'	100 stars

Double Stars

star	magnitudes	sep.	"colors"
α Gem	1.9, 3.0	4.2"	both lemon white
β Gem	1.1, 13.7	29.7"	orange, ash
δ Gem	3.6, 8.2	5.8"	amber, purple
ϵ Gem	3.1, 9.6	110"	white, blue
η Gem	3.5, 6.2	1.8"	golden, ash
λ Gem	3.6, 10.7	9.7"	greenish, white
15 Gem	6.7, 8.2	25.2"	tangerine, violet
63 Gem	5.3, 10.9	43"	yellow, purple
Σ 1083	7.3, 8.1	6.7"	yellow, silver-white
Σ 1108	6.6, 8.2	11.6"	yellow, bluish

Variable Stars:

est.	mo.	day	yr.
R Gem	mag.	on	___/___/___
R Gem	mag.	on	___/___/___
η Gem (3.2 - 3.6mg.)	est.	mo.	day
	___/___/___		
	___/___/___		

Instruments used:		
_____	on	_____
_____	on	_____
_____	on	_____

Solar and Lunar (EST).

Date	Sunset	Moonrise	Moonset
1	4 : 56	7 : 45p	9 : 43a
5	4 : 55	11 : 46	11 : 55
9	4 : 55	3 : 07a	2 : 02
13	4 : 55	7 : 48	5 : 37
17	4 : 57	10 : 49	10 : 20
21	4 : 58	12 : 46p	1 : 29a
25	5 : 01	3 : 08	5 : 18
29	5 : 04	6 : 37	8 : 21

PLANET WATCH

Jupiter <i>Transits</i>	Saturn <i>Rises</i>	Venus <i>Rises</i>
12:53a	4:40a	5:06a
12:05a	4:26a	5:16a
11:47p	4:13a	5:26a
11:29p	3:59a	5:35a
11:11p	3:45a	5:45a
10:53p	3:31a	5:54a
10:35p	3:17a	6:12a
10:18p	3:03a	6:20a

December 2012

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 December 2012 (4) Vesta

Date	Rises	RA		Dec.	Alt.	Azm	Magnitude
		hr.	min				
1	5 : 48 pm	5 : 17	+ 17.6	67°	147°	7.1	
7	5 : 17 pm	5 : 10	+ 17.7	66	163	6.5	
13	4 : 47 pm	5 : 04	+ 17.8	67	181	6.5	
19	4 : 16 pm	4 : 57	+ 17.9	66	198	6.6	
25	3 : 46 pm	4 : 51	+ 18.1	63	214	6.7	
31	3 : 16 pm	4 : 46	+ 18.3	60	227	6.9	

EST (at midnight) (at midnight)

Date UT hr Celestial Highlights

3	1.6	Jupiter at opposition
4	22.6	Mercury greatest W. 21°
6	15	LAST QUARTER MOON
9	08	Vesta at opposition
13	08	NEW MOON
13	05	Geminid meteor shower
18	08.6	Ceres at opposition
20	05	FIRST QUARTER MOON
25	06.8	Moon 4.5° S. of Pleiades
26	00.2	Jupiter 0.4° N. of Moon
28	10	FULL MOON

Variable Star of the Month: **BU GEM** 5.7 - 8.1mag irregular period

LUNAR OCCULTATIONS FOR DECEMBER 2012

Civil (24hr)			UT			Moon Ph	Moon % illum.	Moon alt	Moon azimuth	Star name	Star Mag.	event PA	dbl./ sep.
date	hr	min sec	date	hr	min sec								
2	23	44 : 47	3	04	44 : 47	R	82-	32°	098°	ZC 1234	6.2	252°	0.10"
4	5	13 : 50	4	10	13 : 50	R	72-	58	197	kappa CNC	5.2	314°	0.30"
9	7	01 : 20	9	12	01 : 20	d	20-	32	152	68 VIR	5.3	101°	0.10"
14	17	21 : 46	14	22	21 : 46	d	4+	13	230	ZC 2773	6.2	063°	7.50"
14	17	35 : 01	14	22	35 : 01	D	4+	11	233	ZC 2774	6.4	033°	0.10"
19	18	56 : 00	19	23	56 : 00	D	47+	49	200	16 PSC	5.7	359°	0.01"
21	0	03 : 38	21	05	03 : 38	D	59+	15	267	51 PSC	5.8	128°	0.05"
27	3	51 : 02	27	08	51 : 02	D	99+	32	270	ZC 837	6.2	063°	NA
29	22	53 : 37	30	03	53 : 37	R	97-	45	111	1 CNC	5.8	300°	NA
30	21	10 : 24	31	02	10 : 24	R	93-	16	087	45 CNC	5.6	288°	0.05"
31	5	37 : 08	31	10	37 : 08	R	92-	41	246	60 CNC	5.4	329°	0.10"

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.....

Halloween 2012. . .



Who knows what evil lurked behind the castle door.
A Frankenstein movie perhaps? Trick or Treaters kept away!



The early zombies settled in, lost *Somewhere In Time*.



Alas...it was the 42" flat screen that was casting a spell. As Young Frankenstein brought the bodies to life! Even using an Abby Normal brain.



A group shot. Be afraid. Be very afraid.



Coffee ready to go...



Food table!



Alien Brains..
Yum.

